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**TRANSPORT AND TOURISM ISSUES: IMPROVING ROAD SAFETY ON
THE ASIAN HIGHWAY***

(Item 6 (c) of the provisional agenda)

Note by the secretariat

SUMMARY

Much progress has been made in the development of the Asian Highway Network. Last year alone around \$170 billion was invested on Asian roads, with more than US\$ 20 billion being committed to the Asian Highway Network. Unfortunately, the Asia now has the worst road safety record in the world. Last year more than half a million people were killed and 20-30 million injured in road crashes, at an economic cost of some \$100 billion. While most segments of the 140,000 kilometres of the Asian Highway are safer than other roads in the region, some segments show worrying safety records. Last year, more than 19,000 persons died in over 125,000 road crashes on the Asian Highway Network.

Decision makers of the region have recognized the urgent need to improve road safety. Parties to the *Intergovernmental Agreement on the Asian Highway Network* have made a formal commitment to “give full consideration to issues of road safety” and the *ESCAP Ministerial Declaration on Improving Road Safety in Asia and the Pacific* includes the goal to “save 600,000 lives and prevent a commensurate number of serious injuries on the roads of Asia and the Pacific over the period 2007 to 2015” and invites ESCAP members to “develop the Asian Highway as a model of road safety”.

In response to these calls, the Secretariat organized an *Expert Group Meeting on Improving Road Safety on the Asian Highway* in Bangkok from 21 to 22 June 2007. The meeting brought together experts from road departments and other organizations responsible for road safety representing 31 ESCAP member countries. Outcomes of the meeting are reported in this paper including on road safety goals and targets, financing, and road assessment, for consideration by the Committee. The basic conclusion is that improving road safety makes good economic sense. For example, achieving the above mentioned Ministerial Declaration’s overall goal might save the region some \$15 billion per year.

The specific objectives of this document are: (a) to provide an overview of the status of road safety on the Asian Highway Network; (b) to summarize country experiences in improving the situation; (c) to discuss options to raise resources and best allocate resources on road safety; and (d) to report on the outcomes of the ESCAP Expert Group Meeting on Improving Road safety on the Asian Highway.

* Issued without editing owing to late submission.

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I. INTRODUCTION

1. The objectives of this document are: (a) to provide an overview of the status of road safety on the Asian Highway Network; (b) to summarize country experiences in improving the situation; (c) to discuss options to raise resources and best allocate resources on road safety; and (d) to report on the outcomes of the ESCAP *Expert Group Meeting on Improving Road safety on the Asian Highway*. The scope is limited to the Asian Highway Network, however, national-level issues are covered where appropriate.

2. Decision makers have recognized the urgent need to improve road safety in the region. Parties to the Intergovernmental Agreement on the Asian Highway Network have made a formal commitment to “*give full consideration to issues of road safety*” and the UNESCAP *Ministerial Declaration on Improving Road Safety in Asia and the Pacific* which was adopted in Busan on 10 November 2006 includes the goal to “*save 600,000 lives and prevent a commensurate number of serious injuries on the roads of Asia and the Pacific over the period 2007 to 2015*”. The Declaration also invites ESCAP members to “*develop the Asian Highway as a model of road safety*”.¹ Resolution 63/9 adopted at the 63rd session of the Commission in Almaty on 23 May 2007 “*encouraged members to continue to act upon the recommendations contained in the Ministerial Declaration*”.²

3. Significant efforts will be needed in order to achieve these goals. To support the process, the secretariat organized an *Expert Group Meeting on Improving Road Safety on the Asian Highway* which was held in Bangkok from 21 to 22 June 2007. The meeting brought together experts from road departments and other road safety related organizations representing 31 ESCAP member countries. Outcomes of the meeting are reported in this paper including on

¹ Report of the Ministerial Conference on Transport, ESCAP document E/ESCAP/63/13, http://www.unescap.org/EDC/English/Commissions/E63/E63_13E.pdf

² ESCAP resolution 63/9 (“Implementation of the Busan Declaration on Transport Development in Asia and the Pacific and the Regional Action Programme for Transport Development in Asia and the Pacific, phase I (2007-2011)”), [http://www.unescap.org/EDC/English/Resolutions/2007\(63\)Resolutions.pdf](http://www.unescap.org/EDC/English/Resolutions/2007(63)Resolutions.pdf)

road safety goals and targets, financing, and road assessment ideas, for consideration by the Committee. The basic conclusion is that improving road safety makes good economic sense. For example, achieving the above mentioned Ministerial Declaration's overall goal has been estimated to save the region some \$15 billion per year.

II. STATUS OF ROAD SAFETY ON THE ASIAN HIGHWAY NETWORK

4. The Asian Highway Project was initiated in 1959 by ECAFE (which was later renamed ESCAP). It now comprises more than 140,000 kilometres of trunk roads passing through 32 ESCAP member states. On 4 July 2005, the Intergovernmental Agreement on the Asian Highway network entered into force. The Agreement established a Working Group. The ESCAP Secretariat acts as secretariat for the agreement and also maintains an Asian Highway database.³ The main obligations of the contracting parties to the Agreement⁴ are to: (a) adopt the Asian Highway network as a coordinated plan for the development of highway routes of international importance; (b) bring the network in conformity with the Asian Highway classification and design standards; and (c) place Asian Highway routes signs along the network. Parties to the Agreement have also made a formal commitment to “*give full consideration to issues of road safety*”.

5. Much progress has been made in the development of the Asian Highway Network. The ESCAP Secretariat estimates that last year alone around \$170 billion was invested on Asian roads, with more than US\$ 20 billion being committed to the Asian Highway Network.⁵

6. In line with the prevailing export and growth-focused development paradigms that are being pursued by many governments in the ESCAP region, they have invested particularly in trunk roads including the Asian Highway Network. While roads have been upgraded and

³ <http://www.unescap.org/ttdw/common/tis/ah/Database.asp>

⁴ <http://www.unescap.org/ttdw/common/tis/AH/AH-Agreement-E.pdf>

⁵ This number is not an *annual* number, but spread over the whole life-time of projects.

built safer, traffic levels have increased rapidly, too, and the continent now has the worst road safety record in the world. Last year more than half a million people were killed and 20-30 million injured in road crashes in Asia and the Pacific, at an economic cost of some \$100 billion (including indirect costs).

7. The *Ministerial Declaration on Improving Road Safety in Asia and the Pacific*, inter alia, invites ESCAP members to “*develop the Asian Highway as a model of road safety*”. As a first step, the secretariat recently conducted an analysis of the road safety data contained in the latest version (May 2006 update) of the Asian Highway database, the results of which are reported here.

8. In terms of data coverage, fatality and accident data are available and appeared to be of “reasonable” quality for 31 percent of the Asian Highway length, including 521 road segments (or 39 percent of all segments) covering 43,432 km in 20 countries (Table 1).

9. For the latest available years respectively, a total of 5,970 fatalities and 38,812 accidents were reported on the Asian Highway, i.e., approximately one fatality per seven reported accidents. Consequently, the Secretariat estimates that at least 19,000 fatalities and 125,000 accidents occurred on the more than 140,000 kilometres of Asian Highway Network in 2006⁶. This implied an average rate of 37 fatalities per billion vehicle-km, as well as a rate of 14 fatalities per 100 km.

⁶ This considers potential fatalities and accidents on the segments for which no data were included in the database, but does *not* make adjustments to account for general underreporting of accidents.

Country	Asian Highway segments		Data availability		Absolute safety data for the AH		Safety rates for the Asian Highway		Segments with worst safety record	
	Average length of Asian Highway segments [km]	Total length of Asian Highway [km]	Length of network for which fatality data available [km]	Proportion of Asian Highway network length for which fatality data available [%]	Number of fatalities per year	Number of accidents per year	Reported number of fatalities per billion vehicle-km per year	Reported number of fatalities per 100 km per year	Highest number of fatalities per billion vehicle-km	Proportion of segments with more than 100 fatalities per billion vehicle-km
Afghanistan	137	4,246	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Armenia	39	966	966	100%	96	259	66.3	9.9	421	28%
Azerbaijan	54	1,462	1,105	76%	148	374	38.0	13.4	220	7%
Bangladesh	43	1,760	1,066	61%	425	284	133.3	39.9	414	34%
Bhutan	21	167	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Cambodia	61	1,332	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
China	158	26,181	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Democratic People's Republic of Korea	162	1,462	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Georgia	44	1,101	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
India	89	11,650	1,851	16%	2450	2465	146.6	132.4	811	5%
Indonesia	46	3,936	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Islamic Republic of Iran	123	11,153	11,006	99%	655	6062	18.2	6.0	170	2%
Japan	51	1,111	1,111	100%	68	9176	3.3	6.1	11	0%
Kazakhstan	138	12,856	7,508	58%	213	560	29.4	2.8	219	3%
Kyrgyzstan	65	1,695	1,100	65%	32	130	43.0	2.9	989	19%
Lao People's Democratic Republic	85	2,306	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Malaysia	42	1,595	821	51%	234	8149	27.4	28.5	92	0%
Mongolia	102	4,286	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Myanmar	91	3,003	386	13%	16	118	140.1	4.1	199	9%
Nepal	82	1,314	1,236	94%	365	1612	335.1	29.5	713	75%
Pakistan	91	5,377	358	7%	20	162	34.9	5.6	51	0%
Philippines	73	3,367	1,646	49%	73	242	36.5	4.4	170	2%
Republic of Korea	45	907	483	53%	38	760	10.9	7.9	70	0%
Russian Federation	254	17,046	2,510	15%	0	689	0.0	0.0	0	0%
Singapore	10	19	19	100%	7	197	11.7	36.8	14	0%
Sri Lanka	33	650	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Tajikistan	101	1,924	1,137	59%	36	106	22.2	3.2	133	5%
Thailand	48	5,108	4,377	86%	365	2593	9.7	8.3	107	1%
Turkey	66	5,245	4,076	78%	485	4269	45.6	11.9	1,002	11%
Turkmenistan	110	2,204	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
Uzbekistan	78	2,966	670	23%	244	605	79.2	36.4	1,925	5%
Viet Nam	64	2,631	0	0%	n.a.	n.a.	n.a.	n.a.	n.a.	0%
All Asian Highway countries	96	141,026	43,432	31%	5,970	38,812	36.8	13.7	1,925	10%

Table 1: Road safety data for the Asian Highway Network. Source: Asian Highway Database, July 2007.

10. While the number of fatalities per 100 km was larger for the Asian Highway compared to the roughly 4 fatalities per 100 km for all roads in ESCAP region, the Asian Highway appears safer than the average road when the number of fatalities per traffic volume is considered. In fact, most segments of the Asian Highway are safer than other roads in the region.

11. However, some segments of the Asian Highway show worrying safety records (Table 1, two columns on the right), including roughly 10 percent of the length of the Asian Highway where more than 100 fatalities per billion vehicle-kilometres were registered.⁷ Improving these segments would go along way in improving overall safety records and saving many lives every year.

12. There is evidence that the average safety record of the Asian Highway has slightly improved from 2005 to 2006.⁸ Improved Asian Highway safety in many countries has been linked to upgrading of roads, particularly when it involved the construction of separating barriers (for different direction of traffic and for separating different types of vehicles) and improvement of road shoulders.

13. Figure 1 summarizes the average number of fatalities per billion vehicle kilometre for each of the Asian Highway classes (Table 2). 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. Most importantly, there remain large spreads across countries and within countries, even for roads of the same class and same traffic levels (Table 1).

Classification	Description	Pavement type
Primary	Access-controlled highways	Asphalt or cement concrete
Class I	4 or more lanes	Asphalt or cement

⁷ The 10 percent refers to a share of segments for which safety data are available, i.e., 4,643 km.

⁸ Improved data are needed to firmly establish this statement. Compared to the 2005 version, the 2006 database included new safety data for 9 countries, had a better data coverage, and better data quality.

		concrete
Class II	2 lanes	Asphalt or cement concrete
Class III	2 lanes	Double bituminous treatment

Table 2: Asian Highway classification. See the text of the Agreement for design standards.⁹

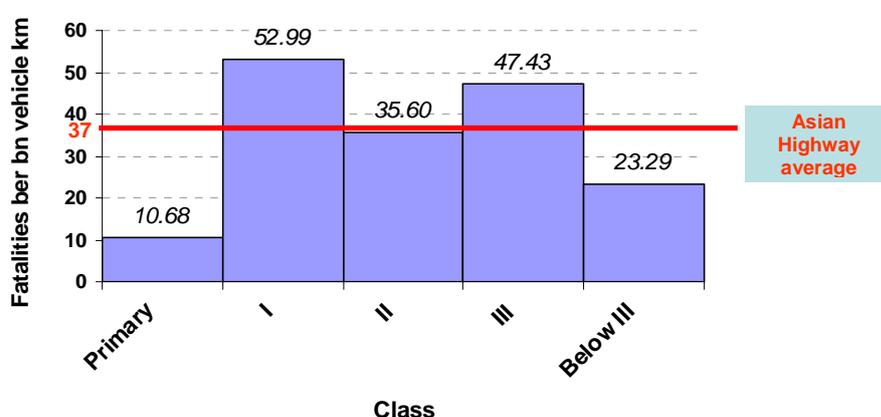


Figure 1: Average fatality rates for each Asian Highway class. Source: Asian Highway database.

14. However, class I and primary roads also support higher speed and larger volumes of traffic per lane (Figure 2). Even when these higher volumes of traffic are taken into account and particularly when looking at specific country examples, upgrading of Asian Highway segments to class I and particularly (access-controlled) primary roads has significant safety benefits.

15. In contrast to what Figure 1 might suggest, upgrading Asian Highway segments of class III and below III does not necessarily lead to worse safety records. If road safety is fully

⁹ <http://www.unescap.org/ttdw/common/tis/AH/AH-Agreement-E.pdf>

taken into account in the process of upgrading these roads, there is indicative evidence that the overall safety record can be improved significantly and in a sustainable manner. Unfortunately, in the past safety elements were among the first components of the road projects to be scrapped due to very limited resources and despite the large social returns on safety investments and the marginally increased funding requirements. Against this background, since early this year the ESCAP Secretariat has started to promote the inclusion of road safety components into the road projects on the list of 159 “priority” Asian Highway projects¹⁰ (many of which are class III or below III), through joint missions with IDI-Japan to Myanmar, Nepal, Armenia and Bangladesh. Hopefully, this work will be continued with IDI and other partners in the future.

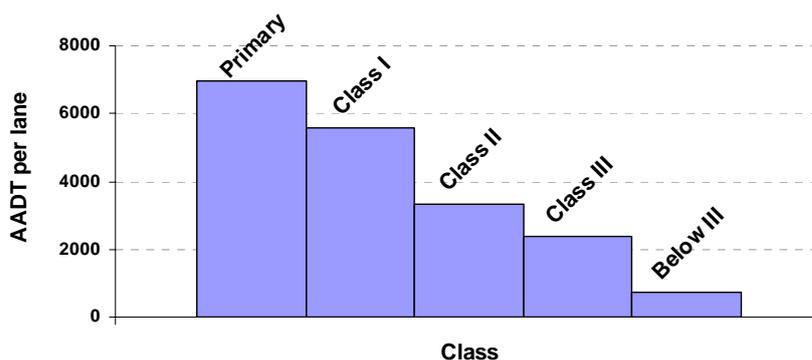


Figure 2: Average annual daily traffic (AADT) per lane for each Asian Highway Class.

Source: Asian Highway database.

16. In view of the large spread of fatality rates within countries, even for roads in the same class and with similar traffic levels, simple road assessment can be a useful instrument for prioritizing safety investments, even where national safety data reporting systems are of low quality. In line with ESCAP Resolution 63/9 on the “Implementation of the Busan Declaration on Transport Development in Asia and the Pacific and the Regional Action Programme for Transport Development in Asia and the Pacific, phase I (2007-2011)” which requests the Secretariat to explore the use of colour-coded maps that illustrate the safety risk

¹⁰ ESCAP (2006).

on each Asian Highway segment, similar to the practise of the International Road Assessment Programme, the secretariat created an initial set of such maps.¹¹ However, special efforts will be needed to collect better quality Asian Highway road safety data.

III. HIGH-LEVEL COMMITMENT TO MAKING THE ASIAN HIGHWAY SAFER

17. The Ministerial Conference on Transport was organized by the ESCAP secretariat and hosted by the Government of the Republic of Korea in Busan from 6 to 11 November 2006. It was attended by 264 representatives, including 39 ministerial-level officials from 40 member and associate members of ESCAP, and 16 representatives from relevant organizations within and outside the United Nations system, including the private sector. Road safety issues were featured high on the agenda, culminating in the adoption of the *Ministerial Declaration on Improving Road Safety in Asia and the Pacific* on 11 November 2006.

18. The Ministerial Declaration builds on the Asian Highway agreement and essentially extends key elements of the ASEAN road safety framework to the whole ESCAP region up to 2015. In particular, the Ministerial Declaration sets an overall goal to “*save 600,000 lives and prevent a commensurable number of serious injuries on the roads of Asia and the Pacific over the period 2007 to 2015*”. It invites the members and associate members of the Commission to address road safety in the following areas:

- a. “Making road safety a policy priority;
- b. Making roads safer for vulnerable road users, including children, senior citizens, pedestrians, non-motorized vehicle users, motorcyclists, and persons with disabilities;
- c. Making roads safer and reducing the severity of accidents (building “forgiving roads”);

¹¹ http://www.unescap.org/ttdw/common/tis/ah/egm_may06.asp

- d. Making vehicles safer and encourage responsible vehicle advertising;
- e. Improving national and regional road safety systems, management and enforcement;
- f. Improving cooperation and fostering partnerships;
- g. Developing the Asian Highway as a model of road safety;
- h. Providing effective education on road safety awareness to the public, young people and drivers. “

19. The Ministerial Declaration requests the development of “*a set of goals, targets and indicators, to be achieved by 2015, in order to assess and evaluate road safety progress*”. The Senior Government officials meeting in preparation for the ESCAP Ministerial Conference on Transport agreed to a set of eight road safety goals (in line with priority areas), 24 targets and 45 indicators as a basis for future work. It should be noted that the set includes four measurable targets that specifically pertain to the 140,000 kilometres of Asian Highway, thus contributing to the road safety commitments under the Intergovernmental Agreement on the Asian Highway Network.

20. Subsequently, the Commission adopted *Resolution 63/9 on Implementation of the Busan Declaration on Transport Development in Asia and the Pacific* and the *Regional Action Programme for Transport Development in Asia and the Pacific, phase I (2007-2011)* in Almaty, Kazakhstan in May 2007. The Commission Resolution encourages “*members and associate members to continue to act upon the recommendations contained in the Ministerial Declaration on Improving Road Safety in Asia and the Pacific*”.

21. The United Nations General Assembly has adopted a series of resolutions in which it called on member countries, the World Health Organization (WHO) and the regional commissions including ESCAP to address the “*global road safety crisis*”. In fact, four such

resolutions on road safety have been adopted since 2003, namely resolution 57/309 of 22 May 2003, 58/9 of 5 November 2003, 58/289 of 14 April 2004 and 60/5 of 26 October 2005, the most recent of which was sponsored by 85 Member States, among which were 27 ESCAP members.¹² Most recently, the second UN Global Stakeholders Forum was organized in Geneva on 26 April 2007 as a key event of the 1st UN Road Safety Week called for the organization of a Global Ministerial Conference on Road Safety to be convened under the auspices of the United Nations.

IV. COUNTRY EXPERIENCES

22. Document E/ESCAP/MCT/SGO/9 entitled “Road Safety in Asia and the Pacific” provides a comprehensive overview of the status and major issues of road safety in the region.¹³ National updates and more specific information pertaining to the Asian Highway Network were reported by participants of the EGM on improving road safety on the Asian Highway (21-22 June 2007). These are briefly summarized in this Section.

23. *Afghanistan*: Major road safety issues in the Islamic Republic of Afghanistan include sub-standard road infrastructure, lack of funds, insufficient capacity and resources for the road traffic police and the Ministry of Health, as well as enforcement issues. Last year the number road crashes increased by less than one percent, basically in line with the increased number of road vehicles. Support is required from donors to improve road safety, in particular through safety engineering measures along the Asian Highway Network, as well through support to the traffic police (e.g., training of officers and provision of equipment).

¹² Those members are: Afghanistan Armenia, Australia, Azerbaijan, Bangladesh, Brunei Darussalam, Cambodia, China, France, India, Indonesia, Fiji, Iran (Islamic Republic of), Kazakhstan, Malaysia, Nepal, New Zealand, Pakistan, Philippines, Russian Federation, Singapore, Thailand, Timor-Leste, Turkey, Turkmenistan, United Kingdom of Great Britain and Northern Ireland and Viet Nam.

¹³ Document E/ESCAP/MCT/SGO/9 entitled “Road Safety in Asia and the Pacific”, http://www.unescap.org/ttdw/common/TPT/GettingStarted/3-Link/MCT_SGO_9E.pdf

24. *Armenia*: Major road safety issues in the Republic of Armenia are insufficient allocation of funds for improving road safety and the recent increase in the number of accidents by 12 percent per year from 2004 to 2006. Several critical safety measures have been successfully initiated or undertaken, including (a) the accident data collection and analysis system, (b) the MAAP-5 computerised program for black spot analysis, (c) procurement of breathalyzers for enforcement purposes, (d) the establishment of the Road Safety Secretariat in 2001, (e) carrying out of road safety audits, and (f) the planned joint IRAP (International Road Assessment Programme) assessment of 1,000 kilometres of the Asian Highway, including AH81, AH82, and AH83.

25. *Azerbaijan*: In 2005, the Department of Transport set up a division for road safety which is comprised of two sections, one for organization of traffic and the other for environment and safety. These authorities together with local officials and the operational departments monitor road safety measures. Most recently, road shoulders were reinforced, curb beams and balustrades installed, as well as road signs improved. Costs of accidents are calculated monthly and the causes are investigated by traffic police and the road maintenance authority.

26. *Bangladesh*: While the number of road fatalities per 10,000 vehicles has declined from 137 in 1998 to 98 in 2005, the absolute number of fatalities remained at a very high level. The government's vision is to halve the number of fatal road accidents in fifteen years. While a basic accident reporting system provides accident data by type of accident, a better data system would improve the allocation of scarce funds for improving road safety. Recently, a special Highway Police force was established, as well as the creation of advanced driver training institutes and the Accident Research Center at the Bangladesh University of Engineering and Technology.

27. *Cambodia*: In 2004, a National Road Safety Action Plan was approved by the Prime Minister. It includes 15 action points which are fully in line with the priority areas indicated

in the ESCAP Ministerial Declaration on Improving Road Safety in Asia and the Pacific. The action points have a strong focus on budgeting issues and building of partnerships, in particular with Handicap International Belgium and the Japanese International Cooperation Agency. The government of Cambodia is working on improving the road safety data system in order to better monitor progress including for Cambodia's ASEAN target of reducing the number of fatalities to 7 per 10,000 vehicles by 2010 and 2 per 10,000 vehicles by 2020, compared to 18 fatalities per 10,000 vehicles (or 1,157 fatalities) in 2006.

28. *China*: The People's Republic of China has a road network of 3.5 million kilometers, and 145 million road vehicles. The four key road safety issues are reported to be safety consciousness, vehicle safety, hidden dangers on highways, and effective traffic safety management. Recently, major progress has been made in: (a) reducing the safety hazard of overloading, (b) road improvement through the National Highway Safety Enhancement Project (which will run until 2010), (c) provision of road safety education, and (d) the development of road safety audit processes. The goal of these measures is to continue reducing the number of road fatalities after a peak in 2004.

29. *Democratic People's Republic of Korea*: Significant efforts are reported in terms of promoting road safety, such as through (a) a legal framework and enforcement rules for traffic offences, (b) public awareness campaigns through mass media, (c) black spot treatment and road engineering measures for highways (in design and construction stages). However, remaining challenges include law enforcement issues, insufficient resources for road safety, and improving existing road safety strategies. There are plans to improve in these areas by engaging in international collaboration, by developing a road safety strategy compliant with international goals, by enhancing road safety related IT infrastructure, and by further improving the Asian Highway Network to become a model of road safety in line with the ESCAP Ministerial Declaration.

30. *India*: While the road fatality rate per 10,000 vehicles has decreased, the absolute number of accidents, injuries and fatalities continues to increase. In 2005, 94,968 road fatalities were reported. However, many successful road safety activities are being reported in the areas of infrastructure, education, enforcement and vehicle safety. In February 2007, the Committee on Road Safety and Traffic Management recommended the establishment of a road safety body at the federal level (“National Road Safety & Traffic Management Board”) which will provide advisory services to the government and serve as regulator setting standards for vehicles and national highway safety. It also recommended an enabling provision for creation of similar State level bodies and recommended that 1 percent of the total proceeds of the cess on diesel and petrol to be available to the Road Safety Fund.

31. *Indonesia*: Following the Presidential Direction and Instruction provided on the occasion of the National Road Transport Safety Week in Indonesia in April 2007, a number of important road safety measures have been initiated. These include: (a) establishment of a designated lead agency, the Road Transport Safety Board, and Accident Investigation Units; (b) formulation of a road safety blueprint; (c) exploring road safety financing through increased third party insurance premiums; (d) creation of an inter-agency safety information system; (e) early safety education (through a “Helmet for Kids” campaign, “ZoSS”-zones for secure road crossing at schools, and preparation of road safety school curricula); (f) national road safety awareness campaigns. The Road Transport Safety Strategy 2012 includes targets to reduce the number of fatalities per 100,000 people to 11 and the number of serious injuries per 100,000 citizens to 187.

32. *Islamic Republic of Iran*: Road safety actions are taken within the context of the five-year development plan which aims to halve the number of black spots. A major achievement of the “Statewide Roadway Safety Commission” has been to halt the increase in the number of road fatalities through a combination of engineering, enforcement, education, emergency and

evaluation (“5E-approach”). Measures also focus on speed management, roadway immunisation (includes black spot reduction), awareness-raising radio programmes, and rescue equipment for hospitals. The performance of measures is regularly evaluated. Support for a road safety programme is received from the World Bank.

33. *Japan*: While the number of accidents reached a peak of 950,000 in 2004, the number of fatalities has decreased continuously since 1992 to 6,352 in 2006. Since 1971, a series of so-called “fundamental five-year programmes” have successfully achieved increasingly ambitious road safety targets. Some measures aim to shift traffic from general roads to access controlled expressways, as the fatality rate on the latter is less than one third of that on other roads. Other measures include road improvement, a black spot programme, junction improvements, traffic calming in residential areas, the use of the ITS technology, an advanced data collection and analysis system, and the establishment of the Institute for Traffic Accident Research and Data Analysis in 1992. Japan continues to be one of the world’s most important sources of ODA for improving road safety.

34. *Lao People’s Democratic Republic*: While the number of road fatalities per 10,000 vehicles has been declining, the absolute number of road fatalities continues to increase. In 2005, some 4,619 accidents were reported, of which 84 percent involved motorcycles. In April 2005, a national road safety strategy and an action plan were approved by the Prime Minister. The road safety strategy includes targets to reduce the number of fatalities per 10,000 vehicles to 8 by the year 2010, to 5 by 2015 and to 2 by 2020. The comprehensive action plan, which was developed with support from ADB and SIDA, contains actions to be implemented in 15 areas.

35. *Malaysia*: While the number of road fatalities has remained roughly constant for the last four years, a considerable increase in fatalities is expected in the coming years, despite

significant road safety measures. The National Road Safety Target (which was reviewed in 2005) aims to halve the current fatality rates of 3.98 per 10,000 vehicles and 23.6 per 100,000 people by 2010. A series of measures are being carried out in the areas of education, engineering, enforcement and environment (“4E concept”), and targets road users, roads, vehicles, and systems management. Under a special programme initiated in 2000, fifteen exclusive motorcycle lanes outside urban areas have been constructed. A pilot project to assess 3,000 kilometres of road with support from the International Road Assessment Programme has also attracted much attention internationally.

36. *Mongolia*: Nearly two thirds of the all road crashes in Mongolia occur in and around Ulaanbaatar, where the majority of the population and road vehicles are concentrated, as indicated by a recent traffic and road accident study. In contrast to the countryside, in Ulaanbaatar the traffic density, capacity and traffic related air pollution already exceed acceptable levels. Despite the growing vehicle fleet, it has been possible to reduce the number of road crashes and registered traffic offences since 2000. The leading cause of road crashes in Ulaanbaatar is irresponsible road user behaviour, including encroachment on road space and illegal parking. Thus, special efforts are being made to improve road safety education and promote stricter enforcement.

37. *Nepal*: Nepal has one of the highest road fatality rates in the world which is due to a number of factors including the mountaineous terrain. The number of *reported* road fatalities has decreased since 2003. Most of the road fatalities are pedestrians and motorcyclists, particularly in Kathmandu valley. However, on the highways outside Kathmandu most accidents and fatalities involve buses and trucks. In 1993, the first traffic safety legislation was adopted which was followed by the development of a road safety strategy. Road safety audits have been carried out and safety awareness campaigns and education initiatives have

been undertaken. The strategy to improve road safety aims for safer people, safer vehicles, safer roads, and safety management.

38. *Pakistan*: Key road safety challenges include lack of awareness, institutional capacity, inadequately trained staff and limited financial resources. Recently, a national road safety secretariat was established which is developing the first national road safety plan. Also, a draft transportation policy and a driver's education plan were developed. Institutional capacity building, safety of vulnerable road users, road safety audits and the establishment of a road safety fund are current priorities.

39. *Republic of Korea*: With a series of targeted road safety measures based on comprehensive data collection and analysis for the past two decades a decreasing road fatality rate was achieved despite continuing rapid motorization. Measures included significant increases in the road safety budget, black spot programmes and road improvement, better enforcement, zoning, awareness and education campaigns, as well as experiments with a photo accusation system ("caparazzi"=camera + paparazzi).

40. *Singapore*: While the number of road crashes and pedestrian fatalities have declined, the high share of motorcyclist fatalities remains a concern. The Land Transport Authority, Traffic Police and the National Safety Council are responsible for the implementation of the national road safety strategy and the five-year road safety action plan which includes measures in the areas of encouragement, engineering, education, enforcement and emergency preparedness. A major event was organized on occasion of the 1st United Nations Global Road Safety Week in April 2007, and a programme by the traffic police to provide road safety advice to motorcyclists rather than to fine them has received positive feedback.

41. *Sri Lanka*: There are more than 2 million road vehicles with a motorcycle share of roughly 50 per cent in Sri Lanka. In 2005, 43,171 road crashes were reported of which 2,141

were fatal. The 5 percent share of fatal crashes indicates a relatively good data reporting system compared to many developing countries. Road safety measures are detailed in the Cabinet approved Action Plan for Road Safety that follows the 4E approach and includes, inter alia, a black spot programme, driver training, children education, vehicle inspection, public awareness creation and law enforcement. Notable activities were reported on the occasion of the 1st United Nations Global Road Safety Week in April 2007. Financing through a road safety fund is being explored which would draw on a share from insurance premiums.

42. *Tajikistan*: From 2005 to 2006, the number of road crashes, injuries and fatalities in the Republic of Tajikistan has decreased by 13, 15, and 10 percent, respectively. This is attributed to various road safety measures, including (a) public awareness campaigns through mass media (TV, print media and others) including some aimed at the kindergarten-level; (b) decrees on mandatory vehicle check-ups; (c) a decree on the creation of a Public Board on Road Safety for coordination purposes which is headed by the First Deputy Minister of Transport; and (d) comparatively high level of investments in road safety projects. To date, Tajikistan has implemented four such projects amounting to US\$ 86 million and is currently preparing several projects at the additional cost of US\$ 468 million.

43. *Turkey*: The major share of passenger and freight transport in Turkey is by road and most of these roads are single carriageway. Over the past 15 years, the number of motorized vehicles has more than doubled and the total number of road casualties has increased accordingly. Around 80 percent of the road crashes occur in urban areas, whereas two thirds of the road fatalities occur in rural areas. Existing road safety targets for the period 2007-2013 focus on infrastructure design. For example, the Government is constructing dual-carriageway roads, undertakes a black-spot programme and engages in cooperation for safe road design.

V. FROM REGIONAL GOALS TO NATIONAL PLANS, FINANCING OF ROAD SAFETY, AND ROAD ASSESSMENT

44. This Section reviews the regional ESCAP goals, targets and indicators and discusses possible ways of financing national road safety initiatives, as well as methodologies that can help in the optimal allocation of scarce resources in this respect. The following essentially reports on the deliberations of the *Expert group meeting on improving road safety on the Asian Highway* held in Bangkok from 21 to 22 June 2007.

A. ESCAP road safety goals, targets and indicators (2007-2015)

45. While the eight ESCAP goals were already included in the Ministerial Declaration, the Expert Group Meeting (EGM) recommended a modified set of targets and indicators which is reproduced in Table 3 for consideration by the Committee. It should be noted that participants of the EGM felt most competent in providing suggestions for the road-related goals 3 and 7, as they were primarily from road departments of ESCAP member countries.

UNESCAP Road Safety Goals of Asia and the Pacific, 2007-2015	
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 the fatality rates by twenty percent from 2007 to 2015 (or reduce it to less than 10 per 10,000 motor vehicles by 2015).	<ol style="list-style-type: none"> 1) Number of road fatalities (and fatality rates per 10,000 motor vehicles, per motor vehicle-km and per passenger-km). 2) Number of anticipated road fatalities (baseline). 3) Number of road crashes. 4) "Fleet safety records" of public or private organizations (e.g., deaths per 100,000 km).
b) Reduce the rates of serious road injuries by twenty percent from 2007 to 2015.	<ol style="list-style-type: none"> 5) Number of anticipated serious injuries on roads (baseline). 6) 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.	<ol style="list-style-type: none"> 7) Documents of road safety policy, strategy, and plan of action etc. Information on their actual implementation. 8) Name of designated lead agency. Description of responsibilities of local, regional and national government organizations. 9) National road safety reports or impact evaluation reports of government programmes.
b) Allocate sufficient financial and human resources to improving road safety.	<ol style="list-style-type: none"> 10) Amount of public financial and human resources allocated to road safety. 11) Amount of private sector contributions, as well as special funds, from donors, or relevant financial institutions. 12) Road safety programmes and activities conducted. At least one major national road safety campaign.

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).	13) Pedestrian deaths per head of population and per 10,000 motor vehicles.
b) Increase the number of safe crossings for pedestrians (e.g., with subway, overhead crossings or traffic signals).	14) Number of safe crossings, or information on programmes for constructing or improving 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)	15) Motorcyclist deaths and motorcyclist death rate. 16) Law or administrative rule (Yes/No). (Survey) information on helmet use (percentage) and minimum helmet quality standards.
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).	17) Death rate of children less than 5 years in road crashes. 18) (Survey) information on the following of child safety norms (e.g., child restraints) (percentage). 19) Existing measures for child safety in cars and on motorcycles (qualitative indicator).
e) Equip all school children with basic road safety knowledge.	20) Road safety education part of the school curriculum (Yes/No). 21) Existing education programs on road safety (qualitative indicator).
Goal 3: Making roads safer and reducing the severity of road crashes (building "forgiving roads")	
a) Integrate road safety audit in all stages of road development starting at the design stage, carry out necessary improvement works, and improve hazardous locations.	22) Road safety audit programme (Yes/No); Blackspot programme (Yes/No) 23) Extent to which road safety audits are carried out for new road construction and major improvements (estimated share of all cases). 24) Programmes to make roads "forgiving" by removing or cushioning roadside obstacles.
b) Increase separate/secure road space for pedestrians and cyclists in urban and peri-urban areas (where space permits)	25) National or local programmes. Existing length of pedestrian and bicycle tracks in kilometres per 100,000 people (along highways and city roads).
Goal 4: Making vehicles safer and encourage responsible vehicle advertising	
a) Make regular inspection of road vehicles mandatory and ensure enforcement of inspection (starting in urban areas).	26) Law or administrative rule (document). Information on vehicle inspection facilities and organizations (qualitative).
b) Ensure safety requirements for new vehicles to be in line with international standards.	27) Documents specifying laws and regulations 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.	28) Yes/No indicator. If yes, which database system and responsible organizations (qualitative indicator). 29) Country coverage of the regional APRAD database.
b) Significantly increase "compliance", e.g., with mandatory helmet, seat-belt wearing and speed limits.	30) Information on rules and "compliance" on helmet wearing levels (percentage from surveys). 31) Information on rules and "compliance" on seat-belt wearing levels (percentage from surveys). 32) Information on rules and "compliance" related to "drinking and driving" (information from surveys not prosecutions).
c) Allow alcohol tests for prosecution (either breathalyzer and/or behavioural tests).	33) Yes/No. If yes, description of existing rules, types of tests and alcohol limits used and allowed for prosecution.
d) Make it the norm to keep motorbike front-lights on at all times.	34) Law or administrative rule (document). Description of existing practises (from survey) or technical measures.
e) Increase coverage of emergency assistance systems for road victims, to cover at least all urban areas and trunk roads.	35) Kilometres of road (by type) on which emergency services are provided. 36) Average response time. 37) 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.	38) Number of major private sector initiatives. (Financial) volume of commitments. 39) Number of major public-private partnerships in the area of road safety. (Financial) volume.
b) Create new and deepen existing partnerships with NGOs.	40) Number of major private sector initiatives. (Financial) volume of commitments.
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.	41) Total number road fatalities and road crashes on the Asian Highway in each country per year.
b) Reduce the number of fatalities on <i>all</i> Asian Highway segments to below 1,000 per 100 million vehicle-kilometres.	42) Number of fatalities per 100 million vehicle-kilometres for each Asian Highway segment per year.
c) Increase resource allocation for road safety-related measures along the Asian Highway.	43) (Financial and human) resources allocated for safety-related works for Asian Highway segments. 44) Amount of safety-related grants and loans for Asian Highway segments from international sources.
d) Improve Asian Highway road segments to be forgiving to road users if a crash occurs. Demonstrate best practise.	45) Develop a road safety rating program.
Goal 8: Providing effective education on road safety awareness to the public, young people and drivers	
a) Carry out targeted awareness campaigns and training programs	46) Information on awareness campaigns and training programs carried out

Table 3: Set of ESCAP road safety goals, targets and indicators for 2007-2015. This is a slightly revised version of the set contained in ESCAP document E/ESCAP/MCT/SGO/9

of November 2006 and reflects comments received from participants of the Expert group meeting on improving road safety on the Asian Highway (Bangkok, 21-22 June 2007).

46. In this context, it should be noted that the set contained in Table 3 is consistent and supported by the existing national and subregional road safety goals and targets that have emerged recently. The set includes the recommendations of the 2004 WHO report on road safety, in line with the recommendations contained in UN General Assembly Resolution 63/5. The set also extends key elements of the ASEAN road safety framework including national and regional goals for 2005-2010 as agreed in the ASEAN Phnom Penh Ministerial Declaration of 2004. Furthermore, at least 25 ESCAP members have quantitative and qualitative road safety targets that are compatible with the ESCAP set contained in Table 3. These include Armenia, Australia, Bhutan, Brunei Darussalam, Cambodia, France, India, Indonesia, Japan, Kazakhstan, Republic of Korea, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, Netherlands, New Zealand, Philippines, Russian Federation, Singapore, Thailand, Turkey, United Kingdom, United States of America, Viet Nam (see page 8 of ESCAP document E/ESCAP/MCT/SGO/9).¹³ The targets aim for reductions in absolute, relative or projected terms, the extent of which appears to depend more on the level of political commitment than other factors.

47. In response to the ESCAP Ministerial Declaration, some ESCAP governments are reportedly considering national road safety targets specific to Asian Highway segments in their country. For example, the road safety plan of the Republic of Korea includes a 30 percent reduction in the number of people killed and the number of crashes on the Asian Highway.

48. The Expert Group Meeting (21-22 June 2007) provided support for the further “formalization” of the set of goals, targets and indicators through the Commission. It also

emphasized the need for continued support to ESCAP members for the implementation of the declaration, as well as for collection and analysis of better road safety data for the Asian Highway.

B. Financing safer road infrastructure

49. The most basic and prevailing constraint for many ESCAP members in achieving the ESCAP and national goals is the insufficient amount of resources available.

Developing road safety plans

50. The case of the development of a road safety strategy including resources issues for New South Wales, Australia was discussed at the EGM.¹⁴ The strategy was formulated and a target defined to save 2,000 lives by 2010. By treating roads as “products” to be delivered to the citizens, staff in charge of road safety took on their role as “road managers”, being aware of complementing as well as conflicting objectives (e.g., between road safety and maintenance). The strategy also noted that Inter-ministerial, inter-organisational and private-public partnerships proved essential, including the promotion of financial links between the road safety lead agency and other organizations, for example, joint actions with educational institutions. The Australian Road Research Board (ARRB) recommends financing of road safety at a level of roughly three to ten per cent of the overall budget for roads. It also proposes additional sources such as (a) a one to two per cent levy on compulsory 3rd party accident insurance which could be appropriated to prevention and rehabilitation funds; (b) sponsorships, especially for campaigns and community projects; (c) community activities financed by other institutions.

¹⁴ The case was reported by a participant from the Australian Road Research Board (ARRB) which “advances safety and efficiency in transport through knowledge”, <http://www.arrb.com.au/>

Global Road Safety Facility and other external donors

51. Support from bilateral and multilateral donors has been of great importance to some ESCAP developing and least developed countries. While such resources dedicated to road safety have been rather limited in the past, the recent creation of the Global Road Safety Facility has created considerable hope for an improvement in this situation.

52. The Global Road Safety Facility (GRSF), administered by the World Bank, provides funds for road safety actions with a basic focus on capacity building and management¹⁵. Founding donors were the FIA Foundation for the Automobile and Society; the Government of the Netherlands; the Swedish International Development Cooperation Agency (Sida); and the World Bank Development Grant Facility. The goals of the facility for low and middle-income countries are: (a) to strengthen global, regional and country capacity to support sustainable reductions in road deaths and injuries; (b) to increase road safety investment; (c) to accelerate safety knowledge transfer; (d) to promote innovative infrastructure solutions to improve the safety of mixed traffic environments. National agencies, as well as global and regional partners can apply on a continuous basis. It should be noted, though, that the fund has not reached its original target of attracting donor funds amounting to some US\$ 300 million. Special donor efforts will be required to achieve this target.

53. Even if the target were met, its amount would be small compared to the approximately US\$ 10 billion per year that would be required for improving road safety in the ESCAP region, according to estimates by the Secretariat. This compares to annual costs of road crashes in the region of roughly US\$ 100 billion, which illustrates the economic case for preventive action. In fact, most current funding for road safety is in the form of safety components included in road projects, particularly in projects by development banks such as

¹⁵ <http://go.worldbank.org/9QZJ0GF1E0>

the Asian Development Bank and the World Bank. Only a few loans have been taken for *dedicated* road safety projects, such as in the case of Viet Nam and the Islamic Republic of Iran.

Domestic financing of road safety

54. Clearly, in all countries most of funds for road safety will need to be raised domestically. In 2006, the German GTZ published a manual on financing road safety, entitled “the Road Safety Cent”¹⁶. The publication identifies the issue of insufficient funding for road safety as the most difficult problem to overcome, without which the other key issues of lacking awareness and lacking institutional capacity cannot be solved. It draws on the experience in New Zealand and many other countries, and suggests seven specific “lessons-learned”:

- a. Road users and other stakeholders need to be persuaded that only a fraction of the amounts presently being spent on road accidents can save a lot of money and pain for road users and the society.
- b. Road safety funds or road safety councils can be effective and efficient institutions as long as they have a sound legal basis, strong oversight by a public-private board, sound financial management, funding based on direct user charges, and regular technical and financial audits.
- c. Financing can be secured through an existing road fund. If this is not an option, road safety charges could be raised through a surcharge on motor fuels or vehicle insurance premiums supplemented by contributions from public and private sectors.
- d. For road safety engineering measures, the same financing mechanism that is used for road construction and maintenance could be used, requiring roughly

¹⁶ <http://www.gtz.de/de/dokumente/en-Road-Safety-Cent-2006.pdf>

10-15 percent of road construction improvement, rehabilitation and maintenance budgets.

- e. Financing of other road safety programmes would need approximately US 1cent per litre of motor fuel or 5-10 percent of vehicle insurance premiums.
- f. To enforce traffic rules and regulations, a special road safety police force financed and supervised by a road safety fund might prove effective.
- g. International and bilateral donors can play an important role in assisting developing countries in reforming financing and management of road safety. All road projects financed by the donor community should have a road safety component, both on project and sector levels.

55. The recent ESCAP EGM on improving road safety on the Asian Highway endorsed the GTZ recommendations and encouraged ESCAP members to explore a full range of financing possibilities.

56. Table 4 lists the total amount of road safety fees that would have been collected by selected ESCAP member countries in 2003, if a surcharge of US 1 cent per litre had been applied to each litre of gasoline and diesel used by road vehicles. Though not necessarily sufficient in all cases, these amounts would constitute a significant increase in available resources for improving road safety. Table 5 lists typical advantages and disadvantages of different sources of financing of road safety in developing countries which may, of course, vary from country to country.

Country	Road safety surcharges in million US\$ in 2003
China	846

India	361
Indonesia	210
Kazakhstan	34
Malaysia	17
Pakistan	34

Table 4: Total amount of road safety fees that *would have been* collected by selected ESCAP member countries in 2003, if a surcharge of US 1 cent per litre had been applied to each litre of gasoline and diesel used by road vehicles. Source: GTZ (2005) “The Road safety cent”.¹⁶

Sources of funding	Advantages	Disadvantages
Surcharges on motor fuel	Low level of evasion, low collection fee	Difficulty to raise fuel prices
Surcharges on weight-distance charges	Accepted as user charge	High level of evasion
Surcharges on compulsory vehicle insurance	Best related to road safety	High level of evasion
Surcharges on vehicle license fees	Low collection fee	High level of evasion
Surcharges on road tolls	Low level of evasion, accepted as user charges	Toll roads form only a small part of the road network
Contribution by private sector	Can complement road safety financing and can make use of	Can only provide limited amounts and may not be

	private sector management and efficiency	sustainable
Development loans and grants	Can initiate effective road safety programs and financing schemes	Not sustainable

Table 5: Typical advantages and disadvantages of different sources of financing of road safety in developing countries. Source: GTZ (2005) “The Road safety cent”.¹⁶

57. It should also be noted that the GTZ recommendations are essentially an extension of a direct follow-up to ESCAP’s earlier promotion of dedicated road funds for road maintenance. From 1996 to 2001 the Secretariat, in collaboration with ADB and World Bank, carried out a regional workshop and 5 country-level workshops in 10 countries. Today dedicated road funds exist in India, Japan, Kazakhstan, Lao People’s Democratic Republic, Mongolia, Nepal, New Zealand, Pakistan, Papua New Guinea, as well as the Indian states of Kerala, Madhya Pradesh, Karnataka, Uttar Pradesh.¹⁷ In view of the serious road safety situation in many ESCAP member countries an extension of the earlier ESCAP recommendation to include road safety could be considered.

C. International Road Assessment Programme and the Swedish Vision Zero

58. In view of the scarce financial and human resources available for improving road safety, the issue of prioritization and optimal allocation is also an important challenge for many developing countries which often lack a comprehensive data collection and reporting system. In this respect, two examples were discussed at the *EGM on Improving Road Safety on the Asian Highway*: the International Road Assessment Programme and the Swedish Vision Zero.

¹⁷ See also: ESCAP Transport and Communications Bulletin, No. 75 (2005) on Road Maintenance Funds, ST/ESCAP/SER.E/75, <http://www.unescap.org/ttdw/PubsDetail.asp?IDNO=181>

International Road Assessment Programme

59. In view of the success of the EuroRAP, AusRAP, and usRAP in Europe, Australia and the USA, respectively, an International Road Assessment Programme (IRAP) was recently launched to assist interested developing countries and economies in transition to benefit from a similar standardized and internationally comparable road assessment.¹⁸ The RAP programmes were created to provide similar systematic and independent safety assessments of roads, as have been provided for road vehicles under the New Car Assessment Programmes (NCAP)¹⁹, in order to raise the overall safety standard of roads.

60. In assessing roads, IRAP takes into account driver behaviour and vehicle safety. The assessments are carried out by collecting relevant road features (lane marking, roadside condition, pedestrian facilities, etc.) via video capture and drive-through inspections, which are then further analyzed to finally provide safety risk maps, star ratings, charts, tables and engineering toolkits. These outputs can help in prioritizing road improvement measures such as separate lanes of opposing traffic to reduce head-on crashes, roundabouts to ease the severity of side impacts at junctions or guardrails to prevent run-off crashes.

61. The first IRAP pilot project in Asia is currently being carried out in Malaysia, where 3,000 kilometres of trunk roads including the Asian Highway segments in the country, have been inspected with support from AusRAP and the Malaysian automobile association. Similar pilot projects are under discussion/preparation for Asian Highway segments in Armenia and Georgia, as well Viet Nam. It should also be noted that the ESCAP Secretariat is currently exploring increased collaboration with IRAP in order to promote safety assessments of the Asian Highway Network. Also, the EGM on improving road safety on the

¹⁸ <http://www.irap.net>

¹⁹ See, for example, <http://www.euroncap.com>

Asian Highway suggested exploring the use of IRAP assessments for national trunk roads and to work together to similarly assess the Asian Highway Network.

The Swedish Vision Zero

62. “Vision Zero” became the official Swedish Traffic Safety Policy in 1997. It established the long term goal that “*no-one shall be killed or seriously injured within the Swedish road transport system*”. Vision Zero is based on a systems view that combines “more of the same” in order to ensure continuity with innovative and more radical measures. It promotes an approach of shared responsibility of road designers and road users.

63. In contrast to conventional approaches that put much of the blame on the road user, the Swedish approach assigns much more responsibility to the road designers. For example, as “kinetic energy” kills and the average human being is incapable of adequately estimating the potential impacts of a collision, management of kinetic energy is best left to “professionals”. Similarly, unlike in most other countries, traffic safety education does not focus on educating children but rather on educating their parents about their responsibilities. Measures focus on educating traffic engineers, provision of a safe environment (e.g., bicycle lanes) and safety equipment (e.g., helmets, seat belts).

64. The Swedish approach is based on “Integration and Separation” which are translated into simple guidelines tailored to different groups of road users, for example, “Vulnerable road users should not be exposed to motorized vehicles at speeds exceeding 30km/h”. Where these targets cannot be achieved, recommendations for improvement are provided such as “separate lanes or reduce vehicle speed to 30km/h”.

65. As a result of the Swedish systems view, the transport system is made more error-tolerant and to reduce the severity of accidents when they occur (“forgiving roads”). The approach

has proven very successful in Sweden, where now less than 10 children are killed in road crashes per year.²⁰

66. The EGM suggested that ESCAP members could learn from the Swedish best practise and explore the use of special road engineering measures (“forgiving roads), such “2+1 roads” with cable barriers, separated lanes for different vehicles (e.g., motorcycles, bicycles, buses), and the systematic use of roundabouts.

VI. ISSUES FOR CONSIDERATION

67. The Committee is invited to consider the issues raised in this paper and to provide further guidance to the secretariat on how to support the implementation of the ESCAP *Ministerial Declaration on Improving Road safety in Asia and the Pacific* in particular its goal to “develop the Asian Highway as a model of road safety”. In this respect, the Committee may wish to recall the road safety related outputs contained in the Regional Action Programme for 2007 to 2011 (Commission Resolution 63/9).

68. Governments are invited to report to the Committee their latest progress in improving safety on the Asian Highway Network and on other roads, and are invited to consider the following issues at the national level:

- a. To sustain their high-level commitment to improving road safety on the Asian Highway network and other roads;
- b. To seriously consider and explore *all* options for domestic financing of road safety following the recommendations contained in the recent GTZ manual entitled “The Road Safety Cent”¹⁶ (see paragraph 54 of this document) and the earlier ESCAP recommendations on road maintenance funds;

²⁰ This rate is equivalent to less than one child (age from 0 to 14) per 100,000 children per year.

- c. To include road safety components in all road projects, and to initiate dedicated road projects where appropriate;
- d. To promote public-private partnerships for improving road safety;
- e. To explore the usefulness of adopting a systems approach similar to the Vision Zero of the Swedish road administration;
- f. To systematically employ special engineering measures to make roads more “forgiving” (when a crash occurs), including, for example, roundabouts, “2+1 roads” with cable barriers, physically separate the road traffic of various vehicles (e.g., lanes for motorcycles, bicycles, buses);
- g. To include traffic safety as an integral part of sustainable transport policies, taking into account the safety benefits of modal shifts; and
- h. To improve data collection and reporting systems, and each year to provide to the secretariat the basic safety data contained in the Asian Highway database as well as data for the indicators contained in Table 3.

69. At the regional level and in line with the Regional Action Programme for 2007-2011, Governments are invited to consider in particular:

- a. To agree on the suggested targets and indicators for safety goals 3 and 7 (see Table 3) which relate to roads and the Asian Highway Networks and which were suggested by the recent EGM on improving road safety on the Asian Highway, as well as to support their further “formalization” through the Commission; and similarly to agree on targets and indicators for the remaining goals 1, 2, 4, 5, and 8 (see Table 3) or to provide further guidance to the secretariat on the future process to refine these in collaboration with member

states, as requested by the ESCAP *Ministerial Declaration on Improving Road safety in Asia and the Pacific*.

- b. To systematically share experiences on using a systems approach and especially on road engineering measures in line with the “forgiving roads” concept;
- c. To support road safety assessments, including IRAP of the Asian Highway Network and to regionally share experiences and capacities; and
- d. To encourage donors’ support for road safety initiatives in the region.

70. At the global level, Governments are invited to continue to put the issue of road safety on the agenda of the General Assembly Resolution, and to consider providing support for a potential Global Ministerial Conference on Road Safety to be organized under the auspices of the United Nations and in an inter-sectoral manner. In this context, it should be noted that 27 of the 85 UN members that supported the most recent General Assembly Resolution 60/5 on the global road safety crisis were ESCAP members.

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