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Consolidated Resolution on Road Traffic (R.E.1):

A Safe System Approach

A Safe System Approach

Submitted by Sweden*

This document provides Sweden's amendment proposals aimed at including a safe system approach into the Consolidated Resolution on Road Traffic (R.E.1).

* This document was submitted late for processing since clearance in finalizing this document took longer than anticipated.

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Introduction

I. Road traffic injury – The global crisis

Death and injury in road traffic is a global problem affecting all sectors of society. Every year nearly 1.2 million people throughout the world are killed on the roads, over half of them being young adults aged 15 to 44. Nearly 50 million are injured. Added to this is the suffering endured by crash victims and their families and the enormous socioeconomic cost incurred by these crashes, estimated at several hundred billion dollars annually. This serious public health problem is projected to increase further on a catastrophic scale as low and middle-income countries motorize.

Box 1: Road traffic injury: the escalating global crisis

Forecasts indicate that, without substantive improvements in road safety management and leadership:

By 2015, road injury will be the leading cause of healthy life years lost by children (5-14 years).

By 2020, the number of deaths from road injury will increase by 80 per cent

By 2030, road crash deaths and injuries will be:

-the 4th largest cause of healthy life years lost by the total population;

-the 2nd largest cause of healthy life years lost by men ¹

Source:^{1,2}

II. Road safety: A challenge long faced by UNECE

Since 1947, road safety has been one of UNECE's major concerns and for its Working Party on Road Traffic Safety (WP.1), in particular. Under its auspices several international legal instruments have been drawn up, including the 1949 Convention on Road Traffic and its Protocol on Road Signs and Signals, followed by the two Conventions of 1968 on Road Traffic and on Road Signs and Signals, and the European Agreements of 1971 which supplemented them. These legal instruments, in general, and the Conventions, in particular, are important points of reference not only for the international harmonization of regulations governing traffic, signs and signals and driving behaviour but also for drawing up national Highway Codes. In its resolution 60/5 of 26 October 2005 the United Nations General Assembly encouraged Member States to adhere to these Conventions in their efforts to attain a high level of road safety in their countries.

In addition to these legal instruments, WP.1 has issued two Consolidated Resolutions on road traffic (R.E.1) and on road signs and signals (R.E.2), to reinforce the 1968 Conventions and the European Agreements supplementing them. While these Resolutions do not have the binding force of the Conventions, they go into more detail and provide a catalogue of measures and practices that

¹ Mathers C., Loncar D. (2005). Updated projections of global mortality and burden of disease, 2002 – 2030: data sources, methods, and results. Evidence and Information for Policy Working Paper, World Health Organization, Geneva.

² Kopits E., Cropper M. (2003). Traffic Fatalities and Economic Growth. 2003. Policy Research Working Paper Number 3035. The World Bank, Washington, DC.

States are called on to implement on a voluntary basis. Moreover, WP.1 was behind the launch of the Road Safety Weeks in the UNECE region, of which there have been four since they began in 1990 and the launch of the First Global Road Safety Week which took place in April 2007.

III. Road safety: Worldwide attention

Confronted with the growing challenge of road traffic injury worldwide, the highest echelons of the United Nations system have mobilized to support efforts to resolve the international road safety crisis.

On the initiative of the Sultanate of Oman, the United Nations General Assembly considered this question for the first time in 2003 when it adopted two resolutions, the first, 57/309, on 22 May 2003, and the second, 58/9, adopted pursuant to the report A/58/228 on the subject by the Secretary-General of the United Nations, on 5 November 2003.

On World Health Day (7 April 2004), the World Health Organization (WHO) and the World Bank jointly launched a report entitled the World Report on Road Traffic Injury Prevention, stressing the urgent need for Governments and other key sectors to redouble their efforts to prevent road death and injury.

In response to the World Report and the events organized around World Health Day, the political authorities adopted two major new resolutions on road safety. On 14 April 2004, the United Nations General Assembly, in a special plenary meeting aimed at better high-level understanding of the extent of the problem of road traffic injuries, adopted a third resolution (58/289), entitled Improving global road safety. This invited WHO, acting in close cooperation with the United Nations regional commissions, to ensure the coordination of road safety issues within the United Nations system. Within WHO, road safety received special attention by the World Health Assembly for the first time in 30 years, by the adoption of a resolution on road safety (resolution WHA 57.10, entitled Road safety and health). In 2005, as a follow-up to its resolutions, the United Nations General Assembly once again addressed road safety when, following the report of the Secretary-General (A/60/181), it adopted a fourth resolution (60/5 of 26 October 2005). Here, it expressed its concern at the continued increase, in particular in developing countries, in traffic fatalities and injuries worldwide and the limited capacity in those countries to address road safety problems. At the same time, the resolution welcomed the progress made in establishing new initiatives taken by the competent United Nations agencies and their international partners in this domain.

Most recently, United Nations General Assembly addressed the subject in resolution 62/244 on "Improving global road safety" adopted on 31 March 2008, in which inter alia it recognized the work of the United Nations regional commissions and their subsidiary bodies in increasing their road safety activities and advocating for increased political commitment to road safety, and the continuing commitment of the UNECE to global action in the elaboration of safety-related global technical vehicle regulations and amendments to the Convention on Road Traffic and the Convention on Road Signs and Signals.

While monitoring has shown the scale of the challenge ahead, these resolutions have given a powerful impetus to road safety work throughout the world. Together with the new global guidance on road safety management which has been produced to help implement the recommendations of the World Report,

prepared by the World Bank's Global Road Safety Facility (2009) and the recommended legal frameworks of successive UNECE Consolidated Resolutions, they provide key tools to assist Member States in adopting strategic priorities and frameworks, strengthening road safety management systems and carrying out well-orchestrated activity to achieve road safety results.

IV. Road safety: A systems approach

The Current approach to road safety in large parts of the world is "Vision Zero" or "Safe System", two expressions of an identical policy. The human being has capabilities and limitations which to a great extent must be taken into consideration when designing the road transport system. Road users will always make errors and mistakes for various reasons. These errors and mistakes in many cases originate from the interaction between the road user and the complex social, organizational and technical context in which the behaviour of the road user takes place. They hence may be reduced by understanding these interactions and designing the road transport system and developing rules and regulations from these conditions in order to guide the road user to an as safe as possible behaviour. However, since human errors and mistakes cannot fully be eradicated the infrastructure components and vehicles of the road transport system must be designed with the speed limit as starting point, to mitigate the consequences of common human errors and mistakes. While this may be clear and logic, the road transport system has not been designed from ground with the aim to absorb or mitigate common human error.

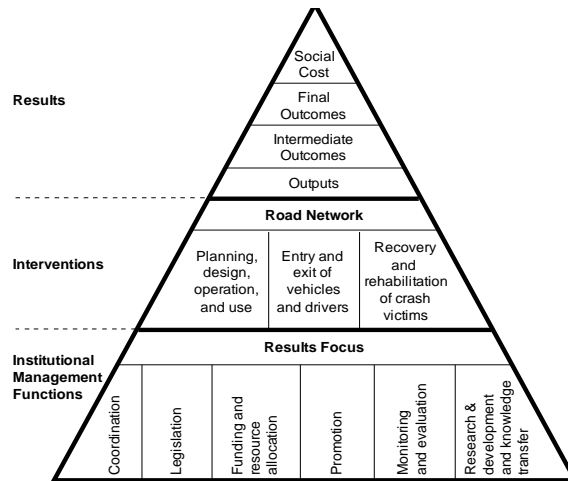
V. Road safety: A national priority

Road safety is a domain which is chiefly the responsibility of local, municipal and national authorities and which clearly demands more attention. This is particularly the case for developing countries and countries in transition which are motorising very rapidly and which need to bring serious and escalating road safety outcomes under control. Research and experience show that much be done to reduce death and serious injury in road traffic crashes which has been reduced by as much as 50 per cent in numerous high-income countries which have built substantial capacity for road safety management.

Success in managing road safety outcomes requires a systematic and planned response and strengthening across the road safety management system. Road safety is viewed by several international organisations as a production process, as shown in the framework below, where institutional management functions provide the engine room to deliver a range of effective, system-wide interventions to achieve results, expressed as long-term goals and interim quantitative targets.³

³ Bliss T and J Breen, Implementing the Recommendations of The World Report on Road Traffic Injury Prevention Country guidelines for the conduct of road safety management capacity reviews and the related specification of lead agency reforms, investment strategies and safe system projects, Global Road Safety Facility, World Bank, Washington, DC. (2009).

Figure 1:
The road safety management system



Source: References [1], [1], and [1].

Source: Global Road Safety Facility World Bank, 2009 ³

To be successful in combating poor road safety, all Governments must establish a system for road safety management and a road safety policy which addresses all its elements and linkages. Key aspects are outlined in Box 2. As illustrated in Box 3, the ad hoc approaches of earlier phases of road safety management will not be effective.

Box 2: Key elements of road safety policy include:

- (a) Assertion of a firm political will to make achievement of road safety results an issue of national importance;
- (b) Establishing a governmental lead agency/department for road safety which can orchestrate and coordinate action on behalf of government, as recommended by the World Report;
- (c) High-level review of current road safety performance and management capacity;
- (d) Setting up or developing the institutional, legal and financial framework conditions needed to establish or develop road safety policy and the road safety management system;
- (e) Involving, according to their various responsibilities and competences, all key participants, nationally and locally, elected representatives, private bodies, industry, health professionals and professionals in other disciplines - and establishing an efficient coordination hierarchy;
- (f) Identification of problems as a result of serious evidence-based analysis and interpretation and the potential for achieving road safety results for the medium term;
- (g) Definition of realistic but ambitious quantitative objectives for the interim, possibly against the framework of a long-term goal;
- (h) Elaboration of a national strategy and action plan:

- (i) This should aim to prevent crashes involving death and serious injury as well as reducing the severity and consequences of injury. It should take account of the various components of road safety: users, vehicles, the infrastructure and emergency medical assistance and trauma care. Although it is true that human error is the main cause of accidents, this should not lead to the conclusion that all prevention efforts should concentrate solely on means of directly influencing human behaviour (e.g. road education classes, awareness campaigns, regulations, inspections, sanctions). Behaviour may also be influenced by indirect means (for example, changing the layout of a road or its environment, by improving vehicle ergonomics). Where accidents occur, injuries can be minimized by vehicle and road crash protection and the consequences of injury can be minimised by efficient emergency medical response and care.
- (j) Incorporation of road safety in policies relating to mobility, accessibility, health and the environment;
- (k) Comparison of the cost-efficiency ratios of the various specific measures to prevent accidents and lessen their consequences.
- (l) Review, adoption and enforcement of the required legislation (for establishing the strategy as well as establishing the institutional competences), securing sustainable financial resource, arrangements for promotion, knowledge transfer as well as appropriate methods for monitoring and evaluating the action taken.

Box 3: The evolving focus on results

As outlined in the World Report on Road Traffic Injury Prevention (WHO, 2004) and the follow up World Bank Transport Note (Bliss, 2004), progressive shifts in road safety management thinking and practices in high-income countries have been evident. Since the 1950s there have been four significant phases of development, which have become progressively more ambitious in terms of the results desired.

Phase 1 – Focus on driver interventions. In the 1950s and 1960s safety management was generally characterised by dispersed, uncoordinated, and insufficiently resourced institutional units performing isolated single functions (Koornstra et al., 2002). Road safety policies placed considerable emphasis on the driver by establishing legislative rules and penalties and expecting subsequent changes in behaviour, supported by information and publicity. It was argued that since human error contributed mostly to crash causation it could be addressed most effectively by educating and training the road user to behave better. Placing the onus of blame on the road traffic victim acted as a major impediment to the appropriate authorities fully embracing their responsibilities for a safer road traffic system (Rumar, 1999).

Phase 2 – Focus on system-wide interventions. In the 1970s and 1980s, these earlier approaches gave way to strategies which recognised the need for a systems approach to intervention. Dr. William Haddon, an American epidemiologist, developed a systematic framework for road safety based on the disease model which encompassed infrastructure, vehicles and users in the pre-crash, in-crash and post crash stages (Haddon, 1968). Central to this framework was the emphasis on effectively managing the exchange of kinetic energy in a crash which leads to injury to ensure that the thresholds of human tolerances to injury were not exceeded. The focus of policy broadened from an emphasis on the driver in the pre-crash phase to also include in-crash protection (both for roadsides and vehicles) and post crash care. This broadened it to a system-wide approach to intervention and the complex interaction of factors which influence injury outcomes. It underpinned a major shift in road safety practice which took several decades to evolve. However, the focus remained at the level of systematic intervention and did not directly address the institutional management functions producing these interventions or the results desired from them.

Phase 3 – Focus on system-wide interventions, targeted results and institutional leadership. By the early 1990s good practice countries were using action focused plans with numerical outcome targets to be achieved with broad packages of system-wide measures based on monitoring and evaluation. Ongoing monitoring established that growing motorisation need not inevitably lead to increases in death rates but could be reversed by continuous and planned investment in improving the quality of the traffic system. The United Kingdom, for example, halved its death rate (per 100,000 head of population) between 1972 and 1999 despite a doubling in motorised vehicles. Key institutional management functions were also becoming more effective. Institutional leadership roles were identified, intergovernmental coordination processes were established and funding and resource allocation mechanisms and processes were becoming better aligned with the results required. Developments in Australasian jurisdictions (e.g. Victoria and New Zealand) further enhanced institutional management functions concerning results focus, multi-sectoral coordination, delivery partnerships, and funding mechanisms (WHO, 2004; Bliss, 2004; Wegman et al., 2006; Trinca et al., 1988). Accountability arrangements were enhanced by the use of target hierarchies linking institutional outputs with intermediate and final outcomes to coordinate and integrate multi-sectoral activities. This phase laid the foundation for today's best practice and reflects the state of development found in many higher performing countries today.

Phase 4 – Focus on system-wide interventions, long-term elimination of deaths and serious injuries and shared responsibility. By the late 1990s, two of the best performing countries had determined that improving upon the ambitious targets that had already been set would require rethinking of interventions and institutional arrangements. The Dutch *Sustainable Safety* (Wegman et al., 1997 and 2008) and Swedish *Vision Zero* (Tingvall, 1995; Committee of inquiry into road traffic responsibility, 2000) strategies re-defined the level of ambition and set a goal to make the road system intrinsically safe. The implications of this level of ambition are currently being worked through in the countries concerned and elsewhere. These strategies recognise that speed management is central and have re-focused attention on road and vehicle design and related protective features. The 'blame the victim' culture is superseded by 'blaming the traffic system' which throws the spotlight on operator accountability. These examples of Safe System approaches have influenced strategies in Australia, Denmark, Finland, Norway, and Switzerland.

Today the growing view is that road safety is a system-wide and shared multi-sectoral responsibility which is becoming increasingly ambitious in terms of its results focus. Sustaining the level of ambition now evident in high-income countries requires road safety principles.

Source: Global Road Safety Facility, World Bank ⁴

VI. The new resolution, a reference tool for improving road safety

The aim of the Consolidated Resolution on Road Traffic (R.E.1) is to provide Member States with guidance on a framework for traffic rules, rules of behaviour, user communication and education and the safety of road infrastructure and vehicles. It includes special recommendations to improve the safety of target groups such as pedestrians, persons with reduced mobility, cyclists, motorcyclists and children.

Since it was first published in March 1978 under the symbol TRANS/SC.1/294, R.E.1 has been updated on several occasions to take into account innovations, new developments and successive amendments to the Convention on Road Traffic since 1968. Since this first edition, there have been five consolidated revisions, the latest bearing the symbol TRANS/SC.1/294/Rev.5.

The UNECE Working Party on Road Traffic Safety (WP.1) has undertaken a thorough revision of this Resolution so as to update it, modernize the presentation and circulate it as widely as possible throughout the world as a reference tool, providing guidelines for national authorities to follow on a voluntary basis.

The new Resolution presented below is the result of this work. It has four aims:

1. To increase awareness among decision makers at all levels of:
 - (i) the actual road safety situation in their countries;
 - (ii) the actual cost to society of poor road safety;
 - (iii) remedial measures that have already been shown to improve road safety.
2. To provide decision makers with a catalogue of tried and tested ways to combat poor road safety;
3. To recommend to the Contracting Parties to the 1968 Conventions and the European Agreements supplementing them the adoption in their domestic legislation of provisions in keeping with the principles of the Resolution, in order to eliminate as far as possible the divergences from one country to the next that have been allowed to persist in these instruments;
4. To recommend to States that have not yet ratified the 1968 Conventions, in particular the Convention on Road Traffic, or that are not yet in a position to do so, the fullest possible application of this Resolution from now on.

⁴ Bliss T and J Breen, Implementing the Recommendations of The World Report on Road Traffic Injury Prevention Country guidelines for the conduct of road safety management capacity reviews and the related specification of lead agency reforms, investment strategies, and safe system projects, Global Road Safety Facility, World Bank, Washington DC. (2009).

It is hoped that this resolution will improve road safety and thus benefit one and all.

**The Working Party on Road Traffic Safety (WP.1) of
the United Nations Economic Commission for Europe,**

DESIRING to establish greater uniformity, first of all in Europe, in the regulations relating to road traffic, in order to improve road safety and facilitate international road traffic,

BEARING IN MIND that for this purpose the Convention on Road Traffic of 8 November 1968 and the European Agreement supplementing that Convention of 1 May 1971 have significantly improved the situation,

NOTING nevertheless that these two international instruments leave open the possibility of divergences between one country and another and in many fields merely set out general principles that need to be developed, and do not address all the aspects that can have a bearing on road safety,

RECOMMENDS Governments, in order to eliminate these divergences as far as possible and to ensure progress in road safety in their countries, to introduce into their national legislation regulations which conform to the recommendations contained in this Resolution, and

FURTHER RECOMMENDS Governments which are not yet in a position to ratify or accede to the above international instruments nevertheless to apply the provisions of those instruments forthwith to the fullest extent possible.

Part one

Road users

In-depth analysis of incidents on the road network shows that an accident is the consequence of one or more faults in a complex system involving drivers, vehicles, the road and its surroundings. However, the principal factor in road accidents is human error, so that any effort to increase the level of road safety has to be primarily aimed at the prevention of this type of error as well as at ways to reduce the consequences without, however, ignoring other factors linked to the infrastructure and to vehicles. For that reason a multi-dimensional systems approach is required today to effectively address road safety issues. Instead of focusing on each element of road safety in isolation (e.g. the driver, the vehicle and the road), bridges and relationships need to build between all the elements that influence road safety, and to understand how the various elements affect each other at all times. The systems approach focuses on the relationships and dependencies between the various individual elements of the traffic system and the organizational levels which influence those relationships.

“Common driving errors and common pedestrian behaviour should not lead to death and serious injury – the traffic system should help users to cope with increasingly demanding conditions. The vulnerability of the human body should be a limiting design parameter for the traffic system and speed management is central. Road crash injury is a social equity issue – equal protection to all road users should be aimed for since non-motor vehicle users bear a disproportionate share of road injury and risk.”

Source: World Report on Road Traffic Injury Prevention, 2004

All these aspects are addressed in Part 1 – the rules of behaviour that, when applied or observed by road users, ensure the best possible safety (Chapter 1), the various methods that make it possible to influence such behaviour (Chapter 2) and the problem of particularly vulnerable users, such as pedestrians, persons with reduced mobility and children (Chapters 3 and 4). However, it has been shown that human error in road traffic can be divided into unintentional errors (mistakes, slips, lapses, etc.) and intentional violations. Research in other safety critical areas have shown that measures to regulate, or in other ways, modify or influence human behaviour and to make the individual accountable for accidents will only have a limited effect on unintentional errors. In-depth analyses of road traffic accidents show that such errors are common contributing factors. When it comes to intentional violations, research shows that such regulating activities will have an effect but it varies considerably with the risk of being caught and the level of sanctions. Further such behavioural measures not always solve the underlying system deficiencies.

For that reason, it is important to widen the view of responsibility for road safety. Rules which put the legal responsibility on the individual road should be combined with a responsibility for the system designers, e.g. road authorities, municipalities and to create safe conditions for the road user given the psychological and physiological capabilities and limitations of the human. There should also be a responsibility for professional buyers and sellers of transports to use the system in a responsible way in order to strengthen the norms in the community.

Chapter 1

General rules concerning behaviour in traffic

According to accident data studies, the vast majority of traffic accidents are attributable to problems in road user behaviour. Such behaviour is often related to a failure to observe regulations relating in particular to speed, alcohol, seatbelts, etc., or to a poor understanding of specific traffic conditions that require heightened caution, such as night-driving or driving in tunnels. It is, however, important to understand that human beings cannot physically, cognitively or psychologically always cope with the complex demands of road traffic. To be able to develop effective countermeasures it is for that reason a need to understand the human capabilities in relation to the system and how to adapt the properties of the system to these capabilities. These aspects are developed in this Chapter.

1.1 Speed⁵

1.1.1 Context

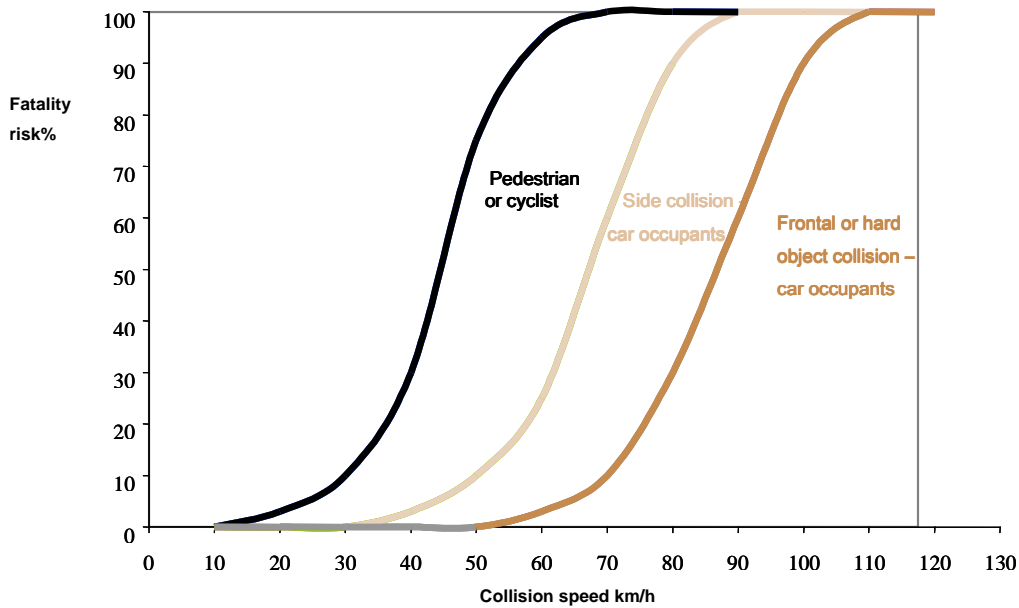
Statistics in all countries show that speeds over the permitted limits or speeds inappropriate to the state of the road or traffic conditions affect both the risks of accidents and the consequences of accidents. Put another way, speed causes accidents insofar as it reduces the possibility of manoeuvring in time to avoid the danger and exacerbates them, since the greater the speed the more violent the impact and the more severe - not to say more dramatic - the consequences.

1.1.1.1 Some figures on the effects of speed

- (a) Depending on the country, excessive or inappropriate speed is a contributing factor of between 30 and 50 per cent of fatal accidents;
- (b) Excessive or inappropriate speed has dramatic consequences for pedestrians. The probability of a pedestrian being killed is multiplied by eight with an increase in impact speed from 30 km/h to 50 km/h due to the large influence that the initial speed of a vehicle has on the impact speed;

⁵ On this subject, see also United Nations Road Safety Collaboration – Speed management: a road safety manual for decision makers and practitioners at www.who.int/roadsafety/projects/manuals/speed_manual/en/index.html.

Figure 2
 Fatality Risk and Collision Speed Source: Wrangborg, P. (2005).⁶



(c) a variation in average speed causes in general, according to certain studies, a greater variation in the same direction (increase or decrease) in the number and severity of accidents;

(d) Speed increases stopping distance, which is equivalent to the reaction distance plus the braking distance, and hence the impact speed. It is recalled that a driver’s reaction time to an unexpected event varies between 1 and 2 seconds;

The tables below give, by way of example, the stopping distance for a driver’s reaction time of 1 (one) second.

Table 1
For a vehicle containing only the driver

Speed in km/h	Stopping distance on wet road (in metres) with a grip coefficient of 0.4	
	Stopping distance on dry road (in metres) with a grip coefficient of 0.7	
30	17	18
50	34	38
90	82	95

⁶ Source: Wrangborg, P. (2005) A New Approach to a Safe and Sustainable Road Structure and Street Design for Urban Areas. Paper presented at Road Safety on Four Continents Conference, Warsaw Poland.

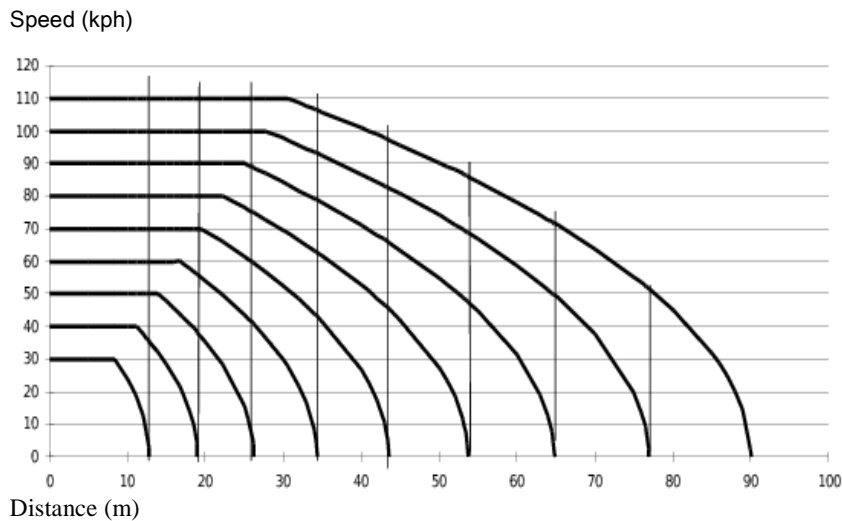
<i>Speed in km/h</i>	<i>Stopping distance on dry road (in metres) with a grip coefficient of 0.7</i>	<i>Stopping distance on wet road (in metres) with a grip coefficient of 0.4</i>
100	96	118
130	147	179

Table 2
For a fully loaded vehicle

<i>Speed in km/h</i>	<i>Stopping distance on dry road (in metres) with a grip coefficient of 0.7</i>	<i>Stopping distance on wet road (in metres) with a grip coefficient of 0.4</i>
30	18	20
50	38	44
90	95	122
100	113	145
130	176	215

Figure 3 shows speed (kph) as a function of distance (m) from the location of a car when a driver becomes aware of an obstacle and starts braking. The different curves describe initial speeds from 30 kph to 110 kph for a driver-car reaction time of 1 second with the friction coefficient between tires and road surface, $\mu = 0.8$. It can, for example, be seen that a vehicle travelling 30 kph has already stopped while the driver in a vehicle travelling 50 kph has not started to brake.

Figure 3



(e) high speeds contribute to the increase of polluting emissions and noise and therefore affect the quality of life of the population, particularly in urban areas. Moreover, the operating costs of the vehicle (increased fuel and oil consumption, more wear on tyres) are higher;

- (f) the time gained by driving faster is minimal and overestimated; on a journey of 100 km, only 6 minutes are gained by driving at 150 km/h instead of 130 km/h;
- (g) speed increases the risk of mistakes and fatigue sets in more quickly;
- (h) speed requires still greater attention at night; since the passing beam only lights the road up to 30 m ahead, above 70 km/h an obstacle emerging into the lighted zone cannot be avoided;
- (i) the faster the driving speed, the more visual perception is reduced; the field of vision is 100° at 40 km/h, but becomes 30° at 130 km/h;
- (j) the higher the speed, the less the tyres adhere to the road.

1.1.1.2 Factors influencing choice of speed

Although numerous factors, such as those described below, can influence the choice of speed, a driver must, in all circumstances, have control of his vehicle, as required by article 13 of the Convention on Road Traffic, 1968, so as to be able to exercise due and proper care and to be at all times in a position to perform all manoeuvres required of him. It must, however, be noted that the human can never be trusted to repeatedly perform correctly in all traffic situations, even if the intention is to manoeuvre in a safe manner. Hence the capabilities and limitations of the human being must to a great extent be taken into consideration when designing the road transport system. For that reason, the factors below need to be taken into consideration.

1.1.1.2.1 External factors

- (a) Aspects of the road affecting the driver:
 - (i) type (motorway, dual carriageway, country road, urban street, etc.);
 - (ii) function (transit, local traffic, etc.);
 - (iii) cross-section (notably, width and number of lanes);
 - (iv) horizontal and vertical alignment;
 - (v) framework (tunnel, bridge);
 - (vi) lay-out of intersections;
 - (vii) road markings;
 - (viii) state of surface, etc.
- (b) Aspects of the vehicle affecting the driver:
 - (i) type;
 - (ii) mass/power ratio;
 - (iii) comfort;
 - (iv) sound-proofing, etc.
- (c) Aspects of traffic affecting the driver:
 - (i) density;
 - (ii) general speed;
 - (iii) composition.
- (a) Aspects of the environment affecting the driver:
 - (i) climate conditions;
 - (ii) time of day (day/night);
 - (iii) landscape (plain, mountains, tourist spots, etc.);
 - (iv) load lighting;
 - (v) signs;
 - (vi) speed limits;
 - (vii) radars, etc.

1.1.1.2.2 Factors linked to the driver

The following criteria affect the driver:

- (a) age;
- (b) gender;
- (c) reaction time;
- (d) driver education;
- (e) fatigue;
- (f) attitudes (perception of dangers, sensation-seeking, etc.);
- (g) driving under the influence of alcohol and/or drugs and
- (h) medicines;
- (i) presence of passengers;
- (j) circumstances of the journey.

The choice of an appropriate speed, however, basically depends on the driver's perception, leaving aside any psychological or subjective factors that may intrude (personal concerns, fear of arriving late, etc.); in order to select an appropriate speed, they must be in a position to estimate it.

Studies have shown that estimation of speed is essentially based on:

- (a) auditory information- absence of this information leads to underestimation of speed;
- (b) peripheral vision - wide roads with no reference points also lead to underestimation of speed.

Moreover, the sensation of speed decreases in the course of driving and drivers always change their speed less than is necessary when they need to reduce it. This is particularly the case at points of transition, namely when there are changes either at the level of the road environment or when the rules of the road require it.

Finally, the perception of speed may be affected:

- (a) when the same speed is maintained unchanged for a long period; and
- (b) when peripheral vision is reduced, particularly because of the lack of reference points.

In order to achieve the best possible results where speed is concerned, measures should be taken to ensure that:

- (a) driver errors become less likely;
- (b) it is less tempting to break the speed limit;
- (c) errors and infringement of speed limits do not necessarily lead to an accident;
- (d) the infrastructure installations on the roadside do not worsen the situation when an accident happens and on the contrary that they can absorb driver errors or limit their consequences.

1.1.2 Recommendations

In view of the above, competent authorities are recommended to consider the following measures:

1.1.2.1 With regard to regulations:

- (a) establish general speed limits in terms of the type of road in question and its equipment (urban roads, motorways, dual carriageways, other roads.), categories of vehicles (light vehicles, heavy vehicles, etc.), drivers (e.g. novice drivers), weather conditions (rain, snow, fog, etc.) and the safety level of the vehicles and the infrastructure (forgiving side areas, deformable lampposts, etc.);
- (b) establish local speed limits where the dangerous nature of the section or the regulation of the traffic requires, making sure that the limits are justified and are applied by drivers. Additional recommendations on this subject can be found in chapter 16, sections 16.1 and 16.2 of the present Resolution;
- (c) clearly indicate local speed limits by means of appropriate signs respecting the principles of uniformity and consistency by applying the same criteria as for similar traffic conditions;
- (d) recommend on heavy vehicles the installation of speed limiters which are already obligatory in certain countries. Moreover, it should be taken into account that some countries already recommend the use on light vehicles of devices which help drivers to better to observe speed limits such as cruise control and/or speed limiters that can be adjusted by the driver.

<i>Box 4: Safe speed thresholds for different road types ⁷</i>	<i>Safe Speed (km/h)</i>
Roads with possible conflicts between cars and unprotected users	30
Intersections with possible side-on conflicts between cars	50
Roads with possible frontal conflicts between cars	70
Roads with no likelihood of frontal or side-on conflicts between road users	≥100

1.1.2.2 With regard to infrastructure design:

- (a) introduce a road network hierarchy in terms of the functions of each road (transit, local traffic, etc.);
- (b) ensure the homogeneity of traffic as far as possible in order to avoid speed discrepancies between different categories of vehicles (prohibition of slow vehicles in high-speed sectors);
- (c) ensure that infrastructure installations and the design of the road remove all uncertainty where drivers are concerned, i.e. by giving them means of easily

⁷ OECD (2008) Towards Zero: Ambitious road safety targets and the safe system approach, OECD, Paris, 2008.

identifying the type of road they are on and the type of users they are likely to meet;

(d) implement measures ensuring that drivers use a lower speed. For example, in an urban context, the measures most frequently introduced are:

- (i) residential zones and zones where the speed is limited to 30 km/h, known as “30 km/h zones” ;
- (ii) roundabouts, which are a safe alternative to intersections;
- (iii) speed-control humps, etc. especially in connection with areas where unprotected road users are mixed with motor vehicles;

(e) ensure a safety-enhancing design for the edge of the road in order to reduce the possible consequences of some driver errors in the case of the vehicle leaving the road;

(f) ensure that infrastructure measures are taken to prevent vehicles from driving into oncoming traffic when the speed limit is above 80 kph (e.g. median barriers).

1.1.2.3 With regard to checks and penalties:

make speed checks an essential element of observing speed limits by giving drivers the impression that they may be checked at any time (see also chapter 2, section 2.3 of the present Resolution which is devoted exclusively to checks and penalties).

1.2 Driving under the influence of alcohol ⁸

1.2.1 Context

The World Report on Road Traffic Injury Prevention (2004) classified drinking and driving as one of the five principal risk factors in road safety. The relationship of alcohol to collisions has been well demonstrated. Drivers who have been drinking have a much higher risk of collision involvement than drivers who have not been drinking, and this risk increases rapidly as blood alcohol concentration (BAC) increases. A legal limit on BAC for motor vehicle drivers is set in almost all European countries and defines when a driver is presumed to be too impaired to drive safely. In Europe the BAC legal limit can be as low as 0.0 g/l or as high as 0.8 g/l, the most common legal BAC limit being 0.5 g/l. Lower BAC limits are often established for young drivers and for drivers of commercial vehicles.

There is now strong evidence from a number of countries for the success of general deterrence, i.e., deterring drivers who have not previously been caught. An effective enforcement approach includes frequent, widespread and highly visible roadside checks. Enforcement is based on the principles of certain detection and conviction, swiftness of the proceeding and on consequences which are severe enough that most drivers would want to avoid them. The penalty strategy generally found to be most effective is loss of the driving privilege. Some have advocated severe punishment, such as imprisonment, for alcohol impaired driving offences. However, there is little compelling evidence that imprisonment results in lower re-

⁸ On this subject, see also United Nations Road Safety Collaboration –«Drinking and driving- an international good practice manual » at www.who.int/roadsafety/projects/manuals/alcohol/en/index.html.

arrest rates for convicted drunk drivers. Some studies have shown a deterrent effect for brief mandatory jail sentences of first-time offenders.

Technical systems which prevent driving under the influence of alcohol are an effective way to tackle the problem. Such systems may e.g. be a part of a programme for repeat or habitual alcohol-impaired driving offenders or be a part of a safety management system of companies which carries out professional transports or standard equipment in motor vehicles.

Other prevention approaches, such as education, attempt to reduce alcohol impaired driving by altering social norms, changing risky or dangerous behaviours, and creating safer environments. Communication and education also provide information to the public about the dangers of alcohol-impaired driving and the consequences of alcohol-impaired driving. While education and public information are necessary, they need to be part of a comprehensive strategy, and seem to work best when linked with highly visible enforcement efforts.

Finally, alcohol impaired driving may be a symptom of a larger problem of alcohol misuse. Many impaired driving offenders have alcohol dependency problems and without appropriate assessment and treatment, these offenders are likely to repeat their crime.

Taking into account their cultural, social, legal and economic environments, Governments should develop and implement a comprehensive programme to reduce death and injuries due to alcohol-impaired driving. An effective programme to reduce alcohol-impaired driving should be based on strong leadership, sound policy, good programme management and effective communication.

1.2.2 Recommendations

1.2.2.1 Legislation

Legislation should define the offences, the enforcement actions, and the penalties.

(a) States should establish an upper legal limit not exceeding 0.5g/l for blood alcohol content or 0.25 mg per litre in the air expelled for drivers as provided for by paragraph 7 of the European Agreement supplementing the 1968 Convention on Road Traffic (the relevant amendment entered into force on 28 March 2006). However, a special blood alcohol level not exceeding 0.2 g/l may be established for certain categories of drivers, such as:

(i) novice drivers;

(ii) drivers of commercial vehicles, including those carrying dangerous goods. Penalties should be established for offenders. They may be treated administratively for blood alcohol levels which slightly exceed the established limit and criminally for levels which are significantly higher.

(b) States should establish measures to prevent drivers from escaping alcohol testing or fix penalties for drivers who refuse to be tested.

(c) When police respond to an accident, legislation should provide that all drivers involved are tested for alcohol.

(d) States should consider the link, which might exist between alcohol-impaired driving and certain places providing for the consumption or purchase of alcoholic beverages. In this context, they should consider the possibility of introducing in their legislation measures aimed at preventing the consumption of alcoholic beverages, for example:

- (i) by prohibiting or limiting the sale of alcoholic drinks in certain places, such as restaurants, shops and service stations along motorways;
- (ii) by prohibiting, in a moving vehicle, the presence, within the reach of the driver, of open bottles or other containers of alcoholic drinks.
- (e) States should establish an appropriate age limit for the purchase and public consumption of alcoholic beverages, so as to reduce drinking and driving among young drivers.
- (f) States should establish legislation to provide legal consequences (e.g., fines, license suspension, jail) for alcohol-impaired driving. The legislation should provide for more severe penalties for alcohol-impaired driving causing death or serious injury, as well as increased penalties for drivers who are repeat offenders (i.e., are found guilty of drunk driving on more than one occasion).
- (g) Governments should permit law enforcement officials to use passive alcohol sensors to enhance the detection of alcohol in drivers at roadside checks and during routine stops for alcohol-impaired driving. The use of evidentiary breath testing for alcohol at the roadside should also be permitted.

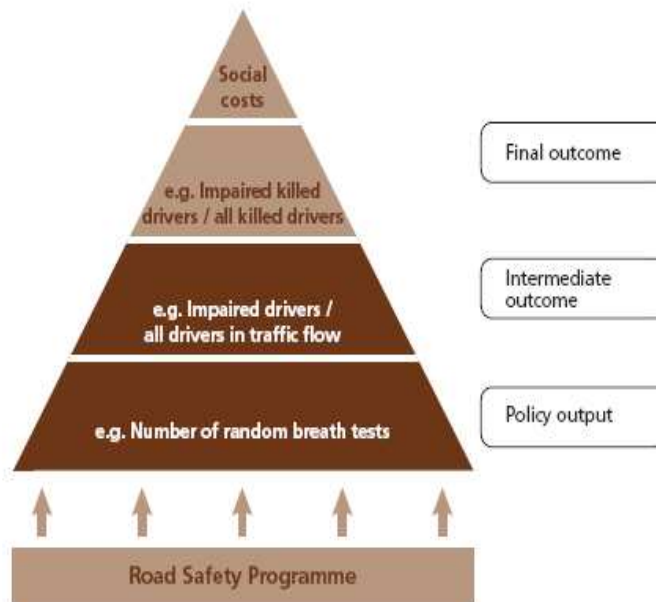
1.2.2.2 Enforcement

The rigour with which alcohol-impaired driving laws are enforced has a direct effect on the behaviour of persons driving under the influence of alcohol. Increasing drivers' perception of the risk of being detected is one of the most effective means of deterring alcohol-impaired driving. The following recommendations are made:

- (a) to enhance the perception of the likelihood of being caught for alcohol-impaired driving, the police should conduct regular enforcement activities such as random alcohol and roadside checks. For this purpose, specially equipped checkpoints may be established;
- (b) to optimize resources, police should use data to target enforcement activities to high-risk times (e.g., night, weekends) and locations (e.g., places for alcohol consumption, sports events, mass participation events) for alcohol-impaired driving;
- (c) governments should regularly conduct campaigns to publicize alcohol-impaired driving enforcement to increase the general deterrent effect of the campaign;
- (d) police should be trained in the appropriate procedures for deterring drink-driving and for detecting and apprehending alcohol-impaired drivers. For example, police should be trained in recognizing the cues for stopping vehicles (e.g. weaving) and cues for recognizing potential impairment (e.g. slurred speech, smell of alcohol);
- (e) to ensure that alcohol-impaired drivers are dealt with appropriately in all circumstances, all members of the law enforcement community should be trained in alcohol-related driving problems and alcohol-impaired driving laws and penalties;
- (f) it is also recommended that technicians receive training which allows them to ensure the calibration and maintenance of breath-test instruments in conformity with the standards in effect.

Figure 3

Road safety target hierarchy for drinking and driving



Source: *Global Road Safety Facility Work Bank 2009*⁹

1.2.2.3 Public information and education

Governments should provide regular awareness and information campaigns to alert the public about the consequences of alcohol consumption, especially on driving; and provide information on the existing laws concerning drinking and driving, the penalties for driving under the influence of alcohol, and the measures that can be taken to prevent drinking and driving. Such informational campaigns can also be used to create social norms that alcohol-impaired driving is unacceptable. In addition, to provide a general deterrent effect, Governments should regularly publicize police enforcement activities to combat alcohol-impaired driving.

Schools should include in their curriculum information about the effects of alcohol and the dangers of driving under the influence of alcohol. Moreover, driving schools for new drivers should provide similar information on the effects of alcohol on perceptual and motor skills and reasoning, as well as the dangers of drinking and driving and what can be done to prevent drinking and driving.

Governments should discourage advertisements for alcoholic beverages along roads and during mass participation events.

1.2.2.4 Programmes

⁹ European Transport Safety Council, *Countdown to 2010: Only two more years to act!*, 2nd Road Safety PIN Report, Brussels, 2008.

Governments should encourage employers to implement programmes and policies making any behaviour associated with drinking and driving by their employees unacceptable. In addition, Governments should formulate broad-based programmes to change attitudes and social norms about drinking and driving. These may include programmes to support alcohol server intervention and designated driver programmes at establishments serving alcoholic beverages. Governments should work with competent bodies to ensure that a discussion on the risks of driving under the influence of alcohol is included in the driver's manual and questions on the risks of driving under the influence of alcohol are included on the driver's license examination.

1.2.2.5 Assessment and rehabilitation

Governments should ensure the accessibility of effective assessment and treatment, as well as rehabilitation services with trained personnel, for all drunk-driving offenders, but especially for habitual offenders and those addicted to alcohol. License re-instatement should be linked to successful completion of the appropriate alcohol rehabilitation programme.

Moreover, Governments should consider programmes incorporating alcohol interlock ignition devices, at least for repeat or habitual alcohol-impaired driving offenders, and perhaps for all drunk-driving offenders. Participation in such a programme could be a condition for license re-instatement. Governments should also consider the use of alcohol interlocks on commercial vehicles (e.g., heavy goods, dangerous goods and buses).

1.2.2.6 Research and data

Governments should conduct research and support data collection to assess the role of alcohol in road accidents, as well as the economic and social costs of alcohol-related collisions. Data should include coroner data; hospital data on injuries; roadside surveys of alcohol use among drivers; police data on BAC test results and arrests; convictions and sanctions imposed; and surveys of public knowledge, attitudes and self-reported impaired driving. Specific research should focus on identifying the populations at risk for alcohol-impaired driving to better target policies and programmes for reducing impaired driving. Governments should undertake evaluation of programme activities to establish the effectiveness, including cost effectiveness, of different policies, programmes and strategies.

1.2.2.7 Partnerships

Governments should formulate policies and programmes, at the national and international level, involving all the sectors in preventing drinking and driving. These sectors include law, law enforcement, health and medical, education, insurance, media, private sector companies, victims' organizations, employers, road user groups, and any other sector that can be effective in developing policies and programmes to reduce drinking and driving.

1.3 Driving under the influence of substances that negatively affect the capacity to drive vehicles (other than alcohol)

For the purpose of this section, substances that negatively affect the capacity of driving vehicles include drugs, narcotics, psychotropics, chemical substances and medicines. Throughout the section these terms will be grouped and used as "substances".

1.3.1 Context

It is well known that driving requires concentration, attention, the right skills, common sense and a concern for the safety of everyone on the road, especially for the vulnerable user. Alertness, perception of the dangers and reaction time can make the difference in the interaction between the driver and the external environment. The substances mentioned above can seriously impair the perception of the driver, lessen his/her ability to interact and deal safely with unforeseen or unexpected events and may lead to lethal outcomes both for the driver and for other road users.

Studies and research suggest that each year a significant number of people are killed or permanently disabled as a consequence of road traffic accidents associated with driving under the influence of substances.

In general, authoritative lists of all the types of substances which may impair driving do not exist. Moreover, while solid documentation exists on the relationship between blood alcohol level and crash risk, the same extent of documentation is not yet available for driving under the influence of substances. During a roadside check it is difficult to identify and classify if a driver is under the effects of substances at that moment.

1.3.2 Recommendations

In the light of the foregoing and contrary to driving under the influence of alcohol, driving under the influence of substances is a thorny problem for which most Governments have not yet identified a common effective strategy, both from the legislative and from the operative point of view.

Bearing in mind this context, the following measures are recommended to be taken by national competent authorities:

1.3.2.1 Policy

(a) Governments should encourage research and exchange of best practices to define a common, shared classification of substances which have a well-known or potential negative effect on driving a vehicle. Governments should therefore set a harmonized strategy for developing legislation and enforcing it, for planning education schemes and information campaigns to address the problem.

(b) Government policies should be based on the results of experimental and epidemiological studies measuring the influence of substances on driving performance.

(c) Special policies should be elaborated and put in place and resources should be allocated with the aim of discouraging driving under the influence of substances.

(d) Governments should elaborate and enforce comprehensive programmes to reduce the number of fatalities and injuries caused by driving under the influence of substances.

(e) Driving under the effect of substances could also be the indication of a broader social problem. After consideration of the cultural and socio-economic situation, governments should consider and set specific programmes to fight driving under the influence of substances including planning of actions for communication, enforcement, and rehabilitation.

1.3.2.2 Legislation

- (a) Legislation should enable the central and local governments to enact dedicated measures to prevent the problem of driving under the influence of substances.
- (b) Legislation should be worded in a manner which reflects clearly the grave danger of driving under the influence of substances. When drafting legislation, data arising from studies and research should be widely used.
- (c) Enforcement measures aiming to prevent and limit driving under the influence of substances should be included in the road safety related legislation and programmes.
- (d) National legislation should contain all the necessary enforcement measures of an organizational, institutional and practical nature. In particular, legislation should contain special operative measures to detect drivers under the influence of substances and should define the procedures to be followed by the control authorities: recognizing impairment (reduced coordination, slow reaction time, decreased inhibition, euphoria, bizarre behaviour, talkativeness, increased confidence, and agitation), determining the causes and testing for the presence of substances.
- (e) Governments should consider setting or increasing penalties for the offence of impaired driving caused by consumption of substances and for refusing to submit to testing.
- (f) In order to prevent repeated offences, legislation should include provisions obliging the drivers addicted to the use of substances to follow special customized recovery treatment. Their driving licence should be given back only after they have completed the treatment and successfully carried out specific examination.

The above recommendations should not prevent governments from taking measures that are more severe, such as “zero tolerance”.

1.3.2.3 Education

- (a) Government programmes should be put in place to raise the awareness about the potential reactions and consequences of the use of substances with an emphasis on the enhanced risk resulting from the mixture of the different drugs or by the use of alcohol with drugs and medicines.
- (b) Governments should motivate civil society to participate in the education process and should benefit from their experience and means, especially at local level.
- (c) Governments should establish education strategies and plans for their enforcement to influence the behaviour and risk perception of persons driving under the influence of substances.
- (d) Schools at all levels, education institutions including driving schools should include in their curricula information about the temporary and permanent effects of substances on perceptual and motor skills.

1.3.2.4 Road user information/Raising awareness

- (a) Governments should provide regular awareness and set information campaigns to alert the public about all the possible consequences of the use of substances on driving.

(b) Governments should also regularly plan and conduct campaigns to publicize the strict enforcement of rules concerning driving under the influence of substances.

(c) Information campaigns should also be used to create social norms prohibiting driving under the influence of substances. As in the case of alcohol, increasing drivers' perception of the risk of being detected is one of the most effective measures of preventing impaired driving.

(d) In addition, to provide a general deterrent effect and for an efficient enforcement, governments should regularly publicize the police activities to combat driving under the influence of substances.

1.3.2.5 Enforcement

(a) In addition to clear and comprehensive legislation, detailed instructions for the use of traffic police officers in charge of enforcement should be drawn up helping them to best combat driving under the influence of substances.

(b) Governments should allocate resources for specialized continuous training of the competent persons. Moreover, resources should be allocated to upgrade the enforcement equipment and to follow the technological development in order to secure efficient tools to fight the problem of driving under the influence of substances. The competent persons involved in enforcement actions should be trained in recognizing driving problems related to the use of substances. Because of the difficulty of immediately discerning the use of drugs when stopping a suspect driver, the police should be continuously updated and trained in recognizing the cues indicating potential impairment.

(c) Depending on the situation, enforcement should be carried out through the setting of roadside checking stations. Taking into account that:

(i) testing for substances by the roadside is not as easy as it is for alcohol;

(ii) few substances are detectable by the roadside, even with the use of oral fluid (saliva) screeners;

(iii) blood or urine tests could be more indicative, but collecting these fluids by the road is quite a cumbersome and complicated process.

(d) Specially equipped sites for roadside checks should be planned to allow routine enforcement all year-round, as well as more frequent checks during high risk periods (weekends) or in special occasions (mass events such as concerts, sport activities, festivals).

(e) The competent persons designated for the enforcement roadside checks should receive specific training on how to use and maintain the medical equipment in conformity with the standards and how to properly perform the examinations and interpret test results.

1.4 Seat belts and child restraint systems ¹⁰

¹⁰ On this subject see also United Nations Road Safety Collaboration- "Seat-belts and child restraints: a road safety manual for decision makers and practitioners" at www.who.int/roadsafety/projects/manuals/seatbelt/en/.

1.4.1 Context

Road traffic accidents are a major cause of injury and death in both the industrialised world and emerging countries. Over 50 per cent of these fatalities are people in the age range of 15-44 years, which is the most economically active age group. Of the estimated 1.2 million people killed on the roads worldwide each year, 85 per cent die in low and middle-income countries, where the use of injury protection devices such as seat belts and child restraints is very low.

Failure to use a seat belt and improper use of a child restraint system are major risk factors for motor vehicle occupants.

Seat belts and child restraint systems have been shown to be effective in reducing death and serious injuries in road traffic crashes. Studies have shown that, when used, seat belts reduce serious and fatal injuries by 40-65 per cent. Crash research in various countries has found that the rates of seat belt wearing are lower in fatal collisions than in the general population. The cost-benefit ratio of mandatory seat belt use has been estimated at between 1:3 and 1:8, while the cost-benefit of seat belt enforcement programmes is at least 1:3.

The level of seat belt use is influenced by:

- (a) mandatory legislation;
- (b) enforcement accompanied by publicity campaigns;
- (c) Technical systems reminders supporting that of the driver and the passengers to use the seat belt (seat belt reminders).

The level of child restraint use is influenced by:

- (a) laws mandating use of child restraints;
- (b) public information and enforcement;
- (c) Incentive and education programmes to support enforcement;
- (d) child restraint loan schemes;
- (e) The degree of difficulty to install and use child restraints.

Consequently, a combination of legislation, police enforcement, education, information campaigns and technical support systems is necessary to achieve and maintain significant increases in seat belt and child restraint use.

1.4.2 Recommendations

It is recommended that an ideal occupant protection programme should consist of the following:

1.4.2.1 Programme management

There should be leadership and resources for a comprehensive programme to protect vehicle occupants of all ages. The programme should be coordinated across the various stakeholders in road safety (road safety department, traffic police, health, education, insurance sector, communication, vehicle manufacturers and seat belt and child restraint manufacturers). Governments should consider the economic benefits generated by seat belt wearing and child restraint use.

1.4.2.2 Data

Accurate data are important to assess the effectiveness of a road safety programme. Information on road accident (i.e. collision) data and seat belt and child restraint use are very helpful to allow public and private sector stakeholders to identify shortfalls in legislation, enforcement and other seat belt/child restraint promotion activities.

A good data programme should include information on collision and casualty data, seat belt and child restraint usage rates, and public awareness and attitudes towards injury protection devices. Such data can be used to establish reasonable performance targets for the seat belt/child restraint programme and determine whether casualties have been reduced over time. An evaluation of programme activities should be undertaken to establish whether these targets have been met and should also include cost effectiveness data for different policies, programmes and strategies.

1.4.2.3 Legislation

(a) Fitting vehicles with seat belts and anchorages

Seat belts should be fitted in all seating positions in all motor vehicles equipped with anchorage points in accordance with the most current adopted technical standards, such as, for example, those contained in UNECE Regulations 14 and 16¹¹. In addition, motor vehicles in category M₁¹² should be fitted with at least two positions each composed of two rigid anchorages and an anti-rotation system for securing child restraint systems. Similarly, child restraint systems should have at least two rigid connection points for attachment to the vehicle anchorage points (see for example UNECE Regulations 14 and 44). Most vehicle manufacturers already install anchorages and seat belts in new vehicles.

For vehicles already registered, which are equipped with anchorage points but not seat belts, Governments should phase in the retroactive fitting of these devices.

(b) On the use of restraint systems

Governments should take all measures within their responsibility to protect persons transported in motor vehicles by legislating for the use of appropriate restraint systems for adults and children, and establishing responsibility for the use of such systems.

(i) Seat belts

Seat belt wearing should be required in all motor vehicles in all seating positions (forward- and rear-facing) where seat belts are installed (as is required, for example, by article 7.5 of the Convention on Road Traffic, 1968). Enforcement and penalties should be sufficiently credible to have a deterrent effect.

¹¹ Regulations No. 14, 16 and 44, annexed to the 1958 Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or Used on Wheeled Vehicles and the Conditions for the Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, define uniform technical prescriptions for approval:

Regulation No. 14: for vehicles with regard to safety-belt anchorages, ISOFIX anchorage systems and ISOFIX top tether anchorages. It includes in particular the obligation for category M1 vehicles to be equipped with at least two ISOFIX positions, each composed of two rigid vehicle anchorages for fixing ISOFIX child restraint devices and a means of preventing the rotation of the child restraint device.

Regulation No. 16: for safety-belts and restraint systems intended for installation in vehicles. It also concerns the approval of vehicles as regards the installation of safety-belts, restraint systems, child restraint systems or ISOFIX child restraint systems.

Regulation No. 44: for child restraint systems which can be fitted in power-driven vehicles.

¹² Category M1: Vehicles used for the carriage of passengers and comprising not more than eight seats in addition to the driver's seat (see the Consolidated Resolution on the Construction of Vehicles (R.E.3), document TRANS/WP.29/78/Rev.1/Amend.2).

While a few exemptions may have to be considered, for example for medical reasons, Governments should be cautious about allowing them. To this end, Governments should publicize this symbol widely among their medical services and police.

(ii) Child restraint systems



Countries should enact legislation to require children to be properly secured in a child restraint system and placed in the proper seating position (forward or rear facing). Children should be required by law to be restrained in a child restraint system taking into account the child's age, height and weight. Governments may consider phasing the introduction of such systems according to their own needs.

Studies have shown that rearward facing child restraints are the safest restraint system for small children at least up to the age of three years.

Governments should ensure that, when transporting children, only approved child restraint systems are used in vehicles. In addition, they should consider the possibility of prohibiting the sale of child restraints that do not meet the standard for use in vehicles.

(iii) Carriage of children in the front seats of vehicles

Governments should regulate the carriage of children in the front seats of category M₁ vehicles. Many countries have already introduced regulations of this nature, either prohibiting the carriage of children below a certain age or size in front seats, or permitting them to be carried only in specified restraint systems or under certain conditions.

1.4.2.4 Enforcement

Seat belt and child restraint use should be enforced as part of regular traffic police duties. Governments should also consider the benefits that would come from regular high profile seat belt enforcement campaigns, particularly to coincide with publicity campaigns. Police officers responsible for road safety should receive training in regulations requiring restraint use and also in educating motorists about the benefits of wearing seat belts and correctly using child restraint systems.

1.4.2.5 Education and public information

Education and public information can serve several purposes such as improving public awareness and supporting enforcement policies. It is recommended to consider educational approaches ranging from national media campaigns to education via health authorities, schools and employers.

Public information campaigns can be used to raise awareness about the need for seat belts and child restraints, to educate and inform, and to support policies (e.g. legislation) and enforcement efforts. Depending on the national situation and resources, consideration should be given to targeting of public information campaigns (e.g. all occupants, rear seat occupants or high risk, young males).

Where possible, research should be conducted to develop the most effective key messages and delivery strategies (TV, radio, printed media) suitable for the targeted group (e.g., feature TV spots in sports programmes to reach young males). Consideration should be given to cooperation with respected members of the local community who can overcome cultural barriers to seat belt and child restraint use. At a minimum, it is recommended to carry out evaluation of the effectiveness of the campaign in terms of effects on knowledge, attitudes and behaviour change. Some intermediate evaluation measures that may be considered include tracking the effectiveness of the campaign message and whether it reached the targeted audience. Depending on local circumstances and target groups, campaign messages should include the reasons for using seat belts and child restraints.

Besides teaching and health professionals, other stakeholders should be involved in educational efforts. For example, employers should be encouraged to consider the economic benefits of reducing the effects of road traffic injuries by requiring use of seat belts among their employees. Casualty insurers should be encouraged to actively support road safety and seat belt wearing through information campaigns and other appropriate strategies.

Parents and caregivers should be carefully educated about the need to correctly use a child restraint system appropriate for their child (through schools, hospitals, media, etc.). For some countries and groups, the purchase of child safety restraints may constitute an economic burden. In such cases, loan schemes could be considered, whereby for a small or no fee, caregivers can borrow the child restraint for a period of time. Besides encouraging use, an added benefit of such a scheme is the opportunity to educate caregivers in the proper use of the child restraint system.

Finally, Governments should consider public information and education efforts regarding the placement of rear-facing child restraint systems in vehicles with frontal airbags. Children in rear-facing child restraint systems should not be placed in a seating position with an active frontal airbag. It must, however, be noted that rearward facing child restraints are the safest restraint system for small children at least up to the age of three years. For that reason rearward child restraints can be placed in the back seat if the airbag cannot be switched off.

1.4.2.6 Monitoring and evaluation

Governments are advised to routinely measure the effectiveness of the seat belt/child restraint programme and individual interventions, ideally through observational seat belt and child restraint use surveys and through analysis of casualty data. This allows Governments to better target effective use of resources, to sustain the increased seat belt/child restraint use, to reduce the number of road traffic fatalities and injuries, and to defend their programme resources.

1.5 Use of mobile phones

1.5.1 Context

Mobile phones can be used in a motor vehicle for various purposes: for example, notifying the emergency services in the event of an accident, phoning a breakdown mechanic, etc., making use of the numerous possibilities for stopping inside and outside built-up areas and on motorways.

All the studies have shown that there is a link between telephoning while driving and the increased risk of an accident. Recent studies have, however, shown that the basic problem is that the driver takes their eyes off the road for a rather long time — independent of the source of distraction.

While at the wheel, a driver needs to pay constant attention to the road and to traffic and make no gestures that diminish control of the vehicle or hinder driving manoeuvres. At all times the driver must be capable of performing easily and instantly the manoeuvres dictated by the circumstances. Holding a mobile phone prevents drivers from performing these movements correctly and safely.

For this reason, legislation in many countries prohibits and punishes the use of a hand-held phone, while tolerating the use of a hands-free mobile phone kit. Even in this case, however, some national laws provide for the driver's liability in the event of an accident. The risk of an accident increases even when a hands-free phone is used, since a major part of the driver's attention is taken up by the telephone conversation. For example, drivers look less often in the rear-view mirror or to the sides, and pay less attention to the various signs and to pedestrians, particularly in town, etc.

1.5.2 Recommendations

1.5.2.1 While driving a vehicle

To avoid all risk of accident, countries should at least prohibit the use by drivers of hand-held phones in a moving vehicle, as is already provided for under the Convention on Road Traffic, 1968 (article 8). In addition, it should be recommended that drivers observe the following rules:

- (a) They should switch off their phones before moving off and leave them on voicemail;
- (b) They should stop in an appropriate place to telephone, listen to or read the messages received, but never in a dangerous place, such as the hard shoulder of a motorway.

These recommendations should be accompanied by information campaigns, if possible in partnership with the various phone operators, using appropriate slogans, e.g. "Drive or phone, you choose", to increase drivers' awareness of the importance of respecting these rules, for their own safety and that of other road users. It must, however, be noted that research has shown that many drivers consider the possibility to communicate also while driving to be so important that they ignore the increase in accident risk. In connection to this, it is important to note that the individual driver has difficulties to relate to and understand an increase of the individual risk level, which normally is very low, since it at the same time is a complex task to determine when a communication activity poses an accident risk.

1.5.2.2 Facilitating the investigation related to an accident

It should be recommended that users of mobile phones ensure that the person or persons to be contacted in the event of an accident are clearly indicated in the list of names stored in their phone, in order to save the emergency services and authorized personnel from wasting time trying to find them. For example, in some countries, it is becoming common practice to recommend that users of mobile phones indicate the name of the person to be contacted in an emergency by using the internationally recognized acronym ICE (In Case of Emergency), or, if there are several people, ICE1, ICE2, ICE3, etc.

1.6 Night driving

1.6.1 Context

The risk of accidents is not only considerably higher by night than by day but the accidents are also much more serious. Approximately 35 per cent of those injured and 50 per cent of fatalities are the victims of an accident at night although night driving accounts for only about one third of general traffic. Particular factors are conditions of visibility (visual capacity significantly reduced, insufficient contrasts, dazzle which incapacitates weak or tired eyes for several seconds, etc.), alcohol, stress and fatigue which lengthen reaction times, and the lack of adequate training for night driving. All these and many other aspects lead drivers to misinterpret the phenomena of the road environment and to react inappropriately as a result.

1.6.2 Recommendations

For this reason, drivers should be recommended to observe the following elementary principles. While some of these recommendations apply also during the day, they are of even more importance at night:

- (i) ensure very careful preparation of the vehicle (in particular, check the lights and ensure that they are clean) and the journey;
 - (ii) be rested when taking the wheel;
 - (iii) restrict driving speed even if the traffic is light;
 - (iv) not stare at the headlights of oncoming vehicles;
 - (v) stop at least every two hours and imperatively at the first signs of tiredness (heavy-headedness, itchy eyes, need to shift frequently, stiff neck, repeated yawning, difficulty in keeping a straight course, inattention to traffic and road signs, absent moments, etc.);
 - (vi) riders of two-wheeled vehicles should wear garments equipped with retro-reflective material (vests, reflective strips on shoe soles, armbands, etc.).
- (a) The authorities for their part should:
- (i) step up publicity on the risks of accidents at night;
 - (ii) carry out campaigns to make pedestrians and riders of two-wheeled vehicles, cyclists in particular, more aware of the imperative need to be seen at night by other users through the use of the existing lighting systems on two-wheeled vehicles as well as retro-reflective materials (vests, reflective strips on shoe soles, armbands, etc.);
 - (iii) improve the driver training and driving examination system so as to provide drivers with better
 - (iv) instruction in the particularities of driving at night such as for example special eye techniques;
 - (v) intensify police checks;
 - (vi) improve optical guidance at night, outside built-up areas, by giving prominence to the layout of bends by means of better horizontal and vertical signs and larger reflectors on roadside markers, etc. However such measures may increase the speed of the traffic;
 - (vii) generally improve road surface marking, direction indicator panels, vertical signs, etc. by using retro-reflective and fluorescent materials. However, such measures may increase the speed of the traffic;

(viii) review street lighting, especially where information is heavily concentrated, in urban traffic, in particular, and at points where motorists, riders of two-wheeled vehicles and pedestrians use the same traffic area.

1.7 Daytime use of lights

1.7.1 Context

According to the statistics, a significant number of accidents are attributable to failure to notice another vehicle in time, especially at junctions. Thus, in order to improve the visibility of vehicles, more and more countries are making it compulsory to switch on lights in daytime on motor vehicles with four wheels, as a survey carried out among the countries of the UNECE region (14 European Union countries) has shown.

This measure is permitted in particular under article 32.7 of the Convention on Road Traffic, 1968.

Generally speaking, its introduction is strongly opposed by most motorcyclists in countries where motorcyclists are obliged, in daytime, to switch on their passing beams or daytime running lights (dedicated lights). The Convention on Road Traffic, 1968, (art. 32.6) imposes a similar obligation.

The daytime use of lights on vehicles with four wheels has been the subject of a number of studies and research projects in various countries. These studies indicate that:

- (a) there are theoretical grounds for believing that the daytime use of lights improves perception, particularly peripheral perception (the manoeuvres of other road users within the driver's peripheral field of vision are more readily perceived), and that it therefore helps to prevent accidents;
- (b) the studies on the effects of daytime use of lights are quite consistent and show favourable results overall. The intensity of the effects of daytime use of lights varies, however, according to light conditions depending on the country's latitude, with more significant effects in countries located in the North than in those located in the South. Furthermore, some studies, which have found a very slight increase in the number of motorcycle accidents during the day compared with the number recorded over the same length of time at night, have revealed a possible adverse effect of the daytime use of lights on the visibility of motorcyclists and of the most vulnerable categories of users such as pedestrians and cyclists;
- (c) the daytime use of lights could cut the number of accidents in daylight involving vehicles with four wheels by 5-15 per cent.

According to some studies, the daytime use of lights would thus enable better protection to be provided to all road users, including pedestrians, cyclists and motorcyclists, whose perception would not be diminished, as they would have a better view of approaching vehicles and could modify their behaviour accordingly.

It is, however, acknowledged that the daytime use of lights entails an increase in petrol consumption ranging from 0.3 per cent for daylight running lights to 1.5 per cent for passing beams. These figures are, however, reduced if low energy or LED lamps are used.

In many countries that have already introduced legislation on the daytime use of lights, it has been noted that acceptance has generally been higher following implementation.

That said, the above-mentioned survey among the countries of the UNECE region has revealed different approaches to enforcing the obligation to drive in daylight with the vehicle's lights switched on. Thus, depending on the country, this obligation has been introduced either on a permanent or a seasonal basis, and sometimes, in both cases, with a restriction in certain places (for example, on motorways).

This survey also showed that other countries were envisaging the introduction of such a measure, more or less in the long term. Of these countries, some have opted for a progressive introduction by initially recommending that drivers of vehicles with four or more wheels should switch on their passing beams on a voluntary basis so that users will become more willing to accept it. Other countries prefer to wait for the mandatory introduction on vehicles with four or more wheels of daytime lights that switch on automatically when the engine is turned on. The advantage of these lights is that they are less dazzling and consume less fuel than the passing beams. It is already possible to install them under Regulations Nos. 48 and 87 annexed to the 1958 European Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions. It is, however, for the countries to introduce at the national or regional level appropriate legislation authorizing the use of these lights.

1.7.2 Recommendations

On the basis of the above, countries that plan to introduce the daytime use of lights should give thought to the best strategy for their particular circumstances but should at the very least encourage the installation on vehicles of daytime lights that switch on automatically.

The introduction of such a measure, whatever its nature (behavioural and/or technical) and scope (limited or general), should be accompanied by a large-scale public information campaign using all available media and should be followed up with a complete analysis to assess its effectiveness.

1.8 Driving in tunnels

1.8.1 Context

Basically, the driving rules that apply in tunnels are the same as those for open roads, i.e. maintaining a safe distance, observing speed limits and maximum loads, thoroughly securing all loads and warning other road users in the event of a breakdown or congestion or severe slowing of traffic. Nonetheless, in view of the more serious consequences of accidents in tunnels and especially in tunnels of significant length, it is especially important for road users to observe general traffic regulations and certain regulations for behaviour in tunnels so that they can deal with specific situations.

1.8.2 Recommendations

The public authorities should recommend that drivers observe the following rules.

1.8.2.1 Specific rules to be observed

More so than on open roads, it is recommended that drivers passing through tunnels should listen to the radio on the indicated frequency so that they can receive any messages or instructions that may concern them.

In tunnels indicated by special road signs (such as E 11^a as set out in the Convention on Road Traffic of 1968), all drivers must observe the associated regulations, such as those set out in article 25 *bis* of the Convention on Road Traffic, 1968, specifically: obligation to switch on passing lamps, prohibition to stop (except in cases of emergency), to make a U-turn or to reverse.

These rules should also be respected in tunnels not indicated by special road signs.

Moreover, the attention of drivers should be drawn to the fact that, when they are driving in a tunnel, it is imperative:

- (a) to maintain an adequate distance (or that indicated at the entrance to the tunnel or in the tunnel) from the vehicle in front. In normal conditions of traffic, drivers of cars should respect a distance from the vehicle in front at least equal to that which a vehicle can cover in 2 seconds. For heavy vehicles, this distance should be doubled (4 seconds);
- (b) to respect the signing and/or road markings prohibiting overtaking. Even in the absence of such markings and/or signing, drivers should, when there is only one lane in each direction, avoid overtaking;
- (c) for drivers of heavy vehicles, to observe the prohibition against overtaking to which they may be subject in tunnels with two or more lanes in the same direction if the competent authorities have taken such a measure, *inter alia*, after conducting a risk analysis.
- (d) Since road users will not always follow the rules due to various reasons, measures should be taken to adapt the design of the tunnel to the capabilities of the drivers in order to reduce the accident and injury risk.

1.8.2.2 Rules for behaviour in special situations

In addition to the above rules, drivers should observe the rules of behaviour described below, without prejudice to national requirements that may otherwise be applicable, concerning for example assistance to the injured, the use of an advance warning triangle, the wearing of a safety jacket, etc.:

- (a) In the event of traffic congestion:
 - (i) switch on the hazard warning lights when approaching traffic congestion;
 - (ii) keep sufficient distance from the vehicle in front, even if the traffic is moving slowly or stopped.
When stopped, a distance between vehicles of at least 5 m should be kept - except in cases of emergency;
 - (iii) switch off the engine if traffic is completely stopped;
 - (iv) do not leave the vehicle, unless officially instructed to do so;
 - (v) listen for messages given on the radio.
- (b) In the event of a breakdown or accident in own vehicle:
 - (i) switch on hazard warning lights;
 - (ii) in order not to create an additional danger for other drivers, if possible, drive to the exit of the tunnel or to the nearest emergency stopping point; if that is not possible:
 - (iv) pull over to the side;
 - (vi) switch off the engine;
 - (vii) with the passengers, leave the vehicle, while taking all necessary precautions;
 - (viii) take steps to protect the accident or breakdown zone;

call for help, preferably from an emergency point, and follow the instructions given.

- (c) In the event of a fire (own vehicle):
 - (i) switch on the hazard warning lights;
 - (ii) in order not to create an additional danger for other drivers, if possible, drive to the exit of the tunnel or to the nearest emergency stopping point;
 - (iii) if that is not possible:
 - (iv) pull over to the side;
 - (v) switch off the engine;
 - (vi) with the passengers, leave the vehicle immediately, while taking all necessary precautions;
 - (vii) take steps to protect the fire zone;
 - (viii) call for help, preferably from an emergency point, and follow the instructions given;
 - (ix) attempt to put out the fire using the vehicle's extinguisher or one available in the tunnel; if that is not possible, move away without delay to an emergency exit.
- (d) When stopped by a fire in another vehicle:
 - (i) switch on hazard warning lights;
 - (ii) pull over to the side;
 - (iii) switch off the engine;
 - (iv) with the passengers, leave the vehicle immediately, while taking all necessary precautions;
 - (v) attempt to put out the fire using the vehicle's extinguisher or one available in the tunnel; if that is not possible, move away without delay to an emergency exit.

See also, on the subject, the recommendations contained in points 2.1.1.1.2, 2.1.1.6 (b) and in paragraph 2.2.3.

1.9 Safety at level-crossings

1.9.1 Context

A level-crossing means any level intersection between a road and a railway or tramway track with its own track formation. In some countries level-crossings include an intersection between a rail line and a pedestrian walkway. There are still tens of thousands all over the world. Rail traffic always has the right of way over road users. It is precisely because these crossings are level that they involve serious risks, notwithstanding the signals warning of their presence (see the danger warning signs prescribed under annex 1, section A, paragraphs 25, 26, 28 and 29, of the Convention on Road Signs and Signals, 1968) and, in some instances, the protective barriers or half-barriers preventing road users from crossing when one or more rail-borne vehicles are approaching or passing through. Generally, given the difference in mass between a train and a road vehicle, it is the road vehicle that is basically at risk. However, a collision with a heavy goods vehicle can have serious consequences for rail traffic, especially if the truck is carrying hazardous or flammable goods.

Despite all the measures taken to signal level-crossings and make them safe many road users are killed or injured at such crossings every year, because they fail to observe the rules or they fail to observe stop lights or audible alarms, for example, or venturing onto a level-crossing without first making sure that no rail traffic is approaching, or else they drive through or around the barriers or half-barriers. Contrary to what is generally thought, most accidents involve "regulars", in particular those living near a level-crossing, as habit makes them less careful or more reckless, which may prove fatal.

The risk potential of a level-crossing is a function of the traffic densities on the road and the railway. Generally speaking, most level-crossings are located either where railways cross low-traffic roads, or on secondary railway lines. Still, in order to reduce the risk of collision at level-crossings, countries are making efforts to remove them, starting with the ones where the risk is highest, either by replacing them with split level-crossings or simply doing away with them. This is, however, a long-term undertaking because of the cost involved and the relatively long study and implementation times. Also, the topography of the sites does not always lend itself to such a solution.

1.9.2 Recommendations

In the light of the foregoing, the following measures are recommended:

1.9.2.1 Rules to observe when approaching and going through a level-crossing

(a) Rules of behaviour

All countries with rail networks should introduce into their legislation the provisions of article 19 of the Convention on Road Traffic, 1968, which establishes the rules to be followed by all road users, whether pedestrians, cyclists, moped or motorcycle riders, or drivers of motor vehicles with four or more wheels, when approaching and going through level-crossings.

Additionally, to ensure greater safety, countries should prohibit road users from moving beyond the level-crossing sign (see, for example, signs A, 28a and A, 28b, in the Convention on Road Signs and Signals, 1968) when a rail-borne vehicle is approaching the crossing.

Some countries supplement these rules with stricter provisions for the drivers of buses and coaches, which are obliged to stop at level-crossings not equipped with automatic warning devices such as barriers, half-barriers or flashing lights. In these countries the drivers of school buses are obliged to stop at level-crossings, whether or not they are equipped with barriers, half-barriers or flashing lights.

It must, however, be underlined that since road users will not always follow the rules due to various reasons, measures should also be taken to adapt the design of the level crossing to the capability of the drivers in order to reduce the accident and/or the injury risk. Such measures must be developed from a systems perspective including the technical, social and organizational context in which the behaviour takes place.

(b) Rules for overtaking

Similarly, countries should introduce into their legislation the provisions of article 11, paragraph 8, of the Convention on Road Traffic, 1968, which sets out the rules for overtaking just before and on level-crossings. They should ideally also introduce the provisions contained in the 1971 European Agreement Supplementing the 1968 Convention on Road Traffic, which are stricter.

1.9.2.2 Road user awareness

Countries should also make road users aware of the dangers of such level-crossings, through information campaigns, emphasizing the importance of observing the rules in point 1.9.2.1, for their own safety.

Over and above these rules, the following advice should be given to each category of road user.

- (a) Pedestrians: to use the level-crossings only to cross the tracks and taking the shortest route.
- (b) Cyclists, drivers of mopeds and motorcyclists: to always cross the track at right angles to the rails.
- (c) Drivers of motor vehicles:
 - (i) to avoid changing gear when crossing the tracks;
 - (ii) when approaching a level-crossing, to stop whenever they hear or see a rail-borne vehicle coming.
- (d) Drivers of vehicles for the transport of goods and passengers more specifically:
 - (i) to get to know the level-crossings on their routes;
 - (ii) to be well aware of their vehicle's dimensions and load to be sure that it will have sufficient space to fully clear the track and get across safely.

1.9.2.3 Infrastructure and equipment

No level-crossing should be located on high-traffic thoroughfares (motorways and similar roads) or on railways where speeds can exceed 160 km/h.

Automatic level-crossings should be equipped with a red light signal, which requires vehicles to come to a complete stop, accompanied by a bell, and signalled in advance by appropriate signs that will vary depending on whether or not the level-crossing has barriers.

For greater safety and better enforcement, level-crossings can be fitted with technical systems that allow automatic checks. Such systems make it possible to detect and identify any vehicle which goes through the level-crossing after activation of the light signals prohibiting passage, in order to document the infringement and penalize the driver.

However such measures do not solve the underlying system deficiencies which must be tackled by a systems approach looking at the problems with the capabilities and limitations of the road user put in a technical and organizational context. This approach should also include the railway system.

Chapter 2

Methods of influencing behaviour on the road

Since most motorised means of transportation can take road users to the limits of their physiological and psychological capabilities, behaviour assumes great importance. The more so because motor vehicles seem to provide power and speed beyond the purpose of mere transportation.

Besides rules for behaviour in traffic (chapter 1), a number of social institutions should be mobilized and motivated to achieve safety in traffic. The education of drivers should start at an early age, i.e., by parents, in elementary and secondary schools (2.1.3) and finally in training and examinations for acquiring driving permits (2.1.1). The early steps in road training will contribute substantially to safe behaviour in adolescence and later on. First aid for road crash victims should be part of the training of professional medical personnel, but also of drivers (2.1.2).

Communication strategies and awareness campaigns should keep drivers up to date and alert. They too mobilize and motivate parents, schools and other social institutions. They also create the awareness of the general public that is a necessary basis for good road traffic safety (2.2).

Safe behaviour of drivers has to be ensured by controls carried out by police and sanctions imposed by the legal authorities. Special attention should be given to drivers who intentionally break the rules. Development and use should be encouraged of all technical means for assisting drivers to comply with the rules (2.3).

Road crash victims' associations, if they volunteer for such a role, can be instrumental in training and awareness campaigns to communicate the severity of the impact of road crashes.

Notwithstanding these efforts, it is important to underline that road user behaviour is also highly influenced by the technical, social and organizational environment in which it takes place. It must be understood that on a general level human error in road traffic can be divided into unintentional errors (mistakes, slips, lapses, etc.) and intentional violations. These errors and violations have different origins and a deeper analysis of the underlying or contributing factors to undesired road user behaviour is hence needed to be able to take effective countermeasures. Multidisciplinary Crash Investigations (MDCI) and other qualitative studies are important tools for that. Studies have, for example, shown that noncompliance with seat belt regulations is not a question of lack of knowledge or information. In a vast majority of the cases, it is an unintentional error for which seat belt reminder systems have turned out to be very effective.

2.1 Education of road users

The present section covers the requirements for specific training leading to different driving permits (2.1.1), the requirements for training leading to first aid certificates for medical personnel and drivers (2.1.2) and the general education which should be provided by parents, primary and secondary schools (2.1.3).

2.1.1 Professional driving instruction

2.1.1.1 Driving permit

Establishing driving permit legislation is indispensable in the process of improving driver behaviour, particularly through the driving tests to obtain a driving licence. Responding to these road safety demands requires in particular minimum conditions to be established for the issue of driving permits, the definition of the knowledge, skills and behaviour necessary for driving a motor vehicle, the structure of the driving test in relation to these concepts and a definition of the minimum standards as regards physical and mental fitness to drive these vehicles. At the same time particular attention should be paid to possible means of attaining these road safety goals, such as promoting progressive access to different categories of permit, checking that drivers are maintaining the required skills and combating all possibilities of fraud.

In this context, greater account also needs to be taken of groups of drivers presenting specific needs such as the handicapped and elderly persons, or specific risks such as young drivers, whether with regard to driving permits or to road safety education. In an effort to reduce the excessively high accident risks among young and inexperienced drivers, several countries have successfully introduced stepped access, from school age, to different categories of permit, combined with specific provisions and continued training.

Penalties for people who commit serious driving offences must naturally be commensurate with the gravity of the offence, but special attention should also be paid to rehabilitation, for example by introducing specific programmes for offenders. In countries that have introduced programmes of this kind the results,

notably a reduction in the number of repeat offences, have been encouraging. Countries that also use a probationary or points-based permit system should explore the benefits of rehabilitation courses that offenders must take in order for a permit which has been withdrawn to be restored.

2.1.1.1.1 Driving permits and the Convention on Road Traffic, 1968

The amendments to the 1968 Convention on Road Traffic, which entered into force on 28 March 2006, introduced an entire set of new provisions concerning national and international driving permits with the objective of harmonizing rules for national driving permits at the international level and of clarifying the status of international driving permits (which are only recognized as valid when presented together with the corresponding national driving permit). The amendments introduce new provisions concerning:

- (a) The conditions for the issuance of national driving permits.
- (b) The harmonization of the content of national and international driving permits, for example the definition of the obligatory and optional features, the categories and subcategories of vehicles (accompanied by pictograms) for which driving permits are valid, etc.

The corresponding provisions are in articles 41 and 42 of the Convention on Road Traffic, 1968, as revised. In order to obtain the greatest possible harmonization internationally, it is recommended to countries not yet Contracting Parties to this Convention to implement the provisions relating to national driving permits in their territory.

It is, moreover, recommended to Contracting Parties to the Convention on Road Traffic, 1949 to recognize driving permits issued in conformity with the Convention on Road Traffic, 1968.

Independently of these measures, countries should pay particular attention to certain fraudulent practices aimed at issuing international driving permits by organizations not authorized by national authorities, including via the Internet.

2.1.1.1.2 Driving permit and driving in tunnels

Tests (theory part) to obtain a driving permit for all categories of vehicles should include questions specifically concerning the special regulations for tunnels indicated by special road signs (article 25 bis of the Convention on Road Traffic, 1968) as well as the correct behavior to assume in particular situations, for example in the event of a vehicle breakdown, congestion, accident or fire in a tunnel (see points 1.8.2.1 and 1.8.2.2).

2.1.1.2 General principles of professional instruction

- (a) Professional driving instruction should be based on the following main considerations:
 - (i) the behaviour of drivers plays an important role in road traffic accidents and their prevention;
 - (ii) minimum requirements for driving tests have been set out in the Agreement on Minimum Requirements for the Issue and Validity of Driving Permits (APC), done at Geneva on 1 April 1975;
 - (iii) in order to ensure that at least these minimum requirements are respected, appropriate tuition is necessary;
 - (iv) the methods of tuition should always follow developments in the field of education and applied psychology and therefore be adjusted to the requirements of the moment and of local conditions;

(v) liaison meetings between representatives of driving schools, instructors and the authorities responsible for organizing driving tests should be encouraged so as to improve the standards of tuition.

(b) The requirements indicated in the present recommendation are to be considered as a minimum, and Governments should endeavour to supplement them whenever possible by measures taking into account current educational trends, such as, for example, computer training modules and the use of driving simulators.

(c) It is recommended that Governments take all appropriate steps to ensure that tuition in the driving of motor vehicles is given as far as possible in accordance with the minimum conditions set out in points 2.1.1.3, 2.1.1.5 and 2.1.1.6 below.

2.1.1.3 Instructors

Professional tuition should be given only by instructors approved by the competent national authority in accordance with the conditions set out in annex IV to this Consolidated Resolution. The instruction given in some countries by trainee instructors should be under the personal supervision and the direct responsibility of a professional instructor.

2.1.1.4 Vehicles used for tuition

(a) Motor vehicles used for practical tuition should be so equipped that the instructor is able to control the vehicle being driven by the candidate, so as to prevent accidents as far as possible.

(b) Vehicles should be marked in such a way as to indicate clearly to the front and to the rear that they are being used for tuition.

2.1.1.5 Tuition

(a) The tuition provided should aim at promoting a correct attitude and behaviour in all kinds of traffic situations, cover all the matters set out in annex IV and follow the methods set out in annexes V and VI to this Consolidated Resolution to at least the standards required by the theoretical and practical driving tests, and enable the learner to assess traffic hazards and understand that the risk of an accident is particularly great during the initial years of driving.

(b) Instructors should be encouraged to provide instruction in accordance with subparagraphs (a) and (c), and in particular:

(i) to make the fullest possible use of active methods of tuition and modern teaching aids (cf. 2.1.1.2, subpara. (b) above), including areas closed to traffic, if appropriate, for certain categories of vehicles;

(ii) to adapt their training methods to suit the individual learner in a way which encourages active participation;

(iii) to develop systematic training methods which coordinate theoretical and practical training in particular aspects of driving and risk-reducing or risk-avoiding behaviour.

(a) Suitable facilities, teaching aids and equipment for the provision of theoretical instruction, determined by education plans and instruction programmes, should be provided.

2.1.1.6 Instruction in the driving of heavy goods and passenger vehicles

(a) In addition to the instruction necessary to obtain a driving permit, it is recommended that drivers of heavy goods and passenger vehicles should follow supplementary initial training before entering the profession. This training should be renewed periodically, every five years.

(b) The training of these drivers should include certain specific aspects concerning behaviour in tunnels. It is moreover essential that these drivers should possess knowledge relating to the safety of vehicles and vehicle equipment. In particular, these drivers should learn the correct use of a fire extinguisher.

2.1.1.7 Supervision

The continued application of the provisions set out in points 2.1.1.3 to 2.1.1.6 above should be checked at regular intervals by the competent authorities.

2.1.2 First aid training

(a) Appropriate measures shall be taken to ensure that candidates for driver's licences receive proper training concerning their conduct at an accident site, so as to minimize the hazard to life or health at the scene.

(b) Drivers and other people should be encouraged to acquire first aid training on a voluntary basis through courses or through mass media or any other appropriate means.

2.1.3 Instructing children on safe road behaviour

The education of children for their own protection is necessary but should not lead to any legal responsibility for parents or children. These first steps in road safety training will contribute to safe behaviour in adolescence and in later life.

That is why the basic principles of road safety should be instilled in children from the earliest age in order to make them aware of safe road behaviour. For this purpose, appropriate steps should be taken to encourage road safety instruction for children and ensure that it is given, as far as possible, in accordance with the principles and provisions outlined in annex VII of this Resolution. Such instruction should respect the limitations of children (e.g. age, development) in all cases and should comply with the following principles:

(a) the main aim of road traffic safety education should be:

(i) to instil the knowledge necessary to understand road traffic rules and for safety on the road or street;

(ii) to aim at appropriate and safe behaviour in specific traffic situations;

(iii) to develop awareness of the importance and usefulness of respecting road traffic safety rules and measures. To this end, it is important that adults set a good example for children;

(a) to be effective, road safety education should be provided on a systematic and continuous basis in preschool establishments, primary and secondary schools, within out-of-school activities and places of further education. Every effort should be made to secure the active participation of children and the cooperation and participation of parents to enable them to be an integral part of the tuition process, particularly in the early ages;

(b) road safety instruction may be taught not only as a single subject but should also be incorporated into more general approaches designed to ensure that the child and teenager learn to respect the fundamental values of everyday life.

Furthermore, it should encourage young people to adopt reasonable, safe and considerate conduct not only when driving but in day to day living, especially in respect of other people. To have maximum educational impact, road safety education must cover areas beyond simply the Highway Code, such as practical skills, knowledge of and positive attitudes towards safety via technical subjects, ethics and social science;

(c) safety of children on their way to school and back has similar principles and characteristics in many countries. Therefore it is a particularly suitable subject to demonstrate international cooperation and friendship as a subject to be taught in schools.

While it is important that children understand the risks in traffic and importance of a safe behaviour, this should not lead to that the child can be seen as a full-fledged road user or stimulated to use the road transport on its own. Still efforts must be made to design the system where children move with their physical and cognitive capabilities and limitations as a starting point.

2.2 Awareness-raising and communication

2.2.1 Context

In view of the fact that the vast majority of road accidents are linked to inappropriate behaviour on the part of road users, every effort should be made to change it and stop accidents from being a commonplace occurrence. One of these efforts involves making road users aware of the dangers of the road and the risks they incur by not observing the rules. A tool exists for the purpose and is indispensable for road safety today: communication. Communication is carried through the press, radio and television, the use of which is indispensable for launching road safety campaigns. In order for these campaigns to be effective and achieve the goal they have been given, it is important to establish communication strategies.

It should nevertheless be noted that communication alone, used in isolation, does not permit modification of behaviour in principle (unless very sporadically as part of a very specific operation). For this reason, information campaigns must be a part of more global strategies for modifying the behaviour of road users. All campaign assessments show that information obtains better results when it combines with other measures (new regulations, upgrading of the road network, reinforced police checks, etc.). In these cases, the measures are mutually reinforcing. In addition, it should be noted that communication must never be an alibi or a pretext for not adopting other safety measures which could prove far more effective. There is a need to create a detailed understanding of the mechanisms behind the behaviour of the road user in different situations, and which is often affected by the technical, social and regulatory context in which the behaviour takes place to be able to take effective countermeasures.

2.2.2 Recommendations concerning communication strategies

Road safety campaigns may be taken to be a set of communication measures for the purpose of obtaining good behaviour from road users or the modification of behaviour that has been incorrect until now.

If communication is to have some chance of success, it is recommended to the competent authorities that:

(a) sufficient time and finance should be devoted to analysing problems and developing a strategy for identifying the theme(s) for future campaigns;

- (b) work should continue on the same topic for a long period so that the message is clearly understood;
- (c) work should concentrate on a limited number of major problems that can be addressed from a variety of different angles, e.g. drink-driving, observing speed limits, leaving a safe distance between vehicles, seatbelt use, helmet use, safety of pedestrians and of two-wheeled vehicles, etc.;
- (d) campaigns should target the relevant aspects of attitudes that determine a specific type of behaviour;
- (e) the message should be transmitted in such a way that the recipient feels concerned, or motivated to reflect and ultimately to change their behaviour;
- (f) the information should be designed in such a way as to be accessible and relevant and should indicate the recommended behaviour (or change) clearly and without ambiguity;
- (g) appropriate channels of information should be selected. Depending on the aim of the campaign and the extent and content of the message, the medium chosen will appear where the behaviour occurs (e.g. posters, warning signs on roadsides) and/or be in a form that practically no one can avoid (e.g. TV commercials, brochures sent directly). Means of information that lead to reflection and dialogue once the message is received have proved their worth (e.g. interactive television or radio broadcasts, competitions or discussions of brochures with parents or teachers which increase the impact of the message);
- (h) the communication should be transmitted at various levels (the public at large and the different recipients, classified by age, profession, transport mode, etc., and the multiplying agents relaying the message);
- (i) a systematic evaluation of the impact of each campaign should be conducted during the campaign and after it finishes, to determine awareness of the campaign and its effect on behaviour.

2.2.3 Special recommendations concerning safety in tunnels

In order to increase user awareness of safety in tunnels, information campaigns should be regularly organized in collaboration with the principal partners involved.

- (a) These campaigns should cover the behaviour road users should adopt when approaching and driving through tunnels or when they encounter special situations such as a vehicle breakdown, congestion, an accident or a fire, as well as the safety equipment available in tunnels. In this regard, the rules to be observed as described in paragraph 1.8.2 should be borne in mind.
- (b) These campaigns should be effected in particular by means of displays in rest areas before tunnels and at tunnel entrances themselves when the traffic is stopped (for example, at tolls).

2.3 Information for road users

2.3.1 Information for road users in international traffic

2.3.1.1 Context

The steady increase in international traffic requires that all countries, especially transit countries or countries that are popular tourist destinations, should provide clear information about the special traffic regulations applicable in their territory. In particular, these regulations concern:

- (a) General traffic regulations such as:
 - (i) speed limits by vehicle and road category;
 - (ii) wearing of seatbelts or helmets by drivers and passengers of two-wheeled motorized vehicles;
 - (iii) maximum permissible blood alcohol limits for different categories of drivers.
- (b) Required on-board equipment

Where a country obliges its nationals to carry supplementary equipment to enhance traffic safety, for example a warning triangle and/or safety vest, it is usual for the same requirements to be imposed on foreign nationals entering its territory. For any additional equipment that may be required by regulations on behaviour, section 5.3 of this Resolution should be consulted.

Annex 1, paragraph 6, of the Convention on Road Traffic, 1968, authorizes Contracting Parties to make it a condition for the admission to their territories of any motor vehicle other than a two-wheeled moped or a two-wheeled motorcycle without sidecar, that the motor vehicle shall carry a device to give warning of the danger on the carriageway. This device may be a warning triangle (see point 5.3.1.1.) or any other device prescribed by the country in which the vehicle is registered. It follows that, in line with the Convention, the driver of a vehicle carrying another device of this kind should not be additionally required, when entering another country that is a Contracting Party to the Convention, to carry a warning triangle if this device is not required in his country of origin.

2.3.1.2 Recommendations

In (a) and (b) above, countries should take all appropriate measures to inform foreign drivers of the regulations in force so that they do not fall foul of the law unnecessarily. Such information may be provided by various means, for example notices at the border or leaflets printed in several languages and distributed at border posts, etc.

However, it is also incumbent upon drivers to inform themselves before their journey of the special regulations that apply in a country. Accordingly, countries should facilitate the task of users by making available to them, for example through embassies, tourist organizations, and Internet sites about their country, all information required to conform to regulations, including the conditions of admission to their territory in international traffic, e.g. possession of an international driving licence, the presence of a distinctive sign of the country affixed to the rear of the vehicle, etc.

2.3.2 Road and traffic information

2.3.2.1 Context

With a view to improving traffic safety, road users should be informed of road and traffic conditions such as hazardous weather conditions or large-scale traffic disruption, for example during weekend or holiday departures or returns, that they can expect to encounter along their planned route or they will face in the course of their journey.

2.3.2.2 Recommendations

Information on road and traffic conditions should be widely disseminated via the usual media (radio, Internet, press, television) to enable users to decide whether or

not to travel and to make arrangements with full knowledge of the facts. When such conditions arise, this information should be provided in real time, via radio, on-board electronic navigation aids now widely in use, or dynamic message panels.

In addition, where international main roads are concerned, the countries through which these roads pass should exchange information about the following matters, in particular if they are neighbours:

- (a) major traffic disturbances expected or noticed (congestion or accidents);
- (b) road closures for a prolonged period (e.g. due to construction work or natural disasters);
- (c) long delays at borders.

The competent authorities of the various countries should specify details regarding the scope of information and its form of transmission.

2.3.3 Recommendations for warning drivers of vehicles of the dangerous effects of certain medications

(a) It is recommended that Governments should take appropriate steps to ensure that drivers are adequately warned of the influence, or dangerous effects of certain medications on the driving of a vehicle. Such warning information should be provided at different stages:

- (i) by the doctor who prescribed the medication(s);
- (ii) by the pharmacist regardless of whether the medication is supplied with or without a prescription;
- (iii) by an indication on the packaging of the medication concerned, where a written warning and the warning symbol reproduced below should be clearly displayed.

(b) If certain medications are incompatible with the driving of a vehicle, the warning symbol reproduced below must appear on the packaging in the same way.

WARNING SYMBOL



2.4 Roadside checks and penalties

2.4.1 Context

Experience shows clearly that regulatory measures are all the more efficient when their implementation is closely monitored, in other words, when a very strong probability exists that offenders will be identified and punished.

2.4.1.1 Role of checks

A high level of monitoring both enables drivers whose behaviour is dangerous to be identified and punished and has a positive influence on the behaviour of all road

users. It also makes it possible to evaluate the extent to which users comply with the regulations for each type of regulation checked.

The role of the checks is both to punish and to prevent. They may also be used to educate, for example, when drivers are shown the offences they have just committed on videos recorded on board police vehicles. This type of check allows offending drivers to be immediately aware of their own behaviour and of the risk they incur as well as the risk to others.

The number and frequency of checks also contributes to measuring their efficiency over time and to compiling useful information for establishing plans for such checks.

It should, however, be noted that very frequently the improved behaviour resulting from monitoring only lasts as long as drivers perceive that there is a high risk of being caught. The frequency of checks is therefore an important deterrent. Since permanent monitoring of every driver anywhere at any moment is unrealistic, however, it would seem essential to improve the impact of checks by combining two types of monitoring - a clearly visible version which is given very wide publicity, and another more discreet version. It is important that road users should have the impression that they may be monitored anywhere and at any time, since this will induce them to be more vigilant and constantly observe the rules.

2.4.1.2 Roadside checks policy

Bearing in mind the limited resources generally available to the police, it is important to focus the checks on the main causes of deaths and serious injuries on the roads (in particular, non-observance of speed limits, driving under the influence of alcohol, or failure to use restraint devices or protective helmets) without, however, ignoring other causes such as the poor state of vehicles. In order to do so, use should be made, when possible, of automated systems which enable drivers to be monitored continuously, while random checks and large-scale operations should also be put into effect.

The plans drawn up for roadside checks—assessed at regular intervals and adapted if necessary in accordance with the information compiled by making use of the results of previous checks - means that these can be used to best advantage. This requires the plans to be prepared in particular on the basis of indicators of local accident patterns:

- (a) in time, so as to identify the time periods which should be the object of priority efforts;
- (b) in space, so that the roads or areas most likely to be the scene of accidents can be identified and made more specifically the object of checks.

In non-priority areas random checks will be given more importance.

Roadside check operations should be combined with information campaigns to increase the awareness of road users of the importance for safety of complying with the rule that is the object of the check and its validity. Such operations should also make it clear to road users that they may be checked anywhere at any time.

It is also important to recall that checks are all the more efficient and acceptable if they are credible; this means that traffic rules and signs and signals must be consistent with the road environment.

2.4.1.3 Role of penalties and other additional restrictive measures

The goal of the system of penalties is not only to punish offenders and, where necessary, remove them from traffic, but also to educate road users in correct behaviour on the public highway and in respect for the rules of the road. Penalties should therefore be adapted so as to provide a lesson, for example, by reducing the time between the offence committed and the pronouncement of punishment, by adapting the severity of the punishment to the seriousness of the offence and/or by developing measures as an alternative or in addition to penalties.

Rehabilitation programmes for habitual offenders would also help to make those who break the rules aware of the risks they incur and the risks to others.

However, these measures are built on the assumption that accidents are caused by human errors and that these could be significantly reduced by introducing additional regulations and procedures to ensure a "correct" behaviour and punish an "improper" behaviour of those who "violate" the rules. This approach presupposes that human errors are more or less intentional violations, i.e. that the road user in all situations can make a deliberate or conscious decision to act rightly or wrongly. Running a red light or trying to cross an intersection in spite of conflicting traffic are typical examples of serious traffic offences that might be unintentional behind. Forgetting to put on the seat belt, not turning on headlamps, losing control on a road with invisible ice are other such examples of unintentional violating the traffic rules, but possibly leading to lethal consequences.

On a general level human, error in road traffic hence can be divided into unintentional errors (mistakes, slips, lapses, etc.) and intentional violations. Contemporary Human Factors research clearly shows that regulating human behaviour and making the individual accountable for accidents will only have marginal effect on unintentional errors. In-depth analyses of road traffic accidents show that such errors are common contributing factors. When it comes to intentional violations research shows that such regulating activities will have an effect but it varies considerably with the risk of being caught and the level of sanctions. Speeding, driving under influence of alcohol or other drugs, not using restraint systems or not using protective equipment are in many cases serious intentional violations but in some cases unintentional errors (especially when it comes to speeding, not using restraint systems and protective equipment). These violations and errors may lower the effects of the system design and must be met with special attention.

2.4.1.4 Technical appliances to facilitate observance of the rules

Lastly, although they are not strictly roadside checks as carried out by the police, the gendarmerie or other authorities, mention may be made of the technical appliances that, at various levels, help drivers to observe the rules. These may include:

- (a) devices on board the vehicle (for example, a seatbelt indicator light, an anti-start system in the event of a positive blood alcohol level, or an adjustable speed limitation device, etc.);
- (b) devices that are part of the road infrastructure (for example, road markings and/or lighting devices at regular intervals in tunnels to help drivers to keep an adequate safe distance between vehicles) or
- (c) devices installed on the roadside, for example, to indicate whether or not the driver keeps to the permitted speed limit.

These and other devices, which could be described as driving aids, merit particular attention on the part of the competent authorities.

In addition, it is important that road signs and signals (vertical or marked on the ground) and other road installations must be strictly in keeping with the technical requirements prescribed by the regulations and maintained in good condition.

2.4.2 Recommendations

With reference to the principles defined above, it is recommended that the following measures should be implemented:

2.4.2.1 Measures concerning checks

- (a) Drafting of plans for roadside checks aimed at determining the best strategies and implementing them. Roadside checks should be carried out in sufficient numbers using appropriate means and appliances and should be widely publicized. This is to ensure a preventive role and give all road users the impression that they can be permanently monitored.
- (b) Among the rules which should be the subject of checks, special attention should be paid to:
 - (i) exceeding maximum permitted speeds;
 - (ii) using restraint devices or protective helmets;
 - (iii) driving under the influence of alcohol and/or substances;
 - (iv) maintaining insufficient distance between vehicles;
 - (v) failing to comply with legislation governing driving and rest times for professional drivers;
 - a. with reference to speed checks:
 - i. increased use of fixed and portable automatic devices;
 - ii. as a priority, carrying out of checks not only at points where the risk of accidents is greatest but also where their consequences are most serious (in the vicinity of schools, in tunnels, near roadworks);
 - iii. Prohibition of the installation and use of radar detectors and equipment of the police with devices for locating them;
 - b. with reference to restraint devices or protective helmets:
 - i. ensuring of permanent monitoring of the failure to use them;
 - ii. systematic organization several times a year over a sufficiently long period (at least several days) of targeted checks possibly in conjunction with other actions;
 - c. with reference to alcohol and substances:
 - i. intensification of the number of checks at the most critical places and times, particularly at night and during the weekend;
 - ii. authorization and development of random checks;
 - d. with reference to the distance between vehicles: intensification of the checks particularly on motorways and in tunnels;
 - e. with reference to the driving and rest times: effective and frequent checks of driving and rest times set out in the relevant international and domestic regulations applicable to professional drivers of vehicles intended for the carriage of passengers and goods, both on the roadside and on company premises, using in particular the data

recorded by the monitoring device, or tachograph, with which these vehicles are equipped.

- (a) Ensuring of greater safety in tunnels by using a variety of methods for roadside or automatic checks of heavy vehicles (for example, X-raying loads, using devices to detect overloading, using devices to detect the overheating of heavy vehicles, particularly of engines or brakes), installed in front of
- (b) the entrance to long tunnels with a long steep approach, etc.
- (c) Use of monitoring appliances approved and periodically checked by the competent services in order to avoid any disputes as to the evidential force of the data or values recorded.
- (d) Ensuring of training for all persons authorized to carry out checks.

2.4.2.2 Measures concerning penalties

- (a) Ensuring that the offences observed are systematically and rapidly penalized, in proportion to the seriousness of the offence, so that the punishment applied will be a genuine deterrent.
- (b) Ensuring that the driver at fault has no opportunity to evade prosecution.
- (c) Development of international cooperation relating to exchange of information between States on offences committed by drivers who are not resident in the country where the offence was committed so that the driver is effectively penalized.

2.4.2.3 Measures concerning drivers

- (a) Introduction or development of road safety awareness courses intended to produce a long-lasting modification of behaviour, particularly in respect of drivers sanctioned for drink-driving, offenders who repeatedly exceed the speed limit or those who have committed other serious offences entailing the cancellation or invalidation of their driving permit. These courses must be adapted to the nature of the offence repeatedly committed by the offenders and be designed in such a way as to make them aware of the collective aspect of risk, and lessen the probability of any repetition of their dangerous behaviour. They may also provide an opportunity to address the issue of aggressive driving, an alarming phenomenon which is tending to spread considerably.
- (b) Development and encouragement of technical means of assisting drivers to comply with the Highway Code.

2.5 Compulsory motor third-party liability insurance

2.5.1 Context

Experiences in a number of countries show that following a many-sided approach is the most effective way of influencing the behaviour of participants in road traffic. More specifically, in the case of road traffic offenders it appears that the best results are obtained by combining criminal and administrative sanctions with economic measures.

Third-party liability insurance of vehicle owner is rather often employed to exert economic pressure. The use of insurance allows, first of all, guaranteeing compensation for harm caused to the lives, health or property of road traffic accident victims; and, secondly, to exert economic pressure on the responsible(s) for the harm be they owners and/or drivers of the vehicles.

In many countries the legislation foresees for the third-party liability insurance as an obligation of the vehicle's owner and as a mandatory requirement to be fulfilled prior to the vehicle's registration for admission in road traffic.

Guaranteeing payment of indemnity to road traffic accident victims is becoming more and more important notably at international level, considering the increase in the volume of cross-border traffic (international transport of passengers and goods by road as well as private journeys). An example of successful solution to this problem is the international motor third-party liability insurance system (Green Card system).¹³

There are several types of incentives/penalties for the subjects insured. One of the important ways of using the economic element as a means to influence behaviour of the insured (the vehicle owner) within the third-party liability schemes is the system of bonus-malus coefficients used by insurance companies in calculating the cost of the insurance premium i.e. the amount which the insured (vehicle owner) is obliged to pay on concluding an insurance contract.

The *bonus-malus* coefficients reduce or increase the premium: the reduction coefficient (bonus=good, in Latin) is applied if, for a number of years, to be determined by the insurer, there was no insurance claim for damages produced by the subject insured. In the opposite case, the increase coefficient (malus=bad, in Latin) is applied.

Another way of using the economic element as a means to influence the behaviour of the insured is to give the insurer the right of filing a regress suit against the driver and/or owner of a motor vehicle (the insured) when a road traffic accident occurs following a proved serious road traffic offence (driving while intoxicated or without a license for the given vehicle, and other offences).

This means that after compensating the harm caused to the victim, the insurer has a right to file a claim against the person responsible for the road traffic accident, to recover the expenses incurred.

The economic measures mentioned above, combined with other measures, have a positive effect on drivers behaviour, resulting in a more careful driving and enhanced compliance with the road traffic rules. This helps to reduce the number of motor vehicle accidents and the quantity of persons injured or killed in accidents.

2.5.2 Recommendations

In the light of the facts stated above, the following measures are recommended:

- (a) countries should include possession of valid third party liability insurance in the list of mandatory requirements for vehicle's admission in road traffic. In many countries, the issuing of the registration certificate/plate is subordinated to the subscription of an insurance contract. To facilitate the check on the roadside, in countries where a proof of valid insurance is required, the proof should be readily available and/or affixed on the vehicle, in a visible place for example on the front window;
- (b) countries should encourage the introduction of "*bonus-malus*" system as described in paragraph 2.5.1 above;

¹³ See annex 1 of the Consolidated Resolution on the facilitation of international road transport, of 30 April 2004 (TRANS/SC.1/2002/4/Rev.4).

(c) national legislation should provide that upon provision of this type of insurance, the insurer is entitled to require from the insured responsible for road traffic accidents, which were caused by certain major violations of road traffic rules, the compensation of the expenses incurred with regard to the indemnification of the harm caused to the victims.

Chapter 3

Pedestrians and persons with reduced mobility

3.1 Context

Pedestrians still account for a substantial proportion of road accident victims in a large number of countries. The safety of pedestrians and persons with reduced mobility requires a comprehensive and coherent approach to ensure real interaction between the various road users. The aim of these recommendations is an improvement of their safety.

3.2 General recommendations

3.2.1 Research and statistics on pedestrian safety

In the field of pedestrian safety, there is a need to collect data to assess the safety of pedestrians in road traffic more effectively and more regularly in order to refine knowledge of the problem through, inter alia, the following:

- (a) ensuring that pedestrian collisions are recorded and that the quality of the recording is optimized to make in-depth analyses of collisions possible, if needed;
- (b) research into the relationship between the number of pedestrian collisions and changes in pedestrian activity (like children being brought to school by car instead of walking, or old people not leaving their homes owing to fear of traffic conditions);
- (c) further research to determine the positive and negative effects of the increasing use of advanced technologies in vehicles and the design of the latter on the safety of the most vulnerable road users, and pedestrians in particular.

3.2.2 The role of public authorities

Public authorities should take more account of the vulnerability of pedestrians and contribute actively to reducing the dangers to which they are exposed by taking the following measures:

- (a) giving pedestrian safety an important role;
- (b) taking pedestrians into account, giving them the same importance as users of means of transport when transport and traffic plans are being drawn up. When building new infrastructures, or changing existing infrastructures, safety audits should be carried out inter alia to determine and to alleviate possible negative effects on the safety and mobility of pedestrians;
- (c) enlisting the participation of residents of the neighbourhoods involved, so that they may contribute with suggestions regarding the improvement of pedestrian safety.
- (d) ensuring that the speed of motor vehicles cannot exceed 30 km/h where pedestrians and motor vehicles are not physically separated.

3.2.3 Education and campaigns to promote pedestrian safety

In order to make road users more aware of existing traffic rules and the behaviour they need to adopt to ensure that pedestrian safety is not compromised, the following points - especially with regard to campaigns and driving courses - should be stressed:

- (a) campaigns on pedestrian safety should project not simply an image of pedestrians as vulnerable road users, but as road users in their own right;
- (b) campaigns should inform all road users about the physical and psychological capabilities and limits of human beings in traffic, thereby helping to understand the behaviour of each road user group, including the need for interaction among road users;
- (c) road safety education and campaigns should also be used to inform pedestrians of road traffic rules, help them to respect these rules and advise them how to avoid dangerous situations when moving on foot, including when they have priority;
- (d) special attention should be given to training and educational aspects, beginning with young children. Parents have a special responsibility to teach children how to cross a road;
- (e) driving courses and campaigns should encourage non-aggressive conduct towards pedestrians and stress their vulnerability.

3.3 Recommendations concerning the movement of persons with reduced mobility

In addition to the provisions of the 1968 Conventions on Road Traffic and on Road Signs and Signals and the 1971 European Agreements supplementing them, it is recommended that urgent and suitable action should be taken in order to facilitate the movement of persons with reduced mobility in road traffic wherever possible and with due consideration for the safety of all road users, in accordance with the following principles:

- (a) adoption of the international symbol below or as described in the 1968 Convention on Road Signs and Signals (annex 1, chap. H, para. 1) and its incorporation in documents, road traffic signs, etc., used to facilitate the movement of persons with reduced mobility;



- (a) allowing persons with reduced mobility in wheelchairs to use pedestrian walkways and pavements, provided movement is at walking pace, and cycle-tracks where there is no properly surfaced pavement or pedestrian walkway;
- (b) promotion, where feasible, of the organization and operation of a special urban transport system for use by persons with reduced mobility unable to move about unaided (such as a service of specially-designed taxis or minibuses);

- (c) facilitation of the transport of persons with reduced mobility, for instance, using private cars or taxis through a package of appropriate measures such as subsidies or reduction of taxes and/or tariffs;
- (e) encouraging:
 - (i) the adaptation of normal production vehicles to facilitate the transport of persons with reduced mobility;
 - (ii) the adaptation of normal production vehicles to be driven by certain categories of persons with reduced mobility;
 - (iii) the development and manufacture of special vehicles to be used by persons with reduced mobility;
 - (iv) the standardization of materials used for the adaptation of the vehicles mentioned in subparagraphs (i) and (ii) above, and of the special vehicles mentioned in subparagraph (iii) above;
- (f) use of the mass media and any other appropriate means to make the public aware of the problems of persons with reduced mobility in road traffic;
- g) circulation of suitable information for persons with reduced mobility regarding transport facilities and marked routes available to them.

3.4 Recommendations concerning the safety of elderly persons

In order to reinforce the safety of elderly persons, they should be made aware of the dangers of road traffic. The following measures are recommended in this regard:

- (a) elderly persons should be encouraged to wear light coloured or fluorescent clothing with reflective elements at night;
- (b) the dissemination of information regarding the needs of the elderly related to transport systems and facilities should be supported at all decision-making levels;
- (c) mass media should be used together with other appropriate means to make all road users, including the elderly, aware of the particular problems concerning the movement of elderly persons in road traffic. Courses for the elderly by organizations involved and/or by the police could be of great help.

Chapter 4

Safety of children on the way to and from school and when being transported

This Chapter takes into account the responsibility of adults to ensure children's safety; it faces the serious social problem of the killing and injuring of children in traffic situations and is consistent with the Convention on the Rights of the Child, which clearly calls adults and their institutions to account for the well-being of children. This includes the protection of children from road traffic violence.

It describes recommended measures with respect to training, information, the behaviour of children in traffic and their transport. Those measures relating to facilities to ensure the safety of children on the way to and from school and in the vicinity of schools are described in Chapter 9 of this Resolution.

4.1 Context

Road traffic is the most complex and difficult aspect of the environment which the child can experience. As a result of its physiological and psychological development, a child's behaviour is less predictable than and markedly different

from that of adult. Furthermore, children are especially prone to traffic injuries and the risk of long-term (permanent) disability which may have profound effects on victims' quality of life.

In order to reduce the number of child victims of road traffic accidents, many of which involve school-age children on the way to and from school or in the immediate vicinity of schools, the authorities should take measures to avoid such accidents, and parents and school authorities should for their part pay greater attention to the dangers facing children.

4.2 Recommendations on the safety of children on the way to and from school

The measures that should be taken are described below.

4.2.1 The role of authorities

The following measures are recommended:

(a) to cover safety on the way to and from school in road safety instruction for children, as described in paragraph 2.1.3, in particular in schools;

(b) to teach children how to behave at a bus stop, when getting on and getting off the bus and while in the bus during the journey. Such education should be supplemented by practical training, particularly in facing dangerous situations;

(c) to make drivers of motor vehicles aware that children do not have the necessary capability to respond adequately to dangers on the road;

(d) to protect children by active and passive safety measures with their physical and cognitive capabilities and limits as a starting point;

(e) to reinforce checks on driver's respect for traffic rules near schools particularly when children enter or leave them;

(f) to ensure dissemination of mass-media communication programmes, aimed at parents and children, in order to enhance the safety of children on their way to and from school;

(g) to ensure that all road accidents involving injuries to children are recorded in the national statistics, and to take steps to improve the quality of the data which is recorded. Where it is not possible to include in national statistics data about the accident having occurred on a journey to or from school, the necessary information should be obtained by means of ad hoc investigations or surveys;

(h) to take the necessary steps to develop research for increasing the safety of children who participate in road traffic;

(i) to set up a transport system (e.g. school buses - see paragraph 4.2.3 and point 7.1.1.2) for children, in particular those in lower grades, especially if the school is far away from residential areas.

4.2.2 The role of parents and school authorities

The following measures are recommended:

(a) parents should be informed of their children's limited abilities as road users and encouraged to increase the safety of their children both by supervision and training:

(i) as regards supervision, parents should be especially encouraged to accompany their children or have them escorted to school, particularly those in lower grades, and teach them progressively to go unescorted;

(ii) as regards the acquisition of correct behaviour in traffic, theoretical training should be supplemented by practical training given in real traffic conditions and children should be taught how to behave as pedestrians (how to cross a road, walk on the side of the road if there is no pavement, etc.). Such training should be carried out by both specially trained persons (e.g. teachers, traffic police) and parents;

(a) adults should be reminded to give particular attention to setting an example for children, by displaying at all times safe behaviour and respect for traffic rules;

(b) patrols consisting of specially trained persons such as police, teachers, parents and possibly older pupils should be organized to protect children at dangerous places on the way to and from school. In this regard, it should be borne in mind that patrols composed of older pupils contribute not only to a greater degree of safety of children at such places but also to their road safety education in general and to the development of their sense of responsibility. This is why, it is suggested that special attention be given to promoting such patrols;

(c) parents and school authorities should be made aware of the importance of making children more visible by having them wear brightly coloured clothing and devices to increase safety (retro-reflective and fluorescent material), in particular in conditions of poor visibility;

(d) children who may use cycles or mopeds according to the provisions of national legislation should be instructed:

(i) on the basic traffic rules;

(ii) on the importance of correct equipment of their vehicle (lighting, retro-reflectors, brakes, etc.), and to wear brightly coloured clothing or retro-reflective strips;

(iii) on the use of protective devices (helmets, etc.); and

(iv) on the particular dangers that may be encountered in road traffic for their category of vehicle, especially in relation to heavy vehicles.

If the children are allowed to use cycles at an early age, parents should be encouraged to accompany them or to have them escorted and to follow the recommendations set out in paragraphs (a) and (b) above, to teach them progressively to behave correctly as cyclists.

4.2.3 The collective transport of children

(a) The transport of standing children should not be allowed.

(b) The presence of a monitor is highly recommended. If the role of monitor is entrusted to a pupil, he/she should be at least 16 years old and have received special training.

(c) Drivers should be trained in the specificities of the transport of children.

(d) Vehicles assigned for use in transporting children should be fitted with fixed seats facing forward and seat belts. They should also have alcohol interlocks installed.

(e) Concerning children or school transport, evacuation exercises should be regularly organized.

Part two

Rules relating to vehicles and their use

Given that vehicles are one of the three components of road safety together with drivers and infrastructure, matters that are dealt with in parts I and III of this resolution, it is essential to maintain a constant level of vehicle safety. The 1968 Convention on Road Traffic sets minimum rules for vehicles to be admitted to international traffic. In addition to these requirements, this part of the resolution outlines supplementary measures to enhance safety and facilitate traffic.

Chapter 5

General rules concerning vehicles and their equipment

This chapter addresses, on the one hand, the means that make it possible to maintain a satisfactory safety level of vehicles in circulation, in particular by means of periodic inspections, and, on the other hand, the equipment that may be required on board so as to best ensure the safety of vehicles and their occupants on the road. It also addresses certain administrative rules relating to the registration of vehicles that make it possible to facilitate their use.

5.1 Technical inspection of vehicles

5.1.1 Context

Periodic technical inspection of vehicles is a procedure aimed at ensuring optimal functioning of the vehicles' safety equipment. It is also an essential component of environmental protection against various forms of pollution.

In this field, the 1968 Convention on Road Traffic (art. 39, para. 2) merely establishes a principle under which vehicles used for public transport and having more than eight seats in addition to the driver's seat and vehicles of more than 3,500 kg used for the carriage of goods and their trailers are subject to mandatory technical inspections, without further indicating the modalities to be used. The 1971 European Agreement supplementing the Convention (ad article 39, paragraph 4) goes further, establishing rules to be observed in respect of noise and pollutant emissions and imposing the issue of an international technical inspection certificate.

In addition to the above provisions, periodic technical inspection is also the subject of a special international agreement¹⁴ dated 13 November 1997, the purpose of which is to ensure greater uniformity and harmonization in applying rules in this field. It is to be supplemented by minimum technical regulations, which will be adopted gradually over time. The first of these regulations, which entered into force on 15 February 2007, establishes uniform requirements applicable for

¹⁴ Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspections.

environmental protection. The 1997 Agreement also establishes the model of the international technical inspection certificate mentioned in the above-mentioned European Agreement supplementing the Convention.

In the current absence of international requirements establishing a list of components or elements to be checked to ensure vehicle safety and setting out the methods to be used during periodic inspections, the recommendations hereunder provide guidelines on this subject.

5.1.2 Recommendations

In order to maintain a vehicle fleet that is in satisfactory working order and environmentally friendly, and to ensure a constant level of safety, countries should apply the minimum inspection requirements set out in the above-mentioned 1997 Agreement, together with the following recommendations:

(a) the vehicles covered by paragraph 5.1.1 should be required to undergo a technical inspection one year after admission to traffic and every year thereafter in order to ascertain that they satisfy statutory requirements, particularly in regard to the basic road traffic safety and environmental protection regulations. The same regulations should extend to taxis and ambulances. The intervals referred to above may be reduced to six months for vehicles requiring more rigorous testing, such as those used for public transport and vehicles carrying dangerous goods;

(b) countries should also, as recommended in article 39, paragraph 3, of the Convention on Road Traffic, extend the periodic technical inspection to other vehicle categories such as cars, vehicles used for the carriage of goods whose permissible maximum mass does not exceed 3,500 kg and motorcycles. The intervals between inspections applied by countries for such vehicles are generally greater than the ones set out in subparagraph (a). In addition to this periodic inspection, some countries have also instituted for these vehicles a technical inspection on change of ownership;

(c) technical inspections should be carried out under the supervision of the competent authorities, by designated bodies or authorized establishments;

(d) during inspections, checks should be made of the components and elements listed in annex II to this Consolidated Resolution;

(e) moreover, vehicles which have been seriously damaged in accidents should be submitted to a technical inspection with stricter checks before they are allowed into traffic again;

(f) during random roadside checks, it should also be ascertained that the vehicles are in order in respect of the mandatory periodic technical inspections.

5.2 Loading and stowage methods

Article 30 of the Convention on Road Traffic, 1968, sets out the general rules for loading vehicles. Given the importance of proper stowing arrangements, failure to observe of which gives rise to numerous accidents, these rules have been amplified in annex II to this Consolidated Resolution. Governments should publicize and encourage dissemination of the methods and rules reproduced in this annex.

5.3 Equipment that may be required on board vehicles

This section describes the principal on-board equipment that countries may require in order to increase the safety of road users. Some of these provisions may be imposed on foreign nationals when they travel to the countries in question.

5.3.1 Use of safety devices when a vehicle is immobilized on the carriageway

These provisions relate to warning triangles and safety vests.

5.3.1.1 Advance Warning triangle

(a) Rules for use

When a warning triangle is used to indicate that a motor vehicle other than a two-wheeled moped or a two-wheeled motorcycle without a sidecar is stationary on the carriageway, its use should conform to article 23, paragraph 5, of the 1968 Convention on Road Traffic, as supplemented by the 1971 European Agreement. It is recommended that it should be used as follows:

- (i) outside built-up areas, the triangle should be placed near the edge of the carriageway or in the lane the stationary vehicle occupies perpendicular to the lane's centre line and at least 30 m from the stationary vehicle in the direction of the approaching traffic in such a way and at such a place that it may be possible for the drivers of the said vehicles to see it in time. This distance should be at least 100 m on motorways and similar roads;
- (ii) in built-up areas, the advance-warning triangle should, if possible, be placed in the same way as described above, but at a distance that may be less than 30 m.

The above provisions also apply to independent devices other than triangles if these are prescribed by national legislation.

(b) Technical characteristics

The warning triangle should meet the requirements of Regulation No. 27¹⁵ annexed to the 1958 Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the basis of these Prescriptions.

5.3.1.2 Safety vest(s)

(a) Rules for use

When, following a breakdown, puncture or any other incident requiring the vehicle to stop at the roadside, the driver and occupants of the vehicle thus stopped are awaiting assistance or carrying out repairs at the side of the roadway or in the emergency lane of a motorway or similar road, it is crucial, for their safety, by day and all the more so by night, that they be clearly seen by other drivers, regardless of the presence of a warning triangle. In such situations, it should be strongly recommended that safety clothing or accessories, such as safety vests, should be worn.

In this respect, more and more countries are making it mandatory to wear such safety vests. To that end, they require vehicles (or certain categories of vehicles) registered in their territory to carry one or more safety vests. Most such countries also impose this obligation on vehicles registered in other countries travelling

¹⁵ Regulation No. 27: Uniform provisions for the approval of advance-warning triangles.

through their territory, which may lead to misunderstandings during checks if the vehicles come from a country where there is no such obligation and if their drivers are unaware of this requirement. It is therefore important for drivers travelling to other countries to obtain information prior to their departure on the rules of behaviour to be observed in the territory of such countries (see point 2.3.1.1 (b) of this Resolution).

This being the case, countries that impose this rule should accept, in international traffic, the safety vests that may be carried on vehicles registered in other countries, even if their colour is different from that required by their national regulations, provided they conform to an international standard or the national standard of the country of origin.

(c) Technical characteristics

Safety vests should be clearly visible under all conditions and from all angles. For this purpose, they should meet performance criteria such as those corresponding to European standard EN 471 class 2 (or national equivalent). The EN 471 standard specifically defines the essential colour and retro reflectivity characteristics of such garments (area of fluorescent and retro reflective material, quality of the material, etc.), so as to offer maximum visual performance in all circumstances, night and day (see also section 14.2 of this Resolution).

5.3.2 First aid kit

5.3.2.1 General recommendations

A first-aid kit should be placed in all motor vehicles of categories B, C and D and their subcategories, as set out in annex 6 to the Convention on Road Traffic of 1968.

The content of the kit should be adapted according to the category of vehicle considered or the particular use made of the vehicle, such as the transport of dangerous goods.

For vehicles in category B, the first-aid kit should be:

- (a) simple, appropriate and safe to use;
- (b) affordable;
- (c) easily replenished locally, including the inclusion of a limited number of products with expiry dates; and
- (d) adapted to local practices and conditions.

5.3.2.2 Recommendations concerning the container of the first-aid kit and its contents

(a) Container

The container should hold the items detailed below and should be designed to protect them against impact, dust and water. It should be of distinctive colour and/or bear a distinctive sign. It should be easy to open and close. It should also contain compartments to hold different items. It may take the form of a shoulder bag, backpack or box.

(b) Contents

The first-aid kit for category B vehicles should contain at least the following articles, in order to enable persons not formally trained in medicine, but having basic first-aid training, to perform the actions required to save or protect lives:

<i>Action</i>	<i>Contents</i>	<i>Description</i>	<i>Quantity</i>
Reminder of actions to assist victims	Information booklet:	“Pocket-sized” format	1
	Emergency numbers	More graphics than text	
	List of kit contents		
	Instructions on how to use the kit		
Protection of the victim against cold or heat	Article to limit differences between the victim’s body temperature and the outside temperature	Isothermal rescue blanket:	1
		Around 210 cm x 160 cm Very bright colour	
Control of external bleeding	Article to protect rescuer’s hands against contact with the victim’s blood	Pair of gloves (non-sterile, latex-free, large)	1
		Article to absorb blood loss during clotting, and to maintain sufficient local pressure to control the bleeding	Compress, gauze, non-sterile (10 x 10 cm, absorbent gauze, 100 per cent cotton, woven, 17 threads/cm ²)
		Bandage, gauze, non-sterile (10 cm x 4 m, 100 percent cotton)	1
		Safety pins or adhesive tape (5 cm x 10 m, capable of being torn by hand, high cutaneous tolerance, waterproof, microporous, with strong adherence and non-damaging for the skin when removed)	2 or 1
		Article to stop major bleeding in the event of serious injuries to a limb	Rubber tourniquet
Care of skin wounds	Antiseptic protective barrier to prevent/limit possible infectious contamination	Single-use doses of non-iodized antiseptic (e.g. Chlorhexidine 0.05 per cent)	4
		Compress, gauze, non-sterile (10 x 10 cm, absorbent gauze, 100 per cent cotton, woven, 17 threads/cm ²)	2

<i>Action</i>	<i>Contents</i>	<i>Description</i>	<i>Quantity</i>
		– Adhesive dressings	1 small box of assorted sizes, or adhesive dressing bandage (6 cm x 5m, 1 roll)
Stabilize bone/joint trauma	Material to restrict movement of the wound	Triangular bandage (136 x 96 x 96 cm, 100 per cent cotton or viscose)	2
Artificial respiration	Means to restrict direct contact between rescuer and victim during mouth-to-mouth or mouth-to-nose resuscitation	Face shield or pocket mask	1
Miscellaneous	Sharp instrument to cut things (seat belt, clothes or bandages/dressings)	Pair of curved scissors (unhardened, non-magnetic steel)	1
	Means of illuminating the scene and the victim	Pocket torch/flashlight	1
	-Notebook	Pocket-sized	1
	-Pen or pencil		1

5.3.3 Extinguishers

Certain categories of vehicles are obliged by national legislation or by international regulations to carry one or more fire fighting appliances. The categories chiefly affected are normally heavy vehicles and vehicles carrying dangerous goods, but some countries have made an on-board portable extinguisher mandatory also for motor vehicles whose permissible mass does not exceed 3,500 kg.

In the case of vehicles carrying dangerous goods, the appropriate regulations are contained in the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), which lists the specifications of the on-board fire fighting appliance(s) as dictated by the goods carried, in particular the capacity of the extinguisher, the flammability class, the type of extinguishing agent (mainly powder), and the relevant standards (European standard EN 3) to be followed.

Generally speaking, irrespective of the category of vehicle, the extinguishers must meet requirements set out internationally (above-mentioned EN 3 standard) or in national regulations. They should also be fitted with a seal so as to attest that they have not been used. Additionally, they should bear a mark of compliance with the standard recognized by the competent authorities and an inscription at least indicating their use-by date or the month and year of their next scheduled inspection.

Some heavy vehicles are also fitted with a fixed fire extinguisher to fight a fire in the engine. This equipment is normally automatic or easily brought into action. The extinguishing agents should be such that they are not liable to release toxic gases into the driver's cab or under the influence of the heat of the fire.

The fire extinguishers should be installed so that they are easily accessible to the driver, especially in heavy vehicles.

5.3.4 Other safety devices

In addition to the equipment described in paragraphs 5.3.1 to 5.3.3 above, national or international regulations may require the presence of other devices, such as spare light bulbs or a chock. In the case of national provisions, countries should provide all the necessary information to foreign nationals if they are subject to such obligations (see in particular point 2.3.1.1 (b), above). International provisions automatically apply to foreign vehicles. For example, the ADR Agreement requires that each vehicle have at least one chock of a size suited to the mass of the vehicle and to the diameter of the wheels, as well as a pocket lamp for each member of the vehicle crew.

5.4 Registration of vehicles

Article 35 of the 1968 Convention on Road Traffic sets out the general conditions of vehicle registration for admission to international traffic. The following recommendations cover specific cases such as those of provisionally registered and hired vehicles.

5.4.1 Provisional registration

(a) Vehicles concerned

Vehicles whose registration is applied for by or on behalf of persons claiming to be only casual visitors to the country and benefiting on that account from customs and/or tax exemptions should be subject to provisional registration only. This possibility mainly relates to vehicles purchased for export.

(b) Conditions of issue

(i) The length of validity of such registrations should be limited by national legislation.

(ii) Such registrations should not be granted for vehicles which are located out of the country unless the circumstances are exceptional and properly vouched for.

(iii) Further provisional registration of a vehicle which has already been registered provisionally should not be allowed unless the service concerned has taken all necessary precautions to prevent abuse.

(iv) Registration certificates for such vehicles should in each case include the address stated by the applicant to be his ordinary residence outside the country in which he has applied for provisional registration (there being, however, no obligation to check in detail the statement by the holder of the certificate as to his ordinary residence), and should indicate the date on which the validity of the provisional registration applied for expires.

(v) The registration plates provided for vehicles so registered should be of approximately the same dimensions as normal plates but should show, one below the other, the last two figures of the year at the end of which the validity of the provisional registration expires, preferably inscribed in white on a vertical red bar (or in red on a white bar if the background of the plate is red).

5.4.2 Registration certificates for hired vehicles

Pursuant to article 35, paragraph 1 (a), of the 1968 Convention on Road Traffic, every motor vehicle in international traffic, and every trailer, other than a light trailer, coupled to a motor vehicle shall be registered by a Contracting Party or a subdivision thereof, and the driver of the motor vehicle shall carry a valid certificate of such registration. In accordance with this provision, the document to be presented at road checkpoints shall be the original certificate issued.

However, article 3, paragraph 4, of this Convention stipulates that the Contracting Parties may take measures, either unilaterally or under bilateral or multilateral agreements, to admit to their territories in international traffic motor vehicles and trailers that do not satisfy all the conditions stated in Chapter III (Conditions for the admission of motor vehicles and trailers to international traffic) of the Convention.

On the basis of this provision, countries have authorized the issue of extracts from or copies of the registration certificate or photocopies of the certificate certified as true copies where the issue of registration certificates to persons hiring vehicles would present difficulties. In countries using such a procedure, the issue of the aforementioned documents should meet the following conditions:

(a) Extracts from or copies of the registration certificate should contain at least all the particulars required under article 35, paragraph 1, of the Convention on Road Traffic (1968) and be issued by the competent authorities or by an association empowered for that purpose. The photocopies should be certified as true copies by an empowered authority. Under such procedures:

(i) it shall be for the authority issuing the copy or extract or certifying the photocopy to be a true copy to decide whether or not to require the original registration certificate to be deposited;

(ii) the copies, extracts or photocopies should be marked "Vehicle on hire. Copy (extract, photocopy) for use by the person hiring the vehicle".

(b) Copies, extracts or photocopies issued in conformity with the foregoing requirements for hired vehicles registered abroad should be accepted in place of the registration certificate. However, the certificate holder must ascertain whether such extracts, copies or photocopies are accepted in the country (countries) in question.

Chapter 6

Special rules relating to two-wheeled vehicles

The use of two-wheeled vehicles with or without a motor is growing everywhere in the world. These vehicles are very often used as a means of transport to escape the problem of traffic congestion. However, the users of these vehicles are particularly vulnerable as is shown by accident statistics. The recommendations below aim to increase the safety of this category of road user.

6.1 Bicycles

6.1.1 Context

The use of the bicycle is developing not just as a means of transport, often as a substitute for a motor vehicle, but also as a leisure activity.

Numerous countries or local authorities are putting in place voluntary policies to promote the use of bicycles with the general aim not only of protecting the environment, in particular in the fight against atmospheric pollution, but also of safeguarding public health.

This category of users is, however, subject to a high number of accidents on the roads due to the fact that, in the absence of special lanes dedicated to them, they have to integrate into the general traffic or even face up to general traffic conditions, for example at intersections. It is important therefore to reinforce the safety of these users, including through the specific measures or infrastructure installations.

6.1.2 Recommendations

6.1.2.1 Regulations concerning the use of bicycles

6.1.2.1.1 Visibility at night

The provisions of the Convention on Road Traffic, 1968, (article 33, paragraph 1) on the equipment of bicycles should be complemented by the following measures to improve the visibility of bicycles and cyclists at night:

(a) Equipment of the bicycle

Without prejudice to existing national legislation concerning normal lighting devices for bicycles, they should be equipped:

- (i) at the front: with a white reflex-reflector;
- (ii) on the sides: with amber reflectors fixed to the spokes of the wheels or with retro-reflective devices showing a continuous circle;
- (iii) on the pedals: with white, yellow or amber reflectors which allow clear visibility of the movement and identification of the presence of the cyclist.

(b) Equipment of the cyclist

It is recommended that cyclists wear light-coloured clothing, supplemented by retro reflective materials to reinforce their visibility and facilitate their identification by other road users.

6.1.2.1.2 Marking of trailers coupled to cycles

If a trailer is coupled to a cycle, the trailer must be equipped at the rear with a red reflecting device and also, if the rear lamp of the cycle is hidden by the trailer or is not lit, a red lamp shall be placed on the rear of the trailer.

6.1.2.1.3 Special rules

(a) Wearing of helmets

Users of bicycles should be encouraged to wear a protective helmet, whether riders or passengers.

(b) Safety reflector arm

In order to ensure a protection zone between the cyclist and other road users, it is recommended to equip the bicycle with a device known as a "safety reflector arm".

6.1.2.2 Awareness campaigns and checks

Bicycle equipment and helmets should be the object of information or awareness campaigns aimed at users, in particular schoolchildren. Checks should be

organized to ensure that cycle equipment conforms to these rules, in particular those relating to lighting and visibility, and sanctions should be envisaged in case of non-conformity.

6.1.2.3 Infrastructure for bicycles

Because of the vulnerability of cyclists, it is desirable to put in place, to the extent possible, specific types of infrastructure, in order to better protect this category of road user and reduce the potential for conflict with other road users.

There exist to this end different types of infrastructure which provide several degrees of separation between cycles and motor vehicles such as cycle lanes which are an integral part of the carriageway or, even better, cycle tracks; which are completely separate from the carriageway (see on this subject the definitions introduced in the Convention on Road Traffic, 1968, in article 1 (g bis) and (g ter) and in the Convention on Road Signs and Signals, 1968, in article 1 (e bis) and (e ter) by the amendments which entered into force on 28 March 2006).

See also section 11.1 of chapter 11 of the present Resolution “Infrastructure and the safety of two-wheeled vehicles.

6.2 Two-wheeled vehicles equipped with a propelling engine

6.2.1 Context

The official statistics for road accidents usually show that riders of motorcycles and mopeds are involved in more accidents than other road-user categories. In-depth studies into the causes of these accidents show a variety of reasons for these high figures.

Motorcycle and moped riders are more likely to be involved in fatal and injury accidents than are operators of other vehicles. While statistics differ among countries, motorcycles and mopeds are involved in an accident with another vehicle, in approximately 50 per cent of the accidents in which they are involved. In-depth studies of motorcycle and moped crashes have reconfirmed that the most important cause of accidents is driver or rider error.

To be effective in reducing motorcycle and moped crashes and related deaths and injuries, comprehensive motorcycle and moped safety programmes should be established and supported. In what follows, recommendations are made based on the most successful practices.

6.2.2 General recommendations

The recommendations address those related to the rider and those linked to the road environment. While some recommendations address the vehicle, i.e., motorcycle or moped, these are not addressed in-depth as they are included in other regulations and recommendations.

6.2.2.1 Rider permits and licensing for mopeds and motorcycles

The permit allows the authorities to control who has access to the road. It also acts as a means of testing whether or not the rider has a sufficient knowledge of the rules of the road and control of the vehicle.

As concerns the issuance of “motorcycle” and “moped” permits, different strategies have been tried over the years, with mixed success. Detailed accident studies have shown that a key element in creating safe riders is experience. Research has shown that successful completion of a rider-training programme can

provide the equivalent of up to six months of riding experience. Such research findings have promoted the increase in the use of phased licensing systems.

The European experience has been that young road users usually progress from a bicycle to a moped and then to a motorcycle or car. In countries where the climate makes two-wheeler riding attractive, mopeds are seen as a special form of bicycle and a first step towards motorised transport. The minimum age for mopeds has therefore been 14 years in such countries and the requirements for obtaining a permit, if indeed one is required at all, have therefore been confined to a theoretical test on the rules of the road.

For motorcycles, the trend has been towards a phased introduction to the more powerful vehicles. Thus, a learner rider in Europe will be restricted to a limited performance motorcycle for the first two years and then allowed to ride a more powerful machine. From the fact that it is experience that counts, it follows that time spent riding/operating the motorcycle and not further testing governs the progress from one category of motorcycle to another. Similarly, some countries allow car drivers to use the car permit to act as a permit for the limited class of motorcycle, on the grounds that such people have experience of using the road. In practice, such riders usually take some form of training to become familiar with the operation of the motorcycle.

The choice of the permit structure for motorcyclists and moped riders depends on many factors in each country and experience shows that no one solution can be claimed to have a better result than another. The guiding principle should be that specialised training should complement a general safety education and the whole supported by a progressive introduction to more complex and powerful vehicles. Increasingly, this means that the acquisition of a permit has become linked to a system of rider training.

6.2.2.2 Rider training

Initial rider training (pre-licence training) is very important. It should be affordable and accessible. It should be conducted within an agreed syllabus. Where the services of professional instructors are employed they should be qualified to an agreed standard and should always be experienced riders. The training programme should, in addition to teaching relevant machine control skills, also address hazard awareness and avoidance and the importance of rider attitude and behaviour and its consequences.

The objective of initial rider training should be to give the necessary skills and knowledge to ride safely and responsibly in traffic and not simply to be able to obtain a licence. To this end, licence-testing arrangements should seek to evaluate that a rider has acquired the necessary skills and knowledge to ride safely and responsibly.

6.2.2.3 Protective gear ¹⁶

The wearing of a protective helmet should be required for motorcycle and moped riders and passengers, as is legislated already, for example, by the European Agreement supplementing the Convention on Road Traffic, 1968, (ad article 27).

¹⁶ On this subject, see also United Nations Road Safety Collaboration – “Helmets: a road safety manual for decision makers and practitioners” at www.who.int/roadsafety/projects/manuals/helmet_manual/en/index.html.

Moreover, the helmets should be approved as is also already required by the European Agreement.¹⁷ Riders and passengers should also be encouraged to wear clothing with retro-reflective or fluorescent devices particularly when driving at night or in reduced visibility and to use additional protective equipment such as: proper clothing, gloves, boots, long trousers, and a durable long-sleeved jacket; eye and face protection, etc.

6.2.2.4 Safety campaigns

Public information campaigns provide an opportunity to educate motorcycle and moped riders, as well as other motorists and road users. Such campaigns should emphasize issues of rider conspicuity and motorist/other road user awareness of motorcycles and mopeds. These programmes should address:

- (a) daytime use of headlights;
- (b) wearing of brightly coloured clothing and reflective materials on clothing and helmets in order to make motorcycle and moped riders very visible by day and at night;
- (c) lane positioning so as to be more visible to other users;
- (d) reasons why motorists do not see motorcycles and mopeds;
- (e) and, especially, ways that other motorists and road users can increase their awareness of motorcyclists and moped riders.

Regardless of country-specific legislation, and in addition to law enforcement strategies (see point 6.2.2.5 below), safety campaigns to educate and encourage motorcycle and moped riders and passengers to use protective helmets and additional protective equipment should be promoted.

6.2.2.5 Law enforcement

As with other areas of road safety, law enforcement personnel play an important role in motorcycle and moped safety. Enforcement of licensing, laws on driving under the influence of alcohol and laws governing motorcycle and moped operation is as important for two-wheeled vehicles as for four-wheeled vehicles. Besides enforcing road safety rules and regulations, law enforcement is important in properly investigating collisions and maintaining a reporting system that documents the occurrence of collisions. Such a reporting system can, together with Multidisciplinary Crash Investigation (MDCI) be used to assist in identifying programmes and policies needed to increase motorcycle and moped safety. Law enforcement can also provide public information and education support for motorcycle and moped safety.

6.2.2.6 Trailers

Where trailers are permitted by national legislation:

¹⁷ The standards for the approval of protective helmets for riders and passengers of motorcycles and mopeds are notably defined in Regulation No. 22 annexed to the 1958 Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can Fitted and /or Used on Wheeled Vehicles and the Conditions for the Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions.

(a) they should be such that the performance of the combination ensures sufficient safety of operation (speed, visibility, braking).

(b) when the rear registration plate of a two-wheeled vehicle is hidden by the trailer and/or its load, a registration plate reproducing the registration number of the vehicle should be affixed at the rear of the trailer, as required by article 36, paragraph 2 of the Convention on Road Traffic of 1968.

6.2.2.7 Infrastructure

Traffic engineering is a critical element of any crash reduction programme. The authorities responsible for road infrastructure should be aware of the needs of riders as road users and their particular characteristics and vulnerability.

Particular attention should be attached to infrastructure and road lay-out which promotes the safety of these users (see section 11.2 of chapter 11 of the present Resolution “Infrastructure and safety of two-wheeled vehicles”).

6.2.3 Recommendations concerning mopeds

6.2.3.1 Technical aspects

(a) Visibility

Without prejudice to existing national legislation on conventional lighting, mopeds shall be equipped with lateral markings consisting of either amber reflex-reflectors or retro-reflective material showing a continuous circle on the sidewalls of the tyres.

When mopeds are subject to registration, the rear registration plate should be retro-reflective.

(b) Performance

Modifications of mopeds resulting in a change in their performance and safety of operation shall be prohibited.

The use and sale of devices which allow such changes should also be prohibited and provision should also be made for checks and sanctions.

(c) Safety of passengers

If national legislation authorises the transport of a passenger on a moped, the passenger should be provided with a seat and footrests.

(d) Trailers

Trailers coupled to a moped should be fitted at the rear with a red reflecting device. If the red lamp of the moped is hidden by the trailer and/or its load, a red lamp should then be placed on the rear of the trailer.

6.2.3.2 Riding mopeds

(a) Aptitudes required of moped riders

(i) Moped riders should be at least 14 years of age.

(ii) Governments are recommended to promote tuition for moped riders.

(b) Safety of mopeds in traffic

Domestic legislation should make it compulsory for moped riders to drive with passing lamps or daytime running lamps switched on in daylight.

6.2.4 Recommendations concerning motorcycles

6.2.4.1 Technical aspects

(a) Visibility

In addition to the obligatory lighting and light-signalling devices prescribed by the 1968 Convention on Road Traffic (annex 5, paragraphs 32, 34 to 37 and 39):

(i) Motorcycles may be equipped with the following additional devices:

- a. vehicle hazard-warning signal;
- b. front and rear fog lamps.

The fitting of such devices should be encouraged and should be effected in conformity with the relevant requirements of Regulation No. 53 annexed to the 1958 Agreement.¹⁸

(ii) The rear registration plate should be retro-reflective.

(b) Vision

All motorcycles should be equipped with at least one rear-view mirror as required notably by the 1968 Convention on Road Traffic (paragraph 47 of annex 5).

(c) Safety of motorcycle passengers

The passenger should be provided with a seat and footrests.

(d) Trailers

Trailers coupled to a motorcycle should be equipped with lamps and signalling devices as foreseen by annex 5 of the Convention on Road Traffic, 1968, (paragraphs 24 (b), 25, 26, 28 to 30 and 39).

6.2.4.2 Riding motorcycles

(a) Aptitudes required for motorcyclists

To obtain a motorcycle driving permit, candidates should be required to pass both theoretical and practical tests after receiving appropriate instruction. Rider training for motorcycle permit candidates should be affordable and accessible; conducted within an agreed syllabus; and conducted by qualified, experienced instructors.

The use of high-performance motorcycles, as defined nationally/internationally, should be either:

- (i) subject to meeting the requirements of a progressive permit system with appropriate training and experience on a lower performance motorcycle, or
 - (ii) subject to minimum age requirements and training required to pass the appropriate level of test.
- (b) Safety of motorcycles in traffic

¹⁸ 1958 Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or Used on Wheeled Vehicles and the Conditions for the Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions.

All countries should make it compulsory for motorcyclists to drive with the passing lamps or daytime running lamps switched on in daylight, as already required by paragraph 6 of article 32 of the Convention on Road Traffic, 1968.

Chapter 7

Special rules relating to certain categories of vehicles

While there are fewer accidents involving heavy vehicles than light vehicles, their consequences are far more serious, especially if buses or coaches are involved.

The recommendations contained in this chapter are aimed in particular at improving the marking of such heavy vehicles in order to make them more visible and to set out rules that should be applied to certain categories of vehicles so as to increase traffic safety.

7.1 Public transport vehicles

7.1.1 Context

The Convention on Road Traffic, 1968, and the European Agreement supplementing it (article 15) merely define, for regular public transport vehicles, the right of way rules that apply when such vehicles depart from a duly marked stop.

These recommendations are intended to supplement those provisions in respect of the marking of public transport vehicles, in particular school buses and coaches, and in respect of the training that drivers of such vehicles should undergo in order to ensure optimum safety.

7.1.2 Recommendations

7.1.2.1 Marking of buses and coaches

In order to improve the visibility of buses and coaches, particularly at night when operating on routes in the open countryside, these vehicles should be fitted with retro-reflective marking strips on the sides and rear; these should be:

- (a) white or amber on the sides;
- (b) red or amber at the rear.

In accordance with ECE Regulations No. 48 and No. 104¹⁹ annexed to the 1958 Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or Used on Wheeled Vehicles and the Conditions for the Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions.

7.1.2.2 Marking of school buses and coaches

In addition to the marking referred to in the paragraph above, vehicles constructed, fitted out and identified as school buses and coaches, and used permanently and

¹⁹ Regulation No. 48: Uniform provisions concerning the approval of vehicles with regard to the installation of lighting and light-signalling devices; Regulation No. 104: Uniform requirements for the certification of retro-reflective markings for category M, N, and O vehicles.

exclusively for this type of transport, should be provided with the marking defined in subparagraph (a) below in order to warn the drivers of other vehicles of the need to take special care, particularly when such vehicles are stopped to allow schoolchildren to board or alight.

If national or local legislation contains provision for the carriage of schoolchildren and other parties of children by other means of transport, for example, by using buses or coaches usually used for the transport of other categories of users, those other means of transport should also bear the same marking.

The above provisions do not concern regular public transport services used independently by schoolchildren.

(a) “School bus” sign

(i) The “school bus” sign hereafter, should be shown on the front and rear of all buses and coaches used solely for the carriage of schoolchildren and should be clearly visible for the drivers of other vehicles, without interfering with the field of vision of the bus or coach driver.



In countries where a different sign is prescribed, comprising for example the word “children”, this sign may replace the sign “school bus” on vehicles transporting children, but should comply with the characteristics set out in the first indent of ii) below.

(ii) When the above “school bus” sign is used, it shall conform to the following prescriptions:

- a. the background of the sign shall be amber-coloured and consist of retro-reflective material;
- b. the sign to be shown on the rear of the bus or coach shall be in the form of a square of 400 mm x 400 mm. The sign to be shown on the front may be smaller.

(iii) In order to increase the safety of children while boarding or alighting the bus or coach, the “school bus” sign should be equipped with amber winking lights highlighting the silhouette of children, preferably in the form of electroluminescent diodes. This lighting should be switched on only when the vehicle stops to allow children to board or alight.

(b) Special warning lamps

In addition to the sign “school bus”, national legislation may, on school buses and coaches concerned exclusively with this type of transport, provide for the installation, in the front and rear of the vehicle, of special warning lamps emitting a flashing light according to article 32, paragraph 14 (b), of the Convention on Road Traffic, 1968, in order to signal the boarding and alighting of children. Such lights, placed at the four top corners of the vehicle, should, when activated, light up in an alternating sequence: when one side is lit, the other should automatically switch off.

In the absence of these flashing lights, national legislation should require the simultaneous flashing of all amber direction-indicator lights, in accordance with the provisions of paragraphs 39 and 42 of annex 5 to the Convention on Road Traffic (1968).

7.1.2.3 Requirements for the professional training of drivers of public transport vehicles

(a) In view of the particular responsibility of drivers of vehicles for the public transport of persons (category D or subcategory D1 driving permits), Governments should ensure, by such means as they consider appropriate, that the candidates for driving permits of this category have no past records which are incompatible with such responsibility.

(b) Regarding their physical, mental and professional abilities, the candidates should meet certain requirements, such as for example those which appear in annex II of the Agreement on Minimum Requirements for the Issue and Validity of Driving Permits (APC) of 1 April 1975.

(c) The candidates should have sufficient practical experience (for example three years) of driving vehicles of categories B or C or subcategory C1 and undergo special training in driving schools. National legislation may specify exceptions to these rules.

(d) The composition and content of the special training programmes and the duration of the training should be determined according to the qualification and experience of the candidates.

(e) The special training programmes should include topics concerning embarkation and disembarkation of passengers (particularly children, physically handicapped and elderly persons), braking and stopping at different speeds with regard to the safety of passengers, urgent passenger evacuation measures, and rendering of first aid to passengers in case of emergency.

(f) Drivers of vehicles of category D and subcategory D1 should undergo regular medical examinations within the period specified in national legislation.

7.1.2.4 Additional recommendations

(a) Special rules should be provided in national legislation for a blood alcohol level lower than permitted for other categories of drivers, for drivers of public transport vehicles, especially in the case of school buses or the transport of children (see section 1.2 of this Resolution and in particular point 1.2.2.1). Technical systems which prevent driving under the influence of alcohol could be an effective measure in this respect.

(b) In order to increase the visibility of vehicles transporting children, national legislation should oblige such vehicles to switch on their passing lights if they are not already fitted with automatically activated dedicated daytime running lights.

(c) When a country requires the mandatory fitting on vehicles used exclusively for the transport of children of the special flashing lights referred to in point 7.1.2.2 (b) above, the conditions for their use and the consequences of their use for other road users should also be determined. In particular, the drivers of other vehicles travelling in either direction on the same carriageway may be obliged to stop without overtaking or passing the school bus or coach for as long as the flashing lights are activated to indicate that children are boarding or alighting.

7.2 Specific categories of vehicles assigned to the carriage of goods

7.2.1 Context

In view of the specific nature of certain vehicles or their use, special attention should be paid to their marking in order to make them more visible and easily identifiable for other road users. In this regard, the Convention on Road Traffic, 1968, in annex 5, specifies only what lighting and light-signalling should be fitted on vehicles, without regard to different categories. The recommendations below are aimed at supplementing the Convention in this respect by specifying the rules that should apply to particular categories of vehicles.

In article 30, paragraph 4, the Convention does, however, set out the general rules that apply for loads projecting beyond the front, rear or sides of a vehicle.

7.2.2 Recommendations

7.2.2.1 Long and heavy vehicles

(a) Rear marking plate

Considering the difficulties involved with recognizing and overtaking long (as specified in national legislation) and/or heavy vehicles, such vehicles should bear additional marking consisting of rear marking plates to make them more visible and easily identified, in accordance with the specifications contained in ECE Regulation No. 70²⁰ annexed to the 1958 Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for the Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions.

(b) Side and rear marking

Long and heavy vehicles of 7'500 kg or more should be fitted with a marking consisting of the retro-reflective strips referred to in point 7.1.2.1 above.

National regulations may specify the categories of vehicles which may or should be equipped with this marking and the permitted colours for vehicles registered in the territory of the country.

7.2.2.2 Slow vehicles

Slow vehicles are taken to mean power-driven goods transport vehicles, which by their construction are not capable of exceeding the speed of 40 km/h.

(a) Rear marking

²⁰ Regulation No. 70 on uniform provisions concerning the approval of rear marking plates for heavy and long vehicles.

In view of the danger in traffic presented by these vehicles, they should bear at least the type of rear identification plate defined in annexes 5 and 12 to ECE Regulation No 69²¹ annexed to the 1958 Agreement referred to in point 7.2.2.1 a) above.

This plate, in the form of an equilateral triangle with truncated corners, should be different from the one specified in paragraph 28 of annex 5 to the 1968 Convention on Road Traffic, for the rear marking of trailers and semi-trailers.

If just one plate is mounted, it should be placed, according to the direction of traffic in effect in the country of registration, as close as possible to the left edge of the vehicle for right-hand traffic, or the right edge of the vehicle for left-hand traffic.

The plate should be solidly fixed at the rear of the vehicle or its trailer or, if appropriate, of its load.

(b) Special amber warning lights

National legislation should provide for the equipment of slow moving vehicles with special revolving lamps emitting an amber light as stipulated in paragraph 14 (b) of article 32 of the Convention on Road Traffic of 1968.

7.2.2.3 Abnormal road transport

“Abnormal road transport” is taken to mean a vehicle or vehicle combination, which, with or without load, exceeds at least one of the maximum dimensions (length, width and possibly height) and/or the mass allowed by national legislation. When this concerns a load, the latter must be indivisible. Any motorized material or machine exceeding the dimensions and/or the mass allowed is also considered as «Abnormal road transport».

(a) Marking and safety of such transports

The purpose of marking an abnormal transport is to avoid accidents by drawing the attention of other road users to the potential risks of such transport.

(i) In order to be identifiable by other users, these transports should be fitted, in addition to the marking referred to in point 7.2.2.1 for heavy and long vehicles and to the special amber warning lights mentioned in point 7.2.2.2 b) above, with a general warning sign in the form of two rectangular panels (one in the front and the other in the rear) bearing either a black inscription such as “Abnormal transport” or a black pictogram on a yellow retro-reflective background.

(ii) In the event that the regulatory dimensions established by the national legislation are exceeded (in the front, in the rear or on the sides), the abnormal transport should be fitted with additional signalling devices such as rectangular panels consisting of alternating red and white or red and yellow retro-reflective diagonal strips, and the position lamps referred to in paragraph 19 of annex 5 to the Convention on Road Traffic of 1968.

(iii) When an abnormal transport presents a hazard to road safety because of its characteristics, it is recommended to have it accompanied by an escort, the nature of which may vary according to the level of potential risk for other road users, as mentioned below.

²¹ Regulation No. 69 on uniform provisions concerning the approval of rear marking plates for slow-moving vehicles (by construction) and their trailers.

- a. The first escort level should consist of a pilot vehicle in front and another vehicle protecting the rear of the transport, in the following conditions:

Since the standardized appearance and visibility of such escort vehicles is important, their colour should preferably be yellow. Their visibility should also be increased by the addition, in the front and the rear, of white and red retro-reflective diagonal strips, and on the sides of a retro-reflective marking in the shape of an “open arrow”, of alternating white and red or yellow and red colour.

Additionally, all such vehicles should be fitted with special warning lights and the general warning sign (inscription or pictogram) mentioned in i) above.

- b. Any particularly abnormal transport should, in addition to the escort vehicles mentioned above, be escorted, if necessary, by police (or military) vehicles intended to facilitate and ensure the safety of traffic and the movement of the transport, and to ensure compliance with regulations.

- (b) Special traffic regulations

Abnormal transport should be subject to special traffic regulations on the road network, for example to the obligation to take special routes, to comply with special specific schedules and/or to observe special speed limits.

- (i) To that end its movement should be subject to special authorization as set out in article 30, paragraph 5, of the 1968 Convention on Road Traffic. National legislation should therefore define the conditions and modalities for the issuance of such authorizations (duration of validity (per journey or permanent), geographic coverage, etc.), according to the characteristics of the transport in question. These administrative authorizations are intended to preserve the road infrastructure (in particular engineering works) and to limit inconvenience to other road users while ensuring their safety.

- (ii) Furthermore, national legislation should make it compulsory for such abnormal transports to keep their passing beam headlights switched on if the vehicles are not already fitted with automatically activated dedicated daytime running lights.

7.2.2.4 Vehicles carrying dangerous goods

Taking into account the increased risk that the transport of dangerous goods by road presents, all countries should apply the rules defined in the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), in particular those relating to the marking of vehicles.

Part three

Infrastructure and safety

Improvements in road infrastructure can greatly help to reduce the frequency and gravity of traffic accidents. By configuring roads so that they are user-friendly, designers can influence user behaviour and through the design it is also possible to reduce the gravity of accidents. The road facilities should enable the various categories of users to use the road safely. This part addresses in particular infrastructure and facilities aimed at ensuring the safety of the most vulnerable categories of users (pedestrians, children, persons with impaired mobility, elderly

persons, drivers of two-wheeled vehicles) and certain kinds of infrastructure that have special characteristics (civil engineering works, tunnels) or are designed to provide protection from animals and/or to protect animals.

Chapter 8

Measures and facilities to ensure pedestrian safety

In addition to the recommendation contained in Chapter 3 of the present Consolidated Resolution, the present chapter lists the different measures and facilities for assuring greater safety for pedestrians.

8.1 Recommendations concerning facilities for pedestrians

Because pedestrians as a diverse group have widely different capabilities and as individuals are especially vulnerable, the strategies for adapting pedestrian behaviour to current road structures are limited. Therefore, legal provisions, recommendations and other approaches regarding infrastructure are necessary.

Facilities and infrastructure should be designed to ensure pedestrian mobility, reduce the dangers of the road and foster in all traffic participants safe and responsible behaviour. The general design principle should be to separate pedestrians and motor vehicles physically as far as possible. When this is not achievable the design of the infrastructure should ensure that the speed of motor vehicles not exceed 30 km/h where pedestrians and motor vehicles are mixed.

The following provisions regarding pedestrians are recommended:

8.1.1 Pavements (sidewalks) and footpaths

In every town and city, a network of continuous walkways (including pavements (sidewalks), etc.) should be established. They should provide safe, direct links between homes, shops, schools, access to public transport and other vital services and facilities. Pavements and footpaths should be well lit and well maintained. Their width should be determined by their function (as school paths or through shopping areas, etc.). The pavement should not be used for parking of vehicles. If this is not avoidable, exceptions should be marked on the ground, indicating spaces for parking, thereby ensuring that sufficient space is left for the movement of pedestrians and persons with reduced mobility who use a wheelchair. Signs and other equipment should not obstruct the movement of pedestrians.

Vehicles, including all devices for personal mobility, powered by motors of any kind, except slow-moving vehicles designed for handicapped persons, should not be allowed to use footpaths and pavements.

8.1.2 Pedestrian crossings

8.1.2.1 General principles

Pedestrian crossings should allow users to cross the roadway in safety. They cannot therefore be considered simply as a road marking, but have to be considered as a built traffic layout component (including the arrival areas and possibly a central island) forming part of the whole road design. Thus, their location and layout should always be integrated with the planning, design and construction of the road as a whole. They should be designed in a way that motor vehicles cannot exceed 30 km/h in close proximity to the pedestrian crossing. Generally speaking, the objective should be to give preference to the crossing of

roads safely by pedestrians without change of level. However, when necessary to improve the safety of pedestrians in certain places, engineering structures such as footbridges or tunnels should be considered.

Provision should also be made for a sufficient number of pedestrian crossings, and these should be carefully planned so that pedestrians do not have to make long detours.

8.1.2.2 Visibility at pedestrian crossings

In the area leading to the crossing, there should be nothing to interfere with visibility, because pedestrians must be able to see and be seen by oncoming vehicles at a sufficient distance if they are to cross safely. Accordingly, to ensure clear visibility near a pedestrian crossing, pavements should be broadened wherever possible to bring the kerb into line with the roadside limit of the parking spaces, or standing or parking should be prohibited within a distance of at least five metres before the crossing by means of appropriate road markings, as is required, for example, by article 23.3 of the European Agreement supplementing the Convention on Road Traffic, 1968 (ad article 23.3). To ensure that this prohibition is respected, appropriate road markings should be used.

8.1.2.3 Facilities for pedestrian crossings

In general, roads should be designed so as to minimize the crossing distances of pedestrians at designated pedestrian crossings.

If not equipped with traffic light signals, pedestrian crossings should be equipped with the regulatory sign specified in the Convention on Road Signs and Signals, 1968, and motorists should, if necessary, be alerted to their presence by a danger sign suitably positioned on the approach to the crossing. Crossings should also be clearly marked on the road, as stipulated, for example, by the Convention on Road Signs and Signals, 1968, (annex 2) and be illuminated much more brightly than other parts of the road.

When vehicles are permitted to change direction at intersections of streets or roads equipped with traffic lights, measures should be taken to increase the safety of pedestrians on a pedestrian crossing. Accordingly, clear information should be given to pedestrians alerting them to possible danger, and also to motorists warning them to take care when changing direction.

Moreover, signal phases at traffic lights should provide reasonable time for safe crossing of pedestrians. In special cases, detection technologies should be used to provide extra clearance time for the crossing of slow pedestrians.

At pedestrian crossings with no traffic lights, the speed of approaching traffic should be limited, to enable safe crossing for pedestrians.

Finally, at high-risk spots - in particular where a carriageway consists of several lanes in each direction or where vehicles tend to travel at higher speeds - pedestrian crossings should be avoided whenever possible. If this is not possible, they should be equipped with a central island and/or any other provision together with good lighting, to ensure safe crossing by pedestrians, especially children and elderly people.

8.1.3 Pedestrian subways and footbridges

Where a large number of pedestrians have to cross a road with dense fast-moving traffic of more than two lanes, footbridges and subways, if properly maintained, lighted and accessible to all users, including those with reduced mobility, can

provide a good solution. In addition, where the crossing of a road on foot, at road level, is potentially dangerous, pedestrians should be prevented from crossing by barriers and/or other obstacles.

8.1.4 Pedestrian zones

Pedestrian areas are intended and should be designed for the use of pedestrians. National legislation should give clear prescriptions on the conditions under which certain categories of vehicles and users are permitted to enter them as well as on signs, speeds and permitted times applying to such areas. Special care should be given to the access walkways leading to and from pedestrian areas.

8.1.5 Traffic calming zones

Ensuring low speeds within built-up areas is crucial for the safety of pedestrians. However, it is generally not sufficient just to place traffic signs to create a zone with reduced speed. It is also necessary to employ various special means of infrastructure. For this purpose, various types of infrastructure can be envisaged such as, for example, zones where pedestrians can benefit from enhanced safety. The two most frequent types of zones are described below.

8.1.5.1 30 km/hr zones

This is a zone designed for calmed-down traffic, at no more than 30 km/h having an appearance that differs substantially from that of a regular road. It should be indicated by an appropriate signal such as, for example, that shown in the Convention on Road Signs and Signals, 1968. Its design and planning are directed towards both less traffic and slower speeds. When establishing such zones, the enactment of some or all of the following measures may be considered:

- (a) creating visually distinctive “gates” at the entries to the zone;
- (b) establishment of a 30km/h overall speed limit;
- (c) designing roads and adjacent areas in a manner that discourages speeding;
- (d) providing substantial areas in the zone for walking and for non-motorized traffic;
- (e) yielding right-of-way to traffic coming from the right (left in countries moving on left side);
- (f) using various types of coverings instead of asphalt in order to make certain places conspicuous.

8.1.5.2 Residential zones

In places where the number of cars is so low that the entire surface of a street may be used for walking or even playing, and in places where numerous pedestrians should be able to cross “everywhere”, such pedestrian preference zones referred to as “residential zones” may be established. They should be designed in such a way that it is obvious for drivers that vehicles do not have the right of way over pedestrians and that they must adapt their speed to give way to pedestrians in the zone.

These zones should be signposted for motorists by the use of an appropriate regulatory sign such as the one described in the 1971 European Agreement supplementing the Convention on Road Signs and Signals, 1968 (see new paragraph 14 of item 22 – ad annex 1, Section E, subsection II. See also item 20 bis- ad. article 27 bis “Special rules for residential areas signposted as such”- of this Agreement.

8.1.6 School zones

Special attention should be given to school zones and special measures should be taken when new schools are to be constructed or existing schools are modified to ensure a high level of safety for children (see chapter 9, section 9.1). In addition to these provisions relating to infrastructure, special attention should also be given to safety on the routes taken by school children, as dealt with in chapter 4.

8.1.7 Infrastructure provisions for pedestrians in rural areas

Footways in rural areas should be either established completely independently from the road or separated physically by an elevated kerb, grass band or a wide shoulder. Carriageway markings or narrow shoulders are often not sufficient to provide adequate safety.

8.1.8 Direction and information signs for pedestrians

Good orientation based on direction and information signs can contribute to greater safety for pedestrians. These signs may prevent pedestrians from getting lost or disoriented in traffic and enable them to give full attention to the traffic situation, and be used to indicate the safest routes.

8.1.9 Provisions for other non-motorized road users

Facilities designed for improving the safety and convenience of cyclists and other non-motorized travellers (skaters, scooter riders, etc.) should not compromise pedestrian safety. Where no separation of these road users is possible or desirable, the road infrastructure should be designed in such a way that it can safely accommodate cyclists and other non-motorized road users.

8.1.10 Comfort provisions for the safety of pedestrians

Comfort provisions such as even pavement surfaces, provision of seating and shelter play a role in the safety of pedestrians. This is especially true for the elderly and handicapped, and may prevent accidents caused by falling.

8.1.11 Maintenance of pavements for pedestrians

Pavements should be designed and maintained to ensure evenness and skid-resistance. No obstacles should hinder the mobility of pedestrians. De-icing and clearing the pavements of snow in the winter is important.

8.2 Recommendations concerning counter-flow bus lanes

In order to reduce the accident risk for pedestrians crossing a carriageway with a counter-flow lane reserved for certain categories of vehicles, special attention should be given to appropriate facilities such as:

- (a) pedestrian crossings controlled by light signals; or,
- (b) refuges on the outside edge of the lane in question, with a sign on each refuge and on the opposite pavement reminding pedestrians to look in the appropriate direction for approaching vehicles.

Additionally, crossing elsewhere than at the specially arranged places mentioned above should be discouraged through the installation, where necessary, of protective devices separating the counter-flow lane and the pavement. Care should also be taken to ensure that protective devices are not sited in locations where passengers alighting from buses could be trapped between the bus and the device.

8.3 Recommendations concerning safety at tram stops

To ensure safety at tram stops, passengers should never have to board directly from the carriageway or alight directly and unprotected onto the carriageway. To this end, tram stops should be situated either on the edge of a pavement or a designated island, or, in the case of a narrow street, on a raised section of the carriageway protected by a light signal. Some form of raised structure may in any event be necessary to enable elderly or handicapped persons to board and alight without difficulty.

Chapter 9

Facilities to ensure the safety of children on their way to and from school and in the vicinity of schools

In addition to the recommendations contained in chapter 4 of this Resolution, this chapter lists the various measures that make it possible to ensure the safety of children on their way to and from school and in the vicinity of schools.

9.1 Recommendations concerning the school environment and the siting of schools

(a) In the proximity of schools, the authorities should warn drivers, by appropriate signs such as those defined in the 1968 Convention on Road Signs and Signals, of the possible presence of children.

(b) In the vicinity of schools, the authorities should also take measures aimed at reducing the speed of vehicles, at least during school hours and when children go to and from school, and at prohibiting parking and overtaking.

(c) If possible, approaches to schools should be laid out so as to separate motor vehicle traffic from cyclist and pedestrian traffic.

(d) Where direct access of children to a busy street is inevitable, steps should be taken to moderate traffic on that street, either permanently or during busy school hours.

(e) If possible, stopping places should be provided for vehicles carrying schoolchildren (buses, parents' cars) and they should, if possible, be sited off the carriageway and on the same side of the road as the school building.

(f) Routes located in the vicinity of schools and those giving access to schools should be planned, designed, equipped and maintained so that they are safe for children (sufficiently wide pavements, footpaths, cycle-tracks, roadside barriers, pedestrian crossings, underpasses and footbridges with the appropriate signs and markings, light signals and lighting of carriageways).

(g) There should be no man-made or natural obstructions, including stationary vehicles on roads and parking areas in the vicinity of schools that might block children's view of the road and vehicles travelling along it, or drivers' view of children.

(h) Dangerous situations on roads near schools and on the routes taken to reach them should be eliminated as far as possible.

(i) Road safety and public health authorities should be involved when new schools are planned so as to ensure that, as far as possible, they are built near residential areas and far from roads carrying heavy traffic.

(j) Exits from schools or their grounds should be planned in such a way as to lead on to roads which present the least possible traffic hazards for children.

9.2 Recommendations concerning stops for school buses and coaches

(a) School bus stops should conform to the recommendation set out in paragraph 4.2.1 (e) and should preferably be on the premises of the school itself; this should be taken into account when plans are drawn up for new schools.

(b) If school bus stops are sited at a normal bus stop, the design of the bus stop should take this into account.

(c) The space available for children waiting for the bus should be sufficiently large to accommodate the number of children in question; it should be separated from the carriageway by a fixed barrier with an opening at the point where the doors of the bus open, and this area should be protected by a second barrier placed further back.

(d) When a school bus stop is not at the site of a normal bus stop, it should be clearly marked as such.

Chapter 10

Measures intended to facilitate the movement of persons with reduced mobility and elderly persons

10.1 Context

Over and above the measures described in chapter 3, sections 3.3 and 3.4, concerning the safety of persons with reduced mobility and elderly persons, appropriate measures should be taken by the authorities to facilitate the movement of such persons and enhance their safety in traffic.

10.2 Recommendations

To facilitate the movement of persons with reduced mobility and elderly persons, the following measures should be applied.

10.2.1 Movement of persons with reduced mobility

The authorities concerned should:

(a) include in the rules on the construction and maintenance of the transport infrastructure provisions designed to guarantee that persons with reduced mobility are able to move about without encountering major difficulties. In particular, a distinction should be made between the use of pavement texture to guide blind persons and its use to warn them against obstacles. The guidance function should be adopted for approaches to crossings, bus stops, public buildings, etc.; the warning function should be designed to protect blind people against obstacles such as trees, parking metres, notice boards, etc., along the pavement. The following measures, among others, should be encouraged:

(i) improving the construction of sidewalks, ramps and lifts by adapting them better to the movement of persons with reduced mobility on foot or in wheelchairs. In particular, kerbs in line with pedestrian crossings should be lowered or ramped and non-slip surfaces for inclines (ramps) should be provided. It is also necessary to ensure that blind persons are aware of such measures;

(ii) installation of push-buttons at pedestrian-operated lights, positioned in such a way that they can be reached by persons using wheelchairs;

(iii) facilitation of the use by persons with reduced mobility of public transport systems, by designing appropriate systems for access to terminal facilities and vehicles;

(b) consideration of the local needs of persons with reduced mobility, e.g. by providing clearly marked routes in built-up areas, allowing easy access to shops, banks and other public services.

10.2.2 Movement of elderly persons

The authorities concerned should:

(a) make efforts to provide for proper maintenance of elements of road infrastructure, including its furniture, important for the movement of such persons;

(b) encourage and implement a systematic approach to the appropriate placement of road furniture and to the gradual removal of physical barriers such as elevated steps and stairs at interfaces between streets and buildings and transport systems;

(c) encourage and implement the development of networks of continuous and safe footpaths wherever feasible in urban areas.

Chapter 11

Infrastructure and the safety of two-wheeled vehicles

Users of two-wheeled motorized or non-motorized vehicles (cycles, mopeds, motorcycles) are exposed to particular risks connected with the inherent characteristics of these vehicles. Chapter 6 of this resolution contains a series of recommendations addressed to drivers and vehicles that are intended to enhance the safety of both. But it is also important, in view of the reduced stability and passive safety of these vehicles, to focus attention on infrastructures and facilities that could protect them or minimize the consequences of accidents. Such is the purpose of the recommendations below.

11.1 Recommendations concerning bicycles

11.1.1 General recommendations

To enhance the safety of cyclists and promote mutual respect among road users, cyclists must be considered when drawing up mobility policies, especially when installing or redeveloping infrastructures specifically designed for their use.

The development of dedicated infrastructures for cyclists such as “cycle tracks” and “cycle lanes” (see on this subject the definitions introduced in the Convention on Road Traffic, 1968, in article 1 (g bis) and (g ter) and in the Convention on Road Signs and Signals, 1968, in article 1 (e bis) and (e ter) by the amendments which entered into force on 28 March 2006) requires space availability and financial investment. Such facilities should be promoted and, to the extent possible, should form part of the original design of the road and not added later, when risks have become apparent and adjustments are required.

These facilities should meet specific standards and facilitate the observance of traffic rules. Facilities must be standardized at national level, since this will

encourage both cyclists and other road users to behave in the same way, i.e. they will be better able to recognize such facilities, identify traffic conditions and appreciate the potential risks they may face.

Facilities should be selected in consultation with all interested stakeholders, for example cyclists' associations and representatives of other categories of road users, thereby fostering awareness of the needs of others and acceptance of whatever measures are decided.

11.1.2 In open country

Given the amount of space available, it should be easier to create special infrastructures for cyclists. Certain routes should be reserved for cyclists, for example with appropriate surfaces, marking, signs and signals. Effective protection should be guaranteed, particularly at intersections, by installing special facilities such as staggered traffic signals, advanced cycle boxes, etc. (see paragraph 11.1.4).

Where it is not possible to provide cycle tracks and paths owing to lack of space, levelling or even surfacing the verges along certain roads may be the next-best solution and one that will also increase road safety for all users.

A road network in good condition is not only a prerequisite for encouraging people to make greater use of bicycles, it also increases safety by reducing the number of movements cyclists need to make to avoid obstacles and by ensuring that they are not knocked off their bicycles by defects in the carriageway surface.

11.1.3 In urban areas

Consideration should be given to the needs of cyclists at all times, not only by setting up bicycle routes or by providing specific facilities, but also by introducing measures of a general nature such as traffic calming and by devoting a greater share of public land resources to cyclists, pedestrians and public transport services.

Besides cycle tracks and lanes, a range of facilities or arrangements could be put in place for cyclists, at relatively low cost, to meet this objective of peaceful coexistence, for example:

- (a) contra flow arrangements in one-way streets with light local traffic;
- (b) use of existing service roads used for local activities or for providing access for local residents or frontages;
- (c) introduction of 30 km/h zones;
- (d) introduction of cycling areas modelled on those reserved for pedestrians;
- (e) provision of a central lane on bidirectional streets, which in addition to reducing visibility across the carriageway and thus causing traffic to slow down, would also make it easier for vehicles emerging from side streets to enter the traffic flow and for vehicles already on the road to move into position to turn left (right in countries driving on the left) at intersections;
- (f) possible use by bicycles of bus lanes, which may be widened when necessary;
- (g) signing of recommended routes.

When repairing or resurfacing roads, it is also advisable not to leave obstacles protruding above the surface of the carriageway, which would force cyclists to

swerve to avoid them, or to produce too convex a carriageway profile as a result of successive resurfacing operations.

11.1.4 Special measures at intersections

Particular attention must be paid to the layout of junctions at points where cycle tracks or lanes intersect with lanes open to all vehicles. These special zones must be designed with the following objectives in mind:

- (a) reduction in the number and severity of conflicts between cyclists and other road users by improving visibility and taking infrastructure measures to reduce the motor vehicles speed to 30 kph;
- (b) protection of cyclists turning left (right in countries that drive on the left) and from other vehicles turning right (left in countries that drive on the left);
- (c) taking account of cycle traffic in the design of roundabouts and junctions controlled by traffic signals;
- (d) provision of protected areas for two-wheeled vehicles at junctions, such as advanced cycle boxes.

11.2 Recommendations concerning motorized two-wheeled vehicles

In some countries mopeds are classified - wholly or partly - as bicycles with regard to road positioning. If this is not the case, they use the carriageway in the same way as motorcycles. In both cases, and particularly if these vehicles use the carriageway, it must be acknowledged that infrastructure is most often designed for cars, heavy vehicles and bicycles. The following recommendations take account of the specific characteristics of mopeds and motorcycles.

11.2.1 General recommendations

Owing to the presence of mopeds and motorcycles on the carriageway, some aspects mainly concerning the rider's balance should be stressed, such as:

- (a) pavement quality: ruts, potholes, grooves, surface dressing chipping and protruding joints are particularly dangerous. They can be an extreme hazard, especially when wet, leaving little chance for drivers to escape unharmed. Chipping may induce a reduction in grip and risks of falling. In addition, some road surfaces are dangerous, particularly when wet, for example paving stones, rail tracks and manhole covers;
- (b) road markings: these can be a real hazard. The thickness of the paint and some thermoplastic markings may in time be so slippery that braking becomes hazardous. The same applies to areas where vehicles frequently stop (traffic lights) and where deposits form on the road surface;
- (c) roadside features: lighting supports, signal and sign fixtures can create a particular hazard for motorcyclists, both in limiting vision and inflicting injuries in accident situations. Crash barriers that allow motorcyclists to collide with their posts or protruding features are very dangerous;
- (d) some road structures (narrowing or raising of the carriageway) to reduce speed or moderate traffic may sometimes be dangerous, in particular where they are badly placed, badly or not signalled, or not visible.

The competent authorities should, at a minimum, indicate the presence of some of the hazards listed above (ruts, grooves, protrusions and gravel). In the absence of prompt technical solutions to these problems (for example through non-slip road

markings), it is necessary to insist during driver training on the correct behaviour to be adopted.

More generally, the following action is necessary:

- (a) development of policies on the design and emplacement of road markings, manhole covers and road furniture;
- (b) maintenance and repair of roads, taking into account the impact on two-wheeled motorized vehicles;
- (c) development of policies on the design and location of road signs and their mounting arrangements, signalling and lighting structures and other roadside features;
- (d) promotion of the development of comprehensive national strategies to improve infrastructure for two-wheeled motorized vehicles, aimed at persons responsible for road construction and maintenance.

11.2.2 Recommendations concerning mopeds

Where mopeds are allowed to use cycle tracks and lanes, special attention should be given to potential cyclist/moped rider conflicts, for example by varying the number of moped riders on cycle tracks depending on the quality of the track and/or distinguishing between mopeds capable of travelling at different speeds.

11.2.3 Recommendations concerning motorcycles

Motorcyclists find it easier to adapt to general traffic owing to the vehicle's characteristics (power, braking system, usually more sophisticated technology), but they encounter the same difficulties as moped riders, magnified due to the speed of the vehicles concerned. Unlike moped users, motorcyclists are permitted to use motorways and expressways, which means that the danger from ruts, grooves and sharp protrusions, etc., on this network is magnified. Accordingly, infrastructure managers must pay special attention to these points and deal promptly with any problems.

Crash barriers can also pose a significant danger to motorcyclists, especially if they have unprotected posts or protruding sections. Indeed, in the majority of cases, collisions with a barrier of this kind result in very severe injury. Accordingly, the use of concrete retaining walls or profiled crash barriers without unprotected posts and protruding sections is advisable.

Chapter 12

Special infrastructure and facilities

12.1 Protection against animals

The presence of animals, in particular wild animals, can present a high risk of accidents on roads running through certain areas (for example, forests), especially where vehicles are used at high speeds, such as on motorways and similar roads.

Therefore, along heavily used roads, appropriate equipment (fencing) should be installed to protect users from wandering animals. When this is not possible, and on roads with less traffic, appropriate signage should be put in place warning drivers of the possible presence of animals, so that they are more vigilant and adapt their driving, and specifically their speed, accordingly. In areas where there

is a risk that wild animals will be encountered, signs should be put up at the entrance to the area, and intermittently within it.

It is also advisable to take measures to protect the animals themselves, including construction of overpasses or underpasses of the appropriate size and shape to allow them to move about without posing a danger to road users.

12.2 Clearance of civil engineering works

To facilitate traffic of vehicle categories with high clearance requirements, such as heavy vehicles and coaches, it is important that they should be able to pass safely under civil engineering works that span roads and through tunnels. Throughout the road system, the clearance of new or rebuilt civil engineering works above the carriageway should therefore be at least 4.50 metres for heavily used roads.

In cases where there is less clearance, appropriate signage should be placed at the civil engineering works itself, and also sufficiently far ahead of it to inform the drivers concerned to take alternate routes.

See also section 1.6 of the Consolidated Resolution on Road Signs and Signals (R.E.2) (document ECE/TRANS/WP.1/119/Rev.1).

12.3 Tunnels

Although the number of accidents is often lower in tunnels than on the open road, because vehicles are in close quarters, accidents in road tunnels, especially those involving fires, can have tragic consequences. It is therefore necessary to take all the measures required to prevent accidents and to limit their gravity.

12.3.1 Context

Tunnel safety became a particularly urgent issue after the tragic accidents that took place between 1999 and 2001 in three long tunnels under the Alps. These accidents put this issue in the media spotlight, bringing political leaders and all the stakeholders into the debate.

To ensure road safety in tunnels, a number of structural, technical and organizational measures must be implemented, taking account of technical progress. Furthermore, consideration must be given to all the elements involved: road users, traffic control and emergency services, infrastructure and vehicles.

12.3.2 Recommendations

In order to attain the highest safety level in road tunnels, the following objectives should be pursued:

- (a) Prevent critical situations in tunnels constituting a danger to human life, the environment and tunnel installations;
- (b) Limit the consequences of events such as accidents and fires. To this end, create the necessary conditions so that:
 - (i) persons directly affected can effect their own rescue;
 - (ii) users react immediately to prevent the situation from worsening;
 - (iii) the emergency services work effectively.

See also, on safety in tunnels, section 1.8, and paragraphs 2.1.1.1.2 and 2.2.3 of this Resolution.

In respect of measures relating to infrastructure, such measures should, in the light of the high number and interdependence of factors affecting safety, be the subject

of careful coordination. This applies especially to elements built on the basis of previous standards, which must be adapted to meet new safety requirements.

In order to ensure the same degree of safety throughout the national road system, safety requirements should be issued at the national level, as directives or regulations applicable to all road tunnels located in the country in question. The European Agreement on Main International Traffic Arteries (AGR), in its annex II²², describes the standards and measures to be implemented to improve tunnel safety.

Part Four

Other measures affecting safety

While the recommendations in the preceding parts deal mainly with direct components of road safety (users and their behaviour on the road, vehicles and infrastructure), certain factors, of a cross-cutting nature, can also play a significant role in reducing the number or severity of accidents. These include “Assistance to victims” (Chapter 13), “Safety in the area of roadworks and incidents/accidents” (Chapter 14), “Advertising and road safety” (Chapter 15) and “Local restrictions on traffic” (Chapter 16) that may be taken by the local authorities. It is therefore recommended that countries implement the measures described in these chapters.

Chapter 13

Assistance to victims

13.1 Context^{23, 24}

Following traffic accidents involving injuries, prompt action must be taken, to reduce the severity of the injuries and the suffering of the victims and to ensure that the survivors make the best possible recovery. To this end, the following actions should be carried out very quickly.

13.2 Recommendations

13.2.1 Early alert

(a) Wherever necessary install call devices connected to established emergency systems and encourage at all places the use of all other means of calling for emergency assistance.

(b) Introduce an internationally recognized toll-free telephone number for emergency assistance, and pending its introduction, publicize the national emergency number by appropriate means.

²² See ECE/TRANS/SC.1/384. The related measures went into force on 4 January 2006.

²³ On this subject, see also Resolution WHA60.22 of 23 May 2007 of the World Health Assembly “Health systems: emergency-care systems”, at www.who.int/gb/ebwha/pdf_files/WHA60/A60_R22-en.pdf.

²⁴ Sasser S., Varghese, M., Kellermann, A., Lormand, J.D. (2005) Pre-hospital trauma care guidelines. Geneva, World Health Organization, Geneva.

(c) Provide information about the proper use of this emergency number, and publicize the kind of information to transmit to emergency units particularly the location and circumstances of the accident (including, for example, people trapped in the vehicle, vehicles on fire, the number of people injured and the gravity of the injuries, number of vehicles involved, etc.).

13.2.2 Securing the area of the accident

Teach road users (for example, during training for a driving licence) how to secure and signal the area of an accident (i.e. triangle, lights, road flares) in a safe way and to avoid and prevent further complications, pending the arrival of emergency units.

13.2.3 First aid

(a) Instruct road users (inter alia) as part of the preparation for driving tests, during general education or in special courses) in practical methods of providing emergency assistance for the maintenance of a victim's vital functions pending the arrival of professional assistance.

(b) Introduce training and ensure periodical refreshment of first-aid knowledge and practical skills for professional drivers.

(c) Require the availability of a first-aid kit for vehicles of category B, C and D, as required by recommendation 5.3.2 of the present version of R.E.1.

(d) Include first-aid information in documents which road users usually consult such as map books and training materials for driving tests.

(e) Encourage mandatory inclusion of first aid knowledge and practical skills for assisting victims of road accidents in driving license delivery (either as part of driving tests or holding a first aid certificate delivered by a recognized organization).

13.2.4 Emergency medical assistance

(a) Organize the coordination of the dispatch of emergency response resources, particularly the transportation of the injured to the nearest adequate health facilities, according to the nature and severity of the injuries.

(b) Standardize emergency response protocols and ensure that they permit appropriate management of emergency medical assistance to road traffic victims both during conveyance from the accident scene to the health facilities and within such facilities.

(c) Site emergency response units so that they can be on the scene of an accident as soon as possible after being called out.

(d) Properly equip fixed and mobile emergency resources with a sufficient number of qualified and well-trained personnel. Encourage the organization and equipment of volunteer health professionals who could be called rapidly to accident sites in order to give immediate assistance to victims.

(e) Encourage the dissemination and availability of good practices and instrumentation for life saving measures, and a standard triage procedure for emergency response unit personnel.

Chapter 14

Safety in the area of roadworks and incidents/road accidents

14.1 Context

Roadworks are carried out to enhance the comfort and safety of road users. Yet accidents around roadworks continue to occur too frequently. Such accidents, or “secondary accidents”, are also reported too often in the vicinity of incidents (flat tyres, breakdowns, objects fallen on the roadway, etc.) or accidents. On motorways especially, all such accidents/incidents have potentially serious consequences not only for road users, but also for highway maintenance workers and persons called upon to secure the scene of the incident/accident.

This chapter sets out recommendations intended to sensitize road users to dangers in the area of roadworks or incidents/accidents and to ensure the safety of highway maintenance workers and persons attending at the scene of an incident/accident.

As for the first steps to be taken by road users in case of accident, they are described in chapter 13 of this Resolution.

14.2 Recommendations on the safety of road users

Roadworks involve heightened safety measures owing to unusual traffic conditions (modification of signs and signals, reduction in the number of lanes, changes in the direction of traffic, elimination of emergency lanes, etc.). Safety measures are also necessary to secure the site of a road accident/incident.

(a) In the area of roadworks

Authorities should apply the recommendations set out on this subject in the Consolidated Resolution on Road Signs and Signals (R.E.2).²⁵ In addition, they should take the following measures to avoid accidents in the area of roadworks:

- (i) position appropriate information panels, signs and signals sufficiently in advance to warn road users of the presence of roadworks so as to alert them to the risks involved and the rules to be observed;
- (ii) to that end, indicate to drivers:
 - a. the speed limit not to be exceeded when driving through the roadworks, which should be lower than the limit usually authorized on the road segment in question. The applicable speed limit should also be repeated at regular intervals along roadworks of significant length;
 - b. the lane to follow by setting up appropriate and clearly legible vertical and horizontal signalling;

so that they are able to adapt their behaviour accordingly and with full knowledge of the circumstances;
- (iii) set the authorized maximum speed limit at 30 km/h if pedestrians are obliged to walk on the roadway owing to the roadworks;

²⁵ See document ECE/TRANS/WP.1/119/Rev.1.

(iv) take measures to secure that the speed limit is not exceeded (physical speed reduction) and/or take physical measures to limit the consequences if an accident occurs in roadwork area (e.g. crash barriers)

(v) carry out frequent controls using any appropriate method to enforce strict respect for speed limits established in the area of roadworks.

(b) In the area of a road incident/accident

(i) Detecting an incident/accident and securing the area

When the competent authorities are notified of a road incident or accident, they should proceed, firstly, to make the area safe as rapidly as possible by positioning appropriate signs and signals sufficiently in advance and, secondly, to alert approaching road users to the existence of the incident/accident, requiring them to reduce speed so as to avoid secondary accidents.

To help the competent authorities to rapidly detect any problem, high-speed roads such as motorways and similar roads (see article 25, paragraph 4, of the Convention on Road Traffic, 1968) and strategic locations (such as interchanges and toll areas) and roads with high traffic density such as urban ring roads should to the extent possible be equipped with information systems such as video surveillance systems and automatic incident detectors, and/or should be subject to surveillance by continuous patrols.

In order to be operational as soon as possible, in particular on the roads mentioned above, and to ensure the greatest possible effectiveness, the competent authorities should prepare contingency plans.

(ii) Informing road users

To the extent possible, information should be relayed to road users in real time, as soon as an event is detected, in particular by means of dynamic information panels and/or by radio. The need for such information is all the more critical on high-speed or high-traffic density roads where it is important to rapidly set up an information system in advance of the incident or accident so as to warn road users to be vigilant.

To that end, the use of vehicles fitted with warning signs (for example, rotating beacons, flashing lamps and illuminated arrows indicating a track shift) and a rear-mounted illuminated panel indicating the nature of the incident ahead is preferable to signs and signals at ground level.

14.3 Recommendations on the safety of road maintenance workers

At roadworks, whether fixed, mobile or in emergencies, every effort must be made to protect road maintenance workers, besides the positioning of appropriate reflectorized signs and signals. Road workers are at greater risk when they are working directly on the roadway, as they are less well protected.

Accordingly, it is important that safety garments for persons working on the road should make them visible from afar. For this purpose, such garments should meet performance criteria such as those corresponding to European standard EN 471 class 2 (or national equivalent). The EN 471 standard specifically defines the essential colour and retroreflectivity characteristics of such garments (area of fluorescent and retro-reflective material, quality of the material, etc.), so as to offer maximum visual performance in all circumstances, night and day.

In addition, it is recommended that the authorities pay particular attention to the positioning of emergency vehicles in the area of incidents or accidents, so as to ensure optimum safety for workers in such areas.

14.4 Recommendations on sensitization measures

(a) Road maintenance workers and persons attending road-related incidents

Ensuring the maximum safety of road maintenance workers and persons attending road-related incidents is of vital importance because they are directly exposed to traffic dangers in the course of their work. It is therefore essential that they receive adequate training, especially on the need to be seen by road users, on the risks they face and on measures to prevent accidents.

(b) Road users

Various means (campaigns, leaflets, etc.) should be used to raise awareness among road users of the following topics:

- (i) the risks they face in the area of roadworks, incidents or accidents, as well as those to which they may expose road workers in such places;
- (ii) the importance of heeding the safety instructions received, in particular:
 - a. the specific speed limits posted for such purposes by information panels and road signs, including dynamic information panels;
 - b. the safety distance between vehicles when approaching roadworks, or the scene of an incident or accident and when driving through roadworks;
- (iii) the need, in poor weather conditions, for extra care to anticipate any danger connected with the roadworks or the behaviour of other motorists (collision with an obstacle, skidding on gravel, etc.).

Chapter 15

Advertising and road safety

15.1 Context

Advertising can have a strong impact on the public at large. When advertisements are liable to affect drivers' behaviour, special attention should be paid not only to the messages conveyed in them, but also to their location by the road environment. This chapter lists the different means that may be used to ensure that advertisements do not convey messages at variance with road safety and that they do not undermine road safety regulations.

15.2 Recommendations for advertisements

Some advertisements (in the press, on television, on the Internet, in cinemas, on billboards or on the radio), especially those which for example tout a car's performance or advocate fast or aggressive driving or which encourage racing, speeding or leaving seatbelts unfastened, can lead to behaviour that is unsafe. Other advertisements that are not directly related to driving, such as those for alcoholic beverages, may also have an adverse effect on safety.

The authorities should therefore take measures to ensure that advertising content is in keeping with road safety regulations. Such measures may include:

- (a) defining ethical rules with the advertising profession;
- (b) setting up a monitoring system, possibly through the establishment of a specialized body. This body should enjoy a certain degree of independence. Its funding may be provided through members' contributions. As for its powers, such a body may:
 - (i) be competent to certify, prior to publication or dissemination of an advertisement by an advertising agency or an advertiser, that specific legal and ethical rules have been observed;
 - (ii) intervene with advertisers in the event of non-observance of specific rules to request that they alter the advertisement, halt its dissemination or withdraw it.

15.3 Recommendations for advertising in the road environment

Because advertisements and billboards in the road environment are liable to distract drivers or limit the visibility of road markings, the authorities should take measures to ensure that such advertising and billboards do not reduce the visibility or effectiveness of regulation signs, do not dazzle road users, do not attract their attention in conditions jeopardizing road safety and do not increase the injury risk in case of a vehicle colliding with it.. Article 4 (d) (ii) of the Convention on Road Traffic of 1968 obliges the contracting parties to take measures in this regard, but it gives no indications about what measures to take. The present recommendations are therefore aimed at setting out rules that may be adopted by the authorities.

15.3.1 General recommendations

To provide for some level of oversight, the posting of advertisements in the road environment should be subject to an administrative authorization issued by the competent authorities. The authorities should set out the formalities required to obtain such authorizations. Standards should also be established for design, erection and maintenance of advertisements, including for their supporting structures.

In addition, the regulations may:

- (a) prescribe special standards for the architectural look and design of advertisements in specified places;
- (b) establish the form and the content of the authorization, and of a possible authorization plate to be posted on the supporting structure.

15.3.2 Specific recommendations

15.3.2.1 Content of advertisements

In the interest of road safety, it is recommended to prohibit advertising in any form:

- (a) containing directions for a locality that include either an arrow or an indication of distance;
- (b) containing a reproduction of a road sign or road sign symbol;
- (c) using shapes, sizes, colours, words, symbols that are liable to be confused with road signs or traffic lights.

15.3.2.2 Illuminated advertisements

The authorities should regulate the conditions and standards applicable to illuminated or reflective advertisements (including electronic advertisements) visible in the road environment, as they may dazzle road users or distract them, thus presenting a hazard. In particular, maximum levels of brightness should be established. Such levels may vary depending on the illuminated surface of the advertisement and its location (areas with intense lighting, well-lit commercial roads, other roads with lighting, roads without lighting).

In the case of illuminated video billboards the authorities should, in addition to the above-mentioned rules, exercise the greatest caution in authorizing these types of installations, as their capacity for dynamic display causes road users to be unusually distracted.

Illuminated advertisements with high-intensity light beams directed at road users, in particular with fixed or mobile spotlights whose beams are permanently or temporarily aimed in a direction more or less parallel to the road, should be prohibited.

15.3.2.3 Siting of advertisements

The location of advertisements should be regulated on the basis of the following principles:

(a) General rules

Advertisements should be prohibited within the right of way of roads and above it. Dispensations may, however, be made:

(i) in built-up areas, for advertising signs; subject to the provisions given in (b) (i) and (iii) hereafter;

(ii) in parking and service areas of roads.

(b) Rules depending on the nature of the infrastructure

(i) Motorways and similar roads

a. Outside urban areas, advertisements and advertising signs should be prohibited on either side of motorways or similar roads as set out in article 25, paragraph 4, of the Convention on Road Traffic of 1968 if they are visible to drivers, or failing this, be prohibited for a width of at least 200 meters (or a width defined by national legislation) measured from the outside edge of each roadway.

b. In urban areas, this minimum width should be defined by national legislation and should be as large as possible taking into account the rules defined in the preceding indent.

(ii) Other roads

Outside urban areas, advertisements and advertising signs should be prohibited on either side of the road in a band with a minimum width that should be defined by the national legislation and measured from the outside edge of the roadway.

(iii) Pavements (in and outside built-up areas)

The competent authorities should ensure that advertising installations on pavements (sidewalks) do not reduce the visibility of pedestrians who are approaching a pedestrian crossing and that they do not obstruct either the flow of pedestrians or persons in wheelchairs.

15.3.2.4 Dimensions of billboards

The authorities should also regulate the maximum dimensions of advertisements in accordance with their distance from the roadside.

15.3.2.5 Monitoring and penalties

In order to ensure observance of the rules for advertising in the road environment as they are established in the national legislation, the authorities should monitor implementation, and a failure to observe these rules should give rise to penalties. The latter, which should be adapted according to the seriousness of the offence, may be a simple warning calling for corrective action, a fine and/or administrative penalties, including the withdrawal of an authorization that has been issued.

In addition, the authorities should strictly monitor, on an ongoing basis, the content and specific features of advertisements broadcast on illuminated video billboards, in order to minimize the harmful effects on road safety.

Chapter 16

Local restrictions on traffic

16.1 Context

The specific conditions related to the nature of an accident may prompt the local authorities to take measures to restrict traffic. Such measures may incur a financial cost and a significant inconvenience for road users. The decision to take them should be made on the basis of criteria that are as objective as possible.

16.2 Recommendations

The following recommendations contain a list of criteria that should be applied in practice.

16.2.1 General recommendations

Before any restriction is applied on road traffic, it may be necessary to conduct a comprehensive study of the accident rate and characteristics, and the rate and type of infraction of road regulations and traffic conditions on the section being considered and on adjoining sections. It is also appropriate to ensure a certain homogeneity of the imposed restrictions applied in analogous situations on the national territory, so that road users can understand them properly.

The use of variable message signs should be considered when restrictions are temporary and it is recommended when the needs for restrictions are occasional or unexpected.

It is recommended that:

- (a) as far as possible public opinion and involvement be considered before restrictions are applied;
- (b) restrictions be localized, where appropriate, to certain hours of the day or certain days of the week;
- (c) the effectiveness of the application of restrictions be evaluated on the basis of changes in the accident rate and traffic volume on the section being considered and on adjoining sections.

16.2.2 Speed limits

Local speed limits (on particular sections of the road) may be applied according to the following two main criteria:

(a) where the introduction of speed limits is justified by the road and local conditions, in particular:

- (i) where it is necessary to ensure the traffic safety of pedestrians near schools, hospitals, etc.;
- (ii) where forward visibility is short;
- (iii) where it is desired to safeguard or improve the quality of the environment or of life;

(b) as emergency and/or temporary measures, when unexpected events affecting road safety occur, in particular:

- (i) where the concentration of road accidents is higher than on other sections of road, e.g. at black spots;
- (ii) where it is difficult for drivers to recognize a potential hazard on the road in good time;
- (iii) if it becomes necessary to ensure traffic safety in case of a deterioration of road conditions.

The speed limit to be chosen could be set at the level of 85 percent on the cumulative curve of speed observed on the section being considered.

16.2.3 Restrictions on overtaking

The advisability of a restriction on overtaking should be determined under the following conditions:

- (a) if visibility on the road is limited;
- (b) if the density of traffic justifies it;
- (c) in other cases where overtaking is hazardous and may cause road accidents.

Different signing technologies are available for each of the above conditions, and should be used accordingly.

16.2.4 Prohibition of standing and parking

It is recommended that prohibition of standing and/or parking should be applied having regard to the positive and negative aspects of such a measure. For this purpose, it should be determined that a restriction on standing and/or parking would make it possible:

- (a) to ensure a higher degree of road safety, particularly for pedestrians and bicyclists;
- (b) to reduce the likelihood of congestion and improve the flow of traffic;
- (c) to reduce noise and air pollution;
- (d) to facilitate the service of public transport;
- (e) to protect the amenity of certain zones, e.g. to stop vehicles from parking in a historical area and stop vehicles of over 3.5 tonnes unladen mass from parking in a residential area;
- (f) to ensure public safety, e.g. to stop vehicles from standing or parking outside public buildings, embassies, etc.

Account should also be taken of the fact that all or only some of the above-mentioned adverse effects of this measure may occur on certain sections of the road network. In areas where there are many restrictions on standing or parking, it is recommended that drivers should get appropriate guidance as to where it is possible to park, e.g. by road signs or markings.

Annex I

Periodic inspection of vehicles - checks to be carried out (Recommendation 5.1.2)

List of items to be inspected

Introduction

This annex contains a list of items that should be included in a periodic vehicle inspection. The following general principles apply:

- (a) inspections should be carried out using normal inspection techniques, without dismantling or removing any part of the vehicle. The equipment used should be commercially available and that which it is reasonable to provide in an inspection station.
- (b) it must be possible to perform the inspection within a limited time. An average total time of 30 minutes/vehicle is considered reasonable. The actual time taken will vary according to the category and condition of the vehicle concerned.
- (c) inspections are not limited to safety, but include items related to environmental protection (e.g. exhaust emissions, and noise).
- (d) items which are related to the condition of the vehicle and its suitability for use on the road but which are not considered essential in a periodic inspection are marked with an (X). All the other items listed should be considered as mandatory at a periodic vehicle inspection.

This annex identifies the vehicle system or component to be inspected, gives the method of inspection and provides information on the criteria to be used to determine whether its condition is acceptable.

The "principal reasons for rejection" are not applicable to items that are not prescribed in the law of the country carrying out the inspection.

Where a prescribed item may have to satisfy quantitative criteria in order to be acceptable, the requirements to be met are those defined in the applicable regulations. In this annex "regulations" means relevant national or international regulations, directives or other legal instruments that contain specific provisions relating to the standards to be met at periodic inspection. These are not specified in this annex.

Except for some special provisions in section 9 for vehicles having more than eight seats, in addition to the driver's seat, no distinction has been made between the categories of vehicles to which the inspections apply, since this is obvious from the test. Most of the inspections are applicable to all categories of vehicles (goods vehicles, large passenger vehicles, passenger cars and trailers).

Where a method of inspection is given as visual, it means that the inspector will, as necessary, handle relevant components, evaluate noise, etc in addition to looking at them.

The identification of the vehicle, which is a prerequisite to any inspection, has not been included in this list as it is not a safety item.

<i>Item</i>	<i>Method</i>	<i>Principal reasons for rejection</i>
1. Braking equipment		
1.1. Mechanical condition and operation		
1.1.1. Service brake pedal pivot	Visual inspection of the components while the braking system is operated. Note: Vehicles with power-assisted braking systems should be inspected with the engine switched off.	(a) Pivot too tight. (b) Bearing worn. (c) Excessive wear or play. (d) Inappropriate repair or modification.
1.1.2. Pedal condition and travel of the brake operating device	Visual inspection of the components while the braking system is operated Note: Vehicles with power-assisted braking systems should be inspected with the engine switched off.	(a) Excessive or insufficient reserve travel. (b) Brake control not releasing correctly. (c) Anti-slip provision on brake pedal missing, loose or worn smooth. (d) Inappropriate repair or modification.
Principal reasons for rejection		
1.1.3. Vacuum pump or compressor and reservoirs	Without the engine running, deplete pressure/vacuum until warning device operates. With the engine running, observe time required for vacuum or air pressure to achieve safe working value. Check that pressure relief valve is working. Visual inspection of the components at normal working pressure.	(a) Insufficient pressure/vacuum to give assistance for at least two brake applications after the warning device has operated (or gauge shows an unsafe reading). (b) Time taken to build up air pressure/vacuum to safe working value not in accordance with the regulations. ²⁶ (c) Pressure relief valve not working. (d) Air leak causing a noticeable drop in pressure or audible air leaks.
1.1.4. Low pressure warning indicator or gauge	Without the engine running, deplete pressure/vacuum until warning device operates or observe gauge.	Malfunctioning or defective gauge or indicator.

²⁶ For the purpose of this annex 'regulation(s)' means the relevant national or international requirements specified in national legislation.

1.1.5. Hand operated brake control valve	Visual inspection of the components while the braking system is operated.	<ul style="list-style-type: none"> (a) Control cracked, damaged or excessively worn. (b) Malfunction of control valve. (c) Control insecure on valve or valve insecure. (d) Loose connections or leaks in system. (e) Unsatisfactory operation (f) Inappropriate repair or modification.
1.1.6. Parking brake, lever control, parking brake ratchet	Visual inspection of the components while the braking system is operated	<ul style="list-style-type: none"> (a) Ratchet not holding correctly. (b) Excessive wear at lever pivot or in ratchet mechanism. (c) Excessive movement of lever indicating incorrect adjustment. (d) Inappropriate repair or modification <p>Principal reasons for rejection</p>
1.1.7. Braking valves (foot valves, unloaders, governor)	Visual inspection of the components while the braking system is operated.	<ul style="list-style-type: none"> (a) Valve damaged or excessive air leak. (b) Excessive oil discharge from compressor. (c) Valve insecure or inadequately mounted. (d) Hydraulic fluid discharge or leak.
1.1.8. Couplings for trailer brakes	Disconnect braking system coupling between towing vehicle and trailer.	<ul style="list-style-type: none"> (a) Tap or self sealing valve defective. (b) Tap or valve insecure or inadequately mounted. (c) Excessive leaks.
1.1.9. Energy storage reservoir pressure tank	Visual inspection.	<ul style="list-style-type: none"> (a) Tank damaged, corroded or leaking. (b) Drain device inoperative. (c) Tank insecure or inadequately mounted. (d) Inappropriate repair or modification.

1.1.10. Brake servo units, master cylinder (hydraulic systems)	Visual inspection of the components while the braking system is operated.	(a) Defective or ineffective servo unit. (b) Master cylinder defective or leaking. (c) Master cylinder insecure. (d) Insufficient brake fluid. (e) Master cylinder reservoir cap missing. (f) Brake fluid warning light illuminated or defective. (g) Incorrect functioning of brake fluid level warning device.
1.1.11.	Visual inspection of the components while the braking system is operated.	(a) Risk of failure or fracture. (b) Pipes or connections leaking. (c) Pipes damaged or excessively corroded. (d) Pipes misplaced. (e) Inappropriate repair or modification.
	Method	Principal reasons for rejection
1.1.12. Flexible brake hoses	Visual inspection of the components while the braking system is operated.	(a) Risk of failure or fracture. (b) Hoses damaged, chafing, twisted or too short (c) Hoses or connections leaking. (d) Hoses bulging under pressure. (e) Hoses porous. (f) Inappropriate repair or modification.
1.1.13. Brake linings and pads	Visual inspection.	(a) Lining or pad excessively worn. (b) Lining or pad contaminated (oil, grease etc.).
1.1.14. Brake drums, brake discs	Visual inspection.	(a) Drum or disk excessively worn, excessively scored, cracked, insecure or fractured. (b) Drum or disk contaminated (oil, grease, etc.) (c) Back plate insecure.

1.1.15. Brake cables, rods, levers, linkages	Visual inspection of the components while the braking system is operated.	(a) Cable damaged or knotted. (b) Component excessively worn or corroded. (c) Cable or rod joint insecure. (d) Cable guide defective. (e) Restriction to free movement of the braking system. (f) Abnormal movement of the levers/linkage indicating maladjustment or excessive wear. (g) Inappropriate repair or modification
Item	Method	Principal reasons for rejection
1.1.16. Brake actuators (including spring brakes or hydraulic cylinders)	Visual inspection of the components while the braking system is operated.	(a) Actuator cracked or damaged. (b) Actuator leaking. (c) Actuator insecure or inadequately mounted. (d) Actuator excessively corroded. (e) Excessive travel of operating piston or diaphragm mechanism. (f) Dust cover missing or excessively damaged. (g) Inappropriate repair or modification.
1.1.17. Load sensing valve	Visual inspection of the components while the braking system is operated.	(a) Defective linkage. (b) Linkage incorrectly adjusted. (c) Valve seized or inoperative. (d) Valve missing. (e) Inappropriate repair or modification.
1.1.18. Automatic slack adjusters and indicators	Visual inspection.	(a) Adjuster seized or having abnormal movement, excessive wear or incorrect adjustment. (b) Adjuster defective.
1.1.19. Endurance braking system (where fitted or required)	Visual inspection.	(a) Insecure connectors or mountings. (b) System obviously defective.

1.1.20. Automatic operation of trailer brakes	Disconnect brake coupling between towing vehicle and trailer.	Brake does not apply automatically when coupling disconnected.
Item	Method	Principal reasons for rejection
1.2. Service braking performance and efficiency		
1.2.1.Performance	During a road test and/or a test on a static brake testing machine, apply the brakes progressively up to maximum effort	(a) Inadequate braking effort on one or more wheel. (b) Braking effort from any wheel is less than the percentage of maximum effort recorded from the other wheel on the same axle specified in the regulations. Or in the case of testing on the road, the vehicle deviates excessively from a straight line. (c) No gradual variation in brake effort (grabbing). (d) Abnormal lag in brake operation of any wheel. (e) Excessive fluctuation of brake force during each complete wheel revolution.
1.2.2. Efficiency	Test with a static brake testing machine or, if one cannot be used for technical reasons, by a road test using either an indicating or recording decelerometer. For goods vehicles, the laden braking system performance should be assessed by testing the vehicle laden, by evaluation using a method based on extrapolation or by some other acceptable means. Note: The efficiency of overrun brakes can be fully tested on a static brake testing machine by use of a special device or partially tested by applying the parking brake.	Does not give at least the minimum figure laid down in the regulations.
1.3. Secondary (emergency) braking performance and efficiency (if met by separate system)		

1.3.1. Performance	If the secondary braking system is separate from the service braking system, use the method specified in 1.2.1.	(a) Brake inoperative on one side. (b) Braking effort from any wheel is less than the percentage of maximum effort recorded from the other wheel on the same axle specified in the regulations. Or in the case of testing on the road, the vehicle deviates excessively from a straight line. (c) No gradual variation in brake effort (grabbing).
1.3.2. Efficiency	If the secondary braking system is separate from the service braking system, use the method specified in 1.2.2.	Does not give at least the minimum figure laid down in the regulations.
1.4. Parking braking performance and efficiency		
1.4.1. Performance	Apply the brake during a road test with a decelerometer and/or a test on a static brake testing machine and/or with the vehicle on a slope of known gradient.	Brake inoperative on one side.
1.4.2. Efficiency	Test with a static brake testing machine or by a road test using either an indicating or recording decelerometer or with the vehicle on a slope of known gradient. Goods vehicles should, if possible, be tested laden.	Does not give at least the minimum figure laid down in the regulations.
1.5. Endurance braking system performance	Visual inspection and, where possible test whether the system functions using a static brake testing machine or by a road test using either an indicating or recording decelerometer.	(a) No gradual variation of efficiency (not applicable to exhaust brake systems). (b) System not functioning.
Item	Method	Principal reasons for rejection
1.6. Anti-lock braking system	Visual inspection of warning device.	(a) Warning device malfunctioning. (b) Warning device shows system malfunction.
2. Steering		
2.1. Mechanical condition		

2.1.1. Steering gear condition	With the vehicle over a pit or on a hoist and with the road wheels off the ground, rotate the steering wheel from lock to lock. Visual inspection of the operation of the steering gear.	(a) Roughness in operation of gear. (b)Sector shaft twisted or splines worn. (c)Excessive wear in sector shaft. (d)Excessive “end float” of sector shaft.
2.1.2. Steering gear casing attachment	With vehicle on a pit or hoist and the weight of the vehicle road wheels on the ground, rotate steering wheel clockwise and counter-clockwise or use a specially adapted wheel play detector. Visual inspection of the attachment of gear casing to chassis.	(a) Steering gear casing not properly attached. (b) Elongated fixing holes in chassis. (c) Missing or fractured fixing bolts. (d) Steering gear casing fractured.
2.1.3. Steering linkage condition	With the vehicle over a pit or on a hoist and with the road wheel on ground, rock steering wheel clockwise and anti-clockwise or use a specially adapted wheel play detector. Visual inspection of steering components for wear, fractures and security.	(a) Relative movement between components which should be fixed. (b) Excessive wear at joints. (c) Fractures or deformation of any component. (d) Absence of locking devices. (e) Misalignment of components (e.g. track rod or drag link). (f) Inappropriate repair or modification. (g) Dust cover missing or severely deteriorated.
Item	Method	Principal reasons for rejection
2.1.4. Steering linkage operation	With the vehicle over a pit or on a hoist and with the road wheels on ground and the engine running, rotate steering wheel from lock to lock or use a specially adapted wheel play detector. Visual inspection of movement of linkages.	(a) Moving steering linkage fouling a fixed part of chassis. (b) Steering stops not operating.
2.1.5. Power steering	Check steering system for leaks and hydraulic fluid reservoir level (if visible). With the road wheels on ground and with the engine running, check that the power steering system is operating.	(a) Fluid leak. (b) Insufficient fluid. (c) Mechanism not working. (d) Mechanism fractured or insecure. (e) Misalignment or fouling of components. (f) Inappropriate repair or modification.

2.2.	Steering wheel and column	
2.2.1.	Steering wheel condition	<p>With the road wheels on the ground, rock steering wheel from side to side at right angles to column and apply slight downward and upward pressure. Visual inspection of play.</p> <p>(a) Relative movement between steering wheel and column indicating looseness.</p> <p>(b) Absence of retaining device on steering wheel hub.</p> <p>(c) Fracture or looseness of steering wheel hub, rim or spokes.</p>
2.2.2.	Steering column	<p>With the vehicle over a pit or on a hoist and the mass of the vehicle on the ground, push and pull the steering wheel in line with column, push steering wheel in various directions at right angles to the column. Visual inspection of play, and condition of flexible couplings or universal joints.</p> <p>(a) Excessive movement of centre of steering wheel up or down.</p> <p>(b) Excessive movement of top of column radially from axis of column.</p> <p>(c) Deteriorated flexible coupling.</p>
Item	Method	Principal reasons for rejection
2.3.	Steering play	<p>With the vehicle over a pit or on a hoist, the mass of the vehicle on the road-wheels, the engine running for vehicles with power steering and with the road wheels in the straight-ahead position, lightly turn the steering wheel clockwise and anti-clockwise as far as possible without moving the road wheels. Visual inspection of free movement.</p> <p>Free play in steering excessive (for example movement of a point on the rim exceeding one fifth of the diameter of the steering wheel or not in accordance with the regulations).</p>
2.4.	Wheel alignment (X)	<p>Check alignment of steered wheels with suitable equipment.</p> <p>Alignment not in accordance with vehicle manufacturer's data.</p>
3. VISIBILITY		
3.1.	Field of vision	<p>Visual inspection from driving seat.</p> <p>Obstruction (including reflecting or tinted film) within driver's field of view that materially affects his view in front or to the sides.</p>
3.2.	Condition of glass	<p>Visual inspection.</p> <p>(a) Cracked or discoloured glass or transparent panel (if permitted).</p> <p>(b) Glass or transparent panel that does not comply with specifications in the regulations.</p> <p>(c) Glass or transparent panel in unacceptable condition.</p>
3.3.	Rear-view mirrors	

	Visual inspection.	(a) Mirror missing or not fitted according to the regulations. (b) A mirror not giving an adequate view to the rear. (c) Mirror loose or insecure.
3.4.	Windscreen wipers	
	Visual inspection and by operation.	(a) Wipers not operating or too slow. (b) Wiper blades not sweeping sufficient area of windscreen. (c) Wiper blade rubbers deteriorated.
3.5.	Windscreen washers	
	Visual inspection and by operation.	(a) Washers not operating. (b) Washer liquid not directed to appropriate part of windscreen.
4.	Lamps, reflectors and electrical equipment	
4.1.	Headlamps	
4.1.1.	Condition & operation	Visual inspection and by operation. (a) Defective bulb. (b) Defective lens. (c) Lamp not in accordance with the regulations. (d) Lamp not securely attached. (e) Products on lens or bulb which reduce light intensity or change colour.
4.1.2.	Alignment	Determine the horizontal and vertical aim of each headlamp on both main and dipped beam using a headlamp aiming device. Aim of a headlamp not within limits laid down in the regulations.
4.1.3.	Switching	Visual inspection and by operation. Number of headlamps illuminated at the same time not in accordance with the regulations.
4.1.4.	Compliance with regulations (X)	Visual inspection and by operation. Lamp, colour, position or intensity not in accordance with the regulations.
4.1.5.	Levelling devices (where mandatory) (X)	Visual inspection and by operation. (a) Device not operating. (b) Manual device cannot be operated from driver's seat.
4.1.6.	Headlamp washers (where mandatory) (X)	Visual inspection and by operation. (a) Washer not operating. (b) Washer liquid not directed on to headlamp surface.

Item	Method	Principal reasons for rejection
4.2. Front and rear position (side) lamps, side marker lamps		
4.2.1. Condition & operation	Visual inspection and by operation.	(a) Defective bulb. (b) Defective lens. (c) Lamp not securely attached.
4.2.2. Compliance with regulations	Visual inspection and by operation.	(a) Lamp, colour, position or intensity not in accordance with the regulations. (b) Products on lens or bulb which reduce light intensity or change colour.
4.3. Stop lamps		
4.3.1. Condition & operation	Visual inspection and by operation.	(a) Defective bulb. (b) Defective lens. (c) Lamp not securely attached.
4.3.2. Compliance with regulations	Visual inspection and by operation.	Lamp, colour, position or intensity not in accordance with the regulations.
4.4. Direction indicator lamps		
4.4.1. Condition & operation	Visual inspection and by operation.	(a) Defective bulb. (b) Defective lens. (c) Lamp not securely attached.
4.4.2. Compliance with regulations	Visual inspection and by operation.	Lamp, colour, position or intensity not in accordance with the regulations.
4.4.3. Switching	Visual inspection and by operation.	(a) Switching of lamps not in accordance with the regulations. (b) Any provision for special switching of direction indicators (e.g. all indicators flashing) not operating satisfactorily.
4.4.4. Flashing frequency	Visual inspection and by operation.	Rate of flashing not in accordance with the regulations.
Item	Method	Principal reasons for rejection
4.5. Front and rear fog lamps (X)		
4.5.1. Condition & operation	Visual inspection and by operation.	(a) Defective bulb. (b) Defective lens. (c) Lamp not securely attached.

4.5.2. Compliance with regulations	Visual inspection and by operation.	(a) A lamp fitted not in accordance with the regulations. (b) Lamp operation not in accordance with the regulations.
4.6. Reversing lamps (X)		
4.6.1. Condition and operation	Visual inspection and by operation.	(a) Defective bulb. (b) Defective lens. (c) Lamp not securely attached.
4.6.2. Compliance with regulations	Visual inspection and by operation.	(a) A lamp fitted not in accordance with the regulations. (b) Lamp operation not in accordance with the regulations.
4.7. Rear registration plate lamp		
4.7.1. Condition and operation	Visual inspection and by operation.	(a) Lamp throwing light to the rear. (b) Defective bulb. (c) Lamp not securely attached.
4.7.2. Compliance with regulations	Visual inspection and by operation.	Not in accordance with the regulations.
4.8. Retro-reflectors, side reflectors and rear marker plates		
4.8.1. Condition	Visual inspection.	(a) Reflecting equipment defective or damaged. (b) Reflector not securely attached.
4.8.2. Compliance with regulations	Visual inspection.	Not in accordance with the regulations.
4.9. Tell-tales		
4.9.1. Condition and operation	Visual inspection and by operation.	Not operating.
Item	Method	Principal reasons for rejection
4.9.2. Compliance with regulations	Visual inspection and by operation.	Not in accordance with the regulations.
4.10. Electrical connections between towing vehicle and trailer or semi-trailer		
	Visual inspection: if possible examine the electrical continuity between the vehicles.	(a) Fixed components not securely attached. (b) Damaged or deteriorated insulation. (c) Trailer or towing vehicle electrical connections not functioning correctly.

4.11.	Electrical wiring	Visual inspection with vehicle over a pit or on a hoist, including in the engine compartment in some cases.	(a) Wiring insecure or not adequately secured. (b) Damaged or deteriorated insulation.
4.12.	Non obligatory lamps (X)	Visual inspection and by operation.	(a) A lamp fitted not in accordance with the regulations. (b) Lamp operation not in accordance with the regulations. (c) Total intensity (including headlamps) not in accordance with the regulations. (d) Lamp not securely attached.
4.13.	Battery	Visual inspection.	(a) Insecure. (b) Leaking. (c) Defective switch (if required). (d) Defective fuses (if required).
5.	Axles, wheels, tyres and suspension		
5.1.	Axles		
5.1.1.	Axles	Visual inspection with vehicle over a pit or on a hoist. wheel play detectors may be used and are recommended for vehicles over 3.5 tonnes gross vehicle mass (GVM).	(a) Axle fractured or deformed. (b) Insecure fixing to vehicle. (c) Inappropriate repair or modification.
	Item	Method	Principal reasons for rejection
5.1.2.	Stub axles	Visual inspection with vehicle over a pit or on a hoist. wheel play detectors may be used and are recommended for vehicles over 3.5 tonnes gvm. apply a vertical or lateral force to each wheel and note the amount of movement between the axle beam and stub axle.	(a) Stub axle fractured. (b) Excessive wear in the swivel pin and/or bushes. (c) Excessive movement between stub axle and axle beam. (d) Stub axle pin loose in axle.
5.1.3.	Wheel bearings	Visual inspection with the vehicle over a pit or on a hoist. wheel play detectors may be used and are recommended for vehicles over 3.5 tonnes gvm. rock the wheel or apply a lateral force to each wheel and note the amount of upward movement of the wheel relative to the stub axle.	Excessive play in a wheel bearing.
5.2.	Wheels and tyres		

5.2.1. Road wheel hub	Visual inspection.	Any wheel nuts or studs missing or loose.
5.2.2. Wheels	Visual inspection of both sides of each wheel with vehicle over a pit or on a hoist.	(a) Any fracture or welding defect. (b) Tyre retaining rings not properly fitted. (c) Wheel badly distorted.
Item	Method	Principal reasons for rejection
5.2.3. Tyres	Visual inspection of the entire tyre by either rotating the road wheel with it off the ground and the vehicle over a pit or on a hoist or by rolling the vehicle backwards and forwards over a pit.	(a) Load capacity of tyres not in accordance with the regulations. (b) Tyres on same axle or on twin wheels of different sizes. (c) Tyres on same axle of different construction (radial / crossply). (d) Any serious damage or cut to tyre. (e) Tyre tread depth not in accordance with the regulations. (f) Tyre speed rating not in accordance with the regulations. (g) Tyre rubbing against other components. (h) Re-grooved tyres on passenger cars.
5.3. Suspension		
5.3.1. Springs	Visual inspection with vehicle over a pit or on a hoist. wheel play detectors may be used and are recommended for vehicles over 3.5 tonnes GVM.	(a) Insecure attachment of springs to chassis or axle. (b) A damaged or fractured spring component.
5.3.2. Shock absorbers	Visual inspection with vehicle over a pit or on a hoist or using special equipment, if available.	(a) Insecure attachment of shock absorbers to chassis or axle. (b) Damaged shock absorber.
5.3.3. Torque tubes, radius arms, wishbones and suspension arms	Visual inspection with vehicle over a pit or on a hoist. Wheel play detectors may be used and are recommended for vehicles over 3.5 tonnes GVM.	(a) Insecure attachment of component to chassis or axle. (b) A damaged or fractured component. (c) Inappropriate repair or modification.
5.3.4. Suspension joints	Visual inspection with vehicle over a pit or on a hoist. Wheel play detectors may be used and are recommended for vehicles over 3.5 tonnes GVM.	(a) Excessive wear in swivel pin and/or bushes or at suspension joints. (b) Dust cover missing or severely deteriorated.

Item	Method	Principals reasons for rejection
6. Chassis and chassis attachments		
6.1. Chassis or frame and attachments		
6.1.1. General condition	Visual inspection with vehicle over a pit or on a hoist.	<ul style="list-style-type: none"> (a) Fracture or deformation of any side or cross member. (b) Insecurity of strengthening plates or fastenings. (c) Excessive corrosion which affects the rigidity of the assembly.
6.1.2. Exhaust pipes & silencers	Visual inspection with vehicle over a pit or on a hoist.	<ul style="list-style-type: none"> (a) Insecure or leaking exhaust system. (b) Fumes entering cab or passengers compartment.
6.1.3. Fuel tank and pipes (including heating fuel tank and pipes)	Visual inspection with vehicle over a pit or on a hoist.	<ul style="list-style-type: none"> (a) Insecure tank or pipes. (b) Leaking fuel or missing <u>or</u> ineffective filler cap. (c) Damaged or chafed pipes. (d) Fuel stopcock (if required) not operating correctly. (e) Fire risk due to <ul style="list-style-type: none"> - Leaking fuel - Fuel tank or exhaust improperly shielded - Engine compartment condition. (f) Any special requirement for liquid gas fuel not met.
6.1.4. Bumpers, lateral protection and rear underrun devices	Visual inspection.	<ul style="list-style-type: none"> (a) Looseness or damage likely to cause injury. (b) Lateral protection or rear underrun device obviously not in compliance with the regulations.
6.1.5. Spare wheel carrier (if fitted)	Visual inspection.	<ul style="list-style-type: none"> (a) Carrier fractured or insecure. (b) A spare wheel not securely fixed in carrier.
Item	Method	Principal reasons for rejection

6.1.6. Coupling devices	Visual inspection for wear and correct operation with special attention to any safety device fitted and /or use of measuring gauge.	<ul style="list-style-type: none"> (a) Excessive wear in a component. (b) Insecurity of coupling to chassis. (c) Any safety device missing or not operating correctly. (d) Any indicator not working. (e) Inappropriate repair or modification.
6.1.7. Transmission	Visual inspection.	<ul style="list-style-type: none"> (a) Loose or missing securing bolts. (b) Excessive wear in transmission shaft bearings. (c) Excessive wear in universal joints. (d) Deteriorated flexible couplings. (e) A damaged or bent shaft. (f) Bearing housing fractured or insecure. (g) Dust cover missing or severely deteriorated.
6.1.8. Engine mountings	Visual inspection not necessarily on a pit or hoist.	Deteriorated, loose or fractured mountings.
6.1.9. Tipping gear (X)	Visual inspection.	Hydraulic fluid leak.
6.2. Cab and bodywork		
6.2.1. Condition	Visual inspection.	<ul style="list-style-type: none"> (a) A loose or damaged panel or part likely to cause injury. (b) Insecure body pillar. (c) Leaks permitting entry of engine or exhaust fumes. (d) Inappropriate repair or modification.
6.2.2. Mounting	Visual inspection over a pit or on a hoist.	<ul style="list-style-type: none"> (a) Body or cab insecure. (b) Body/cab obviously not located squarely on chassis. (c) Insecure or missing fixing of body/cab to chassis or cross members. (d) Excessive corrosion at fixing points on integral bodies.

Item	Method	Principal reasons for rejection
6.2.3. Doors and door catches	Visual inspection.	(a) A door will not open or close properly. (b) A door likely to open inadvertently or one that will not remain closed. (c) Door, hinges, catches, pillar loose or deteriorated.
6.2.4. Floor	Visual inspection over a pit or on a hoist.	Floor insecure or badly deteriorated
6.2.5. Driver's seat	Visual inspection.	(a) A loose seat or seat with defective structure. (b) Adjustment mechanism not functioning correctly.
6.2.6. Other seats	Visual inspection.	Seats in defective condition or insecure.
6.2.7. Driving controls	Visual inspection and by operation.	(a) Any control necessary for the safe operation of the vehicle not in good working order. (b) Any control necessary for the safe operation of the vehicle which does not carry out the function for which it is provided.
6.2.8. Cab steps	Visual inspection.	(a) Step or step ring insecure. (b) Step or ring in a condition likely to cause injury to users.
6.2.9. Other interior & exterior fittings	Visual inspection.	Not in accordance with the regulations.
6.2.10. Mudguards (wings), spray suppression devices	Visual inspection.	(a) Missing, loose or badly corroded. (b) Insufficient clearance for road wheel. (c) Not in accordance with the regulations.
7. Other equipment		
7.1. Safety-belts/ buckles		
7.1.1. Security of mounting	Visual inspection.	Anchorage point badly deteriorated.
Item	Method	Principal reasons for rejection

7.1.2.	Visual inspection and by operation. Condition	(a) Mandatory safety-belt missing or not fitted. (b) Safety-belt damaged. (c) Safety-belt not in accordance with the regulations. (d) Safety-belt buckle damaged or not functioning correctly. (e) Safety-belt retractor damaged or not functioning correctly.
7.2.	Fire extinguisher (if required) (X) Visual inspection.	(a) Missing. (b) Not in accordance with the regulations.
7.3.	Locks and anti-theft device (X) Visual inspection and by operation	Device not functioning to prevent vehicle being driven.
7.4.	Warning triangle (if required)(X) Visual inspection.	Missing or incomplete.
7.5.	First aid kit. (if required) (X) Visual inspection.	Missing, incomplete or not in accordance with the regulations.
7.6.	Wheel chocks (if required) (X) Visual inspection.	Missing or not in good condition.
7.7.	Audible warning device Visual inspection and by operation.	(a) Horn not working. (b) Control insecure or not conveniently placed. (c) Not in accordance with the regulations.
Item	Method	Principal reasons for rejection
7.8.	Speedometer Visual inspection or by operation during road test.	(a) Not fitted in accordance with the regulations. (b) Not operational. (c) Not capable of being illuminated.
7.9.	Tachograph (if required)	

	Visual inspection.	(a) Not fitted in accordance with the regulations. (b) Not operational. (c) Defective or missing seals. (d) Calibration plaque missing, illegible or out of date. (e) Obvious tampering or manipulation.
7.10.	Speed limitation device (if required)	
	Visual inspection and by operation if equipment available.	(a) Not fitted in accordance with the regulations. (b) Not operational. (c) Incorrect set speed (if checked) (d) Defective or missing seals. (e) Calibration plaque missing, illegible or out of date.
8.	Environmental items	
8.1.	Noise	
	Evaluate sound level in accordance with regulations.	Noise level excessive or exceeds limits specified in the regulations.
8.2.	Exhaust emissions	
8.2.1.	Positive ignition engines	
	Measure gaseous emissions using an exhaust gas analyser in accordance with the regulations.	(a) Any gaseous emission exceeds levels specified in the regulations. (b) Emission control equipment absent or obviously defective. (c) Exhaust leaks which would affect emission measurements.
Item	Method	Principal reasons for rejection
8.2.2.	Compression ignition engines.	
	Measure opacity using an opacity meter in accordance with the regulations.	(a) Opacity exceeds levels specified in the regulations. (b) Emission control equipment absent or obviously defective.
8.3.	Radio-interference (X)	
	Visual examination.	Any requirements of the regulations not met.
8.4.	Fluid leaks (X)	
	Visual examination	Excessive leaks of oil or other fluid
9.	Supplementary tests for vehicles having more than eight seats in addition to the driver's seat	

9.1.	Doors		
9.1.1.	Entrance and exit doors	Visual inspection and by operation.	(a) Defective operation. (b) Deteriorated condition. (c) Defective emergency control. (d) Remote control of doors or warning devices defective. (e) Not in accordance with the regulations.
9.1.2.	Emergency exits	Visual inspection and by operation.	(a) Defective operation. (b) Emergency door signs missing or illegible. (c) Missing hammer to break glass. (d) Not in accordance with the regulations.
9.2.	Demisting and defrosting system. (X)	Visual inspection and by operation.	(a) Not operating correctly. (b) Emissions of toxic gas. (c) Defective defrosting (if compulsory).
9.3.	Ventilation system. (X)	Visual inspection and by operation.	Defective operation.
Item	Method		Principal reasons for rejection
9.4.	Seats		
9.4.1.	Passenger seats	Visual inspection.	(a) Seats in defective condition or insecure. (b) Folding seats, if allowed, not folding correctly. (c) Not in accordance with the regulations.
9.4.2.	Driver's seat (additional requirement)	Visual inspection.	(a) Defective special devices such as anti-glare shield or anti-dazzle screen. (b) Insecure protection for driver.
9.5.	Lighting and destination devices. (X).	Visual inspection and by operation.	Device defective or not in accordance with the regulations.
9.6.	Gangways, standing areas		

	Visual inspection.	(a) Insecure floor. (b) Defective rails or grab handles.
9.7. Stairs and steps	Visual inspection.	(a) Deteriorated condition. (b) Not in accordance with the regulations.
9.8. Passenger communication system (X)	Visual inspection and by operation.	(a) Defective signal. (b) Defective stop sign or warning device for driver.
9.9. Notices (X)	Visual inspection.	Missing, erroneous or illegible notice.
9.10. Regulations regarding the transport of children and passengers with reduced mobility (X)		
9.10.1. Doors	Visual inspection.	Protection of doors not in accordance with the regulations for this form of transport.
Item	Method	Principal reasons for rejection
9.10.2. Signalling and special equipment required by regulations	Visual inspection.	Signalling or special equipment absent or not in accordance with the regulations.
9.11. Special equipment (X)		
9.11.1. Installations for food preparation	Visual inspection.	(a) Installation not in accordance with the regulations. (b) Installation damaged to such an extent that it would be dangerous to use it.
9.11.2. Sanitary installations	Visual inspection.	Installation not in accordance with the regulations.

Annex II

Good-practices code for loading and stowage methods (Recommendation 5.2)

1. General remarks

Compliance with the rules stated in this Code does not remove the obligation to conform to the provisions relating to loading of vehicles set forth in the Convention on Road Traffic (E/CONF.56/16/Rev.1, article 30), and provisions relating to the carriage of dangerous goods set forth in the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) where these are applicable.
2. Basic principles
 - 2.1 The vehicle, the loading space and accessory equipment shall be appropriate, as designed or fitted, to the nature of the load to be carried. The loading space shall be adequate for its purpose, i.e. it shall be in good condition and firmly secured to the chassis. Inter alia, the body, platform, walls, bars, struts and flaps, etc. shall be quite free of cracks, and their locking devices shall be in perfect working condition. The examples quoted in this code are for illustration only. Methods other than those recommended may be used, provided they produce the same results.
 - 2.2 All equipment used for anchoring the load shall be in good condition and be strong enough to hold the load.
 - 2.3 It shall be the employer's duty to give the driver of a vehicle used for goods transport all necessary instructions regarding the correct use of the equipment supplied for loading the vehicle and for securing the load.
3. Loading rules
 - 3.1 The load shall be distributed as uniformly as possible over the whole loading platform. The heaviest goods shall be placed as far down as possible, and irregularly shaped objects shall be arranged alternately except in the case of loads having one extremity with sharp edges, which shall be so placed that this extremity points to the rear.
 - 3.2 The load shall be placed against the front wall of the loading platform, but, where this is impossible, it shall be wedged against the wall as prescribed below.
 - 3.2.1 As far as possible, the load shall be redistributed after each partial unloading so as to maintain the overall balance. In the case of compartmented tanker vehicles used for the carriage of liquids or powders, consecutive unloading shall be so carried out as not to jeopardize the overall balance.
 - 3.2.2 The load shall not be leant against a wall not designed for that purpose.
 - 3.2.3 The weight of heavy loads of small dimensions shall be distributed by means, for example, of side-members, a platform or a bearer cradle.
4. Stowage rules

- 4.1 Once the load is secured, the kinetic energy transmitted by the anchoring device shall be finally absorbed by the chassis of the vehicle.
- 4.2 Accordingly, the loading platform and the device securing it to the chassis shall be strong enough to meet the stress transmitted. Particularly heavy loads (machinery, cable drums, etc.) shall be securely anchored directly to the chassis.
- 4.3 The load may be stowed by one of the following methods:
 - 4.3.1 Use of ropes, cables, etc.: the ropes or cables shall be sufficiently taut and shall be checked from time to time, the first time shortly after departure, and shall, if possible, be tightened up if necessary.
 - 4.3.2 Protection of the load with tarpaulins or the like: the tarpaulins shall be fully stretched and well lashed down so as to prevent them from being blown off when the vehicle is in motion. Cross-cross packropes and elastic fasteners are recommended for this purpose. The tarpaulin may be replaced by a net or similar means of protection.
 - 4.3.3 Use of clamps, bolts, etc.: where the load is secured by this method, care shall be taken to ensure that the loading platform and other securing components will take the stresses exerted on the surface and edges at the securing points.
 - 4.3.4 Use of metal chains or cables: the load shall be secured or lashed down with chains or steel cables which must be tautened and kept taut by means of a suitable device. Chains and steel cables used for this purpose shall be of adequate strength. Splicing of chains is only permissible if special splicing shackles are used.
 - 4.3.5 Use of blocks, wedges, etc.: blocks, wedges, bars, props, rubber pads, etc. may be used to prevent the load from rolling, shifting, or overturning. Care should then be taken to ensure that stowing equipment is stout enough for the type of load, with special regard to its centre of gravity.
5. Special cases
 - 5.1 Containers
 - 5.1.1 The following requirements are to be applied to the carriage of containers on motor vehicles, drawbar trailers or semi-trailers which are not specially constructed or equipped with special locking devices for this purpose.
 - 5.1.1.1 Containers shall be loaded and secured according to the principles set out in paragraphs 4.3.2., 4.3.3. and 4.3.4. above, except that ropes shall not be used for stowing.
 - 5.1.1.2 The restraining devices used, including a headboard when fitted, shall be of sufficient strength to prevent forward movement of the container during braking and therefore capable of resisting the effect of a horizontal force of 800 kgf per tonne of the maximum permissible mass of the container.
 - 5.1.1.3 Chains, hooks, clamps, shackles, etc. used to secure a container must have a load resistance sufficient to meet the requirements of paragraph 5.1.1.2. Where chains are used, the angle between the lower and upper attachment points shall not be more than 60° to the horizontal.
 - 5.1.1.4 The container should be restrained by at least two chains on each side, attached to the upper corner castings or to the lifting rings where these are provided.
 - 5.2 Forest products loaded lengthwise (logs, squared timber and pulpwood)

- 5.2.1 Each outer log or piece of timber shall be supported by at least two uprights; this means that pieces shorter than the distance between two uprights are placed in the interior of the load. The uprights shall be secured to the transverse cradle, to the gantry or to the platform and shall be fitted with top chains. Where a pile is supported by only two pairs of uprights, the ends of the outer logs shall extend at least 30 cm beyond the uprights.
- 5.2.2 The logs shall be arranged in such a manner as to ensure an even distribution of the load. Each pile shall be lashed together and the lashing secured by a suitable device. A single chain stretched between the uprights, even if well secured, is not enough. For barked round wood at least two lashings are required.
- 5.3 Forest products loaded breadth wise (pulpwood, firewood, etc.)
- 5.3.1 The load shall be divided into piles measuring not more than 2 m in the direction of the vehicle's length.
- 5.3.2 The outer pieces in each pile shall be supported either by a partition or by at least two uprights.
- 5.3.3 Each pile or the whole load shall be lashed together and the lashing secured by means of a suitable device. A single chain stretched between the uprights, even if well secured, is not enough. For barked roundwood at least two lashings are required.
- 5.3.4 Precautions shall be taken to avoid any sideways slip of the load, for example by placing an upright level with each pile.
- 5.4 Loads of great length
- 5.4.1 Loads of great length shall be so secured as to prevent their shifting either lengthways or sideways.
- 5.4.2 Tubes, metal bars, etc. shall be tied together.
- 5.4.3 In the transport of outsize lengths, such as steel girders, or concrete piles or posts, special care shall be taken to ensure that they are firmly anchored lengthwise. The method of testing and evaluation of the headboard should be that recommended in paragraph 1.27 of the Consolidated Resolution on the Construction of Vehicles (R.E.3). The headboard shall provide restraint of 800 kgf per tonne of the permissible useful load subject to a maximum of 7,500 kgf.
- 5.5 Transport of vehicles
- 5.5.1 Any vehicle loaded on another vehicle shall be immobilized and made fast with cables, chains or straps of sufficient strength, tautened by means of a suitable device. If chocks are used to hold a vehicle placed lengthwise, they shall be placed in front of and behind each wheel.
- 5.5.2 If the vehicle carried is equipped with mobile parts, such as lifting or excavation equipment, these mobile parts shall either rest on the platform or be made fast by appropriate means. The dismantling of the crane arm shall be required only in those cases where its presence during transport may constitute a safety hazard.
- 5.6 Sheet metal, wood-fibre board, etc.
- 5.6.1 Sheet metal, especially greased sheets, shall be stacked and bound, preferably with metal strip. These stacks shall be secured to the vehicle unless it is equipped with side walls or uprights.

- 5.6.2 If the stacks are bound with wire, the bindings must be protected. The distance between two consecutive bindings shall not exceed 70 cm and at least two bindings shall be used on each face. Only vehicles satisfying the requirements laid down in paragraph 1.27. of the Consolidated Resolution on the Construction of Vehicles (R.E.3) on protection of the occupants of cabs of commercial vehicles against shifting of loads may be used for this kind of transport.
- 5.7 Cable drums, paper rolls, etc.
- 5.7.1 Except in the case of vehicles specially designed or adapted for transport of these goods such as, for example, vehicles with dips in the loading-platform floor, such objects shall be properly immobilized and secured. Particular care shall be taken in the case of large cable drums carried on flat loading platforms, to prevent rolling and tipping. Drums shall be placed against each other. It may be necessary for them to be supported by square-edged wooden bearers so that the load will be distributed for the protection of the platform. The front drum shall be wedged to prevent forward movement and the rear drum wedged to prevent rearward movement. All drums shall be securely chained by passing chains through the centre of the drum. Fastening of the chains so as to prevent rolling will provide additional protection against tipping on side slopes and corners.
- 5.8 Bulk loads
- 5.8.1 Bulk loads (stone, gravel, sand, scrap, etc.) may only be carried in vehicles with sufficiently high walls, even at the back of the loading platform. The rear wall is not, however, necessary where the loading platform itself is raised sufficiently at the rear. Where the rear wall is hinged, it shall be properly locked.
- 5.8.2 Light materials (sawdust, ash, etc.) that are liable to be blown away shall be covered.
- 5.9 Packaged goods: care shall be taken to ensure that the piles are well secured from top to bottom by the side walls or by any suitable restraining device. Where necessary, the load shall be covered over with a tarpaulin.
- 5.10 Pallets
- 5.10.1 The goods shall be secured to the pallets unless the latter have their own vertical walls.
- 5.10.2 The pallets shall be secured to the vehicle unless the latter is equipped with vertical walls.

Annex III

Minimum requirements for professional driving instruction - driving instructors (Recommendation 2.1.1.3)

Eligibility for recognition

1. To be eligible for recognition as laid down in this Recommendation, the applicant shall fulfil the following conditions:
 - 1.1 Age: Candidates shall be at least 21 years of age.
 - 1.2 Fitness: Candidates shall meet necessary physical, psychological and other requirements as specified by the competent authorities and previous circumstances shall not be such as to make them unsuitable to exercise the profession.
 - 1.3 Driving permit and experience:
 - 1.3.1 Candidates shall hold a driving permit valid for at least the category or categories of vehicles on which they will be instructing.
 - 1.3.2 Candidates shall furnish proof that, within the course of at least the preceding three years, they have gained sufficient driving experience for the category or categories of vehicles on which they will be instructing.
 - 1.3.3 During the three years prior to application, and until their recognition, they shall not have been disqualified from driving. Candidates may be considered ineligible for recognition if they have been found guilty of an infringement of traffic regulations which constituted a serious danger to road safety.
 - 1.4 Professional ability: candidates shall satisfy the competent authority, by passing theoretical and practical examinations, that they:
 - 1.4.1 Have appropriate knowledge of educational methods and applied psychology relevant to driving tuition, and the ability to put these into practice;
 - 1.4.2 Have a thorough knowledge of the subjects of tuition required in annex IV to this Consolidated Resolution;
 - 1.4.3 Have driving ability to a standard significantly higher than that required in driving tests appropriate to the category or categories of vehicles on which they will be instructing.

Disqualification

2. If instructors' driving permits are suspended, the competent authority shall decide if they may continue to give theoretical instruction.
3. If instructors are found guilty of an infringement of traffic regulations which constituted a serious danger to road safety, or of an offence which casts doubt on

their suitability to continue acting as an instructor, their recognition shall be reviewed by the competent authorities.

Maintenance of standards

4. The competent authorities shall take steps as necessary to ensure that instructors maintain the standards required in sections 1.2. and 1.4. above.

Annex IV

Minimum requirements for professional driving instruction - scope of tuition (Recommendation 2.1.1.5)

Theoretical

1. Tuition shall be such as to ensure that the pupil has, with special reference to the use of vehicles of the category for which instruction is being given:
 - 1.1 Knowledge of legislation, rules and regulations relating to the use of vehicles, traffic signs, signals and markings, and of their meaning;
 - 1.2 Basic knowledge and understanding of the technical regulations relating to vehicle safety in traffic, in particular the use of equipment designed to improve the safety of vehicles in traffic;
 - 1.3 Knowledge and understanding of rules relating to the driver, in so far as they concern road safety, including, for drivers of category C and D vehicles, rules relating to work time and rest time;
 - 1.4 Knowledge and understanding of the rules applicable to the driver concerning correct behaviour in case of accidents;
 - 1.5 Adequate knowledge and understanding of the importance of road safety matters, and especially of the following accident factors:
 - 1.5.1 Road traffic dangers, such as danger in overtaking manoeuvres, wrong estimate of speed and distance (effects on braking and safety distances), influence of the quality of the road surface, the time of day, the weather (snow, ice, rain, fog, side wind, aquaplaning), actions of other road users, and in particular of elderly people and children;
 - 1.5.2 Factors likely to reduce the driver's vigilance and his physical and mental fitness, such as fatigue, illness, alcohol, drugs and medicaments, etc;
 - 1.5.3 Safety factors relating to the stowage of loads and to the occupants of vehicles;
 - 1.6 Category A and B vehicles only: basic knowledge of those items of the vehicle which are vital to the protection of its occupants and to road safety, such as brakes, signalling and lighting devices, tyres, oil levels, safety belts, etc.;

Category C, D and E vehicles only: knowledge of the function and simple maintenance of the items mentioned above and of all other vehicle parts and devices of particular importance to safety and an ability to identify (diagnose) typical defects which may have a negative effect on traffic safety;
 - 1.7 Knowledge of the action which may be required in order to assist road accident victims;

Category D vehicles only: knowledge of action which may be required to assist passengers in case of a road traffic accident or physical indisposition and of arrangements for evacuation of passengers in emergency;

- 1.8 Knowledge of the value and the correct use of safety belts;
 - 1.9 Knowledge of the reasonable principles of economical driving (fuel economy).
- Practical
- 2. Instruction should be given in:
 - 2.1 Control of the vehicle, including:
 - (a) Starting on an uphill gradient.
 - (b) Categories B, C, D and E vehicles only: reversing and reverse turning.
 - (c) Braking and stopping at various speeds, including stopping in an emergency if road and traffic conditions so permit.
 - (d) Category D vehicles only: Braking and stopping at various speeds taking duly into account the safety and comfort of the passengers.
 - (e) Braking and stopping in emergency taking duly into account safety of the passengers and other road users.
 - (f) Categories B, C, D and E vehicles only: oblique parking, parking on upward and downward gradients.
 - (g) Turning in a restricted space.
 - (h) Category A vehicles only: driving at slow speed.
 - 2.2 Behaviour in traffic, including:
 - (a) Correct position on the carriageway.
 - (b) Proper negotiation of right and left bends.
 - (c) Correct manoeuvring in changing lanes and turning off at junctions.
 - (d) Alertness to other traffic.
 - (e) Correct behaviour at intersections, taking full account of all movements of other road users, with special regard to right of way.
 - (f) Driving at appropriate speeds.
 - (g) Use of rear-view mirrors.
 - (h) Correct advance warning of intended manoeuvres.
 - (i) Correct operation of vehicle lighting, warning devices and other ancillary controls.
 - (j) Driving with due care and consideration for pedestrians and other road users.
 - (k) Correct behaviour with regard to public transport vehicles.
 - (l) Compliance with traffic light signals and instructions given by authorized officials.
 - (m) Appropriate action on authorized signals given by other road users.
 - (n) Respecting traffic signs and signals, road markings and pedestrian crossings.
 - (o) Maintaining appropriate following and lateral distances.
 - (p) Correct overtaking.

Correct use of safety belts and other traffic safety devices if the vehicle is so equipped.
 - 2.3 Visual scanning strategy, including:
 - (a) Systematic collection of information well ahead, to the sides and to the rear of the vehicle.

- (b) Identification of situations endangering the safety of road traffic, assessment of the level of potential or actual risks, prediction of possible changes and developments in the situation some seconds ahead, and ability to take action according to defensive driving. Part of the training in visual scanning may be conducted in classroom units by use of films, slides, etc.
3. The tuition referred to in paragraph 2 above shall be carried out on roads of all types and in both daytime and night conditions wherever possible, so that the pupil shall have experience in meeting the various hazards he is likely to encounter when driving. On motorways, however, driving lessons shall be given only to learner drivers who, in the opinion of their instructor, have already gained adequate experience of driving on ordinary roads. Such lessons may be prohibited during periods of heavy traffic on the motorway in question.

Annex V

Guidelines for methods of professional tuition (Recommendations 2.1.1.2, 2.1.1.5 and 2.1.1.6)

1. Principal guidelines
 - 1.1 Professional tuition methods shall be adapted to both the theoretical and practical aspects of the knowledge to be taught to learner drivers as set out in annex IV. These aspects shall, as far as possible, complement each other throughout the training period.
 - 1.2 Professional tuition methods shall be such as to ensure that learner drivers acquire the knowledge and skill needed to have full control of a vehicle and to take the correct decision so as to behave in a reliable manner in traffic.
2. Methods of theoretical tuition
 - 2.1 Theoretical tuition shall be organized in such a way that learner drivers can follow the entire programme and, taking into account their individual characteristics (e.g. age, formation, social background), duly assimilate it.
 - 2.2 Modern pedagogical methods shall be used to encourage learner drivers to take an active part in the lessons, in particular through group discussions.
 - 2.3 Teaching aids shall be so conceived that they present visually the traffic situation discussed. Books, drawings and pictures, or audio-visual equipment (films or slides) shall, as far as possible, present situations as seen from the driver's seat of a vehicle. They shall be made in cooperation with educational experts, use modern teaching principles and illustrate facts drawn from national and international road traffic research and what is known about circumstances surrounding accidents. Use may be made of updated technical teaching aids such as simulators or specific computer programs as a complement to the existing methods of tuition.
- 2.4 Governments shall pay special attention to the running of the courses and fix, when appropriate, the minimum possible length of courses and the scope of syllabuses according to:
 - 2.4.1 The category of vehicle;
 - 2.4.2 The equipment prescribed for use in driving schools;
 - 2.4.3 The methods of instruction.
- 2.5 Theoretical tuition shall be organized in such a way that:
 - 2.5.1 The general pedagogical principle of increasing difficulty is respected;
 - 2.5.2 The knowledge of matters taught at previous lessons is checked as far as possible throughout the tuition programme;
 - 2.5.3 Legal prescriptions are explained as far as possible in relation to real traffic situations, with the use of everyday expressions and with the appropriate teaching aids;
 - 2.5.4 The required technical knowledge of vital parts of vehicles is explained with the use of drawings (exploded views) models and illustrations;

- 2.5.5 Risks related to the physical forces of moving vehicles, correct attitudes for safe driving and accident factors in traffic are taught with the use of audio-visual aids, drawings and illustrations;
- 2.5.6 Learner drivers are aware of the possible danger, and the consequences thereof, resulting from their physical condition, and the effect of alcohol and other drugs and their interaction. Teaching aids, such as films and audio-visual equipment shall be used;
- 2.5.7 First aid training is given by a competent instructor;
- 2.5.8 Learner drivers are motivated and encouraged to make use of safety equipment such as restraint systems for vehicle occupants or crash helmets for riders of two-wheeled motor vehicles. This should be taught with the use of films or other appropriate teaching aids.
- 2.5.9 The influence of road accidents on the social sphere and the environment is studied.
3. Methods of practical tuition
- 3.1 Introduction
- 3.1.1 This programme is a general training programme from which the instructor may deviate in the cases where it is appropriate, e.g. if the learner driver has already some knowledge and ability in controlling his vehicle.
- 3.1.2 All the exercises are to be repeated until the learner driver is capable of acting appropriately in the given situations.
- 3.1.3 In particular in the early stages the learner driver should be allowed if necessary to rest at frequent intervals.
- 3.1.4 Tuition methods shall be such as to ensure a proper integration between the theoretical and the practical instruction so that learner drivers may put their knowledge into practice. It is recommended, therefore, to start learning drivers on appropriate sites.
- 3.1.5 From the first stage of instruction the learner driver shall practice the principles of an economical style of driving, which is preferable not only from the viewpoint of fuel economy, but also in offering additional advantages (tyres, maintenance, environmental pollution, road safety, etc.).
- 3.1.6 This programme is drafted for right-hand traffic. When used in countries with left-hand traffic "right" shall be replaced by "left" and "left" by "right".
- 3.2 Drivers of two-wheeled power-driven vehicles of Category A (motor cycles)
- First level
- Off-the-road instruction: many of the manoeuvres should first be demonstrated by the instructor and then be imitated by the learner driver.
- 3.2.1 Advice on suitable clothing - winter and summer
- 3.2.1.1 One-or two-piece riding suit; safety colours.
- 3.2.1.2 Gloves

- 3.2.1.3 Footwear
- 3.2.1.4 Helmets
- 3.2.1.5 Devices to protect the face and eyes of the driver: advice against the use of darkened visors or spectacles at night.
- 3.2.2 Brief introduction to the motor cycle
 - 3.2.2.1 Hand controls: steering, clutch, hand-brake, lighting, ignition, indicators, petrol on/off switch, throttle, horn.
 - 3.2.2.2 Foot controls: rear brake, gear-change lever.
 - 3.2.2.3 Instruments: speedometer, rev counter and warning lamps.
- 3.2.3 Exercises with engine switched off
 - 3.2.3.1 Placing motor cycle on and off stand.
 - 3.2.3.2 Wheeling motor cycle for weight and balance, straight and turning right and left.
 - 3.2.3.3 Learner driver mounts motor cycle wearing helmet.
 - 3.2.3.4 Seating position for comfort and maximum control.
 - 3.2.3.5 Position of feet on foot rests.
 - 3.2.3.6 Knee position.
 - 3.2.3.7 Learner driver walks the motor cycle until control over steering and brakes is gained.
 - 3.2.3.8 Pre-starting up routine.
 - 3.2.3.9 Operation of controls without looking at them.
- 3.2.4 Exercises with engine switched on
 - 3.2.4.1 Learner driver starts engine under supervision on level ground; automatic or kick start.
 - 3.2.4.2 Attention drawn to importance of long swing on kick start.
 - 3.2.4.3 Operation of twist grip in neutral, engine running.
 - 3.2.4.4 Operation of front brake without disturbing twist grip setting.
 - 3.2.4.5 Engine running, operate clutch.
 - 3.2.4.6 Select first gear (instructor stands by in case clutch is released).
 - 3.2.4.7 Select neutral.
 - 3.2.4.8 Learner driver selects first gear, engine running.
 - 3.2.4.9. Slowly let in clutch: note biting point, effect on engine and change of engine note.
 - 3.2.4.10 Learner driver moves off a few metres at a time, slowly: use of rear brake to stop, inculcation of habit of looking behind before moving off.
 - 3.2.4.11 Short ride in first gear.
 - 3.2.4.12 Exercise stopping at specific points without stalling engine.

- 3.2.5 Exercise climbing low obstacles
- 3.2.5.1 Stops with front wheel touching a 5-10 cm high kerb.
 - 3.2.5.2 Both feet on the ground, the learner driver has to climb the kerb with the front wheel.
 - 3.2.5.3 Careful operation of the clutch and keeping the number of revolutions unchanged at sufficiently high level.
 - 3.2.5.4 Stop immediately after front wheel is at the kerb.
 - 3.2.5.5 Repeat with rear wheel.
 - 3.2.5.6 Select neutral, stop engine, place motor on stand without help after returning to starting point, switch off petrol feed.
- Second level
- Off-the-road exercises
- 3.2.6 Slow riding
- 3.2.6.1 Demonstrate "minimum non-snatch" in first gear with clutch fully engaged.
 - 3.2.6.2 Below this speed (3.2.6.1), demonstrate control by clutch slip and use of rear brake.
 - 3.2.6.3 Explain dangers of excessive clutch slip.
- 3.2.7 Very slow riding in a straight line, varying speed
- 3.2.7.1 With a little steering right and left.
 - 3.2.7.2 Turning in a fairly restricted space.
 - 3.2.7.3 Turning - figure of eight (speed of angle of inclination to be gradually increased).
 - 3.2.7.4 Weaving through a staggered line of posts.
- 3.2.8 Practise as in point 3.2.7. until constant speed is obtained without resorting to the use of the feet to maintain balance
- 3.2.9 Simulation of traffic manoeuvres
- 3.2.9.1 Demonstrate correct procedure for turning right.
 - 3.2.9.2 Practise right turn until competent.
 - 3.2.9.3 Check procedures performed in correct order: look, signal, manoeuvre; avoid swinging out beyond the intended trajectory on entering or leaving the turn.
 - 3.2.9.4 Repeat for left turns; avoid cutting the corner.
- Note: To perform the exercises set out in points 3.2.10 and 3.2.11 below, the learner driver must be instructed in the basic use of the brakes.
- 3.2.10 Gear changing
- 3.2.10.1 Changing up, matching engine and road speeds.
 - 3.2.10.2 Changing down, matching engine and road speeds.
 - 3.2.10.3 Progressive acceleration.
 - 3.2.10.4 Changing down to compensate for loss of road speed.
 - 3.2.10.5 Use of the engine as a brake.
 - 3.2.10.6 Stopping without gear changing at a given point.

- 3.2.11 Starting the engine and moving off uphill or downhill
 - 3.2.11.1 Use of brakes when starting: hand-brake when kick s starting, foot-brake when automatic starting.
 - 3.2.11.2 Keeping the motor cycle stationary when engine is running.
 - 3.2.11.3 Appreciation of the extra power required for moving off uphill.
 - 3.2.11.4 Controlled release of brakes and clutch.
- 3.2.12 Braking exercises including emergency stops

Note: The braking exercises, including braking on bends and downhill, are repeated several times with increasing initial speed; stopping distances are compared. Exercises gradually proceed to blocking and immediate measured release. Various characteristics of the road surface, including low static friction values (gravel, sand, wet surface), make the exercise increasingly difficult.

 - 3.2.12.1 Foot-brake only.
 - 3.2.12.2 Hand-brake only.
 - 3.2.12.3 Both brakes.
 - 3.2.12.4 Emergency braking: without stalling engine, without loss of balance, with the simultaneous use of front and rear brakes, without skidding.
- 3.2.13 Emergency starting
 - 3.2.13.1 Starting by rolling downhill or pushing.
- 3.2.14 Special exercise
 - 3.2.14.1 Driving with pillion rider.
 - 3.2.14.2 Evasive manoeuvre: Combined steering and braking to avoid unexpected obstacles.

Third level

Driving on roads with low traffic density: accompanied by instructor driving own motor cycle or car
- 3.2.15 Right turns as far as possible to avoid crossing traffic lanes
 - 3.2.15.1 At slow speed using all gears.
 - 3.2.15.2 Practise: rear observation, signals, braking, gear changing, ensuring that timing is correct in relation to hazard.
- 3.2.16 Check correct use of brakes
 - 3.2.16.1 Where safe, quick stops at instructor's command.
 - 3.2.16.2 Practise until well controlled.
 - 3.2.16.3 Emergency stops.
- 3.2.17 Passing stationary obstacles: rear observation, signal change of position on road allowing extra space for occupied vehicles (driver's door may open suddenly).
- 3.2.18 Overtaking
 - 3.2.18.1 Practise method, engage lower gear, rear observation, signal change of position on road, ensure that there is no oncoming traffic.

- 3.2.18.2 Overtake quickly.
- 3.2.18.3 Avoid cutting in when re-positioning on right.
- 3.2.19 Being overtaken when about to pass a stationary obstacles
 - 3.2.19.1 Use of brakes, when necessary emergency braking.
 - 3.2.19.2 Slow down; use of the engine as brake.
 - 3.2.19.3 Changing down to compensate for loss of speed.
 - 3.2.19.4 When overtaken, proceed as in point 3.2.17.
- 3.2.20 Turning left across oncoming traffic into side roads: practise correct procedure after demonstration by instructor (instructor should ride behind learner driver for protection from other traffic).
- 3.2.21 Exercises related to the negotiation of intersections
 - 3.2.21.1 Approaching intersections.
 - 3.2.21.2 Crossing intersections.
 - 3.2.21.3 Turning right at intersections.
 - 3.2.21.4 Turning left at intersections.
 - 3.2.21.5 Negotiating intersections with good visibility.
 - 3.2.21.6 Negotiating intersections with poor visibility.
 - 3.2.21.7 Negotiating roundabouts of any kind.
- Fourth level
- 3.2.22 Simple situations in heavy traffic
 - 3.2.22.1 Check response to traffic signs, signals and road markings.
 - 3.2.22.2 Frequent rear observation.
 - 3.2.22.3 Following distance.
 - 3.2.22.4 Lane discipline: for normal progress, prior to and after passing or overtaking, prior to turning, in the absence of road markings.
 - 3.2.22.5 Intersections: controlled, uncontrolled.
- 3.2.23 Pedestrians and more complicated situations
 - 3.2.23.1 Response to pedestrians (in particular children and aged persons) and to pedestrian crossings, at school sites, factory entrances and exits, etc.
- 3.2.24 Behaviour of other road users (other motor cycles, car drivers, heavy vehicles, parked vehicles, etc.
 - 3.2.24.1 Such knowledge in relation to heavy vehicles includes:
 - 3.2.24.1.1 Awareness, when about to cross an intersection, that a heavy vehicle approaching on the left may hide a vehicle about to overtake it, and

- consequently waiting until the lorry or coach has passed.
- 3.2.24.1.2 Awareness that a heavy vehicle hides what is in front of it and consequent prudence by following motor cyclists until the situation is clear (e.g. before a road narrowing or other bottle-neck).
 - 3.2.24.1.3 Awareness that, when a heavy vehicle turns, it cuts into the inside of its corner and of the 'blind spot' for the driver on either side of his cab, the motor cyclist consequently should not filter alongside when the lorry or coach is stationary but about to start up and possibly turn.
 - 3.2.24.1.4 Awareness that, when turning, a heavy vehicle 'sweeps' the outside of its turning circle, consequently the motor cyclist should leave it enough space to manoeuvre. (This situation is accentuated in the case of a load overhanging the end of a lorry).
- 3.2.25 Driving at higher speed (over 70 km/h)
- 3.2.25.1 As in point 3.2.21.
 - 3.2.25.2 Attention to spread of gears over higher speeds permitted.
 - 3.2.25.3 Attention to increased braking distances involved with higher speed.
 - 3.2.25.4 Stopping and rejoining from lay-bys.
 - 3.2.25.5 Entering and leaving motorways and similar roads.
- 3.2.26 Driving at night or in inclement weather conditions
- 3.2.26.1 Use of lamps in accordance with legal requirements.
 - 3.2.26.2 Consider use of passing lamp by day.
 - 3.2.26.3 Relate speed to the view ahead.
 - 3.2.26.4 Action when subjected to dazzling.
 - 3.2.26.5 Selective use of passing lamp and driving lamp.
 - 3.2.26.6 Use of rear fog lamp.
- 3.3 Drivers of motor vehicles of Category B
- First level
- 3.3.1 Exercises with the engine switched off
- 3.3.1.1 Appropriate driving posture.
 - 3.3.1.1.1 Operation of the release and locking device of the driver's seat;
 - 3.3.1.1.2 Adjustment of the steering wheel if adjustable;
 - 3.3.1.1.3 Adjustment of the driver's seat to the correct driving position;
 - 3.3.1.1.4 Adjustment of the rear-view mirrors (interior and external);

- 3.3.1.1.5 Fastening, detachment and adjustment of the safety belt or explanation if there is another restraining device;
- 3.3.1.1.6 Position of the feet at the pedals.
- 3.3.1.2 Operation of the gear-shift lever (automatic gearbox: operation of the selector lever):
 - 3.3.1.2.1 Position of the hand;
 - 3.3.1.2.2 Position of the neutral gear;
 - 3.3.1.2.3 Gear-shifting procedure.
- 3.3.1.3 Operation of the parking brake:
 - 3.3.1.3.1 Release;
 - 3.3.1.3.2 Application.
- 3.3.1.4 Explanation of the operation of the main safety equipment:
 - 3.3.1.4.1 Instruments and tell-tales;
 - 3.3.1.4.2 Lights and light-signalling devices;
 - 3.3.1.4.3 Audible warning device;
 - 3.3.1.4.4 Windscreen and rear-window cleaning;
 - 3.3.1.4.5 Air-conditioning of the passenger compartment;
 - 3.3.1.4.6 Remote controls.
- 3.3.2 Exercises with the engine switched on
 - 3.3.2.1 Use of the ignition key and exercises for driving readiness.
 - 3.3.2.1.1 Starting the engine;
 - 3.3.2.1.2 Running the engine at different speeds;
 - 3.3.2.2 Preparation for driving off:
 - 3.3.2.2.1 Neutral gear and clutch;
 - 3.3.2.2.2 Starting the engine;
 - 3.3.2.2.3 Gear selection (automatic gearbox: position of the selector lever);
 - 3.3.2.2.4 Looking in the rear-view mirrors;
 - 3.3.2.2.5 Looking directly back;
 - 3.3.2.2.6 Direction indication;
 - 3.3.2.2.7 Releasing the parking brake.
 - 3.3.2.3 Exercise in starting and stopping the vehicle:
 - 3.3.2.3.1 Coordinated foot and hand operations before and during starting;
 - 3.3.2.3.2 Coordinated foot and hand operations before and after stopping from a low travelling speed.
 - 3.3.2.4 Steering exercises when driving at walking pace:
 - 3.3.2.4.1 Appreciation of the vehicle's over-all dimensions;
 - 3.3.2.4.2 Lane holding;
 - 3.3.2.4.3 Vehicle response to small steering-wheel movement.
 - 3.3.2.5 Acceleration and gear-shifting.

- 3.3.2.5.1 Coordinated hand and foot operations during gear-shifting when the vehicle is stationary, learner driver's eyes on the road;
- 3.3.2.5.2 Coordinated hand and foot operations during gear-shifting while driving.
- 3.3.2.6 Combination of starting, driving straight ahead, and stopping:
 - 3.3.2.6.1 Starting, accelerating and gear-shifting;
 - 3.3.2.6.2 Maintaining a constant speed;
 - 3.3.2.6.3 Lane holding;
 - 3.3.2.6.4 Stopping at a specific point and alighting from the car.
- 3.3.2.7 Cornering exercises.
 - 3.3.2.7.1 Driving in a circle;
 - 3.3.2.7.2 Turning - figure of eight;
 - 3.3.2.7.3 Weaving through a staggered line of posts;
 - 3.3.2.7.4 Right-angle turns.
- 3.3.3 Exercises on a level road
 - 3.3.3.1 Acceleration and shifting up to the highest gear (automatic gearbox: selection of the driving range, "kick down"). Smooth acceleration by shifting gear at appropriate speed.
 - 3.3.3.2 Shifting to a lower gear after deceleration:
 - 3.3.3.2.1 Obtained by the braking effect of the engine;
 - 3.3.3.2.2 Obtained by combining the braking effect of the engine and of the service brake;
 - 3.3.3.2.3 Shifting to a lower gear by skipping one gear.
 - 3.3.3.3 Stopping from higher speed:
 - 3.3.3.3.1 By making use only of the braking effect of the engine in different gears;
 - 3.3.3.3.2 With the combined use of the braking effect of the engine and of the service brake;
 - 3.3.3.3.3 At a specific point with gear shifting;
 - 3.3.3.3.4 In various gears without gear-shifting (emergency braking).
- Second level
- 3.3.4 Exercises in very slow driving with clutch slipping on level road
 - 3.3.4.1 Forward driving;
 - 3.3.4.2 Reversing straight back;
 - 3.3.4.3 Reversing straight back with stopping at a specific point.

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- 3.3.5 Gear-shifting exercises (automatic gearbox: position of the selector lever).
 - 3.3.5.1 On uphill gradients;
 - 3.3.5.2 On downhill gradients.
 - 3.3.6 Starting and stopping on an uphill gradient
 - 3.3.6.1 Starting with the aid of the parking brake;
 - 3.3.6.2 Keeping the vehicle stationary with the clutch;
 - 3.3.6.3 Preventing the vehicle from rolling back by engaging the clutch;
 - 3.3.6.4 Starting by the combined aid of the service brake and clutch.
 - 3.3.7 Starting on a downhill gradient
 - 3.3.7.1 Starting by the combined aid of brakes and clutch.
 - 3.3.7.2 Emergency starting (by rolling downhill).
 - Third level
 - 3.3.8 Basic manoeuvres
 - 3.3.8.1 Parking:
 - 3.3.8.1.1 Kerbside parking to the right and to the left, forward and backward;
 - 3.3.8.1.2 Parking in marked places (oblique and perpendicular to the direction of traffic);
 - 3.3.8.1.3 Kerbside parking into restricted space.
 - 3.3.8.2 Other manoeuvres:
 - 3.3.8.2.1 Turnabouts (U-turn, two point and three point turns);
 - 3.3.8.2.2 Reversing to the right round a corner;
 - 3.3.8.2.3 Climbing of low obstacle (kerb).
 - 3.3.9 Exercises related to the negotiation of intersections
 - 3.3.9.1 Approaching intersections;
 - 3.3.9.2 Crossing intersections;
 - 3.3.9.3 Turning right at intersections;
 - 3.3.9.4 Turning left at intersections;
 - 3.3.9.5 Negotiating intersections with good visibility;
 - 3.3.9.6 Negotiating intersections with poor visibility;
 - 3.3.9.7 Negotiating roundabouts.
 - 3.3.10 Merging into a traffic flow: appreciation of distance and speed of other road users in the case of:
 - 3.3.10.1 Light traffic conditions;
 - 3.3.10.2 Heavy traffic conditions.
 - 3.3.11 Driving in heavy traffic: adaptation of speed, keeping sufficient safety distance between vehicles in relation to:
 - 3.3.11.1 Traffic ahead;

- 3.3.11.2 Traffic at the rear;
 - 3.3.11.3 Overtaking manoeuvre of another vehicle;
 - 3.3.11.4 Lane discipline.
 - 3.3.12 Anticipation of and reaction to traffic situations (especially by avoiding dangerous situations), such as:
 - 3.3.12.1 Alignment and conditions of the road;
 - 3.3.12.2 Intersections, T- and similar junctions, light signal installations;
 - 3.3.12.3 Behaviour of other road users (children, pedestrians, two-wheeled vehicles, other drivers, heavy vehicles, parked vehicles, etc.).
 - 3.3.12.3.1 Such knowledge in relation to heavy vehicles includes awareness that:
 - 3.3.12.3.1.1 A heavy vehicle hides what is in front of it and consequently demands prudence by motorists following it until the situation is clear (e.g. before a road narrowing or other bottle-neck);
 - 3.3.12.3.1.2 When turning, a heavy vehicle 'sweeps' the outside of its turning circle, consequently the motorist should leave it enough space to manoeuvre. (This situation is accentuated in the case of a load overhanging the end of a lorry);
 - 3.3.12.3.1.3 Heavy vehicles need more space to enter and leave a parked position and the motorist consequently should not park nearer than 2 metres behind the rear of a parked lorry or coach;
 - 3.3.12.3.1.4 It is desirable, for traffic fluidity, to allow a faster heavy vehicle to overtake a slower one and the motorist consequently should bide his time until this operation has been completed before overtaking;
 - 3.3.12.3.1.5 It is desirable, for traffic fluidity, to allow a heavy vehicle to enter a motorway at a reasonable speed.
- Fourth level
- 3.3.13 Changing lanes and lane selection
 - 3.3.13.1 Changing lanes prior to and after passing an obstacle (e.g. parked car);
 - 3.3.13.2 Changing lanes prior to and after overtaking;
 - 3.3.13.3 Changing lanes for the purpose of lane selection;
 - 3.3.13.4 Lane selection in the absence of marked lanes.
- 3.3.14 Behaviour at intersections regulated by traffic light signals
 - 3.3.14.1 Approaching;
 - 3.3.14.2 Turning right (paying attention to the traffic moving in the same direction);
 - 3.3.14.3 Turning left (behaviour in respect of oncoming traffic).

- 3.3.15 Behaviour at intersections regulated by traffic signs or without signs or signals
 - 3.3.15.1 Approaching;
 - 3.3.15.2 Turning right;
 - 3.3.15.3 Turning left.
 - 3.3.16 Roundabouts
 - 3.3.16.1 With traffic light signals;
 - 3.3.16.2 With traffic signs;
 - 3.3.16.3 Without traffic signs and signals;
 - 3.3.16.4 With tramway crossing.
 - 3.3.17 Overtaking under various conditions and at various speeds
 - 3.3.17.1 On one-way roads;
 - 3.3.17.2 On two-way roads, when the vehicle does not need to leave its half of the carriageway:
 - 3.3.17.2.1 When able to look through the vehicle to be overtaken;
 - 3.3.17.2.2 When unable to look through the vehicle to be overtaken;
 - 3.3.17.3 On two-way roads, when the part of the carriage-way reserved for oncoming traffic must be used:
 - 3.3.17.3.1 When able to look through the vehicle to be overtaken;
 - 3.3.17.3.2 When unable to look through the vehicle to be overtaken.
 - 3.3.18 Behaviour at level-crossings
 - 3.3.18.1 Approaching;
 - 3.3.18.2 Waiting;
 - 3.3.18.3 Crossing.
 - 3.3.19 Behaviour in case of breakdown of vehicle or accident
 - 3.3.19.1 Use of the hazard warning signal;
 - 3.3.19.2 Escape from the vehicle in emergency situations;
 - 3.3.19.3 Use of the hazard warning triangle;
 - 3.3.19.4 Emergency action for removal of the vehicle (e.g. from level crossing).
- Fifth (qualification) level
- 3.3.20 Driving outside built-up areas on ordinary roads with a minimum speed of 50 km/h
 - 3.3.21 Driving on motorways or on roads for motor vehicles
 - 3.3.21.1 Entering, use of the acceleration lane;
 - 3.3.21.2 Maintaining the safety distance from other vehicles;
 - 3.3.21.3 Lane changing;
 - 3.3.21.4 Overtaking and re-positioning;
 - 3.3.21.5 Driving into and out of lay-bys;

- 3.3.21.6 Leaving, use of deceleration lane.
- 3.3.22 Driving at night or in inclement weather conditions
- 3.3.22.1 Use of lights in general;
- 3.3.22.2 Use of passing lights;
- 3.3.22.3. Adaptation of speed to the range of vision and to the conditions of the road surface.
- 3.3.23 Driving in unfamiliar traffic areas
- 3.3.23.1 Destination to be indicated by the driving instructor;
- 3.3.23.2 Free choice of the learner driver, with announcement of destination in due time.
- 3.4 Drivers of motor vehicles of categories C and D
- Note:
- (a) The following recommendations presuppose that the learner heavy-vehicle driver is already a qualified driver of vehicles of category B and that the theoretical instruction he receives with regard to driving heavy vehicles will be put into practice in the course of the practical training.
- (b) In order that the instruction be as appropriate as possible to the driver's subsequent occupation, it is desirable that it be performed on a vehicle as similar as possible to the kind of vehicle he will be required to drive after qualification. In any case the characteristics of the vehicle used for training should conform at least to those set out in paragraph 12 of annex I to the 1975 Agreement on Minimum Requirements for the Issue and Validity of Driving Permits (APC). In countries which allow driving of articulated vehicles on the basis of driving permits of category C, it would be desirable that at least one or two lessons are given on an articulated vehicle.
- (c) The following recommendation is restricted to the principles laid down in annex I of the APC, that is for road safety (including the protection of the environment and fuel-saving driving) and therefore does not cover particular requirements for professional (commercial) drivers.
- First level
- 3.4.1 Instruction and practice with the engine switched off and running
- 3.4.1.1 Introduction to vehicle characteristics:
- 3.4.1.1.1 By walking around the vehicle;
- 3.4.1.1.2 In the driving seat of the driving cab.
- 3.4.1.2 Introduction to vehicle's operation:
- 3.4.1.2.1 Propulsion, suspension, braking circuit and power transmission;
- 3.4.1.2.2 Care and maintenance.
- 3.4.1.3 Introduction to the study of the operating instructions:
- 3.4.1.3.1 Explanations on the vehicle and in the driving cab.

- 3.4.1.4 Performance of checks before starting up:
 - 3.4.1.4.1 Using check lists;
 - 3.4.1.4.2 To check vehicle operating safety and road worthiness and to ensure that the load is secured (see Recommendations 5.1 and 5.2).
- 3.4.2 Exercise off the road
 - 3.4.2.1 Starting, moving off, stopping and moving off again;
 - 3.4.2.2 Appreciation of vehicle's overall dimensions;
 - 3.4.2.3 Appreciation of vehicle's weight and road behaviour.
 - 3.4.2.4 Gear shifting:
 - 3.4.2.4.1 Operation of the clutch;
 - 3.4.2.4.2 Various gear-changing methods with and without synchromesh gearboxes;
 - 3.4.2.4.3 Attention to the revolution counter and changing gear accordingly.
 - 3.4.2.5 Attention to frequent use of the rear-view mirror and learning how to reverse using the mirrors.
 - 3.4.2.6 Loads (category C only): checking on the conformity of the load with the requirements of the basic principles of good practice code for loading and stowage methods (annex II, paragraph 2).
 - 3.4.2.7 Passengers and luggage (category D only): taking necessary precautions concerning passengers embarking on the bus, checking the permissible number of passengers on board and the stowage of luggage. Taking also the necessary measures concerning passengers requiring special care, such as children, handicapped and elderly persons with a view to their comfort and safety.
 - 3.4.2.8 Basic exercises on driving:
 - 3.4.2.8.1 Forward and in reverse;
 - 3.4.2.8.2 Forward and back, around curves to left and right;
 - 3.4.2.8.3 On to ramps and into stopping place;
 - 3.4.2.8.4 Slaloms and through archways and narrow passages;
 - 3.4.2.8.5 At varying distances and speeds;
 - 3.4.2.8.6 Further instruction in the correct handling of the vehicle.
 - 3.4.2.9 Performing technical work away from traffic.
 - 3.4.2.10 Wheel-changing.
 - 3.4.2.11 Fitting and removing chains for use on snow or heavy ground.
 - 3.4.2.12 Securing immobilized vehicles.
- Second level
- 3.4.3 Driving instruction general: this instruction should be given first on level roads with light traffic and later on other roads.
 - 3.4.3.1 Familiarization with the dynamics of driving and the force acting on the vehicle:
 - 3.4.3.1.1 Suspension system;
 - 3.4.3.1.2 Drive, braking and lateral forces;

- 3.4.3.1.3 Attention to the centre of gravity, wheel loading and centrifugal forces;
- 3.4.3.1.4 Attention to traction and static friction;
- 3.4.3.1.5 Behaviour in case of skidding and wheel-locking.
- 3.4.3.2 Basic exercises:
 - 3.4.3.2.1 Speed regulation;
 - 3.4.3.2.2 Estimation of distances and particularly of safety distance.
- 3.4.3.3 Familiarization with the various methods of slowing down at various speeds, including emergency braking.
- 3.4.3.4 Lane behaviour:
 - 3.4.3.4.1 Making one's own intentions clear through driving methods;
 - 3.4.3.4.2 Changing lanes on single and multi-carriageway roads;
 - 3.4.3.4.3 Coordination of vehicle, lane and speed: on the open road and in narrow passages and entries;
 - 3.4.3.4.4 Higher-speed driving: up to the maximum permissible speed;
 - 3.4.3.4.5 Keeping to an exact track and to the speeds appropriate to the engine;
 - 3.4.3.4.6 Passing obstacles on the road, e.g. parked vehicles;
 - 3.4.3.4.7 Even and steady driving;
 - 3.4.3.4.8 Attention to the revolution counter, including when changing speed and gear.
- 3.4.3.5 Overtaking and being overtaken.
- 3.4.3.6 Keeping at a safe distance from the preceding vehicle.
- 3.4.3.7 Merging into the traffic flow upon leaving the slow vehicles lane.
- 3.4.3.8 Cautious driving across intersections and narrow sections with and without traffic lights, including roads in built-up areas.
- 3.4.4 Driving on motorways or on roads for motor vehicles
 - 3.4.4.1 Entering, use of the acceleration lane.
 - 3.4.4.2 Entering from the acceleration lane.
 - 3.4.4.3 Making use of the deceleration lane on leaving.
 - 3.4.4.4 Overtaking and being overtaken.
 - 3.4.4.5 Maintaining the safety distance from other vehicles.
 - 3.4.4.6 Merging into a traffic flow upon leaving the slow traffic lane.
- 3.4.5 Driving in special conditions and with varying loads
 - 3.4.5.1 Empty and loaded at least up to 50 per cent of the loading capacity.
 - 3.4.5.2 Familiarization with the higher speed range.

- 4.5.3 Correct adaptation of speeds to varying traffic conditions.
- 3.4.5.4 Rapid operation of the engine brake.
- 3.4.5.5 Operation of the transmission brake.
- 3.4.5.6 Driving up and down hill:
 - 3.4.5.6.1 Practising changing down at the appropriate moment and the use of braking systems;
 - 3.4.5.6.2 Correct coordination of gears and the use of braking systems;
 - 3.4.5.6.3 Always use the engine brake at rated engine speed.
 - 3.4.5.7 Driving during the night on roads with and without public lighting.
 - 3.4.5.8 Driving in unfavourable weather conditions whenever applicable.
- Third level
- 3.4.6 Anticipatory driving, with special attention to traffic flow
 - 3.4.6.1 Practise the systematic perfection of driving style aimed at driving as safely as possible:
 - 3.4.6.1.1 Correct adaptation to the general traffic flow and to other road users;
 - 3.4.6.1.2 Choice of the correct speed.
 - 3.4.6.2 Mastery of traffic in built-up areas:
 - 3.4.6.2.1 Adaptation to the traffic flow.
 - 3.4.6.3 Mastery of traffic outside built-up areas:
 - 3.4.6.3.1 Choice, to the extent possible, of a steady driving speed;
 - 3.4.6.3.2 Prudent and sensitive use of driving and braking forces;
 - 3.4.6.3.3 Attention to the physical and mechanical aspects of driving.
- 3.4.7 Driving with special attention to the environment and to the energy saving
 - 3.4.7.1 Familiarization with driving style which:
 - 3.4.7.1.1 Prevents unnecessary air pollution;
 - 3.4.7.1.2 Prevents unnecessary noise emitted by the vehicle;
 - 3.4.7.1.3 Saves energy.
 - 3.4.7.2 This driving style should aim at:
 - 3.4.7.2.1 Avoiding any unnecessary changes of speed;

- 3.4.7.2.2 Reacting to changing traffic conditions by selecting the right speed in good time;
 - 3.4.7.2.3 Driving in the economic engine speed range and consequently changing gears at the right time.
 - 3.4.7.2.4 Changing gear after a quick look at the revolution counter;
 - 3.4.7.2.5 Making the best possible use of available pulling power.
- 3.5 Additional minimum requirements for drivers of vehicles of category CE, DE and subcategories C1E and D1E
- Note:
- (a) Characteristics of the vehicles used for training should conform at least to the requirements set out in the 1975 Agreement on Minimum Requirements for the Issue and Validity of Driving Permits (APC) annex 1, paragraph 12;
 - (b) It would be desirable that lessons be given on an articulated vehicle as well as on another combination of vehicles.
- 3.5.1 Starting, moving off, stopping and moving off again.
 - 3.5.2 Appreciation of the overall dimensions of the vehicle.
 - 3.5.3 Appreciation of the weight and road behaviour of the vehicle.
 - 3.5.4 Coupling and uncoupling of trailers with special attention to the different coupling systems and to connecting of braking and electric systems.
- 3.5.5 Driving forward and in reverse:
- 3.5.5.1 Forward and back, around curves to left and right;
 - 3.5.5.2 On to ramps and into stopping places;
 - 3.5.5.3 Around slaloms and through archways and narrow passages;
 - 3.5.5.4 At varying distances and speeds;
 - 3.5.5.5 Further instruction in the correct handling of the combination of vehicles.
- 3.5.6 Braking situations and braking systems including the trailer.

Annex VI

Additional recommendations for professional drivers of vehicles of categories C, D, CE, DE and subcategories C1E and D1E - training programme (Recommendations 2.1.1.5 and 2.1.1.6)

Introduction

1. Six areas in which safety-conscious driving is particularly important have been selected for additional driving instruction for professional drivers and these are:
 - (a) operational safety;
 - (b) the basic aspects of driving mechanics;
 - (c) the securing of loads;
 - (d) instruction in road traffic safety, including:
 - (i) anticipatory driving;
 - (ii) environmental aspects;
 - (iii) movement in traffic;
 - (iv) medical aspects;
 - (a) driving adapted to modern commercial vehicles;
 - (b) regulations and contacts with the competent authorities.
2. Aims and contents within the above-mentioned areas of the additional instruction are indicated in the subsequent paragraphs which should serve as a basis for the definition of methods of additional tuition.

Aims and content of additional training

3. Training area: operational safety

<i>Aim</i>		<i>Content</i>
3.1	Explain the importance of operational safety	Transport by road must be carried out safely and economically; consequently, vehicles should be used only when their operational and traffic safety has been confirmed before departure. Damage, faults or malfunctions in the vehicle can cause accidents or endanger other road users.
3.2	List of methods of checking operational safety.	Performance of all stipulated care and maintenance work or inspections within the prescribed time-limits. Compliance with all statutory safety inspections and examinations; performance of daily checks before departure and inspections of the vehicle at the end of the journey and running routine checks during the journey by looking over the vehicle or road train.
3.3	Explain the importance of the vehicle operator's manual to operational safety.	Introduction to study and work with the instruction manual; consultation of the manual in care and maintenance work, breakdowns and repairs; compliance with the specified periodic inspections.
3.4	Explain procedures in the event of doubt concerning the vehicle's operational safety.	In the event of damage, breakdown or danger to operational safety, the driver must without delay inform the person in charge in the firm in order to obtain an appropriate decision.
3.5	Explain the slogan "safety first" as a basis for driver's conduct in road traffic.	If in doubt whether to drive on or stop for repairs, the driver must act on the premise that safety takes priority in road transport.

4. Training area: the basic aspects of driving mechanics

<i>Aim</i>		<i>Content</i>
4.1	List the forces affecting the driving of vehicles and road trains.	Driving and braking forces, mass, inertial and lateral forces.
4.2	Explain the importance of the centre of gravity to the vehicle's stability.	Vehicle, load and overall centre of gravity; forces acting on the centre of gravity (centrifugal, braking, side-wind and lateral dynamic shifts in axle loading); over-turning point, turning circle and vehicle speed.
4.3	Explain the influence of the transmission of forces on safety.	The relationship between the tyres and the road surface; tyre contact surface, co-efficient of adhesion, of sliding; wheel-locking. Aquaplaning; steering movements transmitted only by moving wheels.
4.4	Describe the connection between resistance to forward movement and propelling force.	Resistance due to wheel rolling, air and gradient, tyre flexing; air resistance increases by the square of vehicle speed; radial tyres reduce resistance to wheel rolling.
4.5	Explain the effects of external forces due to lateral wind, and centrifugal forces.	Load distribution and side-wind sensitivity; effect of centrifugal force on bends with inadequate adhesion; the centre of gravity too high means the vehicle may slew round due to lateral forces.
4.6	Relationship between vehicle speed and safety limits.	Lateral movement as compared with trajectory, turning circle. Driving around bends: never brake, but decelerate before the bend; look out for dynamic movements of the load. At high speeds on bends, even gentle braking can cause the vehicle to swerve and skid.
4.7	Explain how to climb and descend gradients safely, emphasizing driving in mountainous and other particular topographic conditions.	Observe and assess the lie of the road in good time; get into the right gear in good time, begin downhill gradient slowly; change down in good time and link engine braking to gear selection and rated revolutions to stabilize speed.

4.8	Describe how to decelerate and brake commercial vehicles safely.	"Pre-braking" (by putting the brake shoes in light contact with the drums) to prepare for full braking, gently and with the appropriate pressure at all times. Apply the braking force. Adapt braking force to traffic conditions and the weather; avoid excessive braking when the vehicle is empty or part-loaded.
4.9	Demonstrate safe driving in unfavourable weather.	Pay attention to the available adhesion in rain, snow and icy conditions, and if the road is soiled with mud, leaves, oil or other slippery substances, know how to control braking and driving forces correctly also taking into account the weight and the nature of the load carried; reduce and adapt speed in good time; if possible, keep the weight of the load on the driving axle(s) throughout the journey.
4.10	Explain the danger of jack-knifing and skidding with vehicle combinations.	Distribution of the braking force between tractor and trailer. Check braking balance routinely; check the compatibility of the braking systems of the two vehicles; prevent wheel-locking, use the engine brake with caution on a slippery road surface - in such cases, use the service brake (acting on all wheels) carefully; correct the tendency to skid by braking in short bursts.

5. Training area: securing of loads ²⁷

<i>Aim</i>	<i>Content</i>
5.1 Explain the influence of load safety on vehicle operating safety.	The shipper is responsible for the safety of the load but the driver is responsible for making sure that the loading is safe for the operation of the vehicle (he need not do this himself, but merely to have it done under his supervision).
5.2 Explain the influence of forces on the loading of goods.	Forces acting on the vehicles also affect the safety of the goods carried; they must be suitably stowed and secured. Load distribution plans and securing points on the vehicle (possibility of fixing ropes or straps) facilitate correct and reliable placing of loads; attempts must always be made to lash the goods down firmly to prevent the load from shifting and thus prevent damage by rubbing. After the first part-discharge, adequate safety measures for the remaining load must be taken before driving on, e.g. by stacking the goods and securing with dunnage or clamping nets.
5.3 Describe the effect of commercial vehicle driving on the safety of the load.	The vehicle driver can make a significant contribution towards the safety of the load by suitably adapting his speed especially on bends and carefully applying power and brakes in order to prevent the load from slipping or tipping.

²⁷ See also Recommendation 5.2 and annex II to the present Resolution.

6. Training area: instruction in road traffic safety

<i>Aim</i>	<i>Content</i>	
6.1	Anticipatory driving	
6.1.1	List the various features of driving modern commercial vehicles.	Knowledge and understanding of driving dynamics and tactics, mechanics of driving and of engine characteristics in order to achieve a driving skill, taking into account engine speed (and hence respecting vehicle mechanics) and the vehicle's technical layout, together with "anticipatory" observation saving energy, low in noise, respecting the environment and sparing the equipment.
6.1.2	Explain the importance of "seeing and observing" correctly for the safety of road transport.	Registering of information from the surrounding traffic and its processing in the brain; developing perception adapted to traffic and suitable observation and orientation methods.
6.1.3	Describe proven observation techniques.	Seeing in flashes; close-to sight; uninterrupted vision; rear vision by interpretation of the image in the rear mirror; selective vision of common place events, selective vision in traffic, rules for observation on open stretches, on bends, in narrow passages, on turning off, crossing other traffic, joining and leaving traffic flows; passing oncoming vehicles with their lights on in the dark; parking in a confined space (indirect vision).
6.1.4	Explain the role of "anticipatory vision" in driving.	Looking well ahead can give warning of traffic developments in good time so that the driver can prepare for them at leisure, generally by slowing down or accelerating, thus ensuring a smooth but rapid driving style; possible dangers can be recognized before they develop into real dangers; "traffic sense" is developed and road safety is further improved.
6.2	Environmental aspects	
6.2.1	Describe the significance of knowledge of the environment for anticipatory driving.	Conscious vision and observation contribute to the development of traffic sense; the environment in which the driver moves with his vehicle is important. Knowledge of the environment includes three aspects: knowledge of fellow road-users, knowledge of road conditions and knowledge of time. Typical drivers' conduct is known in all fields and must be recognized and interpreted in time so as to be able to adapt driving technique as necessary.

<i>Aim</i>	<i>Content</i>
6.2.2 . Explain the relationship between road users, including mutual respect and responsibility.	The driver can obtain a great deal of information from the attention and intentions of fellow road-users (pedestrians, drivers of two-wheeled vehicles, cars or commercial vehicles) enabling him to adapt to their probable behaviour for prevention purposes - here, he should always make allowances for road-users needing help.
6.2.3 . Explain the importance of road conditions.	The state of the road, traffic signs and installations are especially important for drivers of heavy vehicles. They must therefore have sufficient knowledge of the road to be able to adapt rapidly and judiciously to the variety of traffic situations. They must always establish the relationship between the state of the road, their vehicle and their load as a function of speed.
6.2.4 Describe varying weather conditions over the time of the day and season and their impact on traffic safety.	The time of day and season of the year affect traffic conditions; the driver must therefore be informed about them in order to take them into account in good time in his driving style. Damp, ice and snow cause difficulties by reducing the adhesion of tyres on the road surface. Rainy conditions increase the accident risk considerably. Limited visibility in autumn and winter is a further major complication for the driver.
6.2.5 Describe the importance of vehicle maintenance.	Maintenance of the vehicle in particular to guarantee optimal life and satisfy the requirement to reduce noise and pollutant emissions. Respect of the rules when driving in order to avoid as much as possible manoeuvres harmful to the environment.
6.3 Movement in traffic	
6.3.1 . Explain the importance of keeping in lane and of the maintenance of speed.	Safe driving means selecting a lane and sticking to it; clear-cut driving is one of the most effective ways of giving other road users good notice of intentions. Keeping and changing trajectory must be mastered; speed maintenance must be practised.
6.3.2 . List and explain road manoeuvres involving other road users.	Passing, meeting, crossing, threading in and overtaking. Maintain the minimum safety distance, take account of the danger of tailgating, determine braking distances correctly from vehicle mass and speed; use the vehicles' inertial energy skilfully; when

<i>Aim</i>	<i>Content</i>
6.4 Medical aspects	travelling a line, especially, always react in good time and adjust speed to that of the traffic; take account of space, speed differences and acceleration in overtaking and refrain from doing so if in doubt. When doing these driving manoeuvres, adapt speed in good time.
6.4.1 . Explain the medical aspects of driving aptitude including the impact of stress.	Nourishment, fatigue, illness, medicaments, alcohol and drugs are driving hazards. Medical advice on the impact of stress.
6.4.2 . Describe fatigue and how to prevent and combat it.	Combating fatigue, alternation of driving and breaks in accordance with the existing regulations, length and use of breaks; rest and leisure periods; food in line with professional requirements; work and the use of calories; rhythm of work and meals, consequences of unwise eating; normal fatigue, factors promoting fatigue; symptoms and effects of fatigue, drop in efficiency in night driving.

7. Training area: driving adapted to modern commercial vehicles

<i>Aim</i>	<i>Content</i>
7.1 Explain the importance of the technical design of a commercial vehicle for its driving	Commercial vehicles are designed to give full efficiency only when driven in a manner respecting their "mechanics", i.e. the driving must exactly match the technical layout of the vehicle; the driver's main source of information is the revolution counter with the "economic speed range".
7.2 Explain transport performance.	Driving adapted to modern commercial vehicles results in "good transport performance"; the highest possible average speed coupled with the lowest possible vehicle operating costs.
7.3 Explain the significance of average speed.	Good average speed requires a gentle, smooth and regular driving style avoiding any unnecessary change of speed. This can be obtained through "anticipatory driving" in order to have enough time to adapt to developing traffic situations in good time by slowing down or accelerating. This method of driving is safe and economical, because the driver is always in full control of the vehicle.
7.4 Explain the role of inertial energy in commercial vehicle driving.	The use of the vehicle's own inertial energy is important to smooth driving. It is then possible to drive down long slopes at a good speed but regularly and without excessive use of fuel. Inertia can also be used on flat roads: once cruising speed has been reached, slack off on the accelerator and only press down again when the speed starts to drop too much.
7.5 Explain the proper use of the engine and service brake.	The braking effect of the engine, which produces no wear on the brakes themselves, is suitable for deceleration during anticipatory driving and especially to stabilise vehicle speed on long down-hill slopes. The service brakes should be applied only in cases of emergency; in all cases, the engine and service brakes must be used with care.
7.6 Explain the importance and necessity of using correct driving techniques in the interests of fuel economy, reducing wear on vehicle components and parts and pollution of the environment.	Explain the scope for reducing the effect of friction (periodic checks of tyre pressures and tread wear), inertial energy (correct distribution of the load and avoidance of overloading), the effect of the correct choice of gear, engine revolutions and accelerator position, the use of the coasting technique and the braking system.

8. Training area: regulations and contacts with the competent authorities

<i>Aim</i>	<i>Content</i>
8.1 To have sufficient knowledge of general regulations applying to transport and the relevant legal provisions for the direct and indirect needs of traffic and transport safety.	Introduction and survey of the provisions applying to road transport drivers, such as Road traffic rules The regulations on the transport of goods and of passengers Customs regulations The consignment note Labour regulations These requirements should be taught to the driver in such a manner that he can carry out transport operations without problems in relation to the regulations.
8.2 To be able to find his way round traffic regulations and possibly other provisions when engaged in international transport operation.	The basic elements should be taught to the driver to enable him to know when which regulation applies; how he can obtain access to the provisions and how he should make use of them subsequently.
8.3 To master relations with the competent authorities.	Psychological advice related to avoiding or attenuating situations with the authorities likely to result in stress.

9. Driving can be supervised, corrected and promoted by the checking and assessment of tachograph charts, and by the driver being accompanied at regular intervals by trainers or instructors not only for the supervision of the correct driving technique, but also to check behaviour in traffic, i.e. the choice of suitable speeds and the observation, correctly and in good time, of traffic rules and regulations.

Annex VII

Instruction of children in safe road behaviour - additional recommendations (Recommendation 2.1.3)

Context

1. Results of recent research make it obvious that motorized road traffic has a profound impact on the development of children. In extreme cases, motorized road traffic impedes the development of the very abilities required to handle dangers on the road safely.
2. This knowledge leads to important conclusions regarding road safety education:
 - (a) to be effective, road safety education should always respect both aspects - the development of the child and the environment. Improvements in the environment, for example, through traffic calming measures are important prerequisites for children's healthy development of motor skills and their acquisition of a measure of independence as road users. Therefore, road traffic education requires first of all the provision of a conducive and safe neighbourhood. Measures to achieve this should require the collaboration of authorities with parents;
 - (b) the area of road traffic management is undergoing rapid development with the growth of urbanization and the increasing density of traffic in urban areas, which increase the demands, particularly on children and parents, who are continually confronted by new requirements;
 - (c) in conducting road traffic education with younger children, attention should be given to the use of real scenarios. Through the instructions in road safety which they give to younger children, professionals and parents should ensure that these children increase their independence and enlarge their range and radius of autonomous operation in a gradual manner, and that they do so in full safety.

Recommendations

3. Countries should take the necessary measures to ensure that road safety education is provided on a systematic and continuous basis, particularly in schools at all levels, as provided for in article 3, paragraph 5 bis, of the Convention on Road Traffic, 1968.
4. The present recommendations are designed to define the conditions under which this education should be provided to children, in accordance with their age.
 - (a) Professional qualifications and training of instructors
5. Teachers and other experts (e.g. police officers) giving road safety instruction in schools should preferably have pedagogical training backed by practical experience.
6. Governments and other bodies, including non-governmental organizations, involved in road safety work (e.g. local authorities) should try to take steps to ensure an adequate supply of teachers with suitable up-to-date training in traffic education and equip them with the necessary teaching materials.

(b) Tuition

7. Road safety instruction for children should be provided with the use of up-to-date pedagogical methods, incorporating practical training and technical aids, which should be regularly updated in the light of studies of their effectiveness and trends in traffic conditions. In this process, the active participation of pupils is vital if training is to succeed.

8. Road safety instruction for school-age children should be provided both as part of the school curriculum in accordance with the age of the children and through a range of after-school educational activities.

9. The system of road safety instruction for children should be on a step-by-step basis, depending on their age, their capabilities, the local environment and their means of moving about. In this instruction, the importance of the role of the environment, which has a great influence on the behaviour of children, should not be neglected.

10. Instruction should begin with preschool-age children. It is necessary to encourage parents to contribute to the instruction of their children, starting before they begin school and continuing throughout their development. Parents should be given the knowledge necessary for them to participate in their children's road safety development.

11. School-age children should be successively familiarized with habits of safe behaviour as pedestrians, passengers and cyclists.

12. Recognized driving instructors, traffic police officers or other road-safety specialists may usefully assist teachers in organizing courses on road safety and training in schools. In this way, pupils should more easily be able to put their theoretical instruction into practice, thanks to the experience of these specialists.

13. Training of children towards safe road behaviour and the use of roads should start in protected areas which may be specially equipped, but gradually spread into real roads, bearing in mind the physical and other limitations of children.

(c) Programme

14. Children are naturally curious and are therefore also interested in everything that happens on the road. Simple explanations of situations on roads should commence early and be repeated again and again, in an environment that is safe and free from anxiety or fear. Even if children are able to comprehend traffic situations cognitively to some degree, this does not mean that they will act accordingly in concrete situations.

15. Fear or other spontaneous feelings, or the often observed deep interest of children in their immediate surroundings (the cat at the roadside may cause all other things around to be ignored) will often lead to a failure to act correctly. School-age children should therefore receive appropriate instruction in how to behave safely in traffic. This involves developing pedestrian, passenger, cycling and possibly driving skills as well as knowledge, understanding and positive attitudes to road safety.

16. Instruction needs to be developmental, starting off with simple traffic situations and developing into an understanding of more complex road safety situations. In the following guidelines for a minimum programme of road safety instruction, it is assumed that earlier training will be built upon and reinforced at every age.

(i) General recommendations for all age groups

17. Generally speaking, children, throughout their schooling, should have explained to them, or be reminded of, the following basic safety rules when they use roads as pedestrians, cyclists or moped riders, or when they are passengers in a vehicle:

a. the importance, when walking or cycling at night or in bad weather, of making oneself seen by other road users by wearing safety equipment such as fluorescent jackets and clothing and/or a helmet with retro-reflective materials;

b. the role of the protective helmet, and the importance of wearing it and ensuring that it is properly attached when riding cycles and mopeds;

c. the importance of using child restraint equipment and wearing seatbelts in vehicles equipped with them, it being made clear to children the role of seatbelts, notwithstanding the physical constraints they impose, so that buckling up becomes a reflex.

18. To ensure the proper application of these rules, parents play a crucial role and should lead by example.

(ii) Preschool children

19. Instruction to children in this age group is aimed at introducing them gradually to the road environment and traffic, as both pedestrians and passengers. This notwithstanding, children of this age should always be accompanied by an adult when out in traffic.

20. During such instruction, children should gradually be guided to develop knowledge and understanding of the parts of the road, e.g. carriageway, pavement, kerb, crossings, traffic lights, and what road traffic is (movement of vehicles of all kinds, in particular), so as to make them aware of road hazards and bring them to adopt cautious behaviour.

(iii) Small school children (aged up to 10 years)

Underlying principles for training

21. Training of children in this age group should be carried out gradually, with step-by-step acquisition of appropriate, risk-free behaviour in traffic and of knowledge of road traffic, including the dangers it presents. It should also be age-appropriate and adapted to the risks they face.

22. Based on these principles, it would be advisable for children first to be taught how to behave, on the one hand as pedestrians in traffic, and on the other hand as passengers in a vehicle. When national legislation permits children in this age group to move about unaccompanied, a monitored training programme should be planned in light traffic, under adult supervision. However, where traffic is heavy, the children should be accompanied by an adult.

23. In addition, children should also be taught safe bicycle riding. To this end, supervised training should start on roads with low traffic volumes, subsequently children should be progressively introduced to increasingly complex and dense traffic situations.

Rules to be taught to children

24. Instruction to children in this age group should include at least the following points and aspects:

- a. the basic traffic rules as well as the meaning of traffic signs and signals, traffic lights and pedestrian lights, which directly affect their safety;
- b. the road environment as a setting that requires special behaviour so as to reduce risks;
- c. the various parts of the road environment, i.e. pavements and, where there are none, the side of the road, and their proper use;

the necessity of not crossing at a pedestrian crossing equipped with a traffic light unless the pedestrian light, if there is one, is green, and even then extreme caution should be used;

the basic rules for the use of bicycles, until the children are sufficiently autonomous to move about in traffic.

- (iv) Intermediate-age children (aged 10-15 years)

25. As children of this age group tend to travel more independently, they hope to be able to ride a bicycle or even, if national legislation allows (for example, from the age of 14), a moped. It is thus important to motivate them to become disciplined road users and to understand the various risks that they run themselves and create for others. In particular, they should be imbued with positive attitudes towards road safety and made aware of their responsibilities as pedestrians, riders and possibly drivers.

26. Building upon earlier education, the instruction given to children in this age group should include at least the following points and aspects:

- (a) the main rules relating to traffic and signs and signals, their importance for road safety and their use in practice;
- (b) the different traffic environments which may be encountered;
- (c) the different groups of road users and the importance of sharing the road or street and cooperating with them;
- (d) road user behaviour which may present a danger for children in this age group;
- (e) avoidance of risk-taking behaviour, often encouraged in peer group situations, through instruction of young people in the principles of defensive driving (while driving, being aware of risks run because of one's own behaviour or that of others and preparing for a proper action) on bicycles and mopeds;
- (f) the principles of operation of vehicles and the importance of maintaining them, in particular in respect of parts essential to safety (brakes, lights, etc.);
- (g) in countries where moped use is authorized from the age of 14, awareness of the consequences of the change of status that occurs when using a motor vehicle for the first time on the road, in respect of both behaviour and responsibilities (legal liability and moral responsibility, etc.);

awareness of the serious consequences of altering the technical characteristics of mopeds, in particular by tampering with the engine speed control.

- (v) Young people (aged 15 years or over)

27. Young persons of this age group are fairly often injured in accidents resulting from increased risk-taking behaviour and a resistance to overly strong restrictions. Such types of behaviour, which find no justification in the reality of road traffic, should be taken into consideration in the road traffic education given to young people. In particular, it is important to inculcate in them a sense of responsibility and thus prepare them to become disciplined car drivers and motorcyclists.

28. Building upon earlier development of road safety skills, knowledge and attitudes, instruction to young people in this age group should emphasize the following:

- (a) encouragement of positive and responsible attitudes on the road through the adoption of cautious behaviour and the use of safety equipment;
 - (b) promotion among such young people of the acquisition of technical skills and practical knowledge to drive a motor vehicle, and raising of awareness of the negative effects of risk taking. Defensive driving (see paragraph 26 e.) should be the underlying principle of instruction;
 - (c) knowledge and awareness of their responsibilities (legal, moral and other) to themselves and other road users;
 - (d) development of skills against negative peer pressure, especially when driving a motor vehicle.
-