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Sustainable Safety 2.0 The next version

Sustainable Safety has proven to be a successful way of lowering the number of road crash casualties. It was developed in the Netherlands and is one of the examples of successful approaches that the *World report on road traffic injury prevention* (World Health Organization and World Bank) referred to in 2004. To realise a further decrease in the annual number of road casualties, a second generation of sustainably safe measures is now being developed.

The implementation of what is now known as Sustainable Safety 2.0 can be ensured by reaching a national Road Safety Agreement in which all road safety stakeholders undertake to carry out the measures. In addition to implementation, this Road Safety Agreement will also need to accommodate the following four subjects: integration, policy innovation, knowledge development, and knowledge transfer.

The beginning

In 1991 a turning point in the approach how to reduce the large number of road casualties substantially was reached with the development of the Sustainable Safety vision. In what is known

as the 'purple book' *Towards a sustainably safe road traffic; a National road safety exploration for the period 1990-2010* (Koonstra, 1992), this road safety vision was drawn up and explained. Sustainable Safety starts from the concept that man is the measure of all things: the human is

The right to drive is a privilege, earned by proving competence in safe driving, and withdrawable on proof of incompetence and dangerousness.

Review of Road Traffic Offences involving Bad Driving Consultation, Home Office, UK

QUOTE

Editorial

In this issue of *Research Activities* we take a closer look at what is needed for the further development of Sustainable Safety to continue the reduction of the number of traffic casualties. European cooperation in organizations and in EU-projects is highlighted in the majority of the articles.

vulnerable and makes mistakes. Avoidable crashes occur in traffic. A sustainably safe road traffic prevents human errors as much as possible by using an infrastructure in which the layout is adapted to the limitations of human capacity. As far as possible, vehicles must simplify human tasks and be constructed to protect the vulnerable human body. Finally, the road user must be adequately educated, informed, and – when necessary – be supervised.

The Start-up programme sustainably safe traffic began in 1997 and contained a number of agreements for five years about infrastructural measures, enforcement, education, and indirect measures. In addition, it was a preparation for the integrated introduction of sustainably safe road traffic. During the first phase of the Start-up programme, those measures that could rapidly adjust the infrastructure were taken, and several behavioural measures were introduced.

Sustainable Safety 2.0 wants to give fresh input for the second phase and will also deal with permanent traffic education, public road safety campaigns, enforcement, essential features of traffic infrastructure, further expansion of 30 km/h and 60 km/h zones, safe vehicles, knowledge infrastructure, and monitoring the progress in implementation.

What next?

All the measures and initiatives based on the Sustainable Safety concept ensured that the

annual number of road crash casualties initially decreased. However, during the last few years, the rapid decrease has halted: the annual number of casualties in The Netherlands now fluctuates around 1,000. Sustainable Safety has gained international fame as a leading road safety concept, which has gained respect everywhere. So SWOV asked the question: what next? In early 2004, in order to find an answer to this

Vision, knowledge, inspiration, expertise, cooperation, and funds can transform ambition into reality. Avoidable crashes still happen every day. We can see to it that there will be fewer casualties.

*Fred Wegman in *Towards a second generation of Sustainable Safety measures**

question, SWOV invited some 150 road safety professionals to discuss the next steps to achieve further improvements in the future. A number of problems have surfaced as a result of all the collected answers and comments. Organizational and financial problems were mentioned in addition to insufficient knowledge, individual interpretations of the concept, and lack of continuity of implementation. It is an obstacle that road safety is often regarded as less important than other problems such as social safety or

congestion. There is also concern about Sustainable Safety being seen as only a matter of infrastructure. Theory and practice must also be better tuned to each other.

Renewal

The Sustainable Safety concept, and the ideas based on it, have certainly not lost their strength. However, in a changing society, it is advisable to redefine Sustainable Safety, to put new emphases, explore new possibilities, and to make use of new social and technological developments. In the near future, the new generation of Sustainable Safety measures will be proposed and discussed, and then set down in the Road Safety Agreement. SWOV, as a first step, has requested a number of road safety experts to write an essay about their ideas for the next generation of Sustainable Safety. The reactions have been bundled under the title *Thinking about Sustainable Safety* and have been published in March. ◀▶

More information about this subject can be found in the reports R-2004-8 'Towards a second generation of sustainably safe measures; Starting a discussion about the future of Sustainably Safe' and R-2004-16 'Safe; what is safe II?' You can consult and download both reports on our website www.swov.nl

Young Researchers Seminar 2005

May 11-13 the Young Researchers Seminar: (YRS) will be held in The Hague, the Netherlands. The YRS 2005 is concerned with four areas of research: transport economics and transport behaviour, transport sustainability and environment, transport safety, and Intelligent Transport Systems (ITS).

This year the organizations ECTRI, FERSI and FEHRL initiate a Young Researchers Seminar. A Young Researchers Seminar is meant for young researchers who are preferably post doctorates with less than 5 years working experience. The seminar concentrates on four domains:

- Transport economics and transport behaviour,

- Transport sustainability and environment,
- Transport safety,
- Intelligent Transport Systems (ITS).

The young researcher's work field needs to cover one of the four research areas and he/she is required to work at one of the member-institutes of the organizations ECTRI, FERSI and FEHRL.

What exactly are these organizations, what do they aim for?

Cooperation

Most European countries have a national organisation which carries out transport, road, and road safety research. The wish for cooperation and a common focus for road safety research at the European level, led to the foundation of organizations like FERSI, ECTRI and FEHRL.

FERSI

FERSI, Forum of European Road Safety Research Institutes aims at cooperation and exchange of knowledge in Europe to find solutions to road safety problems that European countries have in common. This involves developing and executing collaborative research projects and assisting the



European Commission in defining the European research needs. Sixteen institutes from various EU countries have joined FERSI. In order to improve road safety FERSI and its individual members initiate and carry out research projects, to be able to give scientifically based advice on road safety matters to both national governments as well as to European institutions. The FERSI members also cooperate in EU projects like SARTRE, InSafety, SafetyNet, and RIPCoRD.

ECTRI

ECTRI, European Conference of Transport Research Institutes, was founded in 2002 to aim for cooperation, coherence, and integration in European transport research to eventually arrive at a safe, efficient, and cost effective intermodal

surface transport system in the Europe of the future. ECTRI also has a total of 16 members. The long term vision of ECTRI is to create an European Virtual Transport Research Institute supporting the creation of this single transport system and incorporating the strength and potential of all its members and utilizing their expertise and/or infrastructure in the different domains.

FEHRL

FEHRL, Forum of European National Highway Research Laboratories, was formed in 1989 and provides a coordinated structure for the interests of twenty-seven national laboratories from the member states in the European Union, the EFTA countries and the rest of Europe. FEHRL is

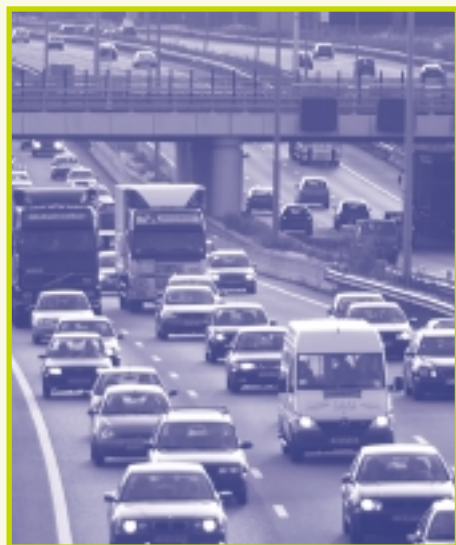
engaged in research topics including road safety, materials, environmental issues, telematics and economic evaluation. Research capacity is provided by the national institutes and makes use of the wide range of test facilities available throughout the institutes.

Each of the organizations has its own website on which they give information about themselves and their activities. ◀▶

Each of the websites contains links to the member-institutes, and the ECTRI website has a special section with information about the 2005 Young Researchers Seminar. The web-addresses are: www.fer.si.net, www.ectri.org, and www.fehrl.org

Safety Performance Indicators in SafetyNet

Basic knowledge of crashes and their causation and the availability of road safety data are vital in deciding which measures are most effective in reducing the number of road fatalities. The SafetyNet project aims to develop data resources which will support the EU approach to road safety and that of EU member states.



Harmonized European data is needed to compare crashes between countries, prioritize measures and measure their effectiveness. However, in the EU there are not enough harmonized data which describe the totals and characteristics of crashes and casualties. The SafetyNet project was started to fill the data gap and is carrying out groundbreaking work for the announced Road Safety Observatory in Europe. The Road Safety Observatory plans to build the basic structure and to bring together harmonized data at several levels, which will then be made available via the internet. This article takes a closer look at the activities of Work Package 3 which is to develop a uniform methodology for the use of the support

tool 'Road Safety Performance Indicators' (SPIs). SWOV acts as leader of Workpackage 3.

SPI

To achieve a better understanding of the causes of accidents and to monitor policy interventions, SafetyNet wants to make use of SPIs. An SPI measures the degree of unsafety by describing the direct relation between a factor like speed or alcohol, and road safety. SPIs are elements of a safety management system (Figure 1), and have the advantage that they can be used to predict results before a measure is taken. They are an essential addition to both a count of crashes or injuries and the monitoring of policy interventions. There are several reasons why SPIs are needed in addition to a count of crashes or injuries:

- crashes and injuries are subject to random fluctuations and a recorded number does not necessarily reflect the underlying 'expected' number.
- the recording of crashes and injuries is incomplete.
- a count of crashes says nothing about the processes that result in crashes.

In addition to the monitoring of policy interventions, SPIs are needed because they describe the impact of these interventions on the operational conditions of the road transport system. With this information, the effects of safety measures on accidents can be explained better and be separated from the effects of other measures and confounding factors.

Questionnaire

In November 2004, a questionnaire was sent to the EU member states and a number of non-EU countries, such as Switzerland, Israel and Norway, to make an inventory of the available data on SPIs. The questionnaire asks a large number of questions on a variety of topics: the use of alcohol and drugs, speed behaviour, use of seatbelts and crash helmets, use of daytime running lights, vehicles, roads, and trauma management.

The SPI team in SafetyNet is very pleased that many of the countries replied to the questionnaire. The answers are now being analysed and in case of any unclarities, further questions will be sent to the respondents.

The project aims to lay down the framework and produce the first results in 2006. SafetyNet will not operate in isolation but will seek to develop links with other EU and national activities. ◀▶

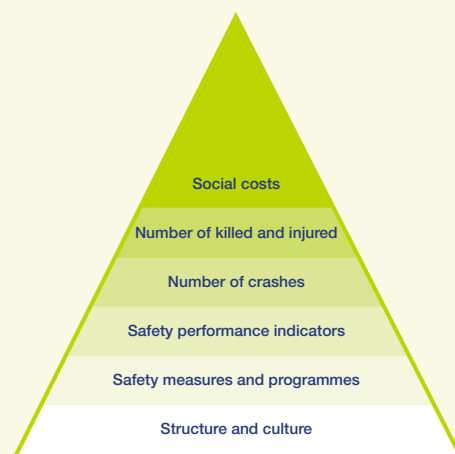


Figure 1 Essential elements of a safety management system and the position of safety performance indicators

SafetyNet was introduced in Research Activities 25 of June 2004. The SafetyNet project has its own website <http://safetynet.swov.nl>.

RIPCoRD-ISEREST

In 2001 the European Commission set ambitious targets for road transport safety in 2010: reducing the number of fatalities from 40,000 to 20,000. The EU RIPCoRD-ISEREST project aims to offer scientific support to achieving the 2010 targets by developing 'best practice tools' and guidelines for infrastructural road safety measures. RIPCoRD-ISEREST was officially launched in January of this year.

RIPCoRD-ISEREST is an acronym for Road Infrastructure Safety Protection – Core-Research and Development for Road Safety in Europe, and Increasing Safety and Reliability of Secondary Roads for a Sustainable Surface Transport. Within RIPCoRD-ISEREST, SWOV is leader of Workpackage 2 'entitled 'Road Safety Impact Assessment (RIA) and Accident Prediction Models (APM)'. In this Workpackage a comparison is made of effect estimation methods and crash models from different countries. These are meant to make it possible to determine the road safety effects of changes in infrastructural networks and, within networks, of changes in (the design of) interchanges and

intersections, or of measures using (dynamic) traffic management. The first result will be a state-of-the-art report on RIA and APM which will be published mid 2005.

Road Safety Audit

In addition, within the framework of this project, SWOV is involved in working out guidelines for the 'Road Safety Audit', the qualifying of auditors, and advising countries that want to use a road safety audit. SWOV also has a task in the 'Best Practice on Road Design and Road Environment' that has as goal the working out of measures for reducing the number and severity of crashes on rural single carriageway roads.



The kick-off meeting for the RIPCoRD-ISEREST project was held at the BAST premises in Germany. Participants from Turkey, Greece, Italy, Spain, Portugal, Belgium, Germany, Norway, Czech Republic, Hungary, Austria, and The Netherlands were present. From The Netherlands the firm Diepens & Okkema is also involved in this EU-project. Starting in 2005, the project will continue for three years. ◀▶

The RIPCoRD-ISEREST project has its own website: www.ripcoRD-iserest.com

Safety for cyclists; roundabouts can be even safer



The Netherlands is a country of cyclists. According to the latest official data from 1998, there are 13 million bicycles in the Netherlands on a population of 16 million. This number is still increasing. Cyclists, as well as moped riders, are vulnerable road users. Their annual number totals nearly 300 fatalities and 4,500 in-patients. A lot is being done to reduce the numbers of casualties among cyclists and moped riders.

Most casualties have always occurred on intersections. During the past 20 years, about 2,000 complete roundabouts have been constructed in the Netherlands because the number of casualties goes down drastically when a roundabout replaces a junction. The design of roundabouts in the Netherlands usually does not compare to

that in countries where cycling is less important. Moreover, for cyclists there are different design solutions. There are roundabouts with visually indicated bicycle lanes as well as roundabouts with separate bicycle tracks. This second type is preferred: the number of cyclist and mopedist casualties is nearly 60% less than on a junction.

Differences

The design of roundabouts varies quite a lot in the Netherlands, and the priority/right-of-way rule on roundabouts with separate bicycle tracks is not the same for all roundabouts. On rural ones cyclists have no right of way, but on urban ones there is no uniform rule. We estimate that on 60% of urban roundabouts with separate cycle tracks, cyclists have priority. Although constructing a roundabout with separate cycle tracks improves the road safety enormously, the improvement can be even better. This can be achieved if motor vehicles have priority on all roundabouts with separate cycle tracks. According to recent SWOV research, this will give an estimated annual reduction of 85% among cyclist and mopedist in-patients in comparison with an ordinary junction.

Without priority is safer

In The Netherlands there are design recommendations for roundabouts regarding the inside and outside radii, lane width, dimensions for entry and exit roads, and medians. Roundabouts with priority for cyclists that have a layout according to these recommendations were expected to only be slightly less safe than roundabouts without priority for cyclists. However, the recent SWOV research shows that this "slightly less" safe would amount to an estimated 52 to 73 extra cyclist in-patients per year if all roundabouts had priority

for cyclists. Changing the priority rule costs an estimated € 10,000 per roundabout for the road signs and road marking. Each in-patient costs more than € 200,000 per year, directly or indirectly. This means that the investment to change the priority rule on a roundabout to no priority for cyclists will be covered by the costs saved.

Not clear why

From its analysis, SWOV is entitled to draw the conclusion that roundabouts without priority for cyclists are safer, but does not know why this is so. The crash analysis does not explain why

this difference is so clear. There are two possible explanations. The first explanation is that motorists unjustly assume that they have right of way over cyclists. This assumption can be partly caused by the fact that the Netherlands does not have one uniform urban priority ruling. The second explanation is that motorists, when approaching, driving on, and leaving a roundabout, have to make so many observations within a short time, that they do not notice the cyclist until it's too late. Behaviour studies should shed more light on this subject and are recommended.

Choice

If the goal is to promote the use of the bicycle, the priority for cyclists regulation is preferred. The flow of large numbers of cyclists and mopedists then gets priority. In 1998, SWOV agreed with the recommendation of priority for cyclists providing that the roundabouts were laid out according to the recommendations mentioned above. It was also SWOV's expectation that such roundabouts would really be safer. Unfortunately, the practical situation is that not all roundabouts meet these requirements and, if they do, the safety benefit cannot be proved. SWOV studies road safety questions and this study has taught that roundabouts without priority for cyclists are safer than those with priority for cyclists. ◀▶

SWOV report R-2004-14 'Are roundabouts with separate cycle tracks also safe for cyclists? Which priority rule is safe for cyclists on individual urban roundabouts?' is in Dutch, but has a summary in English. The report is published on the SWOV website www.swov.nl under Publications.

	Number of in-patients (in crashes between motor vehicles and bicycle/moped) per roundabout per year	Estimated maximum number of roundabouts with separate bicycle tracks: 784	Estimated minimum number of roundabouts with separate bicycle tracks: 560
Roundabout with priority for cyclists	0.109	85	61
Roundabout without priority for cyclists	0.016	12	9
DIFFERENCE	- 85%	73	52

Table. Difference, with a national ruling, between numbers of in-patients on urban 'with priority' and 'without priority' roundabouts with separate bicycle tracks.

New fact sheets

Recently three new fact sheets have been added to English part of the SWOV website.

With the fact sheets on *Emotions and traffic*, *Demerit points systems* and *Wrong-way driving* the fact sheets now cover an even wider variety of topics.

Emotions and Traffic

Research has shown that emotions can greatly influence behaviour. Emotions occur regularly in traffic situations and can have negative road safety consequences. However, not much research has been carried out about the precise circumstances and situations in which emotions occur. The road safety effects of the various emotions are also largely unknown. However, it is a reasonable assumption that a motorist's emotional situation influences his/her traffic behaviour. Various factors are important for emotions occurring in traffic. First of all, there are individual differences between road users. Some people are just more inclined to react emotionally than others, and this also applies in traffic. Events in traffic can give rise to emotions. It matters whether the event can be attributed to somebody else or not. A motorist most strongly experiences anger when he/she encounters a negative event for which somebody else is

responsible, e.g. having to decelerate or brake because somebody suddenly cuts in front. A road layout that aims at preventing or limiting certain conflict situations will probably result in fewer emotions. There are also indications that high temperatures are accompanied by an increase in aggression and other negative emotions. It has been found that anger is associated with risky behaviour such as exceeding the speed limit. What has also been found is that driving instructors judge the driving of motorists who are hostile to be worse than that of motorists who are not. It is not an easy matter to influence emotions occurring because they are largely dependent on personal characteristics. What one can do is use information to try and change the way in which emotions are expressed.

Read more about this subject in the fact sheet 'Emotions and Traffic'.

Demerit points systems

Traffic laws aim at promoting a safe and smooth traffic flow. However, the laws are very often violated. A demerit points system can be used to punish offenders in order to achieve these laws being complied with. The added value of a demerit points system is that it takes recidivism into account. In addition to the normal penalties, demerit points are meted out to the offender. These demerit points are personal, which means that, with regard to enforcement, they can only

be imposed when halted by the police, and not be imposed on the vehicle owner via the vehicle registration number. The more serious the offence, the more demerit points. Usually a (temporary) licence suspension follows if a certain points limit is exceeded. International studies show that the introduction of a demerit points system has a limited road safety effect. In spite of this, many countries have introduced such a system. Its popularity is very probably the result of people seeing it as fair to tackle recidivists more strictly. The effect of a demerit points system can be increased by making it stricter (more demerit points for offences, exceeding the limit with a smaller number of demerit points) and/or increasing the chance of being caught. If a system was introduced in the Netherlands for only the serious offences, i.e. those requiring being halted by the police and two such offences within five years leading to (temporary) loss of the driving licence, we estimate that it would only result in a few less fatalities annually. It can be concluded that positive safety effects after introduction are being observed.

Read more about this subject in the fact sheet 'Demerit points systems'

Wrong-way driving

Wrong-way driving is a phenomenon that mainly happens on motorways. Although the number of

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wrong-way crashes is relatively limited, their consequences are much more severe than the consequences of other motorway injury crashes. The risk groups causing wrong-way driving accidents are young, inexperienced drivers as well as elderly drivers. The young are often under the influence of alcohol, and deliberately commit offences; the elderly mistakenly drive up the exit road and have not used any alcohol. If there is a wrong-way driver on a motorway, it is important to protect other road users from him/her. Possible measures are mainly aimed at separating the wrong-way driver from

other traffic by, for example, stopping the other traffic in front of an open bridge or closed tunnel, or by clearing the left-hand lane on which 80% of the wrong-way drivers are driving. ◀▶

Read more about this subject in the fact sheet 'Wrong-way driving'

All fact sheets can be found on the English part of the SWOV website under Publications, Fact sheets.

Young novice drivers; reducing the crash rate

The many studies of accompanied driving and the graduated driving licences show that an experience-gaining phase of some period of time is preferable. The idea is to gather more experience under relatively controlled circumstances. Initially one is only allowed to drive under relatively safe circumstances and, if found capable, these restrictions are gradually lifted.

The crash rate of young novice drivers is relatively high worldwide. The crashes in which they are involved most frequently are single-vehicle crashes, losing control of the car, driving too fast for the circumstances. These crashes occur relatively more often during weekend nights, and they relatively more often have occupants of about the same age.

Causes

A review of the international literature shows that the causes of crashes involving young novice motorists usually fall into two categories: age-related factors and inadequate skills.

The age-related factors relate to the development phase in which young people find themselves. Adolescents, and especially the male ones, often rebel against existing norms, don't want to appear 'soft' to their friends, enjoy sensation, underestimate risks, and have the feeling that they are more or less invulnerable. Young female motorists also have a distinctly higher crash rate than experienced female motorists.

The lack of skills is not so much a matter of poor vehicle control, but is more due to a lack of driving experience. This is why young novice motorists judge the traffic situation inadequately, and cannot predict correctly how a particular traffic situation will develop.

The high crash rate of young novice drivers is probably slightly more determined by lack of driving experience than by age-related characteristics.

Measures

For a long time now, many different types of measure have been used in attempts to reduce the high crash rate of young novice drivers.

Training and education

This concerns improving the driving course necessary for obtaining a driving licence: the training known as 2nd phase training after passing the driving exam, and special courses for novice motorists who have been observed to drive poorly in traffic. There is also the use of teaching material such as the driving simulator.

Until now, it is not convincing that improving the driving course results in a substantial decrease of the initial crash rate. Short 2nd phase training types, such as skidding courses, even have a negative effect. The effects on crash rates of those 2nd phase training types with a more formative character are not yet clear. It is not known whether a driving simulator improves driving skills. It is clear, however, that simulator training is not necessarily essential for learning to drive safely.

Selection requirements

The driving exam is the best way of selecting by far. Because improvements in the basic driver's training have not convincingly been shown to lead to a clear decrease in the initial crash rate, the value of the driving exam must not be overestimated. A demerit points system for novice motorists can detect notorious crash-prone drivers and suspend them from further driving for as long as they do not prove that they can do it safely. A demerit points system only works as a good selection method if the chance of getting caught is high.

Special traffic rules for (young) novice motorists

There are two types of restrictive traffic rules for young novice motorists. The first type is just heavier penalties for the same offences. The

provisional driving licence and a severer demerit points system for beginners belong to this type. Both the provisional driving licence and the severer demerit points system have a deterrent effect, but this effect depends on the subjective chance of getting caught.

The second type of special traffic rules are the severer, more restricting rules. Examples of these are not being allowed to drive with passengers, a lower legal alcohol limit, and not being allowed to drive at night. All these rules lead to a fall in the crash rate.

Detecting dangerous driving behaviour

Installation of a crash data recorder should make novice motorists realize that they have a larger chance of getting caught if they commit an offence, thus preventing deliberate high-risk driving behaviour. However, a first pilot test of this method in Germany was not successful; it should, however, be said that the drivers were promised beforehand that the recorded data would not be used against them if a crash occurred.

Information especially aimed at novice drivers

Although there is little information about this, it is clear that campaigns can really have an effect if the message is repeated continuously. The effect is greater if combined with other measures regarding, for example, education or enforcement, and the campaign is clearly aimed at this target group. Using 'traffic informers', i.e. young traffic casualties who are often permanently impaired, to tell secondary school pupils at school how the crash occurred and the influence the crash has had on their lives, or 'road shows' i.e. actors, results in a change of attitude of a brief duration. It has the effect, however, of making them receptive to specific traffic related information.

Broadening those involved

Parents usually ensure that their children do not use their car if they cannot cope with the circumstances. This has a considerable effect on the crash rate of young novice motorists. There have only been sporadic attempts of allowing other

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Crash rates for mopeds in a number of EU countries

A SWOV study looked at the differences in European legislation for mopeds and light motorcycles. Various European countries appeared to encounter the same problems with tuned-up mopeds, separation of mopeds from other traffic, and the minimum age for riding a moped or light motorcycle. Also the study calculates the crash rate for a number of EU countries.

A SWOV study, commissioned by the Swedish National Road Administration, made a comparison between European countries on national moped regulations and relative safety.

The minimum ages for riding a moped, theoretical and practical tests, speed limits for urban and rural roads, compulsory helmet use, and the existence of registration plates and documents in several European countries were compared. A calculation is made of the crash rate and vehicle rate (see Table 1). The crash rates differ between countries; no research has been found which gives an explanation for these differences.

Minimum age

There are large differences in minimum ages and maximum speeds for mopeds between European countries. In France, Italy, and Spain the minimum age for riding a moped is 14, whereas in Denmark the minimum age is 18. Most fatal accidents happen when the mopedist is younger than 19. An estimate based on research in the Netherlands showed that raising the minimum age from 16 to 18 years is an effective measure to save casualties. Unfortunately, from a road safety perspective, such a measure recently faced considerable opposition in the Netherlands. Also the proposal

- **crash rate: the number of killed mopedists as a percentage of the total number of killed road users.**
- **vehicle rate: the number of killed mopedists per 100,000 mopeds.**

of the Ministry of Transport to raise the minimum age to 17 was not accepted by a majority in Parliament.

Anti-tampering

The anti-tampering measure for mopeds introduced by the European Union in 1999, can be sidestepped by moped owners and moped dealers without problems. Special sets for tuning up mopeds are freely available. Measures to improve the situation are: better European anti-tampering regulation, sales prohibition of tuning-components, and punishing dealers who are guilty of tuning up. ◀▶

SWOV report 'Traffic legislation and safety in Europe concerning the moped and the A1 category (125 cc) motorcycle' (R-2004-10) may be consulted and downloaded from the SWOV website <http://www.swov.nl>

European countries	Number of mopeds* 1000	Killed mopedists	Total killed road users	Crash rate: killed mopedists as % of all fatalities	Vehicle-rate: nr of killed mopedists per 100,000 mopeds
Austria	363	32	963	3.3	8.8
Belgium	356	78	1500	5.2	21.9
Denmark	-	39	499	7.8	-
Finland	100	16	400	4.0	16.0
France	1,482	422	8437	5.0	28.5
Germany	1,747	148	7792	1.9	8.5
Italy	4,000	627	5857	10.7	15.7
Luxemburg	-	1	57	1.8	-
Netherlands	529	89	1066	8.3	16.7
Norway	114	10	352	2.8	8.6
Portugal	-	278	1865	14.9	-
Spain	2,337	506	5957	8.5	21.7
Sweden	-	12	531	2.3	-
Switzerland	284	20	597	3.4	7.1
Un. Kingdom	90	10	3421	0.3	11.4
Total/average	11,213	2,281	39,294	5.4	17.8

Table 1 Number of mopeds, number of killed mopedists and rates in different European countries. Figures from 1998.

Sources: *Vehicle fleet:* Statistics of Road Traffic Accidents, U.N. (2001) and national statistics
Figures of the number of deaths: ECMT Road Accident Statistics (2001) and CARE (2002).

Colophon

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people or organizations, such as schools or insurance companies, to have such a large influence on the driving qualities of young novice motorists that they also make demands on the young. Their effect on crash rates is also unknown.

Other protecting circumstances to gain driving experience

Graduated driving licences and accompanied driving mainly consist of gaining driving experience under circumstances in which the crash risk is as low as possible. Mostly, young novice motorists are only allowed to drive while accompanied, and afterwards on their own. There are always some restrictions during the initial period of driving alone, such as not at night and not with passengers. Graduated licensing emphasizes less the formal

driving lessons and driving exam, and more the gaining of driving experience under protected circumstances that gradually become less and less protected. Introducing accompanied driving can reduce the crash rate of novice motorists substantially.

Conclusion

The literature study led to the conclusion that also in the Netherlands an experience-gaining phase of a number of years has the greatest possibility of reducing the number of crashes of young novice motorists. This is supported by the results of the introduction of a graduated system in many states of the United States, Canada, Australia, and New Zealand. Initially, novice drivers are only allowed to drive under relatively safe circumstances and, if they have proved themselves capable,

the restricting circumstances are then gradually removed. It would not be sensible to permit unaccompanied driving under the age of 18. What is perhaps sensible is not to devote all attention to reducing the high crash rate, but also to pay attention to reducing the crash involvement. This declines when the young choose public transport instead of the car, moped, or motorcycle. A possibility of this happening is to offer them good and cheap public transport especially in weekend nights. ◀▶

The literature study R-2005-3 entitled 'Young novice car drivers, their high crash rate, and measures to combat this; a literature study', is in Dutch, but has an English summary. It can be consulted and downloaded on our website www.swov.nl under Publications.

Publications

Most SWOV reports are written in Dutch but they all include an English summary. Below is a selection of reports that have recently been published by SWOV. Records of all SWOV reports that were published from 1980 onward can be found on our website (www.swov.nl). Reports that were published in or after the year 2000 can be downloaded free of charge.

Are roundabouts with separate cycle tracks also safe for cyclists?

Which priority rule is safe for cyclists on individual urban roundabouts?

A. Dijkstra. R-2004-14. 28 + 8 pp. € 10.-. (In Dutch)
Because roundabouts are much safer than ordinary crossroads, more than 2000 complete roundabouts were constructed in the Netherlands in the past 20 years. However, the priority rule for cyclists on separate (protected) cycle tracks on the outside of individual urban roundabouts is still subject to discussion: should cyclists have priority or not? This report shows the safety effects of both priority rules.

Traffic enforcement in the Netherlands;

An inventory of knowledge and knowledge needs. Dr. Ch. Goldenbeld. R-2004-15. 92 + 6 pp. € 15.- (In Dutch)

The purpose of traffic enforcement is to ensure that road users behave safely, in accordance with the goals of traffic laws and rules. This report describes the mechanisms by which traffic enforcement can contribute to behaviour changes and, with them, to road safety. The emphasis in this literature study lies on Dutch publications and specific developments in the Netherlands.

Safe; what is safe? II;

A first elaboration on the Safe; what is safe? report on the subjects infrastructure, speed control, and young mopedists.

F.C.M. Wegman, M. Brouwer, A. Dijkstra, dr. Ch. Goldenbeld, I.N.L.G. van Schagen, C.C. Schoon, P. Wesemann & dr. M. Wiethoff. R-2004-16. 71 pp. € 12.50 (In Dutch)

In the report Safe what is safe? SWOV outlines how an annual reduction of the number of traffic victims with 700 fatalities can be achieved. The initial recommendations were worked out and tested for feasibility in six separate reports. The present report once more puts all recommendations about infrastructure, speed limits, and young mopedists in the perspective of further developments concerning Sustainably Safe and the Traffic & Transport Plan of the Dutch Government.

Regional road safety data network;

An exploratory study in the province of Zuid-Holland. S.T.M.C. Janssen. R-2004-17. 42 + 36 pp. € 20.- (In Dutch)

The province of Zuid-Holland gathers data on a variety of traffic activities such as traffic counts, speed measurements, and alcohol controls. A Regional Road Safety Data Network can use this data to monitor the development of road safety and to roughly estimate the effects of infrastructural and behaviour-influencing measures at certain locations. The Provincial Road Safety Board of Zuid-Holland asked SWOV to make a design for this data-system. This report describes the development of this methodology for the use in a small trial area, and estimates the possibilities and usefulness of this system for road safety.

The use of efficiency assessment tools: solutions to barriers

Workpackage 3 of the European research project ROSEBUD

S. Hakkert, & P. Wesemann (eds.). R-2005-2. 110 + 4 pp. € 17,50.-

In road safety, as in most other fields, efficiency is an important criterion in political and professional decision making. Efficiency Assessment Tools (EATs) like Cost Benefit Analysis and Cost Effectiveness Analysis are available to support policy developments which pay attention to the highest return on investments. However, it is a public secret that policies and decisions are often based on other grounds than effectiveness and efficiency. This study looks at 11 identified barriers that are reason for not using EATs. This report presents some practical solutions to overcome these barriers, and to improve the use of EATs.

Young novice drivers, their high crash rate and measures to lower it; A literature study

W.P. Vlakveld. R-2005-3. 108 + 10 pp. € 17.50 (In Dutch)

The crash rate of young novice drivers is relatively high worldwide. Study was made of what international research has shown to be the causes of this relatively high crash rate. Based on an international comparison of driver trainings and license systems, the effectivity of possible risk-reducing measures is discussed.

Fact sheets:

- Emotions and traffic
- Demerit points
- Wrong way driving