For Official Use

ITF/OECD/JTRC/TS6(2008)1

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development
Forum International des Transports
International Transport Forum

09-Jul-2008

_____

English - Or. English

International Transport Forum
Joint OECD/ITF Transport Research Committee

Workshop on Motorcycling Safety

WORKSHOP ON MOTORCYCLING SAFETY
held in Lillehammer (Norway) on 10-11 June 2008

FINAL REPORT

Annexes to the Final Report are reproduced in the separate document ITF/OECD/JTRC/TS6(2008)1/ANNEXES

For further information, please contact the Joint Transport Research Centre:
veronique.feypell@oecd.org; + 33 1 45 24 95 95

JT03248827

SUMMARY

The Norwegian Public Roads Administration, in co-operation with the Joint Transport Research Centre of the OECD and the International Transport Forum, hosted a Workshop on Motorcycling safety in Lillehammer on 10-11 June 2008.

The objectives of the workshop were to identify the real problems of motorcyclist safety, discuss practical solutions to these problems, and propose a set of measures to improve safety. Nearly 100 expert participants from 21 countries, representing the main stakeholders involved in motorcycling safety met in Lillehammer.

The workshop was one of the rare events at international level where high-profile stakeholders had the occasion to meet and exchange their ideas and views on motorcycle safety. The focus of the workshop was mainly on the 50 countries of the International Transport Forum, but safety issues at the global level were also considered.

Opening Session

The workshop was officially opened by the Norwegian Minister of Transport and Communication, Ms. Liv Signe Navarsete, along with Mr. Jack Short, the Secretary General of the International Transport Forum.

During her opening remarks, the Minister underlined that motorcycles have a natural place in the transport system. At the same time, the vulnerability of motorcyclists requires a range of policy responses including increased training and awareness as well as responsible behaviour from the individual road users.

Mr. Short pointed out that motorcyclist fatalities were rising in many countries and that the problem needed urgent attention. Motorcyclists are paying a heavy price on the roads of many OECD/ITF countries, with the situation in most countries worsening in recent years. To attain the ambitious safety targets that have been set, there is an urgent need to address the problem of motorcyclist safety, and implement counter measures that are known to be effective. In developing solutions it is essential to consult and set up a dialogue process with all stakeholders, including the motorcyclists themselves.

Session 1

Session 1 of the Workshop focused on the characteristics of motorcycle riders and the motorcycles market. In this regard, the booming markets are in Asia where 90% of motorcycles are less than 200cc. In OECD countries, the powered two-wheeler fleet is fed by steadily growing markets

Modern motorcyclists cover a broad spectrum of road users. The majority of riders use their motorcycles for multiple purposes including commuting. Others use motorcycling for touring, racing or professional purposes. The great majority of the 313 million riders worldwide are as responsible as any other road users. Like all road users, they are subject to human error and sometimes commit traffic violations.

Session 2

Session 2 focused on accident causation across countries. Accident data collected in various studies confirm that human factors are predominant in accident causation: perception errors from car drivers and motorcyclists are reported as the main causal factors, followed by decision failures of motorcyclists. Consequences of accidents are often more severe for motorcyclists due their greater vulnerability. Speeding was reported as a contributing and worsening factor by many countries. Infrastructure represents a significant contributing factor in certain regions. Vehicles are rarely cited as the cause of an accident. Lack of experience and inappropriate training for new riders were reported as major factors in crashes by the participants.

Sessions 3, 4 and 5

Participants at the workshop identified general principles as well as practical measures for policy implementation in the short term to make motorcycling safer.

The overarching principle was the need to support continuing dialogue and co-operation between the various actors involved in motorcycle safety (including policy makers, researchers, manufacturers, and motorcyclists themselves).

Including motorcycles more fully in transport policy and infrastructure policy/management, so that an integrated approach can be developed, was seen as fundamental.

Motorcycle crash counter-measures need to be developed through evidence-based research into car driver and motorcycle rider behaviour. Evaluating the success of the measures introduced is a key aspect of developing effective safety programmes.

Better training is a key counter-measure. This means developing a tiered approach to motorcycle training which builds upon existing standards, focusing on risk awareness and risk avoidance and an understanding of the limits of rider/motorcycle capacities.

Regarding more practical measures, the following ideas were supported by participants:

- Including, in the general training for all drivers, a component on awareness and acceptance of motorcyclists.
- Supporting the furthering introduction of advanced braking systems for motorcycles.
- Partnering with motorcyclists to develop and implement programmes on safety issues that affect motorcycling communities

The Workshop ended with a Session on *Integrated approach and shared responsibilities*, where the counter measures identified were seen from the following perspectives: research, best practices, harmonization and legislation.

Renewed *research* is needed for a comprehensive understanding of accident causation and behavioural determinants. Research works must encompass risk exposure analysis, statistical and in-depth accident studies, in order to better identify the factors of accidents and define appropriate counter measures. *Best practices* have highlighted that it is important to ensure dialogue with all stakeholders and to adapt practices to local needs. It also showed that for safety reasons, every rider should wear a helmet. Discussions on *harmonization* concluded that training tailored to local conditions should be available for all riders. From a *legislation* point of view, motorcycles must be considered in all roadway planning, design, construction and maintenance.

In conclusion, the workshop has taught us that, by working together, stakeholders can achieve an integrated road transport policy that includes motorcycles, which is the best avenue to reduce the number of motorcyclists killed and severely injured. The event in Lillehammer was an important step towards the aim of ensuring a true dialogue between the various stakeholders.

The top priority measures identified by the Workshop's participants [1]

A. GENERAL PRINCIPLES

1. Co-operation between the various stakeholders

Improving safety for motorcyclists implies to set up a continuing dialogue and co-operation between the various stakeholders, including the motorcyclists themselves, policy makers, researchers, and motorcycle manufacturers

2. Transport and infrastructure policy

It is a fundamental motorcycle safety requirement thatde, motorcycles should have a place in overall transport policy and infrastructure policy/management

3. Research and evaluation

Counter measures need to be founded on evidence-based scientific research into driver and rider behaviour, and before-and-after evaluations should be conducted.

B. PRACTICAL MEASURES

1. **Training programmes for motorcyclists**
    Countries have different training needs, based on their vehicle fleet and riding environment. Motorcycle training should therefore build on existing standards, focus on risk awareness and risk avoidance, and develop an understanding of the rider/motorcycle capacities and limitations.

2. **Improved training for general drivers**

    A component on awareness and acceptance of motorcyclists should be included in the general training for all drivers, with a particular emphasis on the need for appropriate traffic scanning strategies.

---

[1] The principles and measures below are presented in the priority order developed by the participants. Some measures identified during the workshop were however combined when relevant.

3. Braking systems

Manufacturers should continue to introduce advanced (better) braking systems, such as combined brake systems and anti-lock-brake systems.

4. Getting safety messages to the riders and portrayal of responsible riding

Safety messages to riders should be developed in partnership with rider groups, in order to use the effectiveness of peer advice in communicating key issues to riders on issues that will impact their communities.

Codes of practice should be developed in order to promote and market motorcycling responsibly; the motorcycling press and rider organisations should also promote responsible behaviour codes.

5. Integrated awareness campaigns.

There should be regular, targeted, campaigns addressing both motorcyclists and other road users. These should be supported where necessary by other actions, *e.g.* enforcement, on safety-related subjects that include: mutual respect, protective equipment, speed, alcohol and drug issues.

To develop an awareness of motorcyclists and mutual respect between road users, education activities and campaigns should be set up from childhood, to emphasise that "road safety means road sharing".

6. Guidelines for the development of road infrastructure and training for road designers.

Each level of government should include in their infrastructure guidelines, measures for accommodating motorcycles, developed with input from relevant stakeholders. The guidelines should be relevant to the needs of the jurisdiction concerned, and coordinated with other jurisdictions and levels of government. An international transfer of best practices is also recommended.

The needs of motorcycles should be included in the basic training for road designers, and highway and traffic engineers.

Identification and resolution of roadway design problems (*e.g.* accident black spots and "corridor" analysis of a sequence in the road structure) should include input from rider organizations and relevant experts.

7. Protective equipment for riders

Where standards for protective equipment exist, they should be promoted; and where they do not, they should be developed, taking into account their safety performance, rider comfort, the ergonomics of their use, costs and the climate/regions where they will be used.

8. Policy dialogue

To enable communication and build mutual confidence, meetings between motorcycle stakeholders and policy makers/road authorities (*e.g.* forums, councils,) should be established, in order to exchange views, discuss needs and secure the necessary financing/resources for safety counter measures.

9. Motorcycles in ITS.

Enhanced awareness of motorcycles should be incorporated into the development of all vehicle ITS projects.

10. Innovation and pilot schemes

Where proposed counter-measures are not based on evidence-based objective research, but are supported by stakeholders, policy makers should test and evaluate the proposal in a pilot scheme.

11. Speed warning systems

The safe management of vehicle speeds in the road network is improved by the use of speed warning systems, which may be on the vehicle or part of the road infrastructure. Such systems should be encouraged as the technology is developed.

12. Global Technical Regulations.

The minimum safety performance of motorcycles should be based on Global Technical Regulations.

13. Headlamps in daytime

To improve rider/motorcycle conspicuity; for new motorcycles, headlamps should come on automatically when the engine is started; for other motorcycles, riders should switch on their headlamps before they start their journey.

TABLE OF CONTENTS

INTRODUCTION:

The Workshop was organized in the framework of the 2007-09 Programme of Work of the Joint Transport Research Centre of the OECD and the International Transport Forum, to respond to the growing concerns in OECD/ITF countries regarding the safety of motorcyclists. .

The objectives of the workshop were to identify the real problems of motorcyclist safety, discuss practical solutions to these problems, and propose a set of measures to improve safety.

The workshop gathered around 100 participants from 21 countries representing the various stakeholders involved in motorcycling safety: motorcyclists, policy makers, researchers, manufacturers, insurance and the police. A full list of participants is attached in the Appendix.

The "workshop" format was chosen in order to encourage interaction and input from all participants. Sessions 3 and 4 were split into sub groups in order to give opportunity to all participants to express their views and ideas.

Figure 1.   Motorcyclists arriving at the Workshop

This report and the presentations made at the workshop are available on the Internet pages of the Joint Transport Research Centre at: http://www.internationaltransportforum.org/jtrc/index.html.

Note: the presentations included in this report present the views of their authors and not those of the OECD or the International Transport Forum.

OPENING SESSION

Opening speech by Minister Navarsete

Dear all,

I find the subject you are addressing here today very interesting, and it is therefore a great pleasure for me to be here today.

Riding a motorcycle is one of the more challenging things you can do in traffic. Not only is it a complex machine that moves in "mysterious ways" and subsequently demands special skills and special competence, it is also by far the most dangerous vehicle to use. So, I am pleased that Norway, according to ETSC (European Transport Safety Council), is the least dangerous country to ride a motorcycle. The accident risk has dropped considerably over the last ten years. Nevertheless, 33 riders were killed on Norwegian roads in 2007 and over 600 were injured, many of these severely. It goes without saying that this is unacceptable.

As far as I know, there have been some misunderstandings about motorcycles and Vision Zero. I would like to use this opportunity to put to sleep any rumours that motorcycles and the Norwegian Vision Zero-concept are incompatible. To be quite clear on this: We have of course no plans on banning the use of motorcycles in Norway, and there is absolutely no contradiction between riding a motorcycle and being included in Road Traffic Strategies as a responsible road user group.

On the contrary, we have an integrated approach towards motorcycle riders, as the Vision Zero obviously must include all groups of legal road users. And because motorcyclists are more vulnerable than many other road users, special attention must be given to this group when developing measures for accident prevention and injury reduction.

I will share with you some examples of such an integrated approach. I emphasize the importance of the contributions from user groups and rider instructors, working in close cooperation with the authorities in accomplishing what I believe is at least partly groundbreaking results:

In initial rider training we have launched what I believe to be one of the most comprehensive programmes ever.

There will of course always be critical voices: -"Comprehensive, but also very expensive!" Well, none of us have a birthright to drive any vehicle on public roads. You have to earn such a right by first acquiring, and then demonstrating, that you have the necessary skills. Given the accident risk, high competence is of special, and literally crucial, importance for potential motorcycle riders when it comes to accident prevention. Consequently, the authorities have a responsibility, in accordance with the Vision Zero, to secure as far as possible that every new rider who enters the Norwegian roads is equipped with custom-made tools that enable him or her to function and interact safely with others in a complex traffic environment. For motorcyclists this requires a comprehensive programme.

The overall theme in the initial training programme is a combination of machine control and efficient traffic strategies. Together this shall provide the rider with an abundant base of accident prevention tools. This programme will be evaluated from 2009. It should in my opinion be followed by a similar thorough review of the license test to secure optimal output of the programme.

• Another example is the Public Roads Administration "Handbook on Motorcycle Safety", also prepared in close cooperation with representatives of the user group and the national traffic safety organisation. The need for such a handbook was associated with the fact that motorcyclists are a vulnerable group and that accidents usually result in severe injuries. The designing of road infrastructure is however often based only on the needs of four-wheeled vehicles. Thus, increased awareness and knowledge about powered two wheelers in planning, construction and maintenance will provide improved safety for motorcycle riders. The handbook is primarily written as a guide and reference for those who work on planning and construction of roads and traffic systems, but motorcyclists are encouraged to request safe roads with reference to the handbook. This will help the road authorities to pay the necessary attention both to motorcyclists and to the handbook.

• As an example of both accident prevention and injury reduction, I will draw attention to the "Vision Zero Motorcycle Road", opened this month in the county of Telemark. Vision Zero is mostly about infrastructure, and on this road particular attention has been given to motorcycles. Crash barriers fitted with sub-rails, forgiving side terrain, clearing of sight-hindering vegetation and carefully placing of signposts, are all measures of vital importance for motorcyclists. They are of course almost all of them also beneficial for all road users.

• I would also like to mention an initiative from the user group and the motorcycle dealers. As a follow-up on the new initial rider training, and to spread the practical use of the principles laid down in this training scheme, the user organisation has produced two booklets on motorcycle safety called "In Control" and "Good Thinking". These booklets have now been combined into one, which is provided for free to those who visit motorcycle dealers. The booklet gives an insight in both machine control and in traffic strategies and will hopefully spread professionally based knowledge on these topics, both to novice riders and also to the many self-appointed "experienced" riders.

• As a last example I will point out that the road authorities has defined several high-risk road user groups that will be subject to a closer examination in a special project. Motorcycle riders are one of these groups. The purpose is to get a better understanding of the causes of motorcycle accidents, and consequently also a better understanding of effective measures to reduce the accident risk. And this is where I probably should repeat: Banning motorcycles is not on the table!

Finally I will emphasize that within the Vision Zero there has to be focus not only on measures such as forgiving infrastructure and advanced rider training. One of the most important elements still is, and will always be, the personal responsibility of any single road user.

We will continue to upgrade the infrastructure, and we will continue to supply even better training programmes and licence tests to make sure that the riders and drivers has been provided with the best possible tools for his or her safe interaction with other road users. In return we have to demand responsible and reflected traffic behaviour. Given the high accident risk, I am tempted to set his standard even higher for motorcycle riders than for any other users group.

It seems to be a belief amongst quite a few riders that they have access to a sort of "invisibility cape" a la Harry Potter as soon as they get on their bike, meaning that normal rules and regulations don't apply to them. Well, the cape does not work! If anything, unacceptable road behaviour from a motorcycle rider is more visible to other users than the same behaviour from a motorist. It just gives a bad reputation and no goodwill. As studies of accident causes will show, riders need to be visible in traffic. But they need a positive kind of visibility - the kind that increases safety, and not the kind that creates aggression.

I need to point out that the vast majority of riders, as in other groups, are responsible road users and are behaving according to common rules and practice in traffic. They may even be some of the most competent road users because they have a genuine interest both in their own safety and in the "magic" mastering a motorcycle. But, the ones that do not share this interest, are, due to the fact that a rider is relatively unprotected, also the ones most likely to end up dead or in a wheelchair. And how to reach those riders should be one of the main topics on the agenda when motorcycle safety is debated.

So in my view, a rather big challenge remains, namely how to change the kind of rider attitude that results in splitting lanes in high speed, considering speed limits to be merely guidelines and ignoring the use of blinkers. How do we reach those who have an almost unbelievable faith in their own riding skills, ignoring the fact that they only had their licence for two weeks? How do we get them to absorb and act according to the fact that the human body is a fragile thing and that it will most certainly break if loosing control over the "unprotected" motorcycle in high speed? How do we get them to absorb the fact that motorcycle riders, maybe more than any other group, is dependent on the attention and goodwill of other road users?

Motorcycles are an obvious part of the Vision Zero – but success will require serious commitment from both the authorities and the individual rider. In my opinion it is obvious that it is in the rider's own interest to take responsibility for his own safety. In the end, it is the rider that inevitably pays the highest price.

Good luck on this important workshop – and thank you for your attention!

SPEECH OF JACK SHORT, SECRETARY GENERAL OF THE INTERNATIONAL TRANSPORT FORUM

Dear Minister,

Dear colleagues,

I am very grateful to the Norwegian Public Roads Administration for having offered to host the Workshop and honoured that the Minister is here today in Lillehammer.

This Workshop is organised in the framework of the Joint Transport Research Centre of the OECD and the International Transport Forum.

The International Transport Forum was created in 2007 following the transformation of the European Conference of Ministers of Transport (ECMT). The International Transport Forum is a global platform and meeting place, at the highest level, for transport, logistics and mobility. The aim of the Forum is to foster a deeper understanding of the essential role transport plays in the economy and society.

The highlight of the International Transport Forum's activities is the annual meeting in Leipzig, and the first edition was held on 28-30 May 2008.

This Workshop on Motorcycling safety was proposed by JTRC member countries for inclusion in the current Programme of Work, in response to growing concern regarding the safety of motorcyclists, which has become more of a problem in recent years in many OECD/ITF countries.

Here are a few examples. In the United States, between 2000 and 2006, the number of motorcyclists killed increased from 2 897 to 4 692, *i.e.* a 60% increase (compared to 1% increase in overall fatalities). Over the same period, the number of motorcyclists killed in Canada increased by 30%, while overall the number of fatalities decreased by 1%. In Australia, between 2000 and 2007, the motorcycle fatalities increased by +25%, while overall the number killed decreased by 11%. In the European Union, between 1996 and 2005, the number of motorcyclists killed increased by around 20%, while overall the number of car occupants killed decreased by 25%.

Of course, absolute numbers must be interpreted with caution, and it is also important to consider the evolution in the number of motorcycles and the kilometres driven.

In terms of risk, for the same distance travelled there is a 15 times greater chance of getting killed on a motorbike than as a car passenger. (In the EU, there are around 70 killed motorcyclists per billion veh-km, compared to less than 5 car drivers per billion veh-km).

There is therefore an urgent need to address the issue of motorcycle safety. What is needed are more integrated approaches – linking infrastructure, vehicles and behaviours -- that see the powered two wheelers as part a legitimate of the system.

The event is a ***workshop*** in order to give all of you an opportunity to express your views, and contribute to the discussions. Formal presentations will be brief, because input is expected from ***each*** of you.

Participation was by invitation only, as we wanted to have the right mix of stakeholders involved in motorcycle safety: the motorcyclists themselves; the road and transport administrations, the researchers, the manufacturers; the insurance sector and the police. It was also important to have a wide geographical representation: 21 countries are represented here today.

In 2002, the Road Transport Research Programme of the OECD developed a common methodology to collect on-the-scene detailed data from motorcycle accidents. I am very pleased that many countries are using this methodology today. During the course of the workshop, we will learn more about the results of the investigations conducted using this methodology. For your information, an updated version, based on experiences and feedback received during the first investigations, is now available. I would like to thank the industry (Nick Roger, and Terry Smith) for having taken the lead on this, and Mr Dominique Cesari (INRETS), who was the chairman of the OECD group that developed the methodology and reviewed the updated version as an independent expert. This methodology has been freely distributed to you all. Please, therefore, feel free to share it!

Finally, I would also like to remind you of the ECMT resolution on Vulnerable Road Users, developed in 1999. This resolution included several recommendations on vehicles, infrastructure, training, and road users. It would be interesting, I believe, to assess how these recommendations have been implemented in the different countries.

I wish you a very successful workshop

SESSION 1: SETTING THE SCENE – WHAT IS MOTORCYCLING?
CHAIRED BY JACK SHORT (OECD/ITF)

The objective of Session was to gain a better understanding of motorcycling, the characteristics of motorcycle riders and the market of motorcycles. The first presentation, by Nick Rogers (IMMA), presented the trends in the motorcycle fleet worldwide; the second by Hans Peter Strifeldt described the variety of riders around the world.

1. Trends in the motorcycle fleet worldwide, Nick Rogers (IMMA)

The full presentation is attached as Annex 1.

The vast majority, (77%) of the motorcycle fleet is in Asia where 90% has an engine size under 200cc. In Europe, which represents 14% of the world fleet, 60% of the fleet has an engine below 200 cc. In the United States, the large majority of the motorcycle fleet (76%) have an engine size over 749 cc and most of on-road sales are in the custom, touring and performance segments. In the last decade the main market and production growth has been in Asia, in particular China, India and Indonesia. . In OECD countries, the powered two-wheeler fleet is fed by steadily growing markets

In general, the penetration of motorcycles in a market declines as the average wealth increases. Similarly, most motorcycle use is for everyday purposes, but in mature markets (e.g. Europe, USA) larger motorcycles are used for leisure riding.

The main reasons for the growth of the motorcycle market are:

- the ease of use
- the efficiency and economy of this mode of transport
- their use in businesses
- the growth of individual leisure

2. Who are the riders, Hans Petter Strifeldt

The full presentation is attached as Annex 2

To better develop safety measures for motorcyclists, one must be aware of the different types of motorcyclists. Deconstruction of the stereotypes may classify the riders into these groups:

To better develop safety measures for motorcyclists, one needs to be aware of the different categories of motorcyclists. Deconstructing the stereotypes, we can classify riders into the following groups:

- Riders from mid- and low-income countries, who have no other option than to use motorcycles as a means of personal (motorised) transportation. Most riders in the world belong to this group given that 77% of all motorcycles are sold in Asia.

- Commuter riders, who have no relation to their motorbikes. They are not organized as riders, and use the bike solely as an effective means of transportation to and from work.

- Touring riders, who choose the motorcycle for short or long shorter touring missions. They make a conscious decision to experience the sensation only a motorcycle gives.

- Lifestyle bikers represent the archetype of motorcyclists in Western culture. They often include the rider's family.

- Bikers use their machines to signal to surrounding society that they belong to a very specific group of riders. Lifestyle bikers are organized and are to be found all over the globe.

- The "weekend warriors" tends to use their bikes early on Sunday mornings, tearing along the roads. These riders could pose a problem when using public roads as a race-track.

- "Ordinary" riders are the most common in the Western world. Often inconspicuous, they are nevertheless keen motorcycle riders and usually well organized. They are also safety conscious.

- Professional riders include motorbike instructors and the police. They represent a small, but important group with regard to input to safety policy makers.

Photo: Mr Marku Tervo (Finnish Road Administration); Ms Sonja Spostol (CIECA), Mr Lasse Lager (Ministry of Transport of Norway), Mr Morten Hansen (NMCU, Norway)

Furthermore, it is important to understand how the different rider communities are organised. By utilising the way in which riders meet and talk the impact of safety measures and/or messages can be enhanced. To summarise:

- Most riders are not organised, *e.g.* riders in low- and middle-income countries.

- In industrialised countries, most riders are organised in clubs and tend to meet at gathering points, such as roadside cafes, club houses or at rallies.

- More formal organisations representing riders exist. For example FEMA in Europe, and associations representing the whole community, including the manufacturers.

- Motorcyclists are surprisingly active on the internet in user groups. This means that news travels fast in this environment.

Safety consciousness within the motorcycling community

- Most riders **in low- and/or middle-income countries**, have little safety consciousness and cannot afford safety measures to the same degree as in the Western world. This may make safety issues more of a luxury problem that can be dealt with in developed countries, whereas the need is far greater in low- and middle-income communities.

- There exists a philosophically founded "freedom of choice" movement among some riders. They reject any injunction that forces them to wear helmets and other safety attire. Altough many use it anyway, it is *by choice* - not *by law*.

- ***The safety conscious rider*** has a highly-developed sense of safety. Whereas only helmets are mandatory apparel when riding in Europe, for example, this type of rider makes additional investment in expensive protective clothing. They should not be targeted for safety measures, therefore, as they are already aware of the need for precautions.

- ***The extreme risk takers*** represent a marginal user group. They have proved to be unreachable regarding safety messages and should not be considered when planning safety measures. The only way of handling this group is through law enforcement.

  While motorcycle riding can never be risk free, it is possible to introduce measures that may reduce the risk.. Motorcyclists are open to mentoring, or peer-to-peer instructions. This is something that is peculiar to this group of road users and should be used constructively for safety messaging.

Why do some people "choose" to be a vulnerable road user if it can never be risk free?

- Most people do not have a choice between a motorcycle or a car, *e.g.* in low- and middle-income countries.

- In developed countries, there are usually three reasons for choosing to become a rider: Either for commuting, the sense of freedom that riding gives, or for the sensation of mastering the motorcycle. For some, it is all three.

If based on science, facts and agreed policies, the motorcycling community is willing to take part in improving motorcycle safety, as we are the real experts on this issue. It is important to recognize that any measure should include riders in the planning phase, to ensure a higher probability of successful implementation.

SESSION 2 – CONSEQUENCES AND CHALLENGES
MODERATED BY MR TERRY SMITH (UNITED STATES)

The objectives of Session 2 were to come up with a common understanding of accident causation across countries. The main focus of Session 2 was on results of *in-depth* investigations in different countries.

Session 2 started with a keynote presentation from Jacques Compagne about the results of the European MAIDS project. This presentation was followed by interventions from other countries, to highlight common findings with the MAIDS project and results that were different. The readers will find in this section:

- An abstract of the MAIDS presentation
- Summaries of the planned interventions from Sweden, Thailand, the United States, Australia and the European Union.
- A summary of the discussion

The full presentation of the MAIDS project and of the presentations from the United States, Australia, Sweden and Europe is attached as Annexes 3, 4, 5, 6 and 7.

1. Presentation of the MAIDS project (Jacques Compagne)

See full presentation in Annex 3.

MAIDS represents an extensive in-depth study of motorcycle and moped accidents during the period 1999-2000 in five sampling areas located in France, Germany, Netherlands, Spain and Italy.

Each case was investigated in detail, resulting in approximately 2000 variables coded for each accident. The investigation included a full reconstruction of the accident and the identification of all human, environment and vehicle accident contributing factors. Additionally, four other main contributing factors were also identified and coded.

To provide comparative information on riders and PTWs that were not involved in accidents in the same sample areas, data was collected in a further 923 cases. This exposure information on non-accident involved PTW riders was essential for establishing the significance of the data collected from the accident cases and the identification of potential risk factors in PTW accidents. For example, mopeds appear to be over-represented in MAIDS, while motorcycles were found to be over-represented in the fatal cases.

The same methodology for on-scene in-depth motorcycle accident investigations developed by the Organisation for Economic Co-operation and Development (OECD) was used by all five research groups in order to maintain consistency in the data collected in each sampling area.

The accident data collected in this study showed the following results:

- Human factors are predominant in accident causations. They represent 88% of the primary accident contributing factors.

- The most frequent primary causation factor was a failure from opposing vehicle drivers to see the PTW within the traffic environment.

- Decision and perception failures from PTW riders were the second most frequent human errors and they represent the main causations of the majority of the PTW fatal accidents.

- PTW riders were at the origin of a major proportion of the secondary accident contributing factors (72%).

- The infrastructure and the road side environment was found to be more a worsening than a contributing factor as it influenced the consequences of the accidents. Among the limited number of cases where the infrastructure was contributing directly to the accident, the most frequent direct causes were road maintenance defect, road design defect and traffic hazards.

- The vehicles factors represented marginal accident causation factors and the few cases recorded were linked to maintenance defect. Vehicle style, gross-mass and engine capacity categories were found to be equally represented in both, the accident data and the exposure data with the exception of heavy motorcycles over 1000cc, which were found to be under-represented in the accident data.

2. Motorcycle Crashes in the United States

(See full presentation by Carol Tan, FHWA, in Annex 4).

Trends in fatalities

The United States (US) has a population of about 300 million. For the past five years, the motor-vehicle fatalities have been around 42,000. The following statistics are from the Fatality Analysis Reporting System (FARS). FARS is a database of all the motor-vehicle related fatalities in the US reported by the police. While fatalities for passenger car and truck drivers, pedestrians, and bicycles have decreased, motorcycle rider fatalities have continued to increase for the ninth year in a row. In 1997, motorcycle fatalities comprised about 5 percent of the motor-vehicle related fatalities; in 2006, they were 11 percent of the fatalities. This is an increase of 127 percent. For the first time since 1975, motorcycle fatalities surpassed pedestrian fatalities.

Accident types

In 2006, 50 percent of the motorcycle fatalities occurred on rural roads, 46 percent occurred on urban roads. Sixty percent of motorcycle fatal crashes did not occur at an intersection while 24 percent were intersection-related. The predominant crash type (40%) involved the other vehicle turning left with MC going straight, passing or overtaking. In 26 percent of the MC fatal crashes, both vehicles were going straight. Motorcycles collided mostly with other vehicles in transport (51%) and secondly with fixed objects (25%): such as guardrail faces (4%), curbs (5%) and trees (3%). There was no predominant fixed object that was struck. Other contributing factors included: wet pavement (3.5%), fallen cargo (2%), and police pursuit (1%).

Age characteristics

The mean age of riders and the mean engine size in MC fatalities are increasing. Riders in the older age groups (over 40 years) are overrepresented. Of the total increase in motorcycle fatalities among those older than 40, 60% were on larger motorcycles (1001 – 1500 cc). The 10-year trend in fatal motorcycle operator crashes and fatalities show the greatest increase of fatalities is in the 40 and over age group. There was a 52 percent increase among the under 30 age group, a 52 percent increase in the 30 to 39 age group, more than 240 percent increase in the 40 and over age group, and a 324 percent increase in the 50 and over age groups.

Alcohol

In 2006, 27% of the fatally injured MC riders had a blood alcohol content of greater than 0.08 g/dL. 41% of the 2,007 motorcycle operators who died in single-vehicle crashes in 2006 had BAC levels of 0.08 g/dL or higher. 59% of those killed in single-vehicle crashes on weekend nights had BACs of 0.08 g/dL or higher

Helmets

Of the MC fatalities, 41% of the riders and 55% of the passengers wore no helmets.

Speed

In 2006, it was found that speeding was a contributing factor for 37 percent of the motorcyclists involved in fatal crashes.

Licensing issues

Of the of motorcycle riders involved in fatal crashes, 25 percent of the motorcycle riders were operating with an invalid license.

Within the US Department of Transportation, motorcycle safety is addressed by the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA). NHTSA is responsible behavioural issues such as helmet usage, alcohol, driver training & awareness, and MC training & licensing. FHWA is responsible for roadway issues such providing a more accommodating infrastructure and more forgiving roadside.

3. In-depth investigations on motorcycle crashes conducted in Australia (Narelle Haworth)

Narelle Haworth reported on three in-depth investigations conducted in Australia between 1995 and 2008.

Melbourne Motorcycle Case-Control Study 1995-7 (Haworth et al., 1997)

This study analyzed 222 crashes and 1195 controls. The cases were selected when riders were presented or admitted to hospital or were killed. The investigations were done through site and vehicle inspections. No interviews with other vehicle drivers were made.

The main results were the following. Risk factors with greatest contribution to crashes included:

- Rider under 25

- BAC>.05
- Unlicensed or unregistered or not ridden by owner
- Non-work related riding

Other characteristics of crashes:

- Rider contributed to about two-thirds of MV crashes, mainly by inappropriate positioning or failure to respond
- 23% of crashes involved excessive speed

Victoria Police Major Collision Investigation Group Motorcycle Study 2002-3(Alway & Poznanski, 2003)

This investigation focused on 39 fatal crashes and 8 life-threatening crashes. There was no control case. The main results were:

- 77% of riders considered at fault, associated with younger riders and speeding (63% were collisions with other vehicle)

- Main contributing factors:

    - high motorcycle speed;

    - presence of psychoactive substance in blood (i.e. alcohol, cannabis)

- Mediating factors:
    - rider's young age;

    - rider's experience (as measured in terms of type of license held and length of time of full license possession);

    - traffic infringement history

Combine with previous factors to increase likelihood of serious crash:

- topography
  - metropolitan/country;
  - road lay out (left bend, downhill slope);
  - presence of signage; and
- time and day of the travel.

Enhanced Motorcycle Crash Investigation Project 2004-8, (Personal communication, Hillard 2008)

This investigation analyses 25 crashes (where Riders admitted to hospital at least 24 hours). There was no control case. The investigations were made through site and vehicle inspections. No interviews with other vehicle drivers were conducted. The focus of the study was more on education focus rather than research

Main contributors to crashes:

- Failure of other road users to detect motorcyclists
- Non-use of adequate personal protective equipment
- Low levels of skill currency for returned or infrequent riders
- Inexperience or lack of skills of new riders

Slightly more moped riders were killed in urban than in rural areas. More motorcycle users were killed in rural than in urban areas.

4. Motorcycle Safety in Sweden (Orjan Ellstrom)

(See full presentations in Annex 5)

In Sweden the motorcycle fleet has doubled over the last ten years and tripled over the last 25 years. The increase mainly concern big motorcycles above 1000 cc. Even though the number of fatalities has gone up, the risk has come down a little because of an increased fleet mileage. The median age of Swedish motorcycle riders has also increased and is now 48 years.

In-depth studies of 351 motorcycle accidents including 353 motorcycles and 366 fatalities between 2000 and 2007 showed that:

- Barriers are involved in 12 % of all fatal accidents and 26 % of all single accidents.

- Alcohol is found in 24 % of the fatalities.

- The use of helmets is high.

- In 60 % of all reviewed accidents the speed has been over the legal speed limit and in 20 % more than 30 km/h over the legal speed limit, most often where the prevailing speed limit is 50 or 70 km/h and in intersections.

- In only 13% of investigated cases, there was no illegal element.

A complete report on this topic will be presented by the Swedish Road Traffic Inspectorate at the end of this year.

5. Results of in-depth investigations in Thailand

From December 1998 to September 2000 a team of investigators based at Chulalongkorn University in Bangkok, collected data for and performed an in-depth analysis of a total of 1082 motorcycle accidents. Approximately 90% of all cases were investigated at the accident location while vehicles, drivers and police were still present. In addition to these in-depth investigations, over 3000 exposure interviews were collected in order to clearly identify the characteristics of the motorcycle riding "population-at-risk" and in order to identify factors which were over and under-represented in the accident data.

The major findings of the study indicated that :

- rider error was the most frequently reported primary accident cause in both single and multiple vehicle accidents.

- Rider errors consisted mostly of poor traffic strategies such as following another vehicle too closely, unsafe speeds or unsafe positions relative to other traffic.

- Approximately 17% of the riders involved in accidents in Bangkok were found to be unlicensed while 50% of the riders in the Upcountry study 50% were found to be unlicensed.

- Most riders were self-taught or learned from friends and family and only one rider in the entire accident data set was found to have received any type of formal training in motorcycle riding techniques and collision avoidance strategies.

- Alcohol was found to be a significant contributing factor to accidents in both the Bangkok study and the Upcountry study. Alcohol involvement was found in 40% of all accidents collected within Bangkok and 30% of all upcountry accidents.

Comparison with the exposure population indicated that alcohol involvement, lack of a license and lack of rider training were all factors that were over-represented in the accident data. The final report of both studies suggested that appropriate countermeasures would include more effective law enforcement in regards to alcohol involvement while riding and appropriate licensing of motorcycle riders. An additional suggested countermeasure was to make formal motorcycle training programs more available for Thailand motorcycle riders.

6. Trends in motorcycles crashes in Europe (Saskia de Craen)

(See PowerPoint presentation in Annex 6)

Saskia de Craen reported on the evolution of motorcycle crashes based on SafetyNet data

Motorcycle and moped fatalities made up 21.1% of the total number of road accident fatalities in 2005 in the EU-14 countries. In 2005, *moped* rider fatalities made up 5,6% of the total number of road accident fatalities in the EU-14. Between 1996 and 2005 the number of moped rider fatalities decreased by 5,7% per year in EU-14. In 2005, *motorcycle* rider fatalities made up 15,5% of the total number of road accident fatalities in the EU-14.

During the decade the number of motorcycle rider fatalities has increased (by 2,2% per year) in EU-14.

The greatest reduction in motorcycle and moped fatalities between 1996 and 2005 occurred in Portugal. In Greece, Italy and Portugal the fatality rate is above the EU-14 average. Despite the overall decrease of traffic fatalities between 1996 and 2005, the number of motorcycle user fatalities increased.

Between 1996 and 2005, the number of motorcycle fatalities among 40-60 year old riders doubled.

7. Summary of the discussions

Comments regarding the MAIDS project

Regarding MAIDS methodology, it was noted that MAIDS investigation teams were notified as soon as a motorcycle crash occurred in their respective zones and immediately went to the scene of the accident. They were on call 24 hours per day, 7 days a week. The project studied 981 cases from 5 countries, and only injury (including fatal injury) crashes were examined.

Exposure data are key to understanding the reasons for crashes. For the MAIDS project, exposure data were measured in two different ways:

- Video analysis of the area where the accident occurred.

- Surveys conducted in Petrol stations near the accident location.

Both methods provided similar results.

Research and in-depth studies

The Hurt report, *Motorcycle Accident Cause Factors and Identification of Countermeasures*, was published in 1981 and is still considered the main reference in motorcycle safety research. It was based on an in-depth investigation of 900 motorcycle accidents in the Los Angeles region and 3 600 traffic accident reports in the same geographic area. Several participants observed that most of the conclusions drawn by Hurt remain valid today. The main problem, since 1981, has been the actual implementation of counter-measures.

In-depth studies are useful in that they allow us to better understand accident causation, dispel some preconceived ideas, and remove from the analysis incomplete accident reports. As an example, a rider wearing a non-standard helmet (lending poor or no protection) will be registered in many police reports as "a helmet wearer", but the consequences of the crash may have been very different had the rider been wearing a standard quality helmet.

It has been shown in several countries that injury (non fatal) accidents do not bear the same characteristics as fatal crashes. Ideally, therefore, in-depth studies should include both non fatal *and* fatal crashes, as injury prevention – and not only accident prevention – is the objective.

Exposure data

The analysis of fatality or injury numbers, though indicative of trends, is not sufficient to understand accident causation factors and relative risk levels. Collecting and analysing reliable exposure data is indispensable. Exposure data include for example general data on the fleet and distances travelled, reasons for the journey, type of road, etc, as well as local data collected at the scene of the accident in specific traffic conditions. It is essential that the exposed population be clearly defined. The selection of appropriate exposure data must also be made with great care. The number of registered motorcyclists, for example, may not be a good reference, as some people own several motorcycles (but rarely use them at the same time!).

Motorcycle mileage is an important exposure factor, but only a few countries collect this in a regular manner. For example, in the United States up until 2007, various methodologies were used to collect vehicle mileage – and some states did not collect this data at all. Beginning in 2008, however, there have been efforts to harmonise methodologies for collecting mileage data and all states are required to collect the data.

Human factors

Those countries which have undertaken in-depth studies have confirmed that human factors — from motorcyclists but also from the other road users — are the main contributor in motorcycle crashes (the prime factor in between 60 and 85% of cases).

However, a distinction needs to be made inside these "human factors" between the causes and consequences. There are human factors (e.g. fatigue, inexperience, risk taking, etc.) and human failures (e.g. no detection, misunderstanding, etc.) resulting not only from factors relating to the driver, but also to the environment, the vehicle and the traffic in interaction. Further studies are needed notably to better understand how and why perceptive failures occur, taking into account the variety of variables acting on perception.

Speed

Several countries reported speeding as a main accident causation factor. Inappropriate speed is both a *contributing*, and *worsening*, factor. In Sweden, 60% of motorcycle fatal accidents are due to speeding, with a large share attributed to speeds above 30 km/h the speed limit.

In the United Kingdom it was found that, overall the proportion of motorcycles speeding the limit is similar to cars on motorways, dual carriageways (generally 70mph) and 30mph roads, but is higher on non-built up single carriageways (generally 60mph) and built up 40mph roads. On all roads the proportion of motorcycles exceeding the limit by a large amount is higher than for cars. The percentage of motorcycles exceeding the speed limit on built-up roads between 1996 and 2006 has fallen on 30mph roads but increased on 40mph roads. In Sweden, in 2007, speeds were measured on the roadside of a given route with the following results: 59% of car drivers and 66% of motorcyclists were above the speed limit.

Motorcyclists generally prefer to ride at a speed a few km/h below or above that of the overall traffic flow, as this provides them with better safety margins to enable them to anticipate the manoeuvres of other vehicle drivers.

In general, reducing the average speed of overall traffic will be beneficial for all road users. Good speed management requires a balanced review of existing speed limits.

In Sweden and Australia, young drivers were found to be the age group most represented in speeding violations. It was observed, however, that speeding was not a specific problem of young motorcyclists, but rather a problem of young drivers in general.

Evaluations conducted in France and in the United Kingdom showed that speed cameras are very effective in reducing speed and increasing road safety levels. The eventual distraction of car drivers, when passing a speed camera, is marginal and should certainly not being seen as a justification for removing cameras.

How to measure the impact speed

When in-depth investigations are conducted (cf MAIDS project, studies in Australia), the impact speed is evaluated by investigators at the scene of the accident based on the physical evidence available (*e.g.* skid marks, distance of the projected objects). Further explanation can be found in the methodology developed by the OECD.

Drunk driving

It appears, from the discussions, that in most countries the issue of drunk driving is no worse among the motorcyclist population than in the car driver population. There are, though, some exceptions. In Thailand, for example, it was shown that alcohol factor was over-represented in fatal crashes (40% of the riders killed had a BAC over the limit).

International comparison on this issue must be done with care, as the maximum BAC level is not the same in all countries. Therefore, conclusions on the implication of alcohol in crashes can be biased.

Power of motorcycles

In Sweden, a correlation was found between the power of motorbikes and the risk of fatal accidents for young riders. The same correlation was not found for older riders.

In the United States among the 40 and older MC fatalities, it was found that more than half were on motorcycles with larger engines.

Infrastructure

Pavement conditions are of particular concern for motorcyclist safety. Countries with important seasonal variations (Scandinavian, some northern US states) are facing specific problem due to frost/defrost. Best practice exchange among these countries could certainly be beneficial.

In less developed countries, pavement maintenance is a big issue, and infrastructure condition is a dominant factor in accidents.

Helmet and safety equipment

It was reported that motorcyclists who wear a helmet and other protective equipment are generally better trained and more safety conscious.

Age, training and experience

In several countries, one can observe a shift in the riding population, as the average age of riders has increased over the past 15 years. In Sweden, for example, the average age of riders has increased by 1 year every year. A new group at risk is the 35-50 years old and particularly the "baby boomers" who used to ride a motorcycle when they were younger and go back to riding (usually a big motorcycle) after a long break, without "re-training".

Not surprisingly, discussions at the workshop confirmed that training and experience were essential to improving the safety of motorcyclists. Experience seems to play a key role in reducing crash risk.

Overall, young riders have a higher risk than older riders, but participants commented that the risks for young riders were not specific to motorcycling, but were part of the young driver problem in general.

Geographical considerations

Not surprisingly, the characteristics of motorcycle crashes present some regional differences, based on the geographical conditions, the motorcycle fleet in a given country, the riders' population and the general safety performance of that country. In the United States, motorcycle crash patterns differ from one state to another. The State of California, for example, has more intersection crashes than its neighbouring states. In Italy, most traffic violations concern motorcycles < 50 cc; while in Scandinavian countries one can observe a larger share of accidents involving bigger motorcycles. With regard to SafetyNet data, questions were raised about trends in Portugal which experienced a 55% decrease in motorcyclist fatalities between 1996 and 2005 according to the statistics while most EU countries have seen very little improvement or a worsening of the situation. It would be valuable to have further information on recent measures undertaken in Portugal to improve motorcycling safety.

It is important to collect and analyse accident and exposure data at local level, in order to design and implement counter-measures which are tailored to the specific local problems.

Integrated approach

The rider is only one element of the transport system. To improve motorcyclist safety it is necessary to analyse all the interactions between the riders, the infrastructure, the road environment, the motorcycle and the other road users.

SESSION 3 – PAST ACTIONS AND POLICIES
MODERATED BY SONJA SPORSTOL

The objective of Session 3 was to review the past actions and policies in OECD/ITF countries to improve the safety of motorcyclists and identify successes and failures.

After the keynote presentation by Aline Delhaye, participants were split into three groups, moderated by MM. John Chatterton Ross, Jean-Pierre Belmonte and Hans Peter Strifeldt. During these sub groups, all participants had the opportunity to report on successful (or unsuccessful) actions in their respective countries.

The reader will find in this section:

- An abstract of the presentation by Aline Delhaye

- A summary of the discussions of the sub groups

1. • Motorcycling safety policies: the motorcyclists' view (Aline Delhaye, FEMA)

(Full presentation available in Annex 7)

When discussing motorcycle safety, it is important to put set up the right context and keep in mind that:

- No road safety initiative will ever make motorcycling risk-free;

- Most riders are safety conscious and fully aware of the fact that they are vulnerable road users;

- It is doubtful whether any road safety initiative will change the attitude and behaviour of high-risk takers, who give motorcycling a bad reputation;

- Effective initiatives should focus on "accident prevention" (crash avoidance measures such as good initial rider training, motorcycle awareness campaigns and predictable road infrastructure) in addition to focus on "injury prevention" (safer crashing measures such as like protective clothing);

- Preventing motorcycle accidents requires precise knowledge of why accidents happen. Specific and comparable data, crash reports and in-depth research based on common methodologies are crucial to improve the understanding of accident causation;

- Motorcycling dynamic differs a lot from driving other vehicles and safety policies need to address these specific characteristics rather than simply transfer car-derived safety policies;

- Lack of motorcycling specific knowledge on the part of investigators (police), insurance, licensing officials as well as researchers is a factor in the output they generate and contributes to misunderstandings that can generate counterproductive policy decisions.

- Riders Associations around the world have been working at improving motorcycle safety for decades and their thorough knowledge of motorcycling and motorcyclists have provided them with true expertise not to be overlooked when developing and implementing motorcycle safety strategies.

Examples of good and bad motorcycle safety policies were then highlighted by the riders. Those praised include, among others:

- The Initial Rider Training programme (Europe), a joint project aiming at improving rider training;

- The In-Control project (Norway), for which cooperation between riders and authorities led to improvement of training and licensing programme;

- Powered Two Wheelers Charters (France), recognising the specific aspects of motorcycles and providing guidelines for a proper road sharing with different modes of transports;

- Specific funding allocated to States for rider education and awareness campaigns (United States);

- Reduced insurance premiums awarding basic and advanced training (Canada) as a powerful incentive to engage in rider training;

These good examples commonly:

- Cooperated with rider organizations;

- Took into account the needs of motorcyclists;

- Respected of motorcycling characteristics and are positively driven ;

- Were fair compared to other means of transport.

Finally, riders focused on the examples of the United States and the United Kingdom, which recently set up motorcycling strategies to mainstream motorcycling into transport policies. According to the riders, these recent examples are the best way forward to improve motorcycle safety as they involve all motorcycle safety stakeholders from Industry to End-users as well as from National Transport authorities to local road safety experts. Such integrated approaches bring sustainable results as the adopted strategies define a balanced series of actions to be undertaken and monitored with the acceptance of all parties.

2. Summary of the discussion in sub groups

Participants were then split into 3 groups to further discuss past safety policies and their national experience. From these discussions, the following good practices were highlighted:

- The UK integrated road safety policy for motorcycle safety (see also presentation by Andrew Colski in Session 5).

- The European Road Safety Charter (Europe), which raises awareness among stakeholders;

- The improvement of infrastructure (France) with the motorcyclist protective guardrail programme. Guardrails designed to make the road safer riders are extensively used on curves now in many regions of France. Guardrails designs are also referred to in official highway engineering publications in France.

- Black spot management (Australia), which modified road infrastructure where motorcycle accidents occurred. Monitoring of improvements on treated spot translated into a 38% of improvements in terms of motorcycle safety.

- The new training approach (United States) focusing on attitude and behaviour;

- Progressive licensing (Australia), with the introduction of a learner approved bike (max 660cc and max 150 kW/ton) for the first two years of licence

- The sportbike policy (Sweden), which transfer sportbike riders from the road to circuits (MC-OLA) and reduce their casualty rate by 50%;

- Integrated Helmet Campaigns (Europe/ACEM), where co-operation between private and public stakeholders (motorcycle sector, authorities, local police, schools, media) - with measurement of helmet wearing rate before and after the campaign – lead to improved helmet wearing rate;

- The conspicuity campaign (France), targeting riders and drivers, to improve road awareness;

- The better braking campaign (Germany), which led to a better acceptance and use of ABS. As an example some manufacturers ceased to supply the standard 600 four cylinder model as the ABS one became so popular.

- Rider to Rider scheme (United States), which develops cooperation with rider community (rider dialogue) to support local solutions, and in particular to improve behaviour on human factors.

Conclusions

Discussions on best practices in OECD/ITF countries highlighted that defining feature of the successful past policies was the element of an, "integrated approach" – involving all stakeholders.

SESSION 4 – COUNTER MEASURES
MODERATED BY NICK ROGERS (IMMA)

During Session 4, participants were split into 4 sub groups,

- Sub Group on Human Factors, moderated by Pierre van Elslande (France)

- Sub Group on Social/Cultural Factors, moderated by Shaun Lennard (Australia)

- Sub Group on Vehicle factors, moderated by Scott Armiger (United States)

- Sub Group on Infrastructure, moderated by Tony Sharp (United Kingdom).

Each sub group was asked to identify a set of 5 priority measures. The 20 priority measures were then reviewed and ranked by all participants (as very high, medium or low priority).

1. SUB GROUP ON HUMAN FACTORS.

The 5 priority measures identified by the sub group include:

1. **Training programmes for motorcyclists**
   Countries have different training needs, based on their vehicle fleet and riding environment. Motorcycle training should therefore build on existing standards, focus on risk awareness and risk avoidance, and develop an understanding of the rider/motorcycle capacities and limitations.

2. **Improved training for general drivers**
   A component on awareness and acceptance of motorcyclists should be included in the general training for all drivers, with a particular emphasis on the need for appropriate traffic scanning strategies.

3. **Integrated awareness campaigns.**
   There should be regular, targeted, campaigns addressing both motorcyclists and other road users. These should be supported where necessary by other actions, *e.g.* enforcement, on safety-related subjects that include: mutual respect, protective equipment, speed, alcohol and drug issues.

4. **Research and evaluation**
   Counter measures need to be founded on evidence-based scientific research into driver and rider behaviour, and before-and-after evaluations should be conducted.

5. **Protective equipment for riders**
   Where standards for protective equipment exist, they should be promoted; and where they do not, they should be developed, taking into account their safety performance, rider comfort, the ergonomics of their use, costs and the climate/regions where they will be used.

2. SUB GROUP ON SOCIAL/CULTURAL FACTORS

1. **Get safety messages to the riders**
   Safety messages to riders should be developed in partnership with rider groups, in order to use the effectiveness of peer advice in communicating key issues to riders on issues that will impact their communities.

2. **Other vehicle drivers awareness**
   To develop an awareness of motorcyclists and mutual respect between road users, education activities and campaigns should be set up from childhood, to emphasise that "road safety means road sharing".

3. **Portray responsible riders**
   Codes of practice should be developed in order to promote and market motorcycling responsibly; the motorcycling press and rider organisations should also promote responsible behaviour codes.

4. **Policy dialogue**
   To enable communication and build mutual confidence, meetings between motorcycle stakeholders and policy makers/road authorities (*e.g.* forums, councils,) should be established, in order to exchange views, discuss needs and secure the necessary financing/resources for safety counter measures.

5. **Innovation and pilot schemes**
   Where proposed counter-measures are not based on evidence-based objective research, but are supported by stakeholders, policy makers should test and evaluate the proposal in a pilot scheme

3. SUB GROUP ON ROAD ENVIRONMENT AND INFRASTRUCTURE

1. **Transport and infrastructure policy**
   It is a fundamental motorcycle safety requirement that motorcycles should have a place in overall transport policy and infrastructure policy/management

2. **Guidelines for the development of road infrastructure.**
   Each level of government should include in their infrastructure guidelines, measures for accommodating motorcycles, developed with input from relevant stakeholders. The guidelines should be relevant to the needs of the jurisdiction concerned, and coordinated with other jurisdictions and levels of government. An international transfer of best practices is also recommended.

3. **Training for road designers**
   The needs of motorcycles should be included in the basic training for road designers, and highway and traffic engineers.

4. **Roadway design**
   Identification and resolution of roadway design problems (e.g. accident black spots & "corridor" analysis) should include input from rider organizations & relevant experts.

4. SUB GROUP ON VEHICLES FACTORS

1. **Braking systems**
   Manufacturers should continue to introduce advanced (better) braking systems, such as combined brake systems and anti-lock-brake systems

2. **Motorcycles in ITS.**
   Enhanced awareness of motorcycles should be incorporated into the development of all vehicle ITS projects.

3. **Speed warning systems**
   The safe management of vehicle speeds in the road network is improved by the use of speed warning systems, which may be on the vehicle or part of the road infrastructure. Such systems should be encouraged as the technology is developed.

4. **Global Technical Regulations.**
   The minimum safety performance of motorcycles should be based on Global Technical Regulations.

5. **Headlamps in daytime**
   To improve rider/motorcycle conspicuity; for new motorcycles, headlamps should come on automatically when the engine is started; for other motorcycles, riders should switch on their headlamps before they start their journey

5. CONCLUSIONS : PRIORITY MEASURES

Workshop participants were asked to rank the measures described above. The table below presents the priority measures. Some measures were combined, when there was overlap in the measures proposed by the different groups. As well, the table below makes a distinction between general policy principles and practical measures.

The top priority measures identified by the Workshop's participants

A. GENERAL PRINCIPLES

1. Co-operation between the various stakeholders

Improving safety for motorcyclists implies to set up a continuing dialogue and co-operation between the various stakeholders, including the motorcyclists themselves, policy makers, researchers, and motorcycle manufacturers

2. Transport and infrastructure policy

It is a fundamental motorcycle safety requirement that, motorcycles should have a place in overall transport policy and infrastructure policy/management

3. Research and evaluation

Counter measures need to be founded on evidence-based scientific research into driver and rider behaviour, and before-and-after evaluations should be conducted.

B. PRACTICAL MEASURES

1. **Training programmes for motorcyclists**
   Countries have different training needs, based on their vehicle fleet and riding environment. Motorcycle training should therefore build on existing standards, focus on risk awareness and risk avoidance, and develop an understanding of the rider/motorcycle capacities and

limitations.

2. Improved training for general drivers

A component on awareness and acceptance of motorcyclists should be included in the general training for all drivers, with a particular emphasis on the need for appropriate traffic scanning strategies.

3. Braking systems

Manufacturers should continue to introduce advanced (better) braking systems, such as combined brake systems and anti-lock-brake systems.

4. Getting safety messages to the riders and portrayal of responsible riding

Safety messages to riders should be developed in partnership with rider groups, in order to use the effectiveness of peer advice in communicating key issues to riders on issues that will impact their communities.

Codes of practice should be developed in order to promote and market motorcycling responsibly; the motorcycling press and rider organisations should also promote responsible behaviour codes.

5. Integrated awareness campaigns.

There should be regular, targeted, campaigns addressing both motorcyclists and other road users. These should be supported where necessary by other actions, *e.g.* enforcement, on safety-related subjects that include: mutual respect, protective equipment, speed, alcohol and drug issues.

To develop an awareness of motorcyclists and mutual respect between road users, education activities and campaigns should be set up from childhood, to emphasise that "road safety means road sharing".

6. Guidelines for the development of road infrastructure and training for road designers .

Each level of government should include in their infrastructure guidelines, measures for accommodating motorcycles, developed with input from relevant stakeholders. The guidelines should be relevant to the needs of the jurisdiction concerned, and coordinated with other jurisdictions and levels of government. An international transfer of best practices is also recommended.

The needs of motorcycles should be included in the basic training for road designers, and highway and traffic engineers.

Identification and resolution of roadway design problems (*e.g.* accident black spots and "corridor" analysis) should include input from rider organizations and relevant experts.

7. Protective equipment for riders

Where standards for protective equipment exist, they should be promoted; and where they do not, they should be developed, taking into account their safety performance, rider comfort, the ergonomics of their use, costs and the climate/regions where they will be used.

8. Policy dialogue

To enable communication and build mutual confidence, meetings between motorcycle stakeholders and policy makers/road authorities (*e.g.* forums, councils,) should be established, in order to exchange views, discuss needs and secure the necessary financing/resources for safety counter measures.

9. Motorcycles in ITS.

Enhanced awareness of motorcycles should be incorporated into the development of all vehicle ITS projects.

10. Innovation and pilot schemes

Where proposed counter-measures are not based on evidence-based objective research, but are supported by stakeholders, policy makers should test and evaluate the proposal in a pilot scheme.

11. Speed warning systems

The safe management of vehicle speeds in the road network is improved by the use of speed warning systems, which may be on the vehicle or part of the road infrastructure. Such systems should be encouraged as the technology is developed.

12. Global Technical Regulations.

The minimum safety performance of motorcycles should be based on Global Technical Regulations.

13. Headlamps in daytime

To improve rider/motorcycle conspicuity; for new motorcycles, headlamps should come on automatically when the engine is started; for other motorcycles, riders should switch on their headlamps before they start their journey.

SESSION 5 INTEGRATED APPROACH AND RECOMMENDATIONS
CHAIRED BY ARVE KIRKEVOLD (NORWAY)

The objective of Session 5 was to discuss integrated approach and shared responsibilities.

As an example of an integrated approach Mr Colski made a presentation on "the UK motorcycling Strategy".

Then, the workshop rapporteurs presented their conclusions from the workshop from 4 perspectives:

- Research needs

- Best practices

- Harmonisation

- Legislation:

1. The UK Motorcycling Strategy, Andrew Colski (United Kingdom)

(See full presentation in Annex 8)

The background to the UK Government's Motorcycling Strategy was the establishment of the Advisory Group on Motorcycling in 1999. This brought together motorcycling industry and user groups, police, central and local government. It considered the full range of issues affecting motorcycling. An important part of the work was to develop a dialogue and build a good working relationship between motorcyclists and Government. The Group produced its final report in 2004, although work on some activities to improve motorcycle safety had already begun during this period. The Government's Motorcycling Strategy, published 22 February 2005, was the Government's response to the AGM report. The key theme was the mainstreaming of motorcycling, so that it is treated the same as all transport modes and is included as part of all transport policies. It can be found at
http://www.dft.gov.uk/pgr/roads/vehicles/motorcycling/thegovernmentsmotorcyclingst4550

Motorcyclists and Government are continuing to work together on implementation of the 44 Actions in the Strategy, through the National Motorcycle Council (NMC). Much of the work is done in four thematic sub groups - Road Safety and Publicity; Technical, Engineering and Environmental Issues; Training, Testing and Licensing; Traffic Management, Planning and Transport Policy. Main achievements so far include:-

- The Institute of Highway Incorporated Engineers (IHIE) guidelines on the provision for motorcyclists on the highway
- Highways Agency including motorcycles in its Safety Action Plan for trunk roads and motorways, implementing motorcycle friendly crash barriers
- New DfT guidance to local authorities on allowing motorcycles in bus lanes
- SHARP scheme for improved consumer information on motorcycle helmets
- Diesel spills – information for diesel vehicle users and petrol retailers as well as motorcyclists
- User survey on brakes, tyres, mirrors, to inform policy development
- Driving Standards Agency's Post-Test Trainer Registration Scheme – voluntary from Feb 07
- Insurance discounts linked to post-test training – Enhanced Rider Scheme
- 3rd EU Driving Licence Directive – consulting with industry and users on implementation by 2013

- Research programme to increase understanding of motorcycle accidents and how to address them, including fatigue, training and drivers' attitudes to motorcyclists.
- DfT's 'Think!' road safety campaign sponsors British Super Bikes championships since 2004 – The Think Motorcycle Academy
- TV advert aimed at car drivers warns them to 'take longer to look for bikes'
- Details of Think motorcycle campaigns at
  http://www.thinkroadsafety.gov.uk/campaigns/motorcycles/motorcycles.htm

2. Conclusions of the rapporteurs

Throughout the workshop, the rapporteurs analysed the discussions from four perspectives:

- Research (rapporteur: Hélène de Solère, France)
- Transfer of knowledge and best practices (rapporteur: Daniela Leveratto, European Commission)
- Harmonisation (rapporteur: Antonio Perlot, ACEM)
- Legislation (rapporteur: Diane Wigle, United States)

Each rapporteur was asked to look at:

What is the current situation?

What is missing?

What should be done?

What are the geographical considerations?

The sections below summarised their analysis.

3. Recommendations for research

Research on Vehicles

What do we have?	- Research studies have shown that vehicle maintenance defection is a marginal accident causation factor. - Vehicle design can potentially help riders to be better detected by other road users - Vehicle improvements can potentially help riders to avoid accident
What is missing?	- Lack of knowledge on the influence of vehicle characteristics on human behaviour - Lack of proper data to assess the influence of motorcycle power on safety

What should be done?	- Develop technology and equipment on-board other vehicles (cars and trucks) that can contribute to improving motorcycle safety. For example, technology could solve the "blind spot" problem. - Conspicuity should be enhanced and adapted to each type of motorcycle - Develop ITS technology, especially with regard to communication between vehicles (alert systems) - Develop better braking systems for motorcycles

Research on human factors

Research / Human factors	
What do we have? what do we know?	- Research studies show that human factors are in most cases a primary factor in accidents. They are also a secondary factor. - Human factors concern motorcyclists as well as vehicle drivers. - Contributing factors are : defects in perception, comprehension, decision, reaction.
What is missing?	- More information is required on the limits in drivers' and riders' capacity to carry out simultaneous actions. Often, drivers and riders are asked to carry out several procedures at once (*e.g.* check the mirror , analyse the surrounding traffic, check the speed, etc.) - More information is needed on the interrelation between human factors and external factors (such as social, vehicle, environment) - Good quality research and data (statistical, exposure, in-depth) on driver and rider behaviours. - Accurate knowledge of the role of speed and acceleration in the different accident configurations
What should be done?	- Further collection and analysis of in-depth data to better understand accident causation factors. - More research on perception failures by other road users. - Systematic evaluation of the counter-measures adopted.
What are the geographical considerations?	Geographical considerations are important. For example, research on protective equipment should take into account climatic differences, etc.

Research on Social Factors

	• **Research / Social factors**
What do we have?	• The importance of peer group influence • Young people are most likely to be involved in accidents • A new "at risk" group is the 35-50 year olds, the "baby boomers". • Beginners are more at risk
What is missing?	• Reliable exposure data. • Further research on the link between speeding and other parameters, such as age, alcohol, riding in group, etc., would be useful.
What should be done?	• Develop methodology to collect and analyse exposure data • More research is needed on local accidents, so that counter measures can be tailored to suit.
What are the geographical considerations?	• Each region has its specificities (e.g. different legal systems, different infrastructure categories), which must be taken into account during research.

Research on the road environment and the infrastructure

Research / Infrastructure and Road environment	
What do we have?	• Research has shown that infrastructure is a worsening factor rather than a primary cause of accidents • Infrastructure could launch discussions with national/local authorities on a PTW approach.
What is missing?	• Accurate knowledge about the impact of the road environment on human behaviour
What should be done?	• Undertake research to determine the effects of the road environment on road users • Improve the environment to enhance reciprocal perception of riders and drivers, and assist them in making better decision.

4. Recommendations for Transfer of knowledge and best practices

Transfer of knowledge and best practices / Vehicle	
Best practices	• Automatic Headlights On • Advanced Braking Systems • Global Technical Regulations for standards on motorbikes

Transfer of knowledge and Best practices / Human factors	
Best practices	• FEMA Initial Riders Training • US/MSF Rider Training → new pedagogic approach, dependent on users' group; → attention to adults; different environmental conditions • Australian and EU Progressive Licensing → Australian new driving license categories similar to EU A2 • ACEM Helmet campaign → addressing riders and enforcement bodies + campaign results evaluation

Transfer of knowledge and Best practices / Social factors	
Best practices	• German "Better Braking" campaign → riders' education • French conspicuity campaign → riders' and rivers' education; however campaign needs to be evaluated • Swedish Sport Bikes programme → important to address different groups in different ways • Swedish in-depth study on accidents • ACEM commitment on advertising → show responsible riding behaviour, include safety message • US SAFETEA-LU Bill → specific funding for State on rider education and awareness campaign → creation of the Federal Highway Administration Motorcycle Advisory Council

Transfer of knowledge and Best practices / Road environment and infrastructure	
Best practices	• Appropriately designed guardrails (France and Germany) safe (PTW) and cost-effective measure (in curves) • Infrastructure improvement (Australia)

Transfer of knowledge and Best practices / Integrated approach	
Best practices	• UK National Motorcycle Strategy • US National Agenda for Motorcycling Safety • German Guidance booklet on riders' safety • EU Road Safety Charter • MAIDS in-depth study on PTW accidents

5. Recommendations for harmonisation

The term harmonisation is understood in a wide sense:

– Technical harmonisation of standards (vehicle; infrastructure)

– Many overlaps with "best practices" (human)

Harmonisation across countries / Vehicle	
What do we have?	• For Car/PTW, ECE regulations • some Global Technical Regulations (GTRs)
What should be done?	• Further harmonisation, • more GTRs • Establishment of minimum performance requirements
Geographical considerations?	• Take into account different markets/vehicles/users (in particular developed-developing world)

Harmonisation across countries / Human factors	
What do we have?	• Regarding training, there are different or no initial training requirements. Trainings have different focuses. • Regarding licensing, there are different licensing schemes and in some cases no licensing. • There are different helmet wearing usage rates across the world • Regarding protective equipment, there are standards for for protectors (shoulder, elbow, back), but not for clothing. • There are different maximum authorized blood alcohol contents in various countries. • There is a wide range of use of awareness campaigns
What should be done?	• In training hazard awareness, use of GADGET matrix • Regarding licensing, encourage progressive access and building of experience (step-up; tiered; graduated licensing) • Regarding helmet, there is a lack of legislation and standards adapted to developing world, at affordable costs. • Standards for protective clothing are missing and should be developed • Consideration to lower maximum blood alcohol content, linked with enforcement strategies. • There is need for increased funding for awareness campaign. Systematic evaluation (before / after) of awareness campaigns should be encouraged.
Geographical considerations	• It is essential to take into account different markets/vehicles/users. • Cost constraints in developing countries should be carefully considered, in particular regarding solutions proposed for helmets • Regarding helmets and protective clothing, specific attentions should be paid to the climate conditions of each country and to the cost of helmets.

Harmonisation across countries / Road environment and infrastructure	
What do we have?	• There is a patchwork of standards
What should be done?	• Regarding road and infrastructure, motorcycle consideration should be included at the design phase. • Minimum design standards for construction and maintenance should be agreed and applied.
Geographical considerations	• It is essential to take into account different markets/vehicles/users. • Cost constraints in developing countries should be carefully considered.

Harmonisation across countries / Social and cultural factors	
What do we have?	• Different markets/vehicles/users (in particular wide difference between developing and industrialised countries)-
What should be done?	National/local stakeholders should work together. At international level, exchange of experience to improve the knowledge.
geographical considerations	• National social and cultural factors cannot be "harmonised"…but more events like the Lillehammer Workshop one can be organised to bring realities closer

6. Recommendations for legislation

Legislation / Vehicle

Legislation / Vehicle	
What do we have?	• Variety of motorcycles manufactured to different standards and offering variety of safety equipment
What is missing?	• Global technical regulation establishing minimum standard for motorcycle performance
What should be done?	• Develop minimum global technical recommendations to be the basis for motorcycle minimum performance requirements for all markets • Establish standard for automatic headlight on all motorcycles

Legislation / Human factors

Legislation / Human factors	
What do we have?	• Variety of programs addressing rider and driver behaviours with uneven implementation.
What is missing?	• Evaluation of effectiveness
What should be done?	• Develop and promote standards for motorcycle protective equipment (performance, comfort, cost) • Require in all driver training programs a component on awareness and acceptance of motorcycles

Legislation / social factors

Legislation / Social factors	
What do we have?	• Variety of policies, laws and regulations related to motorcycle safety
What is missing?	• Stakeholder involvement in policy development. • Codes of practice.

What should be done?	• Formalize meetings between motorcycle stakeholders and policy makers/road authorities.
	• Non-legislation
	  • Develop code of practice for advertising and marketing motorcycles (safe riding practices, helmets, protective gear)
	  • Develop code of responsible riding practice

CONCLUDING REMARKS BY LASSE LAGER

Mr. Lasse Lager, Deputy General Director at the Norwegian Ministry of Transport, was asked to provide a short summary of what he had learnt during the workshop.

The view of Mr. Lasse Lager was particularly interesting, as he is not only a policy maker but a rider himself.

 "Ladies and gentlemen,

As we are literally minutes away from the end of this event, let me first congratulate you all for a successful workshop. This gathering of competence gives an exceptional opportunity for sharing information and learning from each other. Hopefully, it also provides a solid base from which we can continue the safety work.

As my minister pointed out to you yesterday, there is no incompatibility between the Norwegian Vision Zero and motorcycles. On the contrary, we have an active and integrated approach – in which the road authorities have an excellent constructive cooperation with all stakeholders. A cooperation based on mutual commitment and recognition of integrity.

Measures based on knowledge, not on assumptions, have been the foremost guidelines in our work, as they have for this workshop. I would like to use this opportunity to stress that,within ten years, the Vision Zero has evolved to include both accident prevention and injury reduction. These are of equal importance to the safety of road users.

Participating in this workshop has given us all additional knowledge, based on facts, on both these aspects of road safety work. I am sure it will be used actively to improve motorcycle safety in our respective countries.

So, what exactly did I learn from this workshop? Well I have learnt a lot, and I have also had confirmation of things I thought I knew. However I will mention only a few of the themes I've found interesting in this workshop. This, hopefully, will concur with much of what you have heard in the last hour or so:

I have learnt that it has been proved, beyond reasonable doubt, that human factors are the predominant cause of motorcycle accidents. Environmental factors add to the accident result.

I have learnt that comparable statistics, including exposure data – both nationally and between countries – should be a major goal if we want to improve the fact-based safety work.

I have also learnt that an integrated approach works – so we should stop the finger pointing, which only serves to drive everyone deeper into the trenches and undermine the will to commit to constructive cooperation. It is a fact that motorcyclists are a legal road user group. As in all user groups there will be elements that don't want to comply with rules and regulations and normal behaviour but, as shown, the vast majority of riders, in all shapes and sizes, are ordinary road users. Accordingly they should be treated as such, and given the same positive attention as other groups when discussing appropriate measures to reduce a safety problem. Looking the other way doesn't solve anything. Mutual, committed, cooperation is

about giving and taking. There will always be critics on both sides who, often based on lesser fact-based knowledge, try to undermine the process. So mutual trust and liaison is of vital importance if an integrated approach is to be successful.

Traffic casualties are one of modern society's major problems, and need to be dealt with on a large scale. I have noticed some focus on alcohol- and speed-related violations in this workshop. These are important issues, as these violations are among the most frequent causes of accidents. However, alcohol- and speed-related violations are problems that apply to almost all road user groups, and as a common traffic safety problem it should, in my view, be discussed on a *general* basis and not as a specific problem for motorcycle riders.

The human factors, on the other hand, have elements that are specific for motorcycle riders and should be given priority as such. Which brings me to what I believe is a very important measure:

I have learnt that initial rider training is very important. Basic skills for surviving in traffic are crucial, given the fact that it is of lesser relevance to the outcome whether the mistake was yours or the other driver's. So I am very pleased that "the need for initial training" is among the recommendations there seems to be overall agreement on.

I am also pleased that hazard awareness is included as an important element. We have to supply riders with the appropriate survival tools in an increasingly complex traffic environment. And these tools should be custom made, by toolmakers who have the specific knowledge and experience. After all, you don't get your car serviced at the dentist, do you?

"Awareness" has been a topic in this workshop. In my view, measures to increase awareness of motorcycles are a natural, and very important, element in the concept of shared responsibility. But again, you have to supply the motorist with the necessary tools, in the form of education, and design the cars accordingly.

I have learnt that infrastructure adapted to motorcycles is of vital importance. To promote injury-reducing measures is therefore important and, equally important, is that all stakeholders are included in defining standards for road infrastructure and that this is reflected in guidelines for the road authorities.

These topics are all elements in including motorcycles in transport- and infrastructure policies.

NEXT STEPS

In her concluding statement, Véronique Feypell mentioned the following points:

- The workshop highlighted a number of practical recommendations. Stakeholders now need now to work together on their implementation.

- The conclusions of the workshop will be presented and discussed at the next session of the Joint Transport Research Committee of the OECD and the International Transport Forum in October 2008.

- They will also be considered during the OECD/ITF high level Seminar on Road Safety, which will be held on 25-26 September 2008. The workshops also showed that further research is needed. The JTRC will consider the research needs in the field of motorcycling safety, when developing its next programme of work for 2010-12.

APPENDIX LIST OF PARTICIPANTS

Name	First name	Organisation	Country
Haworth	Narelle	Queensland University of Technology	Australia
Lennard	Shaun	Australian Motorcycle Council	Australia
Newland	Ray	Federal Chamber of Automotive Industries (FCAI)	Australia
Wilson	Andrew	Department of Infrastructure, Transport, Regional Development and local gvt	Australia
Winkelbaueur	Martin	Kuratorium für Verkehrssicherheit (KfV)	Austria
de Meyer	Pieter	DG mobility and road safety	Belgium
Belmonte	Jean-Pierre	Confédération Motocycliste du Canada	Canada
Jacobs	Peter	Motorcyclists Confederation of Canada	Canada
Ramsay	Robert	Motorcycle and Moped Industry Council	Canada
Zaoral	Ales	CDV - Transport Research Centre	Czech Republic
Carstensen	Gitte	DTU Transport	Denmark
Reiff	Lars Klit	Danish Road Traffic Accident Investigation Board	Denmark
Leden	Lars	VTT	Finland
Oksanen	Jari	SMOTO Finland	Finland
Tervo	Markku	Finnish Road Administration	Finland
Cesari	Dominique	INRETS	France
Chapelon	Jean	French Road Safety Observatory	France
de Solère	Hélène	CERTU	France
Espié	Stéphane	INRETS	France
Thiollier	Eric	Fédération Française des Motards en Colère (FFMC)	France
Van Elslande	Pierre	INRETS	France
Degener	Sabine	GDV e. V. , Unfallforschung der Versicherer	Germany
Einsfelder	Ursula	Ministry of Transport	Germany
Gail	Jost	BASt	Germany
Berta	Tamas	KTI Institute for Transport Sciences	Hungary
Tothné Tomesi	Kinga	KTI Institute for Transport Sciences	Hungary
Babu	Rengarajan	TVS Motor Company Ltd	India
Dolan	Michael	Road Safety Authority	Ireland
Pukitis	Alvis	Ministry of Transport	Latvia
Harithuddin	Mohd Azman	MODENAS	Malaysia
Assendelft	Patrice	Koninklijke Nederlandse Motorrijders Vereniging	Netherlands
Daams	Eugene	RAI Association	Netherlands
de Craen	Saskia	SWOV	Netherlands

de Jong	Dirk	MAG - Netherlands	Netherlands
Geelen	Franck	Dutch Ministry of Transport	Netherlands
Assum	Terje	TØI – Institute of Transport Economics	Norway
Hansen	Morten	NMCU	Norway
Johnsen	Tore	National Mobile Police Service	Norway
Kirkevold	Arve	Norwegian Public Roads Administration	Norway
Krokeborg	Jon	Norwegian Public Roads Administration	Norway
Lager	Lasse	Norwegian Public Roads Administration	Norway
Midtkandal	Kjetil	Utrykningspolitiet	Norway
Riddervold	Helen	Norwegian Public Roads Administration	Norway
Sporstøl	Sonja	CIECA	Norway
Bogdan	Anna	Central Institute for Labour Protection - National Research Institute	Poland
Mederos	Candelaria	Traffic General Directorate	Spain
Muguiro	Juan	Atos Consulting	Spain
Ocampo	Anuncia	General Road Traffic Directorate (DGT)	Spain
Paez	Javier	INSIA	Spain
Reyes	Juan Manuel	Asociacion Mutua Motera (AMM)	Spain
Christensen	Jesper	Swedish Motorcyclist Association	Sweden
Ellström	Orjan	Swedish Road Traffic Inspectorate	Sweden
Grummas Granström	Per-Olof	Swedish Road Administration	Sweden
Lekander	Thomas	Swedish Road Administration	Sweden
Nilsson	Per-Olof	Swedish Road Administration	Sweden
Stenlund	Olaf	Swedish Road Administration	Sweden
Carey Clinch	Craig	Motor Cycle Industry Association of Great Britain	United Kingdom
Colski	Andrew	Department for Transport	United Kingdom
Hodder	Christopher	British Motorcyclist Federation	United Kingdom
Livett	Gerard	Motorcycle Action Group (UK),	United Kingdom
Sharp	Tony	Institute of Highway Incorporated Engineers (IHIE)	United Kingdom
Armiger	Scott	USMMA / Harley Davidson Motor co	United States
Buche	Tim	Motorcycle Safety Foundation, Motorcycle Industry Council	United States
Lund	Adrian	Insurance Institute for Highway Safety	United States
Moreland	Edward	American Motorcyclists Association	United States
Smith	Terry	Dynamic Research, Inc.	United States
Tan	Carol	FHWA	United States
Teoh	Eric	Insurance Institute for Highway Safety	United States
Wigle	Diane	NHTSA	United States
Willard	Kirk	Motorcycle Riders Foundation, Inc.	United States

Chatterton Ross	John	Fédération Internationale de Motocyclisme	International Organisations
Compagne	Jacques	Association des Constructeurs Européens de Motocycles	International Organisations
de Jonge	Pascal	Association des Constructeurs Européens de Motocycles	International Organisations
Delhaye	Aline	FEMA	International Organisations
Feypell	Véronique	OECD / ITF	International Organisations
Leveratto	Daniela	European Commission	International Organisations
Perlot	Antonio	Association des Constructeurs Européens de Motocycles	International Organisations
Peters	Jan Paul	ACEM / Yamaha	International Organisations
Reikl	Agnes	CIECA	International Organisations
Rogers	Nick	IMMA	International Organisations
Short	Jack	OECD / ITF	International Organisations
Strifeldt	Hans Peter	FEMA	International Organisations