STATUS REPORT OF THE FEDERAL REPUBLIC OF GERMANY

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It is a particular honour for me to present the German government's Status Report to you.

SECURING MOBILITY AND MAKING MOBILITY SUSTAINABLE

It is the task of modern transport policy to ensure that we maintain a high level of mobility in Germany; this policy is based on the principle of sustainability and balances economic, ecological and social requirements. The mobility of society will in future continue to be an important prerequisite for progress, prosperity, growth and employment. Mobility means individual freedom and flexibility and is therefore the central aim of the German government's transport policy.

Transport integrates industrial and residential areas. In the era of globalisation, citizens, and indeed our economy which is based on the division of labour, are dependent on highly efficient mobility. The accessibility of the regions largely depends on the existence of high-quality infrastructure and an efficient transport industry. For Germany, located in the centre of Europe, this is both a challenge and an opportunity.

Germany is currently already the no. 1 transit country in Europe. According to current predictions, there will be a large increase in distances travelled by 2015; this will be caused by a number of factors, including European integration and the eastward expansion of the European Union. These predictions estimate an increase of approx. 20% in passenger transport and of more than 60% in goods traffic. The key to coping with these enormous challenges is an integrated transport system combining all traffic carriers and the use of their specific advantages.

The core element of the transport policy is an integrated overall concept which includes all traffic carriers and enables them to use to derive advantage from their specific potential. The concept of an integrated transport policy means a cross-carrier approach to measures related to investment, regulatory and innovation policies.

With 82.5 million inhabitants, Germany has the largest population in Europe. On 01.07.2003 there were 44.9 million private cars registered in the Federal Republic of Germany. Compared with the previous year this constituted an increase of 0.7%. Further increases in the car population are expected in coming years. The average traffic volume for 2001 on the approximately 12,000 km of federal autobahns was 48,700 vehicles per 24 hours. The overall number of kilometres travelled by all motorised vehicles in 2003 was recorded at 682,200 million vehicle km; of these, 213,100 million vehicle km were travelled on federal autobahns and 108,400 million vehicle km on federal roads in rural areas.

The most important prerequisite for coping with the traffic volumes is for our transport infrastructure to be modernised and expanded. Approximately 90 billion € are to be invested in this area by the end of the decade as part of the Programme on the Future of Mobility (Zukunftsprogramm Mobilität). The employment policy effects linked with this are considerable, as with every thousand million € invested, approx. 24,000 jobs are secured during the construction phase.

The successful introduction of a distance-related fee for the use of autobahns by domestic and foreign lorries means that there is a fairer charge for transport infrastructure costs. Most of the revenue from the lorry toll is earmarked for reinvestment in the transport infrastructure. The revenue is initially being invested in the Programme to Combat Traffic Congestion (Anti-Stau-Programm). It is planned to invest approximately 3,800 million € in this programme from 2003-2007 for the purpose of eliminating bottlenecks on rail, roads and waterways.

State-of-the-art telecommunication and information technologies (telematics) such as traffic management systems on autobahns play an important role in preventing traffic congestion, protecting the environment and improving traffic safety. Approximately 200 million € are to be spent in the 2002-2007 Programme on Managing Traffic on Federal Autobahns (Programm zur Verkehrsbeeinflussung auf Bundesautobahnen) so that by the end of 2007 approximately 1200 km of autobahns will be equipped with management systems. Experiences so far have shown that the number of accidents can be reduced by up to 30%. The federal government also supports the development of Galileo, the European satellite navigation system. This will open up a large number of innovative possibilities in the field of communication technology, in particular in the transport sector.

To ensure that we maintain our high level of mobility in the long term, it will in future be necessary to achieve a greater balance between the economic and ecological effects of transport.

STRATEGIES FOR ROAD SAFETY

In The Federal Republic Of Germany

Increasing mobility will only be accepted in society if traffic safety increases at the same time and the general climate on the roads improves noticeably. In 2001, the *"Programme for More Safety in Road Traffic" (Programm für mehr Sicherheit im Straßenverkehr)* highlighted ways and means for Germany to protect people's lives by preventing accidents, reducing the severity of accident consequences and bringing about sustainable reductions in the socio-economic loss resulting from road accidents. The aim is to maintain and improve safety as mobility increases.

Improving traffic safety requires not only governmental action but also needs each individual to show responsibility and the willingness to make their own contribution to achieving greater traffic safety. The traffic safety programme aims at perceiving traffic safety as a task for all social forces. The implementation of the programme and its effects on traffic safety are under constant observation and are being adapted to current developments in traffic safety to further optimise the results.

As well as implementing the five priorities of the *Programme for More Safety in Road Traffic:*

- improving the traffic "climate";
- protecting weaker road users;
- reducing young drivers' accident risk;
- reducing the potential for danger presented by heavy goods vehicles; and
- increasing road safety on rural roads;

a large number of individual measures are also being carried out in Germany in the fields of *safe behaviour*, *safe vehicles, safe infrastructure* and *telematics*, focusing in recent years particularly on the following points which can only be touched upon in the course of this speech:

Safe behaviour

The legal basis for a "second phase of training" has been created ("Second phase of driver training ") in order to improve the safety of young drivers. The "accompanied driving from the age of 17" measure which is currently being tested also serves this aim of reducing the number of accidents involving novice drivers. The aim is to reduce the above-average accident risk of young novice drivers in their initial phase of independent driving by enabling these drivers to gain extensive driving experience in the accompaniment of adults before they obtain their driving licence.

Currently, the driving and rest times of more than 600,000 lorries, buses and coaches are checked each year (approximately half of these are domestic vehicles and half of them foreign vehicles). It is intended in the long term to increase the number of vehicles checked to approximately 800,000 per year.

Safe vehicles

Support is being given to the introduction of new information and communication devices in vehicles and their implementation and establishment on the market, in order to bring about improvements in traffic safety. For this reason Germany is actively involved in the European Commission's e-Safety initiative which has created a working group on the subject of "Human-Machine-Interaction" and deals amongst other subjects with the updating of safety requirements for this interface.

To improve pedestrian safety in head-on collisions with cars, the European Directive 2003/102/EC on the protection of pedestrians and other unprotected road users contains requirements regarding the construction of the front of cars and light goods vehicles (permissible overall weight of up to 2.5 tons), which are intended to reduce the severity of injuries suffered by unprotected road users in collisions with motorised vehicles. Germany was integrally involved in the preparatory work. The federal government also supports the introduction of additional binding regulations for front protection systems on new vehicles and as upgrade parts.

Safe infrastructure

The development of a road safety audit for Germany, which is provided for in the traffic safety programme, also serves to support the safety of the transport infrastructure. In view of the positive experiences made abroad, a working group has developed a safety audit for autobahns, rural roads and short through-roads which is suitable for Germany and has also designed training measures for auditors. Extensive tests on real draft audits have proved the effectiveness of the measure. The road construction authorities in most of the federal states now carry out safety audits for new construction work, restructuring work and extension work which is to be carried out on federal trunk roads.

Telematics

The aim in this area is to bring about close collaboration between those responsible for transport policy, industry, traffic carriers and the services sector in order to enable telematics appliances to be introduced widely. Guidelines have been created for the design and installation of information and communication systems in

motorised vehicles and for the public-private cooperation in the case of telematics services for route recommendations.

International vehicle-engineering measures

The adoption into national law of international regulations provides an important contribution towards traffic safety and environmental protection in the field of construction and performance standards for vehicles. Mention should be given in this regard, for example, to the work carried out as a member in the UN Economic Commission for Europe (ECE) and as a Member State of the European Union (EU).

A particular focal point over the last two years comprised the extensive revision of the regulations for indirect vision out of vehicles to avoid the so-called blind spot and the introduction of regulations on the protection of pedestrians in collisions with vehicles.

ACCIDENT STATISTICS

The number of road traffic accidents in Germany has decreased by approximately 4.8% compared with 2001, with approximately 2.26 million accidents occurring in 2003. The number of personal injury accidents decreased by 5.5 % to approximately 355,000 accidents. There was no significant change in the distance travelled (2003: 682,200 million vehicle kilometres) compared with 2001.

The number of traffic fatalities has decreased from 6,977 in 2001 and 6,842 (2002) to 6,613 in 2003 which is the lowest figure since 1953. In 2001 there were 4,023 fatally injured car occupants, in 2002 this figure sank to 4,005, and in 2003 there were 3,774 fatally injured car occupants. This corresponds to approximately 57 % of all persons killed in road traffic being car occupants.

Most of the personal injury accidents (approx. 65%) in 2003 occurred in built-up areas; the percentage of fatalities, at approximately 25 %, is significantly lower. In contrast, significantly fewer personal injury accidents were recorded on rural roads, at approximately 29 %; however, the percentage of fatalities is, at approximately 63%, extremely high. About 6.4% of all personal injury accidents occur on autobahns, on which 12 % of all traffic fatalities are recorded.

ACCIDENT RESEARCH

The Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung – BMBF) has been funding research and development projects related to the improvement of road traffic safety for many years. For some years now, one of the main areas of traffic safety research has been the in-depth research and development of telematics systems.

The development and introduction of modern sensory and control systems, as well as systems involving data recording and communication, control and information technologies, makes it possible to reduce deficits in traffic management and deficits in road users' knowledge of up-to-date and complete information. This will in future enable critical situations in traffic to be recognised as they occur and then avoided, due to the driver being informed in advance and/or also actively supported.

The following projects have been financed with a volume of approx. 100 million € by the Federal Ministry of Education and Research (BMBF): PROMETHEUS, BEVEI and MoTiV. MoTiV built on the results of the preceding projects and for example developed systems which provide drivers with effective support in critical situations with regard to the choice of vehicle-to-vehicle distance and speed (Adaptive Cruise Control - ACC) and warn the driver of potential conflicts with other road users when the driver changes lanes or turns off roads (turning and lane-changing assistance (Abbiege- und Spurwechsel-Assistenz - ASA)); these systems were also tested in demonstration vehicles during the MoTiV project, with promising results. Car manufacturers now offer customers these systems in new vehicles.

The project network entitled "The Safe Road" (Die Sichere Straße) supplemented and extended the work on improving active safety. The work in this network focused on research activities for the better recognition and improved protection of weaker road users. Another main area of research was how assistance systems should be structured to provide drivers with optimum support and how, in particular, it can be avoided that drivers are subjected to too many, or too few, demands.

These activities included e.g. the development of a system to provide vehicle-to-vehicle radio warning at a distance of 1 – 2 km in order to improve protection against rear-end accidents, in particular in bad visibility conditions – fog, bends, hill-crests etc. – by warning drivers in time of the following traffic, and if necessary of the oncoming traffic.

This radio warning system was developed further by German and French partners as part of DEUFRAKO (German-French cooperation in traffic research). The functioning system was presented to the public using vehicles from the Renault, PSA and DaimlerChrysler companies.

One of the main areas being focused on in the current INVENT research initiative (Intelligent Traffic and User-friendly Technology - Intelligenter Verkehr und nutzergerechte Technik), which includes over 20 participating partners from the German automobile manufacturing and supply industries, is the combined project entitled “Driver Assistance, Active Safety“ (Fahrerassistenz, Aktive Sicherheit - INVENT FAS). This deals with the development of driver-assistance systems and has a total project volume of approximately 35 million € over four years (2001 – 2005). Cross-section projects on "Recording and interpreting driving environment“ (Fahrumgebungserfassung und Interpretation), "Driver behaviour, MMI" and "The effect of traffic, law and acceptance" support the application-based projects e.g. "congestion assistance" and "predictive active safety".

Based on today’s ACC systems, the sub-project on "congestion assistance" developed a support system for congested situations which provides both longitudinal and lateral routing. It also investigated possibilities for improving traffic flow through vehicle-to-vehicle communication.

The sub-project on "Predictive active safety" focused on four main areas. A junction assistance system was designed with the aim of providing support functions regarding right-of-way when approaching a junction, protection if the right-of-way or red traffic lights are ignored, and assistance in turning onto and off roads. The lateral routing assistance system is intended to enable the driver to be protected from leaving the roadway and from lateral collisions and also make emergency avoidance and lane-changing manoeuvres safe. The integration of environment sensor systems into novel passive and active safety systems is intended to increase the protection of bicyclists and pedestrians in the case of unavoidable collisions. In the area of predictive driving-dynamics control systems, the objective was to combine new environment sensor systems with electronic stability programmes to improve lane-holding in situations where the driver can no longer safely control the vehicle.

The aim of SafeTruck, a project specifically geared towards improving the safety of goods vehicles, is to develop active, predictive safety systems which are intended to prevent the occurrence of frontal collisions with moving and stationary obstacles, lateral collisions at junctions, collisions when turning on to and off roads and also to prevent the vehicle from leaving the roadway, or to reduce the accident consequences if the above do occur.

The aim of these research efforts to improve traffic safety is to implement in the long term safe, partially autonomous driving with a variety of functions supporting the driving of vehicles, without releasing drivers from their responsibility. This will require, amongst other steps, the development of adaptable systems which can also deal with and process rudimentary information.

In view of the growing number of road tunnels and their growing average length, traffic safety research also includes the development and testing of new approaches to protection against fire in tunnels. The possibility of fire accidents in tunnels can never be excluded; the events in recent years (e.g. the Montblanc and Gotthard tunnels) show, however, that there is a need for research in this area due to the tragic sequence of events and the relatively high number of victims. The "Fire protection in tunnels“ (Brandschutz in Tunneln) project aims to develop a high-pressure water mist spray system which should if possible prevent the development of smoke and harmful substances as well as actually fighting the fire, and in this way improve the orientation of affected road users and reduce toxic harmful substances to the extent that those concerned can be rescued safely, or rescue themselves.

The Federal Minister of Transport, Building and Housing has continued his many research efforts since the last ESV Conference in Nagoya in 2003; the Federal Highway Research Institute (Bundesanstalt für Straßenwesen – BASt) has played an important role in this research. Below are descriptions of the main activities in the areas of vehicle safety and the environment:

PASSIVE VEHICLE SAFETY

The surveys carried out at scenes of accidents have been continued. Some of the evaluations conducted in the last two years using these data were as follows: the potential for adaptive front lighting, pelvic injuries to pedestrians, accidents involving lorries turning right, analysis of head-impact areas regarding car occupants in head-on collisions, grip behaviour in the wet (aquaplaning) relating to the tyres of goods vehicles of up to 2.5 tons, a whiplash study, accidents when the side airbag has been released, accidents involving vans of up to 3.5 tons, rollover accidents of cars.

As reported before, in addition to the team in Hanover, a second team funded by the German automobile industry has been recording accident data since the middle of 1999 in the Dresden survey area. Currently, almost 1,000 accidents per year are recorded using the same methodology as that used in the Hanover survey area. The accident data from both survey areas are brought together in the joint GIDAS database (German-In-Depth-Accident-Study). At the end of June 2004, this database comprised a total of 9,167 accidents involving 16,335 vehicles and 23,596 injured persons.

The BASt concentrates on its involvement in all currently active EEVC working groups. The state of the work in these groups at present will be reported on in detail at another point during this conference.

EEVC WG 12 discusses the improvement of the existing dummy generation. The BASt has investigated the interaction of impact forces on the legs and forces measured in the pelvis in order to continue the development of the side dummy EuroSID. The modifications to the side impact dummy were so extensive that this dummy type was renamed ES II. The dummy was included in the European regulations and is increasingly taken into account in the US-FMVSS. The work on the new side impact dummy WorldSID, which is intended to replace the dummies US-SID and ES II as a standard dummy to be used worldwide was supported by the EU Commission in the SIBER project. The BASt tested the "pre-production version" of WorldSID in sledge tests and accident reconstructions. THOR, a new frontal dummy which is to be used worldwide, is being developed and tested as part of the FID project which is supported by the EC Commission, and which the BASt also participates in. The investigation results of the working group are also incorporated into the work of IHRA.

The investigations into the revision of the legal requirements of the side impact (EEVC WG 13) with regard to the head impact in the vehicle interior have not yet been completely finished. The aim is to continue the development of the side impact test procedure designed by EEVC based on the test procedure already prescribed in the USA. It is, however, to be expected that there will be divergences in the stipulations regarding impact areas and directions of impact for the impact bodies on account of the different vehicle fleet in Europe and the high seat-belt usage rates.

Different deformation elements for the side impact test procedure (ECE Regulation 95), manufactured according to the performance standards drawn up by the EEVC, led to different development objectives regarding the development of car side structures. The additional certification test procedures with extended specifications which were developed in a large-scale series of tests involving several international institutions, have now been incorporated into ECE R. 95.

EEVC WG 15 conducts investigations into the compatibility between cars in accidents. The VC-COMPAT project, which is funded by the EU Commission and due to run for three years, was launched in this regard in March 2003. The project is intended to produce a proposal for a test procedure to evaluate the compatibility of cars in accidents. The project has developed methodological approaches to evaluating accident data from *in-depth accident records* and the potential benefit of a good car-to-car and car-to-truck compatibility. Work has also been carried out in the project to estimate the percentage of the vehicle occupant population which would have a benefit of good compatibility. Furthermore, the first drafts for possible crash-test procedures have been tested. The work of the EEVC WG 15 represents a considerable contribution to the work of the IHRA working group on compatibility. It is intended that a branch of the VC-COMPAT project should develop test procedures on truck underride protection systems.

Based on the test procedures for the protection of the pedestrian in car accidents which have been revised by the EEVC WG 17, the EU Commission has drawn up a proposal for a directive and in December 2003 published it as a framework directive consisting of two phases. The test requirements of the vehicle front of cars are intended to be implemented for all newly homologised vehicles in a step-by-step procedure with increasingly stringent requirements being introduced up until 2015. The test procedures of Phase II have now been improved. Elements for pedestrian protection from the field of active vehicle safety, such as brake assistants, are being tested. Results from the working group are also incorporated into the discussions of the IHRA working group on Pedestrian Protection and of the GRSP Informal Group on Pedestrian Safety for the purpose of drawing up a Global Technical Regulation (GTR).

As part of the work of EEVC WG 18 on child protection, and in cooperation with WG 12, the BASt is involved in tests to evaluate a new child dummy generation (Q series). The objective of these tests is to examine whether the P-series dummies should be replaced by the Q-series in ECE Regulation 44. New injury criteria and limit values are also being validated in this regard. It is also intended to use nationally and internationally available accident statistics to show necessary regulatory consequences.

The BASt is also involved in the EU-funded CHILD (Advanced methods for improved child safety) and NPACS (New Programme for the Assessment of Child Seats) research projects. The objectives of the CHILD project include determining the data necessary to draw up injury criteria and risk curves and evaluating and supporting advanced sensor and dummy development in order to enable the protection potential of child restraint systems (CRS) to be realistically monitored with the help of laboratory dummy tests.

The objectives of the NPACS project are to develop an independent consumer protection test procedure to evaluate universally usable child restraint systems. The essential requirements in this area include reliable dynamic test methods, the monitoring of user-friendliness and a standard European evaluation of the efficiency of these products. The BASt is particularly involved in work on the side impact which has not yet been included in ECE Regulation 44. A side impact test procedure was developed in a BASt research project and this procedure is now being incorporated into the NPACS European research project as well as internationally in the ISO working group on child safety (ISO/TC22/SC12/WG1 "Child Restraint Systems") and in the pertinent sub-group for the side impact.

EEVC WG 20 has the aim of reducing injuries to the cervical spine in rear-end crashes. At present the focus is on limiting the horizontal distance from the head to the head-rest and on there being a sufficient height adjustment. A future aim is to draw up a dynamic test procedure. The findings of the working group are being incorporated both into the Euro NCAP Whiplash Subgroup and also into the newly founded GRSP Informal Working Group on Head Restraints, which, based on the American FMVSS 202, is working on a Global Technical Regulation (GTR). As the biomechanical injury mechanisms have still not been clarified, the BASt is in favour of implementing a harmonised robust test procedure which is validated using the accident occurrence.

The newly founded EEVC WG 21 is intended to draw up proposals for standard surveys and documentation of the European accident in-depth studies. The BASt contributes the methods and data of the GIDAS projects (German In-Depth Accident Study) which is supported by the BASt and the German Association of the Automotive Industry (VDA).

EEVC WG 22 is to investigate the method of "virtual testing". In the automobile industry, the method of mathematic simulation is an aid for developing new vehicles quickly and cost-effectively which it is not longer conceivable to do without. In some regulations the legislator already allows the proof of the protective effect of passive safety devices to be brought by means of the mathematic simulation. SIBER, an EU project which the BASt is involved in, had the aim of investigating a possible extended application of mathematic simulation in statutory stipulations. The first part of the project assessed computer models of real systems. In the second part it was shown that fluctuations in the hardware of a crash test caused by tolerance can be dealt with by including stochastic variables in a mathematic model and can be reproduced mathematically. The third part of the project investigated possible applications, e.g. the variation of test parameters such as impact angle or size and body posture of the vehicle occupants. The limits of the models were shown.

The BASt is involved in EuroNCAP under commission to the German government. Since the beginning of 2001, the BASt's crash test facility has been certified with EuroNCAP as a test laboratory. Vehicle models are regularly tested here in accordance with the Euro NCAP test protocols. The work in all management and technical bodies of Euro NCAP is intended to continually improve the assessment procedures, in particular by taking into account the accident occurrence. So far, Euro NCAP has tested almost 300 vehicle models in at least three crash test configurations in each case. The results of an offset head-on crash, a barrier side impact and an optional pole side impact are combined to form the occupant protection result and published in addition to the result on pedestrian safety and the protection of children in the vehicle. After the successes in assessing passive safety it is intended that active safety systems should in future also be assessed. Novel driver assistance systems, e.g. ESC ("Electronic Stability Control"), are also to be taken into account.

ACTIVE VEHICLE SAFETY

Together with 14 partners from the European research sector, the BASt is at present working on the EU Commission's "IMPROVER" project which focuses on the following four areas: (1) influence of the growing number of Sports Utility Vehicles and Multi Purpose Vehicles on traffic safety, (2) assessment of measures to improve the traffic safety of light goods vehicles, (3) influence of cruise control systems on traffic safety, energy consumption and emissions, (4) harmonisation of traffic signs and road markings in respect of traffic safety. The sub-projects are concerned not only with questions of active safety but also with issues of e.g. compatibility and cost/benefit analyses.

An important role is played in the field of active vehicle safety by the optimisation of the active and passive photometric devices. Particular mention is to be given in this regard to adaptive lighting (e.g. swivelling of the headlights when travelling round bends or light distribution adapted to the location) and night-vision systems. A BASt research project is assessing the technical possibilities for optimising vehicle lighting with regard to its potential to increase traffic safety. The aim is to draw up proposals on how current regulations should be developed.

A research project entitled "Requirements of future motorcycle braking systems for the purpose of increasing traffic safety" compared and assessed

standard and combination braking systems, in each case with and without anti-lock braking systems (ABS). One main result was that the benefit of an ABS was seen; an ABS makes possible significantly shorter braking paths and places less strain on the rider, on both straight road sections and around bends. Combination braking systems represent a further improvement of safety in motorcycle braking. The combination braking system is in particular suitable for avoiding incorrect operation of the brake and the consequent longer braking paths.

Driving dynamics control systems (ESC) are now standard fittings in many cars. These systems are not, however, available for motorcycles. This is due to motorcycles' complex driving dynamics which are at the same time responsible for many situations which are difficult for the motorcycle rider to cope with; having a driving dynamics control system in the two-wheeler sector therefore promises to be of greater benefit than for cars and lorries. The project entitled "Requirements of future motorcycle braking systems for the purpose of increasing riding safety" is currently investigating how a critical riding situation is to be defined in respect of a motorised two-wheeler and with what measures a riding situation recognised as being critical can be made less critical or even avoided.

DRIVER ASSISTANCE SYSTEMS

It is necessary to analyse what support drivers need in order to be able to estimate and assess the potential which commercial driver assistance functions and those which are still being developed have for avoiding accidents. The BASt is conducting analyses of drivers' needs with regard to driving safety in a series of projects. This involves for example analysing accident reports made by the police or "in-depth" accident databases in order to investigate the influence of different types of incorrect human behavioural patterns on the occurrence of accidents and to derive ideas from this on which driver assistance functions could contribute to avoiding accidents. Special attention is paid to the issue of what benefits various assistance functions can have for the user group of elderly drivers.

Results from the current research projects indicate that the causes of driver errors conducive to the occurrence of accidents are to be sought in insufficient absorption and/or evaluation (i.e. diagnosis) of danger information. As the danger of overloading the driver with information is increasing continually, it would appear to be promising to further develop systems for managing information in the vehicle; this was the subject area of a BASt project which has already been concluded.

The ongoing research projects on the subject of "Elderly drivers" focus above all on the issue of age-specific support requirements through driver assistance and driver information systems. The aim is to assess the safety potential for elderly drivers of commercial systems and systems which are about to be brought onto the market. A number of theories on assistance functions designed to provide particular assistance to the elderly in situations specifically critical for them have been derived from extensive literature and accident data analyses; experimental tests of these theories are currently being conducted in a simulator study.

The eSafety initiative of the European Commission attaches central importance to the subject of "Human-Machine-Interaction". This is shown in the fact that the eSafety working group HMI has been specifically created for this area; its remit is to identify and describe problematic areas in Man-Machine-Interaction and in particular in the formulation of recommendations for updating the "European Catalogue of Fundamental Principles on the Human-Machine-Interface". Portable systems (so-called "nomadic devices") were identified as one of the main problematic areas during the two-year work of this working group. These systems are brought to the car by the driver himself and often do not meet the design aims for Man-Machine-Interfaces formulated in the "European Catalogue of Fundamental Principles". This results in new requirements regarding regulation and also research.

AIDE is devoted to the development, design and assessment of a higher Human-Machine-Interface for advanced in-vehicle assistance systems and information systems, and for modelling driver behaviour. It is an project integrated within the European Commission's 6th Framework Research Programme. The project started in 2004 and is to run for 4 years. The aims of the project are to increase the efficiency and consequently also the safety benefit of advanced driver assistance systems, to minimise the strain and distraction of the driver caused by fixed and portable information systems and to enable the advantages of new information systems to be exploited in terms of mobility and comfort, without compromising the level of safety. The BASt is particularly involved in the subject of the "development of a generic, industrially applicable methodology to evaluate safety aspects of Man-Machine-Interfaces in road vehicles ".

The BASt research project on "User-related incorrect use of driver assistance systems" uses surveys and observations of drivers to determine perceived and implemented possibilities for using driver assistance systems. The aim is to draw up procedures to identify the potential for incorrect use

and misuse as well as proposals for eliminating these.

One basic prerequisite for using driver assistance systems efficiently to increase traffic safety is that they are used in the envisaged manner. Using the systems in a way which deviates from this may be either unintentional (incorrect use) or intentional (misuse). Incorrect use or misuse of driver assistance systems depend to a decisive degree on the user's subjective perception of how the system functions and on what he learns when using the system. Preventing misuse and incorrect use are part of the basic requirements which driver assistance systems must fulfil.

ENVIRONMENTAL PROTECTION THROUGH VEHICLE ENGINEERING

Further limit values for cars and light goods vehicles (Euro 5) and for heavy goods vehicles (Euro VI) are currently being prepared as part of the process to revise the European exhaust regulations. The focus is on the emissions of vehicles powered by diesel motors. In the case of cars and light goods vehicles, work is concentrating on a drastic reduction in particle emissions. For heavy goods vehicles, in contrast, the work is centring around reducing NOx emissions. Proposals for very low limit values are being discussed; in comparison with Euro 4, these proposals would provide for a reduction in the limit value for cars of up to 90%.

The further reduction in the limit values for particle emissions – which are determined using mass-related particle measuring procedures – makes increasing demands on reading accuracy. It is therefore important, when drawing up future particle standards, that the measuring procedures defined in the directives meet the requirements of the type approval procedures, even with massive reductions of the limit values. The BASt has therefore worked on the extent to which a reduction in the gravimetric particle limit value is tenable with regard to the type approval procedure.

It must be borne in mind when considering the exhaust legislation that attention must not be given solely to further developing limit values. Requirements must also be incorporated which ensure that in practice the vehicle complies with an acceptable emission level over its entire life. These supporting measures for the exhaust legislation (COP, field monitoring, service life, Off Cycle Emission Provisions etc.) are at least as important as the limit values themselves. All requirements must be optimised as an "overall package" in this area.

Consumers are informed better than previously about fuel consumption and CO_2 emissions of new vehicles, as the Car Energy Consumption Designation Ordinance came into operation in Germany on 1st November 2004. This is the national implementation of Directive 1999/94/EC on the provision of consumer information in the marketing of new cars. Advertising material and information boards at the vehicle dealers' must be clear and standardised. The guidelines on "saving while driving " list data on fuel consumption and the CO_2 emissions of all new car models which are offered for sale in Germany. These guidelines must be made available by all vehicle dealers at no charge and are also available via the Internet under www.dat.de. The aim is to encourage buyers to choose a vehicle model which has low fuel consumption.

In 2004 a joint project between the Federal Ministry of Education and Research and the Federal Ministry for Transport, Building and Housing was completed; this project involved 15 different research agencies from different branches and institutions working on a joint project objective, namely the reduction of tyre / roadway noise.

The joint project is part of the "Quiet Traffic" project which aims to reduce the stress on the population due to noise from rail, air and road traffic. For the first time, representatives of the road construction industry, vehicle industry, tyre industry, research institutions and universities worked on developments and research together. The BASt was responsible for coordinating the project for roadway surfaces and methods for installing these surfaces, optimisation of tyres, vehicles and new measuring procedures, and the implementation of a mathematical simulation of the tyre-roadway contact.

The BASt has defined suitable devices, implementing regulations and tolerances for measurement of stationary noise generated by motorcycles, in order to enable a justiciable measurement of stationary noise to be conducted during a traffic check or a regular technical inspection. Based on this, a proposal was drawn up for an Implementing Directive; work is currently underway to incorporate it into national law.

Work is also being carried out in preparation for the introduction of an environmental examination for motorised two-wheelers with the purpose of controlling the emission of harmful substances and noise.

In the UN ECE Expert Group on "Exhaust and Energy" (GRPE), the working group on "WMTC" (World-wide motorcycle test cycle) is currently preparing a new, globally harmonised test cycle to measure pollutant emissions of motorised two-wheelers which is to form part of the type approval test. The new exhaust certification cycle for motorised two-wheelers is intended to represent

the operating conditions which occur in real traffic better than the current ECE cycle.

The GRPE has founded a sub-working group on “Hybrid vehicles“. Germany is involved in this ad-hoc working group. The aim is to adapt already existing ECE regulations for motorised vehicles with combustion engines so that adequate consideration is given to the special technical properties of (electro-) hybrid vehicles – i.e. of vehicles which are driven by two different energy converters and have two different energy storage systems.

ACCIDENT RESCUE

After a BASt research project on the identification of weak points in the emergency exit systems of coaches was concluded with the drawing up of a performance specification, a further project followed on the subject of emergency rescue which investigated more closely the fire behaviour of the interior fittings of coaches. Numerous proposals for improvement have been drawn up here as well. The findings gained are intended to be incorporated into national and international regulations (ECE).

The rescue services in Germany are organised by the states on a statutory basis as a public-law system of health care. They comprise land-bound forms of rescue and a nation-wide network of air-bound patient care and air-bound patient transport (91 helicopter locations and 13 aeroplane locations) with over 100 locations. Its services are available throughout the country.

In 2000/2001, the rescue services were deployed 10.3 million times, of which 57% comprised transportation of sick people and 43% comprised emergency deployments (with and without an emergency doctor). This corresponds on average to every 8th inhabitant using the emergency rescue services once a year. The number of emergency deployments accompanied by an emergency doctor is increasing. In 1985 the figure was 32%, whereas in 2001 47% of all emergency deployments involved an emergency doctor. The average time taken for help to arrive – which is the time between notification of the emergency being received and the arrival of the first means of rescue at the location – was 6.9 minutes for traffic accidents inside built-up areas during the day, 7.1 minutes during the night. Every 16th emergency deployment was for a traffic accident. Twenty years ago, traffic accidents made up 27.1% of all causes for deployment of the services, in 2001 this figure had sunk to 6.1%.

You will be able to learn about the contributions made by the German automobile industry in the various technical sessions.

We will continue in the future to support the development of this important vehicle safety conference and will continue to contribute papers for the conference.