

Traffic Safety - The German Experience after the Reunification

The German experience gives a striking example of how the trend of rising accident numbers due to increasing motorisation levels (which can be witnessed in many developing countries today) can cost-effectively be reversed in a short time. The key to success lies in the cooperation of different actors.

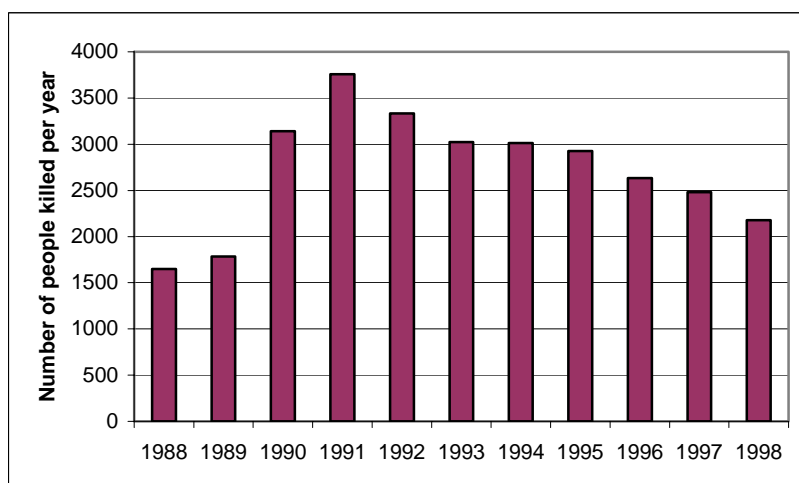
1. The Outset – A sharp increase of the number of traffic accidents

The number of vehicles sharply increased ...

In 1990 the Reunification of the Federal Republic of Germany and the former socialist German Democratic Republic (GDR, later called “New Laender”) set an end to more than 30 years of separation. The opening of borders on 9 November 1989 offered new freedoms such as freedom to travel, freedom of press and increased consumption opportunities to New Laender citizens and was accompanied by a sharp increase of individual travel. The monetary union in June 1990 enabled many citizens of the New Laender to buy Western European cars with powerful engines, which however often were cheap second-hand cars with technical deficiencies. Because of the growing number of cars and their increased usage the total mileage in East Germany grew from 48 billion vehicle-kilometres in 1988 to 74 billion vehicle-kilometres in 1991 – a growth of 54 %. Such a sharp increase of vehicles in a short amount of time had never before been experienced in another country.

...and lead to a growing number of accidents.

Besides the apparent increase of the number of vehicles on German roads the reunification allowed the citizens of the New Laender to purchase new car models with powerful engines, which put high demands on their responsible traffic behaviour. Without doubt, the former GDR had good traffic safety programmes, which was reflected in a death toll that was about equal with the figures of the Federal Republic of Germany. But the reunification showed that the circumstances under which the GDR



Number of people killed in road accidents in Eastern Germany (1988 to 1998) – The tremendous increases in 1990 and 1991 are clearly visible

provided traffic safety were distinguishable from the traffic situation in open market countries: The number of cars for purchase was limited in the closed GDR economy. The available cars were technically outdated and had small engines. Accidents were prevented by restrictive traffic regulations.

When the regulations of the GDR disappeared with the Reunification, the traffic behaviour instantly changed and car drivers wanted to experience the new “freedom on the road”.

The consequences were severe. The number of car accidents with personal injuries jumped up from 33,762 in 1989 by 46 % to 49,307 in 1990 and further by 29 % to 63,773 in 1991. Accordingly, the risk

to die in a car accident grew substantially. From 1989 to 1991 the death toll in the New Laender increased by 111 %.

As the number of car accidents and of the people that were killed or injured in car accidents continued to grow, the government and several organisations reacted and successfully reduced the death toll from 1992 onwards. This amazing success could only be achieved through the cooperation of different actors.

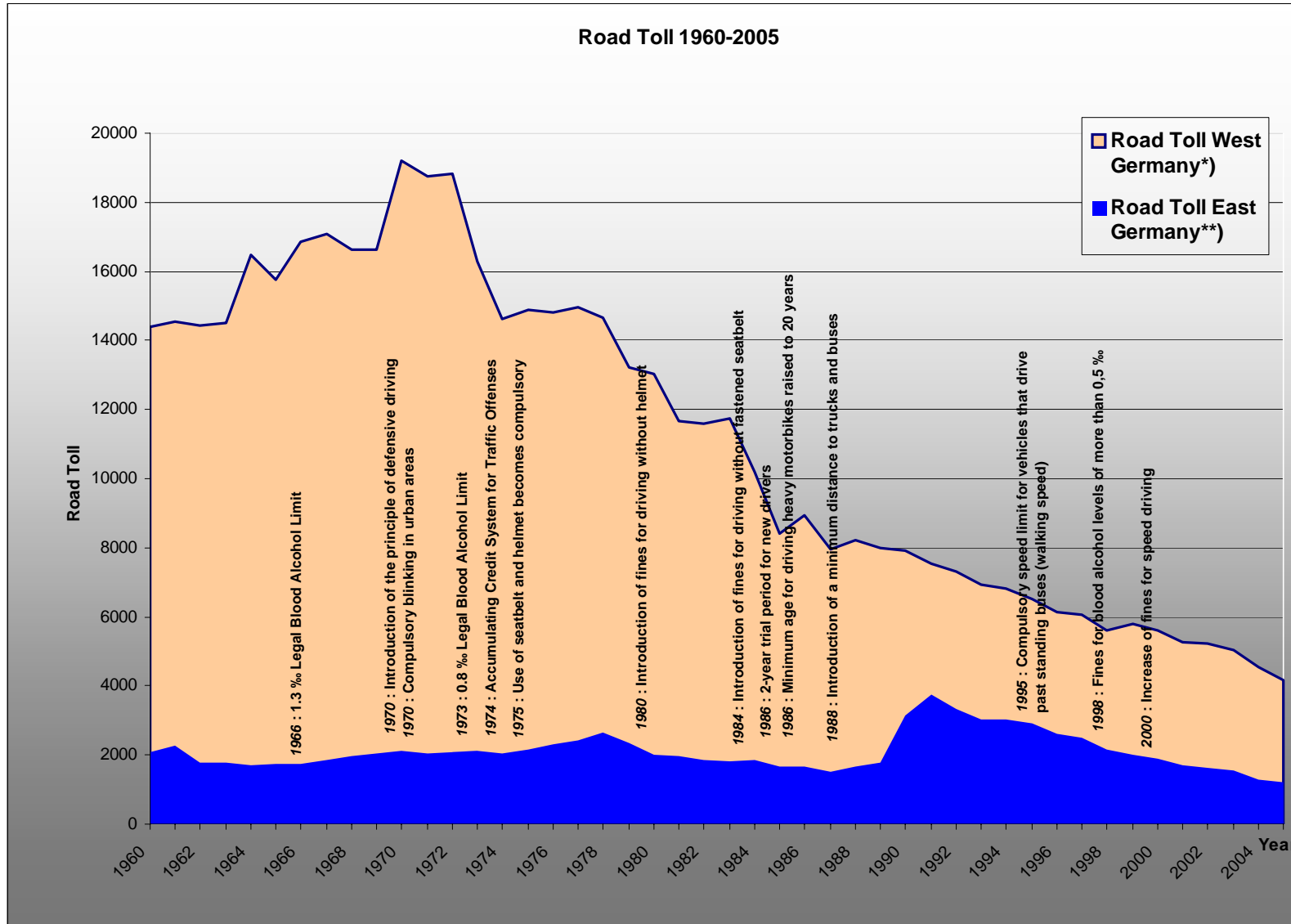
2. The Response - Success through the cooperation of different actors

The astonishing reduction of traffic accident rates after the German Reunification could only be realised through the coordinated effort of different organisations. Therefore, it is impossible to quantify the impact of a single organisation or programme. In the following, the most important German traffic safety actors are presented and grouped according to their traffic safety approach.



Road narrowings in front of schools can improve safety for pupils

The German Ministry of Transport, Building and Urban Affairs (BMVBS) as the central state authority has the financial sovereignty and supports many traffic safety programmes. The BMVBS restricts its activities to flank the work of the German Traffic Safety Council (DVR), which annually develops traffic safety programmes. Scientific research on safety issues is conducted by the research institute of the BMVBS - the Federal Highway Research Institute (BAST). The TÜV companies as the biggest German technical monitoring organisations and car manufacturers' emphasis differ in their approach and focus on vehicle safety and technical monitoring. The multiplicity of actors can be grouped under four "E"s, which comprehensively cover the field of traffic safety approaches.



Total number of people killed in road accidents in Germany (1960 – 2005) – Selected measures to improve traffic safety are highlighted

3. The four “E”s of traffic safety: Enforcement, Education, Engineering and Emergency Response

Traffic safety results from the interaction of a sound legal framework, the safety-conscious behaviour of traffic participants, the accurate technical state of roads and vehicles, and a functioning emergency response and rescue system. Several organisations guarantee that each of the “E”s contributes sufficiently to the overall reduction of accidents:

- **Enforcement / Law:** “Enforcement and Law” summarises the legal framework, which ensures that traffic rules are set according to the state of research and are obeyed. The Road Traffic Regulations (Straßenverkehrsordnung - StVO) and the regulations on car registrations (Straßenverkehrszulassungsordnung - StVZO) set the legal framework that is enforced by the police. Most organisations mentioned in the following give advice on changes to the legislation enacted by the BMVBS.
- **Education:**
Education programmes aim at improving the individual traffic behaviour through detailed information on traffic regulations and common accident reasons. The German Traffic Safety Council (DVR), the Verkehrswacht (DVW) and the BMVBS are the main actors that develop and execute training programmes. These target specifically pupils, young drivers and the elderly.
- **Engineering:** Technical causes of accidents are to be reduced by organisations that are responsible for up-to-date technical standards of road infrastructure and road vehicles.
 - **Roads:** The Federal Highway Research Institute (BASt) gives advice to the Road Engineering Administrations of the Laender (Straßenbauverwaltungen der Länder). The BASt - in close coordination with other players - formulates standards and specifications for the road network.
 - **Vehicles:** The Road Traffic Licensing Regulations (StVZO) set the safety standard for vehicles. Furthermore, the continuous research and implementation by car manufacturers is indispensable. Technical progress helps to improve traffic safety with innovations such as airbags, the Antilock Brake System (ABS), the Electronic Stability Program (ESP) and many other safety features. When technical progress is ready for the market, it can be translated into better standards, which are monitored and certified by either the TÜV or DEKRA. After the German Reunification, TÜV and DEKRA quickly installed a monitoring and certification network in the New Laender where no monitoring system had existed before.
- **Emergency Response:** Even though traffic safety has improved substantially, accidents continue to happen. The development of a sophisticated emergency response system helps to save the lives of the injured. The Björn Steiger Foundation established a national helicopter rescue service that has developed continuously and has been supporting the established emergency system of ambulances until today. The ADAC contributes with its own fleet of helicopters and mobile mechanics. Moreover, the installation of SOS-telephones on all German highways increased the rapidness of emergency response.

Enforcement / Laws

Setting in force a common traffic law was one of the most important measures to harmonise road traffic. Major adjustments have been achieved in the regulations of the Road Traffic Regulations (StVO), the driving license law, the Road Traffic Licensing Regulations (StVZO) and the legal blood alcohol limit. To prevent a growing number of accidents, the legal unification did not happen instantly but offered interim arrangements for the New Laender. These made a slow adaptation to the new

requirements possible and provided more time to work on the infrastructure deficiencies. These interim arrangements involved the continuation of the speed limit of 100 km/h on highways and of 80 km/h outside cities and a blood alcohol limit of 0.0 ‰ in the New Laender.

Even though the safety belt was developed in 1903 it was hardly used until 1957 when Volvo started the serial production of all Volvo cars with safety belts. However, it was not before 1970 that safety belts for the front seats and 1979 that safety belts for the back seats became compulsory. Even after the use of safety belts became compulsory by law in 1976 only every second obeyed this obligation. Therefore the BAST launched a surveillance campaign to enforce the safety belt use. The decisive step to success was the introduction of a monetary fine in 1984, which increased the seatbelt use to a level of over 90 % over night.

Education



Tree lined roads are a beautiful but accident – prone feature of Germany's road network

The sharp increase of traffic accidents of New Laender citizens was mainly due to the change of individual traffic behaviour. Therefore, the effort of the majority of the organisations emphasised on education programmes. Accordingly, the BMVBS increased its usual budget for educational measures of 14 Mio. German Mark (DM, equivalent to 7.2 Mio. €) through special funds. These grew continuously from 10 Mio. DM (5.1 Mio. €) in 1989 and 11.3 Mio. DM (5.8 Mio. €) in 1990 to 20 Mio. DM (10.2 Mio. €) in 1991.

The cooperation of different stakeholders in the New Laender was the main achievement that enabled a sharp decline of the accident rates. The central traffic education element of the German Road Safety Council (DVR) was

the launched campaign "Rücksicht kommt an", which informed the citizens about the traffic laws and the major reasons for traffic accidents. Mobile training centres were installed to offer safety trainings. The established traffic education programmes of the Old Laender for young and elderly people were extended to the New Laender. The various education programmes had a huge diffusion - last but not least because of the cooperation of the media. The TV series "Der 7. Sinn" (The seventh sense) became famous for its entertaining approach to traffic safety issues and is a fantastic example of a working cooperation between Verkehrswacht (DVW) and the TV channel WDR.

Focal points of the DVR campaigns

- 1992: "Auf Ihr Wohl – Kein Alkohol" and "Wer rast fliegt raus" targeted alcohol and speed driving as the two main causes of accidents.
- 1993: „Alle Achtung für Senioren“ put the spotlight on the elderly and called for a more thoughtful traffic behaviour.
- 1994: "Hackevollgas – Mensch was soll das?" focussed on young people and their disproportionately high involvement in accidents.
- 1995: "Clever unterwegs" once again tried to change traffic behaviour of young drivers.
- 1996: "Wer trinkt fährt ohne mich" made aware of the big impact of alcohol on the driving ability.

Furthermore, the DVR launched parliamentary discussions to involve all traffic safety actors in a discussion about a common strategy for traffic safety. The corporate traffic safety measures in the New Laender were supported by the DVR in cooperation with staff associations.

The newly established Commissions on Traffic Safety in the New Laender were supported in their programmes by the DVR. A network of traffic safety commissioners was introduced on the communal level and further staff was trained to support local traffic safety activities.

Engineering



The improvement of railway level crossings is one priority in Germany's effort for traffic safety.

Roads

Because the road network in the New Laender was not designed for the faster cars that appeared after the opening of borders in 1989, the DVR supported the removal of railroad crossings, improvements of the road design and the installation of traffic lights and danger signs. Therewith, the 100 most severe accident sites in the New Laender could be removed. In 1993, two recommendations were issued that reflected the specific challenges after the reunification: One recommendation on the applicability of new standards to the existing road network and a second one on transport and spatial planning in East German cities.

Vehicles

No German-registered road vehicle may be operated on public roads without a certificate on technical safety from TÜV or DEKRA. In most cases the certificate has to be renewed after two years, and is indicated by a plaquette on the license plate. Most modifications also need to be approved - from installing tires of a different size to materials used for nuts and bolts. TÜV's safety guidelines are among the strictest in the world and no road permission is issued without having met the high technical vehicle standards of TÜV and DEKRA.

Emergency Response

The Björn Steiger Foundation was the decisive actor that supported the establishment of a sophisticated emergency response system. Due to its sedulous efforts many improvements to the emergency response infrastructure could be achieved such as the installation of a SOS-telephone network. The Helicopter Rescue Service (Rettungsflugwacht) was established in 1972 and runs a dense network of 28 coordination offices for rescue helicopters until today. Those helicopters support the network of the 442 land rescue coordination offices so that it takes on the average only 9.2 minutes to arrive at the accident site with a trained doctor. The ADAC contributes with a fleet of helicopters and mobile mechanics and makes sure that broken-down cars do not put other road users at risk.

However, in severe accidents 9.2 minutes may be too long and cost lives. Therefore the help of other traffic participants is required to save the lives of the injured. Since the 1960s it is compulsory to participate in a First Aid seminar to obtain a driving license.

4. Important German Traffic Safety Institutions

Ministry of Transport, Building and Urban Affairs (BMVBS, Bundesministerium für Verkehr, Bau und Stadtentwicklung)

<http://www.bmvbs.de/>

The BMVBS is the most important investment resort of the German government because its responsibility covers all highways, tracks and waterways, town planning, urban development and land use planning. The ministry uses most of its traffic safety budget to support the work of organisations such as the DVR, the Verkehrswacht (DVW) and other organisations. Furthermore, it operates its own traffic safety programmes where necessary.

Federal Highway Research Institute (BASt - Bundesanstalt für Straßenwesen)

<http://www.bast.de/>

The Federal Highway Research Institute (BASt) is the research institute of the BMVBS. Its main responsibility is giving advice and participating in law making in cooperation with other organisations such as the DVR, the Research Society for the Road and Traffic System (FGSV) and others. It furthermore gives advice to the road administration departments of the Laender, organises workshops for specialists and executives from developing countries and launched the International Road Traffic and Accident Database (IRTAD – www.bast.de/htdocs/fachthemen/irtad/index.htm).

German Road Safety Council (DVR - Deutscher Verkehrssicherheitsrat)

<http://www.dvr.de/>

The German Road Safety Council was founded in 1969 as a non-profit organisation. Its objective is to support the measures that aim at improving the traffic safety of all road users. To that aim it places the human being and its education and information at the centre of its work. The organisation is composed of about 250 members such as the BMVBS and the transport-related Ministries of the Federal States, the Road Safety Clubs, the work accident insurance associations, the automobile clubs, the insurance sector, the vehicle manufacturers, the churches, the industrial sector, the employers' associations and the trade unions. The diversity of members explains DVR's philosophy to work in cooperation of all relevant social groups to run homogenous and comprehensive road safety activities throughout the country.

Research Society for the Road and Traffic System (FGSV - Forschungsgesellschaft für Straßen- und Verkehrswesen)

<http://www.fgsv.de>

The FGSV is a research association of public utility. Since its foundation in 1924 its main aim is the advancement of technical knowledge on road and traffic systems. Its staff members hold seats in many committees in administration, business and science.

Verkehrswacht (DVW)

<http://www.dvw-ev.de/>

The DVW was founded in 1924 as a non-profit association. The major task of the oldest and biggest citizen's initiative in the field of traffic safety is traffic education. Its activities cover the programme "move it", the programme "Fahrrad im Trend" to educate bike riding pupils about traffic safety, the training of school crossing guards, the programme for young drivers "Aktion Junge Fahrer", the internationally known TV series on traffic safety "Der 7. Sinn" and the DEA media centre with around 750 educational movies. The 90,000 honorary DVW-members are the main contributors to the success of DVW-programmes.

Association of German Insurers (GDV - Gesamtverband der Deutschen Versicherer)

<http://www.gdv.de/>

The Association of German Insurers (GDV) was founded in 1948 and has a membership of 453 insurance companies. It runs its own website on traffic safety (www.versicherung-und-verkehr.de), where it shares knowledge about responsible traffic behaviour and Road Traffic Regulations (StVO).

TÜV (Technischer Überwachungsverein)

<http://www.tuev-cert.de/>
<http://www.vdtuev.de/>
<http://www.tuev-sued.de/>
<http://www.tuev-nord.de/index.asp>
<http://www.tuv.com/en/index.php>
<http://www.tuev-saar.de/>

The four economically independent and competing TÜV organisations TÜV SÜD, TÜV Rheinland, TÜV Nord and TÜV Saarland are the most important technical monitoring organisations in Germany. To coordinate their efforts in Germany they form the syndicate VDTÜV (Verband der Technischen Überwachungsvereine e.V.). The TÜV organisations provide services in all areas of traffic safety in Germany and the world. Their expertise in the examination of industrial plants, motor vehicles, energy installations and devices is key to their global success.

DEKRA (Deutscher Kraftfahrzeug-Überwachungsverein)

<http://www.dekra.de/>

DEKRA is an international service provider with more than 100 subsidiaries which aims at improving traffic safety. The provided services involve vehicle safety tests, investigation of damages, training and education, certification, consulting and publications. The 14,500 employees worldwide generate annual revenues of about 1.2 Billion Euros.

German Automobile Club (ADAC - Allgemeiner Deutscher Automobil-Club e.V.)

<http://www.adac.de>

The ADAC was founded in 1903 and is Germany's largest automobile club, with 15.467.489 members (in January 2006). It operates a large fleet of mobile mechanics in yellow cars that assist motorists in trouble - the Yellow Angels. Additionally, the ADAC provides 36 helicopters for urgent medical rescue in Germany.

Björn Steiger Foundation

<http://www.steiger-stiftung.de>

The Björn Steiger Foundation was founded in 1969 to improve the emergency response system in Germany. The main improvements of the last 30 years have been developed, coordinated or supported by the foundation. It is one of the most important actors that helped to establish a sophisticated emergency response system in Germany and has extended its influence beyond the German border.

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