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The role of safety research in road safety management

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ABSTRACT

Mobility is a matter of great importance in daily life: However, it also causes costs and involves accident risks. To make mobility safer and reduce accident risks, a scientifically based road safety management is needed. Within such a safety management system, a concert of adequate and efficient strategies, tools and measures is developed and implemented. To ensure that the chosen means are efficient they should be derived from research evidence. Secondly, research is also needed to regularly monitor the impact of road safety management tools, serving as a "controlling instrument" for the appropriateness of safety management efforts. This article explains the main strategic aspects of safety management in Germany and illustrates it exemplarily on the basis of two recently implemented road safety measures.

1. Introduction

Mobility is an essential element of any developed country or region. The challenge for Germany as a transit country in the centre of the European Union is not only to have a modern and broad network of transportation facilities, but also to operate it at a minimum of costs to obtain a maximum of welfare. Beside costs of investment and maintenance costs resulting from accidental injuries as well as related property damages have to be taken into account. In Germany, every year around 17.5 billion Euros are spent in the highway sector and road accidents cost the economy approximately 30 billion Euros per year.

During the last decades, road safety continuously improved from about 20,000 fatalities in the 1970s in West Germany to less than 4500 in 2008 in the reunified Germany. This positive development did not occur incidentally, but seems to be the result of the successful implementation of a multitude of road safety measures influencing road users' behaviour sustainably. As can be seen in Fig. 1, some measures can be directly linked to the development of the fatality numbers. After a fatality peak in the early 1970s, a speed limit on rural roads of 100 km/h was implemented in 1972 and led, together with the implementation of a blood alcohol concentration limit of 0.8‰, to the first remarkable decrease of fatalities. Further measures to be mentioned is the introduction of fines for not using a helmet as a motorised two-wheeler in 1980 and for not wearing a seatbelt as a front passenger in 1984 as well as the reduction of the blood alcohol concentration limit from 0.8‰ to 0.5‰ in 1998.

Fig. 1 demonstrates that a strong linkage exist between realized safety measures and the positive development of fatalities. As can be seen in Fig. 2 this positive development cannot be explained by parameters as population development, the number of vehicles or vehicle mileages. But nevertheless without realizing evaluation studies these interrelations remain only presumptions.

These data underline the necessity of scientifically based road safety management strategies and tools to ensure road safety improvements. The aim of this article is to highlight the role of safety research in road safety management and to describe the scientifically based management tools established in Germany serving to

- explain reasons of safety deficits,
- define and recommend evidence based measures,
- assess the safety impact of an implemented single measure and
- continuously control in how far the objectives of the national road safety action plan are met.

The description of two recently implemented road safety measures will give an example how these tools concretely are applied.

2. Road safety research in Germany

The stronger road safety policies are science-based, the more efficient they will be in reducing fatalities and the severity of road accidents. This asks for an appropriate support of policy makers by road safety research.

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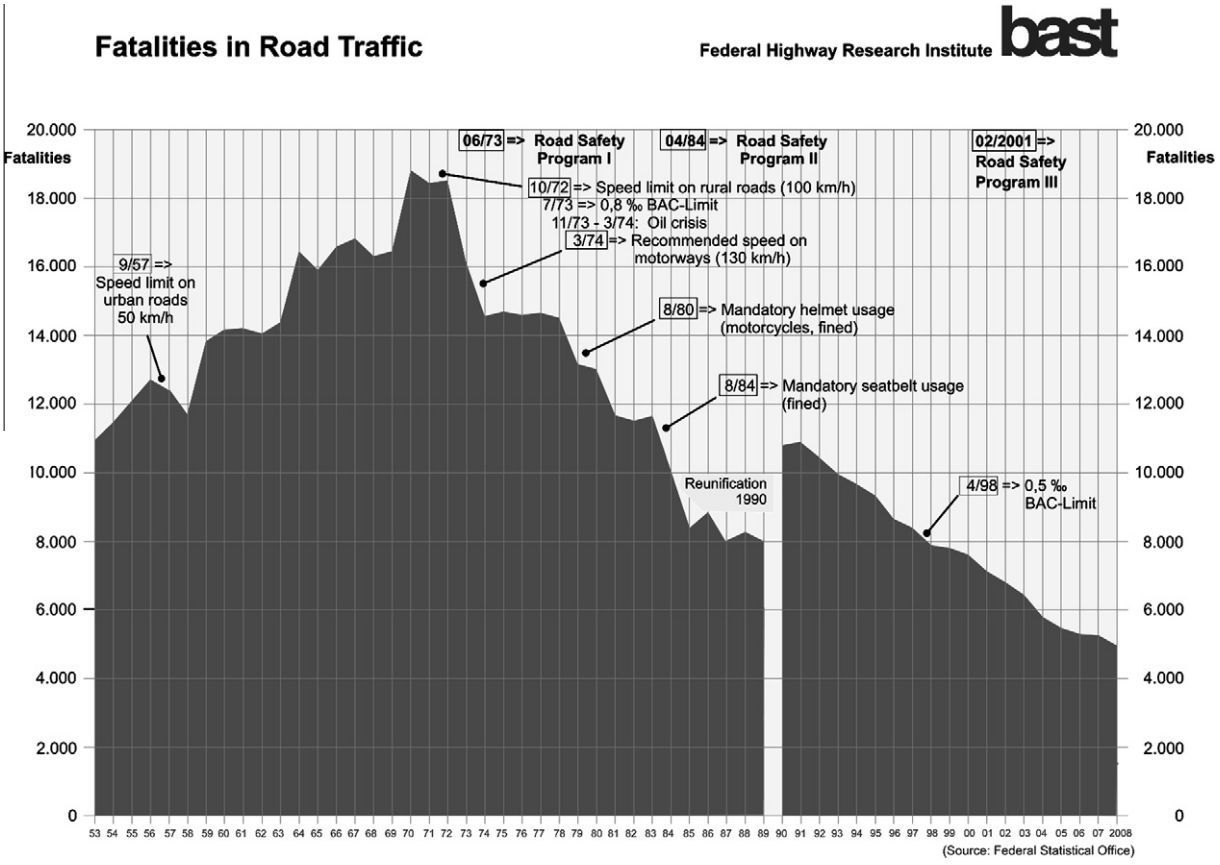

Fig. 1. Fatalities in road traffic and safety measures.

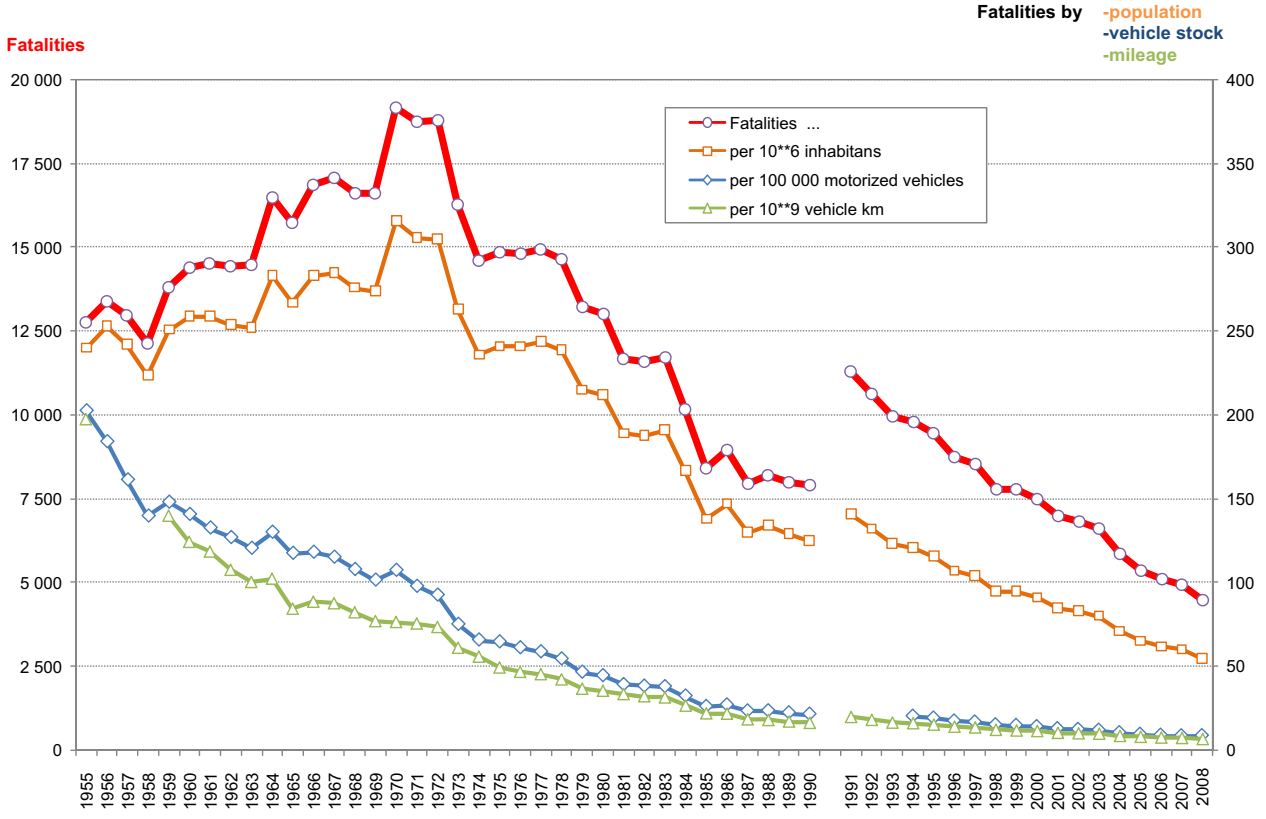

Fig. 2. Development of fatalities in road traffic by population, vehicle stock and mileages.