



## ROAD TRAFFIC SAFETY IN THE BALTIC STATES

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**Abstract.** The road traffic safety problem in all the Baltic States is still of a high priority in spite of some progress in recent years. This paper presents statistic figures characterising levels, differences and common features, trends, experience and achievements in road safety management in Estonia, Latvia and Lithuania. Different ways chosen by transport policy makers for improving the traffic safety in every state are compared.

**Keywords:** road traffic safety, accidents, traffic safety programme.

### 1. Introduction

When the Baltic countries regained the political independence, the nature of road traffic has changed. There are much more vehicles than before. Unfortunately, the roads have not been developed at the same rate. In spite of work done for

improving the road traffic safety, the number of killed people is still relatively high (Fig 1) and traffic accidents in the Baltic countries, as in all countries, is still an important social problem [1]. The economical losses of accidents are also high and share approximately 2–4 % of GNP [2–5].

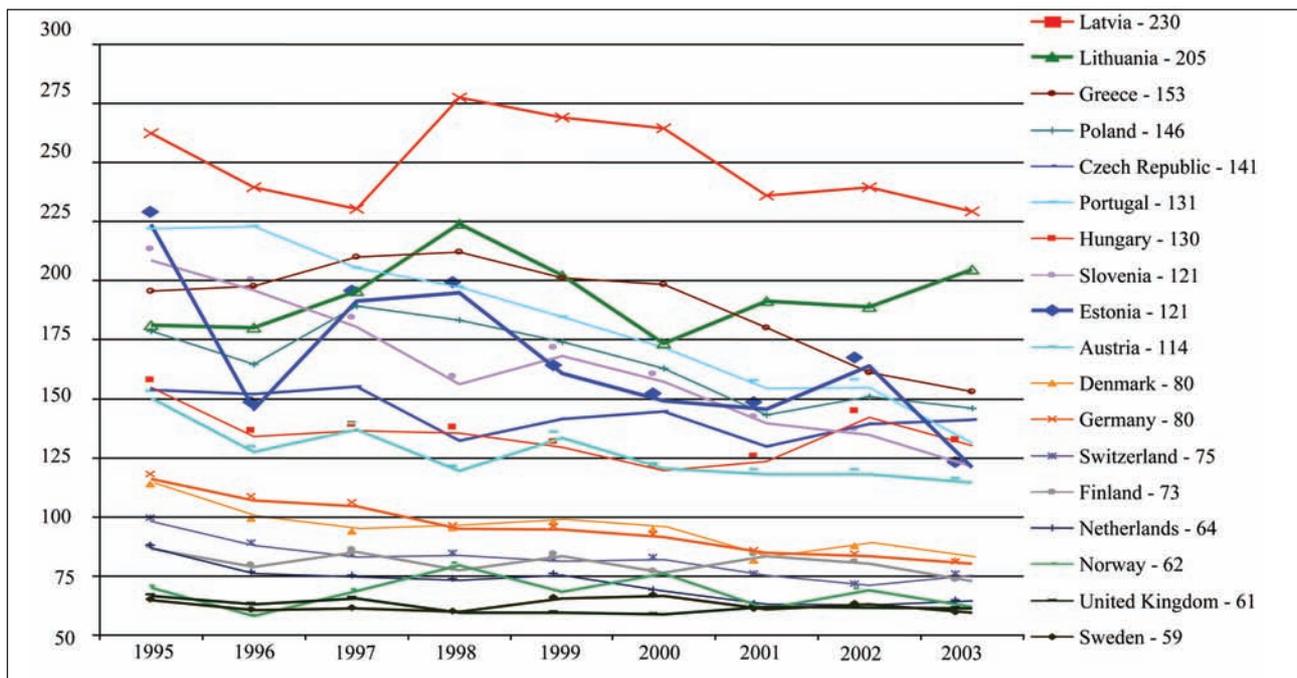


Fig 1. Fatalities in road traffic accidents per 1 million inhabitants in European countries [6]

As we can see, by traffic accident fatalities per 1 million inhabitants, Latvia and Lithuania are still on the top of other European countries. The situation in Estonia is better.

The following paper is to give an overview of the latest tendencies in road traffic safety in the Baltic countries.

**2. Traffic safety situation in Baltic countries**

Some statistical data characterising different road traffic and safety conditions in the Baltic States are given in Figs 2 and 3.

Percentage changes of the killed in the Baltic States road network are given in Fig 2 (years 1985–2004). The starting point of this comparison is the year 1985 (100 %). The highest number of fatal accidents in all Baltic countries was registered in 1991.

Comparing differences between vehicles and cars, increasing trends and fatalities change the tendency; the decision could be: Latvia has chosen a more even strategy for traffic safety improvement.

**3. Political decisions and traffic safety improvement aims**

Due to many lost lives and injuries in road accidents the traffic safety problem could be considered as politically sensitive. In the beginning of the 90 s politicians and decision makers of Baltic countries faced many difficulties to select the safety measures that would be the best in the current situation when road safety budget was limited. But at that time they had not enough knowledge of efficiency assessment tools to find the most efficient priorities for road safety measures. Together with developing the economic situation in general, a reasonable vision and certain aims were set in traffic safety improvement (Fig 4).

Implementation of road safety measures differs in the Baltic countries and the achievements differ, too. Since the worst year the number of the killed (within 30 days after accident) has decreased in all countries (Fig 5) [9]:

- by 2,9 times in Estonia from 490 (1991) to 170 (2004);

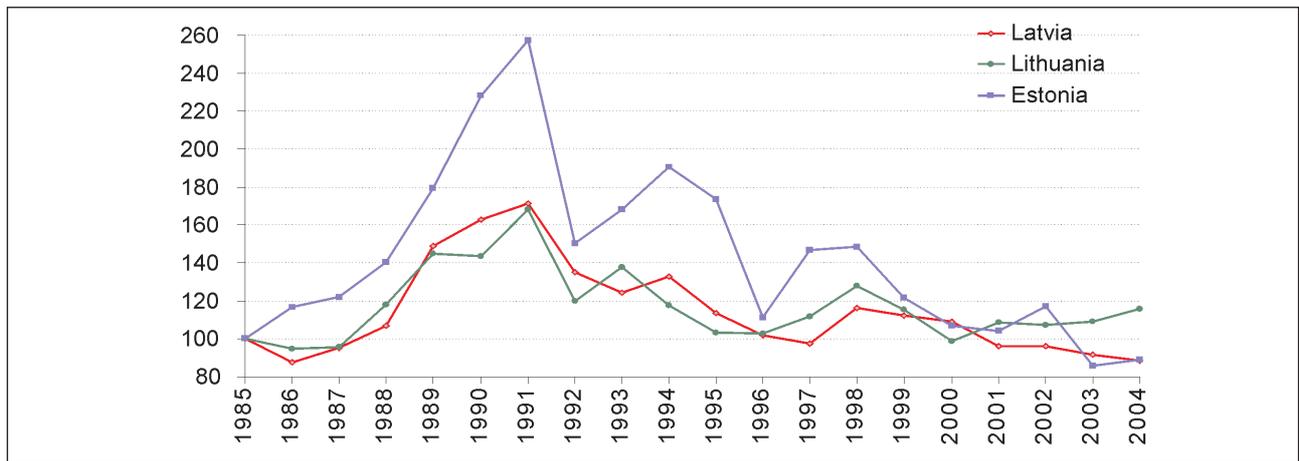


Fig 2. Percentage changes of fatalities in the road traffic accidents, Baltic States [6, 7]

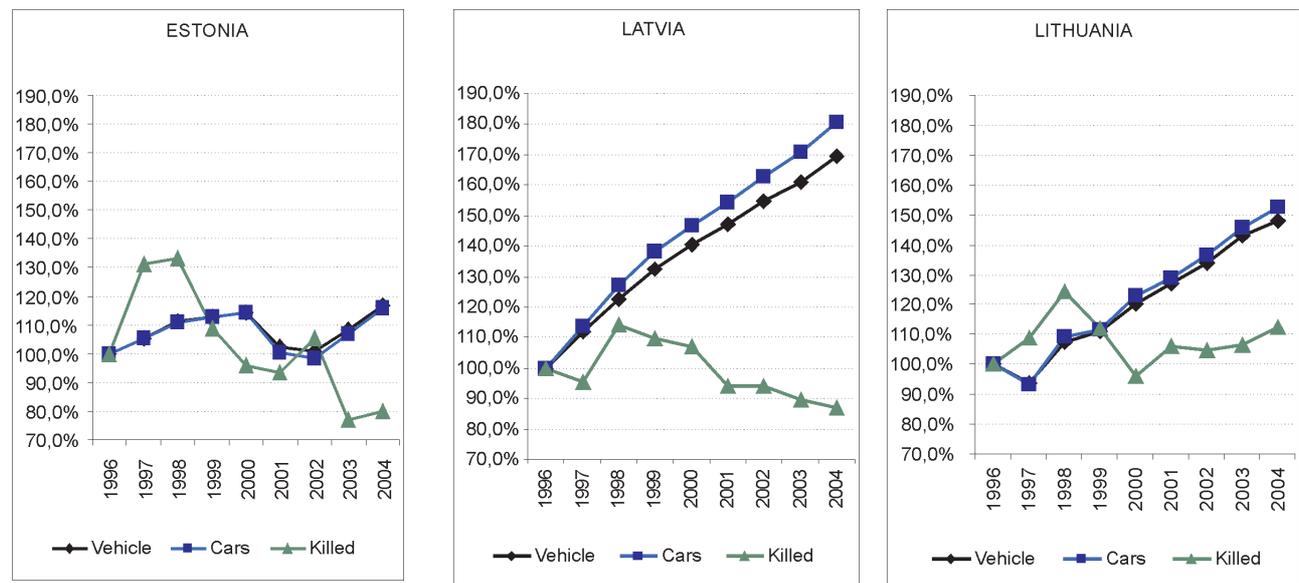


Fig 3. Comparison of percentage changes of vehicles, cars and the killed in road accidents [6–8]

- by 1,9 times in Latvia from 997 (1991) to 516 (2004);
- by 1,6 times in Lithuania from 1173 (1991) to 749 (2004).

#### 4. Baltic States traffic safety programmes

The road traffic safety programmes were created in all countries and significant improvement of road safety is the main target for the Baltic countries [2–4]. The significant reduction of the number of the killed is in accordance with the European objective of halving the number of fatalities till 2010. To reach the target it is necessary to find the right road safety measures. According to statistics, road accidents are mainly influenced by road users’ actions. Therefore the increase of the level of road traffic safety in the Baltic countries mainly depends on human factor, but the road infrastructure also needs many improvements.

Which way in the 90’s was chosen by each Baltic country?

1. Estonia from the very beginning concentrated its attention on children education, on enforcement of drivers, on campaigns advertising the use of protective systems [3];
2. Latvia paid its attention mostly to vehicles and drivers registers, technical inspection of vehicles, only from 2001 to alcohol and other campaigns, from 2004 to penalty point system for drivers [2];
3. Lithuania concentrated its efforts mostly on road engineering, on black spot analyses and road safety research [4].

There are different acceptance year, action time, main goal and start point fixed in each country’s traffic safety improvement programme (Fig 6).

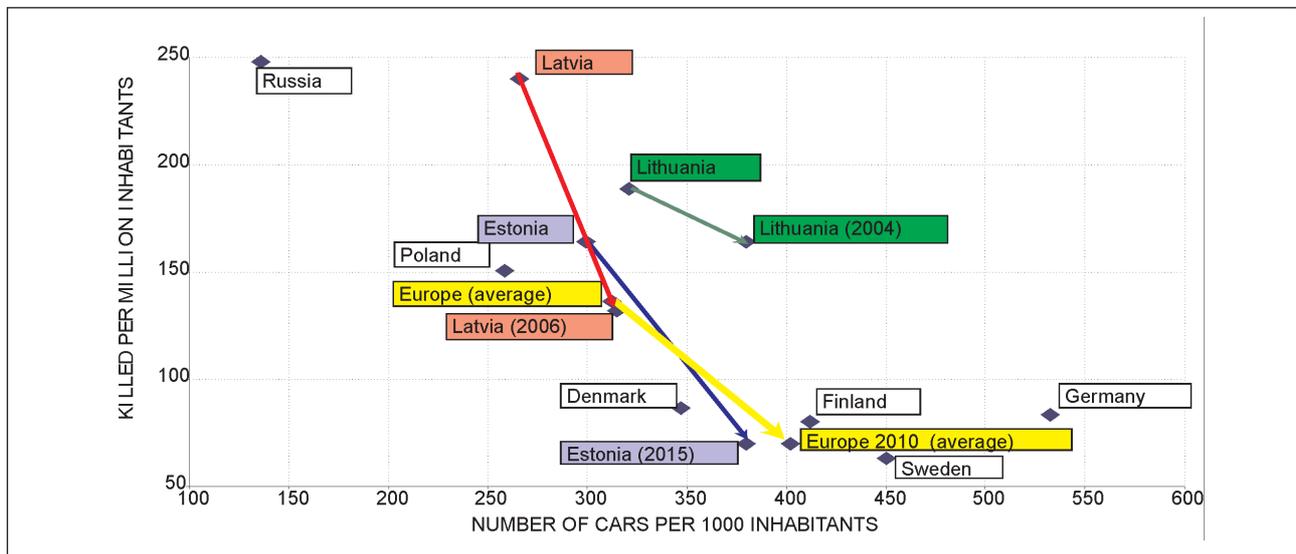


Fig 4. Baltic States status quo, short, middle and long-term aims in traffic safety [6]

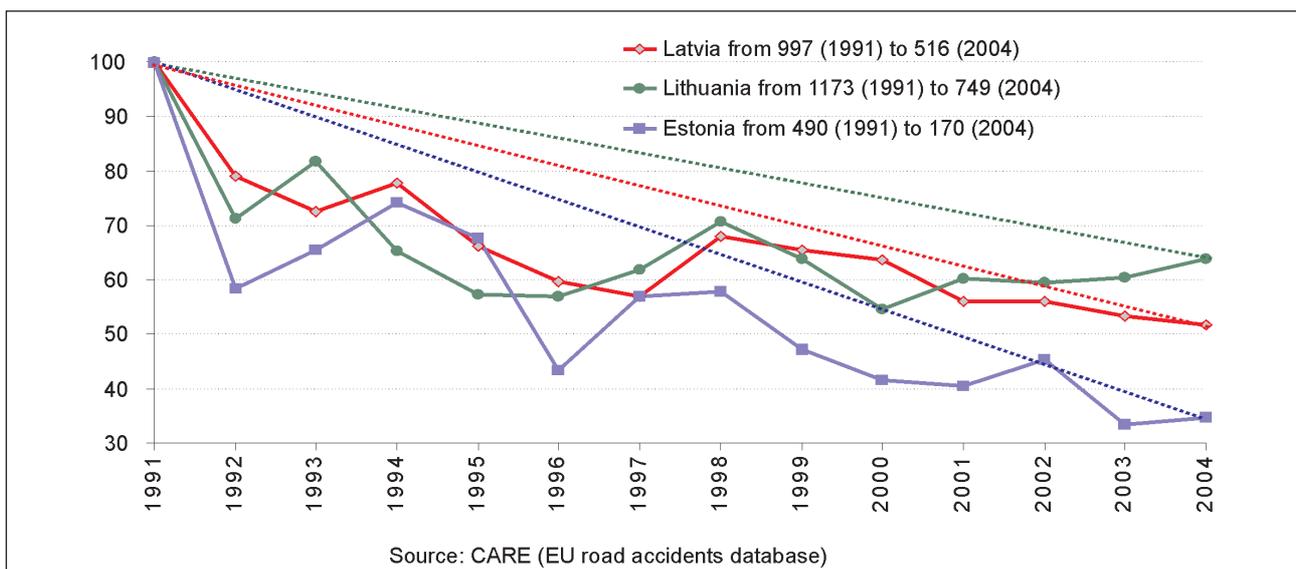


Fig 5. Fatalities decrease achieved by different measures in each country [9]

Fig 7 shows main tendencies in road traffic safety improvement work in all three countries. The Baltic countries, especially Latvia and Lithuania, need a lot of work to reach European level of road safety and the Efficiency Assessment Tools would essentially help finding the most effective road safety measures.

### 5. The 2000–2006 road traffic safety programme in Latvia

The Road Traffic Safety Programme in Latvia for 2000–2006 was accepted by government on 25 Jan, 2000 and the main target of road traffic safety – to reduce the number of the killed by 50 % in road traffic accidents from 604 (7 days, in 1999) to 300 (7 days, in 2006) or from 652 (30 days) to 324 (30 days).

According to the programme goal, number of the killed must be not higher than 400 (30 days) in 2004, registered 516. As compared to 1999, number of the killed has decreased by 20,9 %. The degree of gravity of traffic accidents has also decreased (killed per 100 accidents) from 14,7 (1999) to 10,2 (2004). In spite of work done for improving road safety, the number of the killed and injured people is high and the safety programme is not realised fully [5].

### 6. Penalty point system in Latvia

In 01 07 2004 changes in Codex of Administrative Penalties came into force [10]. They determined both more severe penalties for violating traffic rules as well as a precise and detailed classification of violations. According to them, the implementation of penalties' point system was started in the state. The system foresees:

- 1–8 penalty points for a single offence according to the offence severity;
- penalty points valid for 2 years (5 years for a drunk driving);
- maximum number of penalty points;
- 10 penalty points for novice drivers;
- 16 penalty points for experienced drivers.

Some examples of offences and adequate penalty points in Table 1.

Measures of drivers' behaviour improvement within penalty point system:

- 4 penalty points – written notification suggesting to drive more carefully,
- 8 penalty points – letter recommending to participate in driver improvement courses (possibility to reduce 2 points),

LATVIA The Road Traffic Safety Programme for 2000–2006	LITHUANIA The National Traffic Safety Programme for 2002–2004	ESTONIA The National Road Safety Programme for 2003–2015
<p><b>The main goal:</b> to reduce the number of the killed in road traffic accidents by 50 % from 652 (in 1999) to 325 (in 2006).</p> <p>There were 516 killed in 2004, number of the killed decreased by 26,4 % from 652 (in 1999).</p>	<p><b>The main goal:</b> to reduce the number of the killed by 14,3 % from 706 (in 2001) to 605 (in 2004) {by 4 % in 2002; by 5 % in 2003, by 6 % in 2004}.</p> <p>There were 752 killed in 2004, there were 748 killed in 1999.</p>	<p><b>The main goal:</b> there should be less than 100 fatalities in road accidents in Estonia in 2015.</p> <p>There were 170 killed in 2004, number of the killed decreased by 29,3 % from 232 (in 1999).</p>

Fig 6. Baltic States accepted Traffic safety programs and their main goals

LATVIA	LITHUANIA	ESTONIA
<ul style="list-style-type: none"> <li>• accidents involving vulnerable road users</li> <li>• drink and drive accidents</li> <li>• accidents occurring in darkness and twilight</li> <li>• reduction of the consequences of accidents</li> </ul>	<ul style="list-style-type: none"> <li>• human behaviour factors</li> <li>• education and training of road users</li> <li>• increase of the efficiency of traffic control</li> <li>• transport policy with legal framework</li> </ul>	<ul style="list-style-type: none"> <li>• human behaviour factors</li> <li>• infrastructure and environment development</li> <li>• transport policy with legal framework</li> </ul>

Fig 7. Main tendencies in road traffic safety improvement work in the Baltic States

**Table 1.** Examples of offences and penalty points

Offence	Penalty points
Use of seatbelts	0 (1 – proposal in discussion)
Speeding < 20 km/h above the allowed speed limit	0 (1 – proposal in discussion)
Positioning offence (driving in a wrong line)	1
Speeding 20–30 km/h above allowed speed limit	1
Speeding 31–40 km/h above allowed speed limit	2
Speeding 41–50 km/h above allowed speed limit	3
Aggressive driving	6
Driving under intoxication	8
Repeated driving under intoxication or repeated driving without a driver's licence	Administrative arrest for 5–15 days

- 10 penalty points – 1 year disqualification (for a novice driver),
- 12 penalty points – mandatory theoretical test (2 points reduced if the test is passed, 2 points added if the test is not passed or a driver ignores the test),
- 16 penalty points – 1 year disqualification (for an experienced driver),
- 5 years disqualification if during 10 years a driver twice reaches the maximum number of penalty points.

In comparison with the year before the introduction of penalty point system, a year later all road traffic safety indices decreased. The cost benefit ratio of this measure is excellent according to the European Thematic Network ROSEBUD. The discussion on improving the penalty point system is now going in Latvia. From 14 Oct, 2005 the first change is made if a repeated driving under the alcohol influence or repeated driving having no driver's license – administrative arrest for 5 to 15 days together with a heavy fine. Now a discussion is taking place on the punishment with penalty points for not using a seat belt and operating the vehicle without the technical inspection sticker.

There were 5081 injury road traffic accidents, 516 (30 days) killed and 6416 injured people in Latvia, in 2004. As compared to 2003, the number of injury accidents decreased by 5,5 % and the number of the injured decreased by 3,4 %, also the number of the killed decreased by 3,0 % from {493 (7 days) = 532 (30 days), in 2003} to 516 (30 days, in 2004).

*Note. For years 1985–2003 in Latvia these who died at the accident scene or 7 days later are considered as the killed in accident. To convert 7 days period into 30 days period, the number of the killed is increased by 8 %; consequently, the number of injured decreased. From 01 01 2004 Latvia uses the international definition of the killed in accidents – 30 days.*

The highest number of killed persons 923 (7 days) was registered in 1991. Thus the number of killed (30 days) has decreased by 1,93 time in 2004. Nevertheless, this figure is 3–4 times higher than in the best performing European countries.

Since Latvia has regained the independence, the traffic nature has changed (Fig 8):

- during the last 10 years the number of vehicles has increased by 1,9 times and that of drivers by 1,6 times;
- as the road infrastructure remains practically the same, the traffic has become more intensive;
- number of injury accidents and number of injured went up by 1,25 times in the last 10 years, but the number of the killed (30 days) decreased by 1,28 times;
- number of the killed in road accidents per 1 million inhabitants has decreased, still it is high – about 1,7 times higher than the average of the given number of vehicle fleet.

## 7. Statistics of accidents in 2004

The positive trends as compared to 2003:

- by 2,7 times decreased the number of killed children (age up to 14 years) from 16 (in 2003) to 6 (2004), also the injured children number by 12,7 %;
- by 20,0 % decreased casualties of pedestrian-children;
- by 16,5 % decreased the casualties of cyclists;
- by 8,4 % decreased the accidents under the alcohol influence, and by 2,0 % casualties in such a kind of accidents.

The negative trends as compared to year 2003:

- by 8,8 % increased the number of killed pedestrians;
- by 16,4 % increased the number of killed pedestrians in darkness;
- number of killed motorcyclists increased from 12 (in 2003) to 19 (2004);
- number of killed teenagers increased (age from 15 to 17 years) from 16 (in 2003) to 21 (2004);
- by 18,2 % increased the killed number in Riga, the capital of Latvia.

In 01 07 2004 changes in Codex of Administrative Penalties came into force. They determined both more severe penalties for violating traffic rules as well as precise and detailed classification of violations. Accordingly, the implementation of penalties' registration point system was started in the state.

**Positive trend** – compared to the second half of the year 2003 (July–Dec), the number of injury accidents has reduced by 14,9, the number of the killed by 6,2 % and the injured number by 11,5 %.

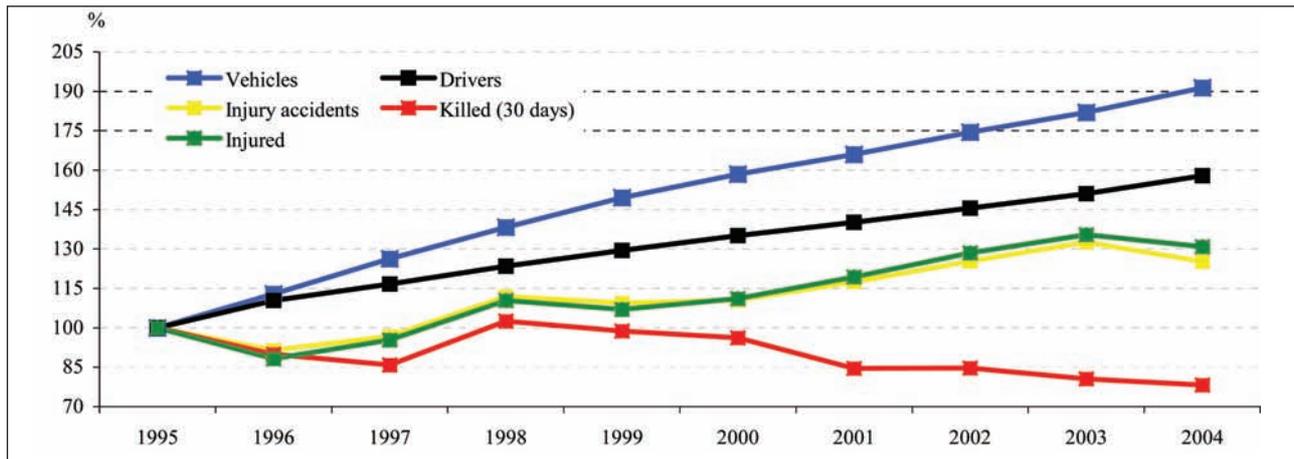


Fig 8. Traffic safety indices in Latvia [6, 8]

## 8. Generalisation

According to statistics, the occurrence of road accidents is mainly depending on road users' actions. *Therefore the increase of the road traffic safety level in Latvia mainly depends on the human factor.*

Main problem blocks are:

- **Accidents involving vulnerable road users**

About 50 % of all injury accidents in 2004 were collisions of vehicles with vulnerable road users (pedestrians, bicyclists, riders of mopeds and motorcyclists). These accidents usually have serious and fatal consequences for vulnerable road users:

- 38,2 % of all the killed and 25,3 % of all the injured were pedestrians;
- 10,1 % of all the killed and 9,4 % of all the injured were riders of motorcycles, mopeds and bicycles.

- **Drink and drive accidents**

One of the main causes of accidents on Latvia's roads in 2004 was driving under the influence of alcohol. There were 633 (12,5 % of all) alcohol related injury accidents in which 113 (21,9 % of all) persons were killed and 940 (14,7 % of all) persons injured. Thus decreasing the alcohol related accidents remains an acute problem solution of which could increase the road safety in Latvia.

- **Accidents in darkness and twilight**

Last year 1841 (36,2 % of all) injury accidents have occurred in darkness and twilight in which 282 (54,7 % of all) people were killed and 2284 (35,6 % of all) people injured. 65,0 % of all the killed vulnerable road users were registered in accidents that occurred in darkness and twilight and 75,6 % of all killed vulnerable road users on state roads were registered in accidents that occurred in darkness and twilight. The level of seriousness of accidents in darkness and twilight is twice higher than in daylight.

- **Reducing consequences of accidents**

There are many accidents with serious consequences in comparison with other European countries. Therefore it

is essential to improve rescue services and to pay special attention to the use of seat belts, helmets and children restraint devices.

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