

TRANSPORT ACCIDENTS IN THE EU

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Summary: The paper describes transport accidents in the EU in recent years. Accidents which can happen through transportation of persons and freight can endanger human life, property and the environment. Accident statistics display injuries and fatalities, according to transport mode (air, road, water and rail transport)

Key words: accident, transportation, fatalities, injury, failure

INTRODUCTION

Safety is the primary aim of every transport system. Most accidents in different means of transport are similar because they involve fast moving vehicles that carry many people or large quantities of freight. The cause of origin of the incidents or accidents can be several factors: human failure, conditions on communications and vehicles or the nature of freight. These determinants can cause direct or indirect damage to the human life, health, property and the environment.

Total number of accidents in the European Union in 2013 were: 16 aviation accidents, 98 railway accidents 1 055 040 car accidents and 144 inland waterway accidents. The total amount of fatalities was 12 from inland waterway accidents, 176 from aviation accidents, 1130 from railway accidents and 26 090 from road accidents. (1)

1. AIR ACCIDENTS

The origin of air accidents can be natural, technical or human (such as mechanical breakdowns or terrorist attacks). Commonly, the small aircraft (helicopters, light airplanes, gliders) do not produce disasters such as big aircraft. Although accidents involving this type of aircraft are relatively unlikely. If they do occur, it is usually in the perimeter of airfields and in the axis of take-off and landing strips. (2) These accidents are unpredictable and there are no real tools for protection against them.

Statistics of aviation accidents are gathered by questionnaire on air transport safety statistics. In the EU in 2013 the number of injury accidents (accidents on national territory, regardless of the nationality of the aircraft operator) decreased from 61 (2008) to 16 (2012). The year 2009 presents the year with the highest amount of accidents (103). (3)

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Figure 1 shows the number of fatalities in accidents (accidents on national territory, regardless of the nationality of the aircraft operator) in 2013 on the territory of the EU (involving aircraft registered in EU countries)

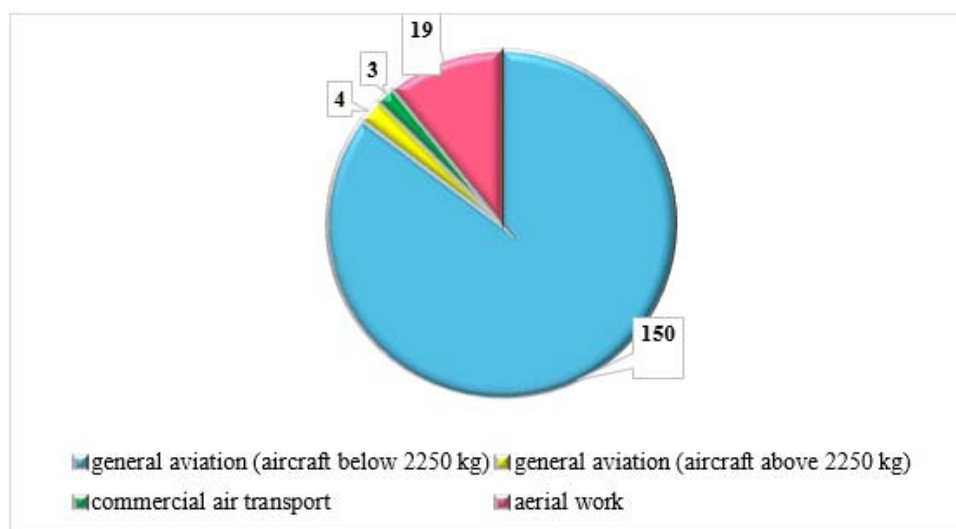


Fig. 1 - Share of aviation accidents in EU in 2013 (adjusted data from Eurostat)

2. ROAD ACCIDENTS

Road accidents are definitely the most common and, overall, the cause of the most damage. The reason is the greatly dense of road traffic and the huge freedom of movement given to the drivers. Accidents involving heavy goods vehicles (such as lorries with trailers) create too frequently regardless of calls for responsible behaviour, respect of the loading regulations and highway code, adapt driver's speed which affects stopping distances or weather conditions (rain, ice, fog, ..). The prevention of road accidents is also very important and will be ensured by strict laws, police controls and training for drivers (especially for drivers of dangerous goods) and, if it would be necessary, by legal penalties for those responsible.

Data about road accidents are collected through European centralised database on road accidents resulting in death or injury across the EU. In 2013 there were 26 090 fatalities on roads. (4) As is displayed in the table 1, the number of road fatalities is declining. While there were 31 500 persons killed in road accidents in the EU in 2010, in 2013 this number decreased to 26 000 persons. (5)

Tab. 1 - Number of accidents, injuries and fatalities in EU in recent years

Year	Accidents	Injured	Fatalities
2000	1 463 000	1 945 300	57 080
2001	1 479 100	2 008 700	54 900
2002	1 427 000	1 960 800	53 300
2003	1 406 800	1 893 900	50 400
2004	1 360 500	1 820 800	47 300

2005	1 342 200	1 769 100	45 300
2006	1 320 800	1 742 200	43 100
2007	1 320 000	1 747 600	42 500
2008	1 255 400	1 653 600	38 900
2009	1 204 700	1 595 500	34 800
2010	1 130 400	1 502 200	31 500
2011	1 123 300	1 484 800	30 700
2012	1 080 040	1 433 700	28 200
2013	1 055 400	1 389 800	26 000

(Adjusted data from CAREⁱ)

2.1 Gender

In this section is compared car accidents and fatalities between genders. Much more males than females were killed in road accidents: 76% of all fatalities were male and only 24% were female.

Figure 2 displays compare of the number of road fatalities in genders in years from 2004 – 2013.



Fig. 2 - Comparison of road fatalities according to gender in EU in 2013 (adjusted data from CARE)

Figure 3 displays male and female distributions of fatalities in the EU, in the terms of road user type. About two third of female fatalities were car passengers (28%) or pedestrians (33%), while only 10% of male fatalities were car passengers and 18% pedestrians. The motorcyclists presents 18% of male fatalities and only 4 % of female fatalities.

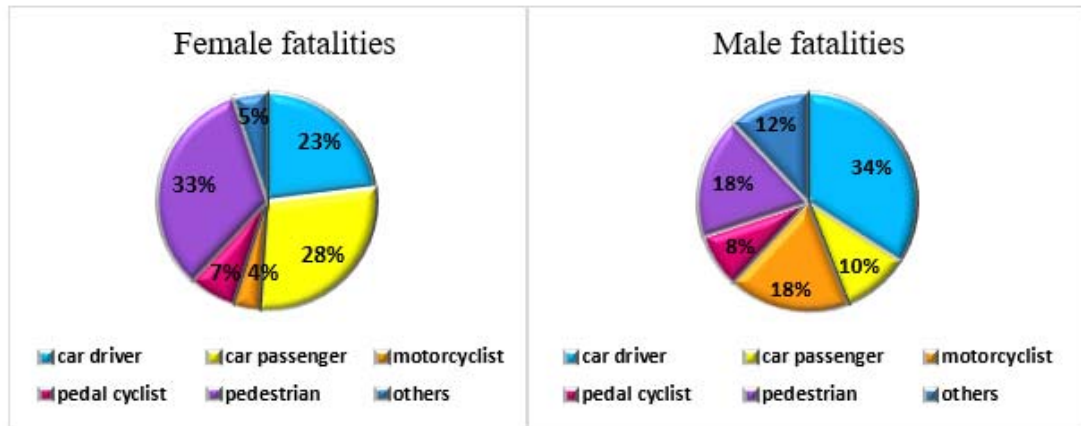


Fig. 3 – Distribution of road fatalities in the EU in 2013 (Adjusted data from CARE)

By comparison with male fatalities, females were more likely to be travelling as car passengers and pedestrians and less likely to be travelling as car drivers and motorcyclists.

2.2 Age

The rates are high among the young road users (15, 24 years old). Figure 4 displays a comparison of the numbers of road fatalities per 5 year age group in 2013 in EU. The highest fatality numbers are between the ages of 20 and 29 years. (5)

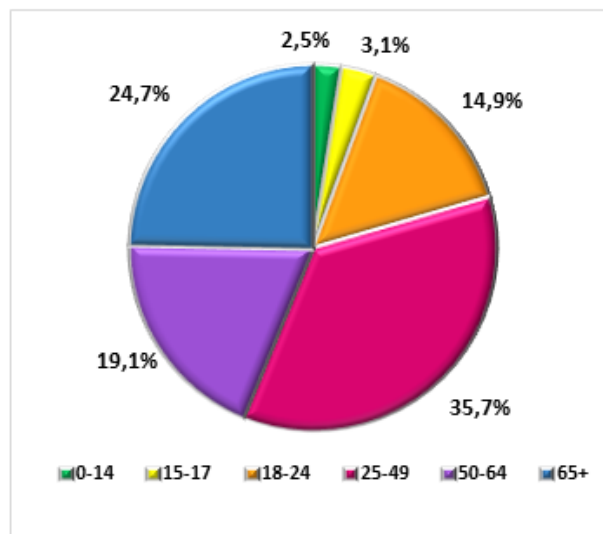


Fig. 4 – Road fatalities according to age in EU in 2013 (Adjusted data from CARE)

2.3 Seasonability

The distribution of fatalities by month has not changed over the years. Most accidents happen in the summer, especially in August.

The distribution of the fatality total by day of the week and time of the day is displayed in the figure 5. The number of fatalities from Monday to Thursday is relatively similar, with a daily afternoon peak and relatively few during the night. The high number of fatalities early on Saturday and Sunday mornings is also notable. (5)

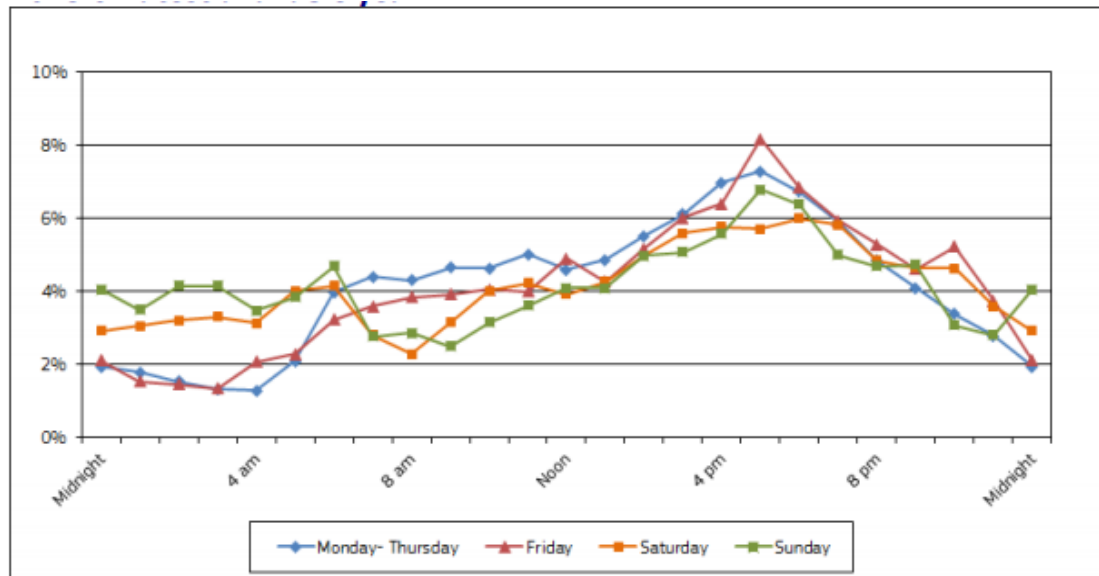


Fig. 5 – road fatalities according to day in week (Eurostat)

3. WATER ACCIDENTS

The number of maritime disasters has greatly declined mainly because of improved of large maritime carriers and more effective navigation systems on the seas. Because of this, most accidents now create when crossing sea channels or estuaries and involve old or overloaded ships. Moreover, ferry boats have currently been involved in important accidents and disasters because of their instability in bad weather, technical problems and nautical errors.

The major ecological disasters have occurred when crude oil carriers (tankers) have run aground, and the release of dangerous products polluted the water. It is very important to prevent this to extent possible by ensuring the respect of regulations through the checks, transportation and handling operations in ports. (2)

Data which present inland waterway accidents is available for 8 EU Member States (Bulgaria, Czech Republic, Croatia, Hungary, Austria, Poland, Romania and Slovakia) in recent years. In 2013, 56% of inland water transport accidents were in Romania, followed by Austria (17%). Romania proclaimed the highest number of accidents for the period 2006-2013, regardless of 2010 (32 accidents in Romania, 38 in Hungary). The total amount of fatalities on European inland waterways in 2013 was 12.

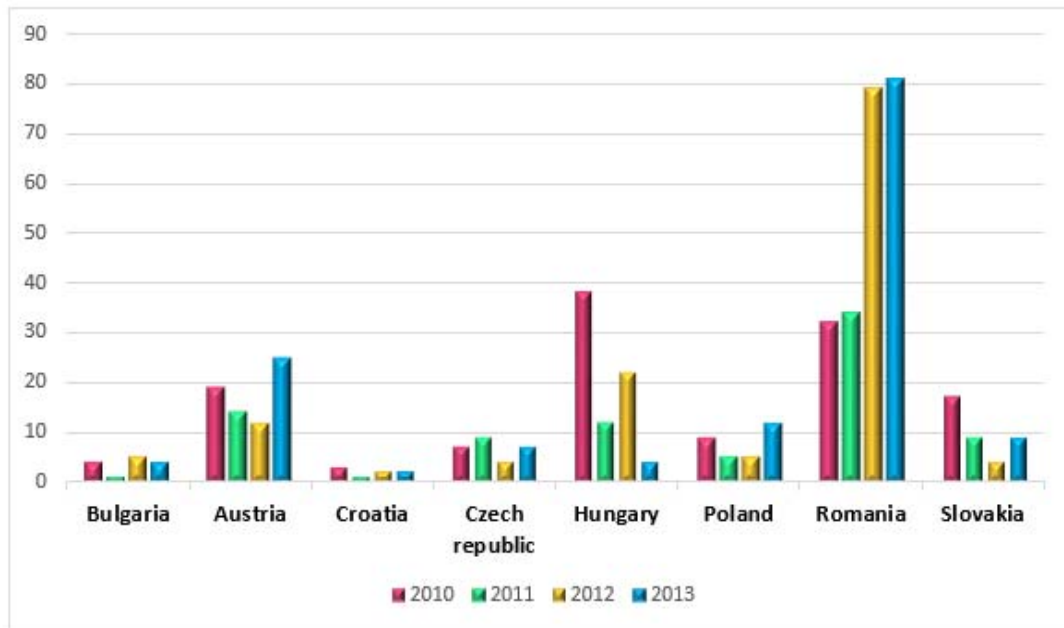


Fig. 6 - Accidents on European inland waterways, 2010 – 2013 (Adjusted data from Eurostat)

Transport of dangerous goods requests special attention, because incidents on inland waterways can cause negative consequences to human health, life and environment. Dangerous goods such as toxic, corrosive, radioactive, flammable or explosive products can pose risks, so there is the need for safety precautions and preventative measures.

There have been 23 big accidents involving transport of dangerous goods on European inland waterways between 2004-2013. Seven occurred in Austria and five happened in Romania. (5)

4. RAIL ACCIDENTS

Although rail transport is one of the safest transport modes, incidents and accidents remain a fact of life. Rail accidents occur when trains derail because of a technical failure in the rolling stock, rails or the security systems or because of landslides avalanches or object obstructing the rails (such as terrorist attacks). (2)

Mostly these types of accidents cannot be avoided, because the train drivers do not have enough time for reaction. Accidents like these can cause damage to people and the environment, especially if trains carry dangerous substances. These accidents are relatively rare, although can be avoided by taking strict preventive measures (signalling systems, training personnel), which can reduce technical and human failures.

In the recent years there has been a continuous decrease of accidents in European rail transport. Nevertheless, serious accidents have an important effect on the trend in the annual number of fatalities Figure 7 displays the serious rail accidents during 2000-2013. The year 2013 presents the year of the highest number of accidents as a result of the tragic high speed train accident in the north of Spain claiming 79 lives in July 2013. (6)



Fig. 7 – Serious rail accidents during 2000 – 2013 in EU (Adjusted data from Eurostat)

CONCLUSION

Air, road, water and rail accidents are similar in fast moving vehicles carrying many persons and large quantities of freight and substances that can pose potential risk to the public and the environment surrounding the site of the accident. The most dangerous mode of transport is road transport. Water transport is more than 50 times safer than road and more than 5 times safer than rail (in persons killed per tkmⁱⁱ) transport (5) Available data show very low accident rates in European inland waterways. In order to ensure safety there is needed to split part of transport performance from road and rail transport to the most environmental and safety transport department – water transport.

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ⁱ CARE – EU road accidents database

ⁱⁱ Tkm = tonnekilometre - Transportation of 1 tonne of freight on 1 km distance