

## Road Safety in Greece

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### General Trends

Greece, in the south-east of Europe, has 11,1 million inhabitants, and an interurban road network of 41.053 km, from which only 868 km are motorways. Greece has a mountainous mainland and a total area of 131.990 km<sup>2</sup>. In 2006, the number of vehicles registered in Greece was 7,21 million, approximately double than ten years ago (3,80 million registered vehicles in 1996) consisting of 4,74 million passenger cars, 1,25 million goods vehicles, 0,03 million buses and 1,18 million motorcycles. The Mediterranean climate of Greece allows not only for a significant part of traffic to be carried out by motorcycles and mopeds, during the biggest part of the year, but also an increased pedestrian traffic in the urban network.

During the last decade, Greece shows steadily the lowest level of road safety (highest fatalities rate) among the 15 older European Union (EU) countries and one of the lowest levels among the 27 EU countries reflecting the insufficient effort of both the Authorities and the citizens. The fatality rate (deaths per 10.000 vehicles) in Greece over the last ten years has progressively decreased from 5,7 in 1996 (2,6 in the EU 27) to 2,3 in 2006 (1,5 in the EU 27), highlighting the great potential for further improvement if a more systematic effort is made taking also into account the successful practices of the other European countries who showed significant improvement.

The number of road accidents, persons killed and injured in Greece since 1996 showed an important decrease (Table 1). According to the National Statistical Service of Greece, in 2006, a total of 1.675 road users were killed (2.157 in 1996), and 21.606 injured (34.912 in 1996) in 15.921 road accidents (23.775 in 1996) involving deaths and/or injuries in Greece. This decrease is mainly attributed to the enforcement intensification (Yannis et al., 2007) proposed and implemented within the first road safety strategic plan (2001-2005) (Yannis et al., 2002) but also to the important traffic flows increase (and the subsequent average speed decrease) in the urban and interurban road network of Greece, due to an important increase in vehicle ownership. Similar spectacular accident casualties' decrease has also been observed in several European countries in the period of important increase in the vehicle ownership (UK & Netherlands 1975, Spain 1994) (Al-Haji, 2007). However, the fatality decrease was clearly decelerated after 2004 indicating that further measures of a more integrated nature are required.

**Table 1.** Basic road safety related trends in Greece

Year	Injury road accidents	Persons killed	Vehicles (x1000)	Speed infringements	Drink & drive infringements	Drink & drive checks
1996	23.775	2.157	3.797	n.a.	n.a.	n.a.
1997	24.925	2.105	4.048	n.a.	n.a.	n.a.
1998	24.819	2.182	4.323	92.122	13.996	202.161
1999	24.231	2.116	4.690	97.947	17.665	246.611
2000	23.001	2.037	5.061	175.075	30.507	365.388

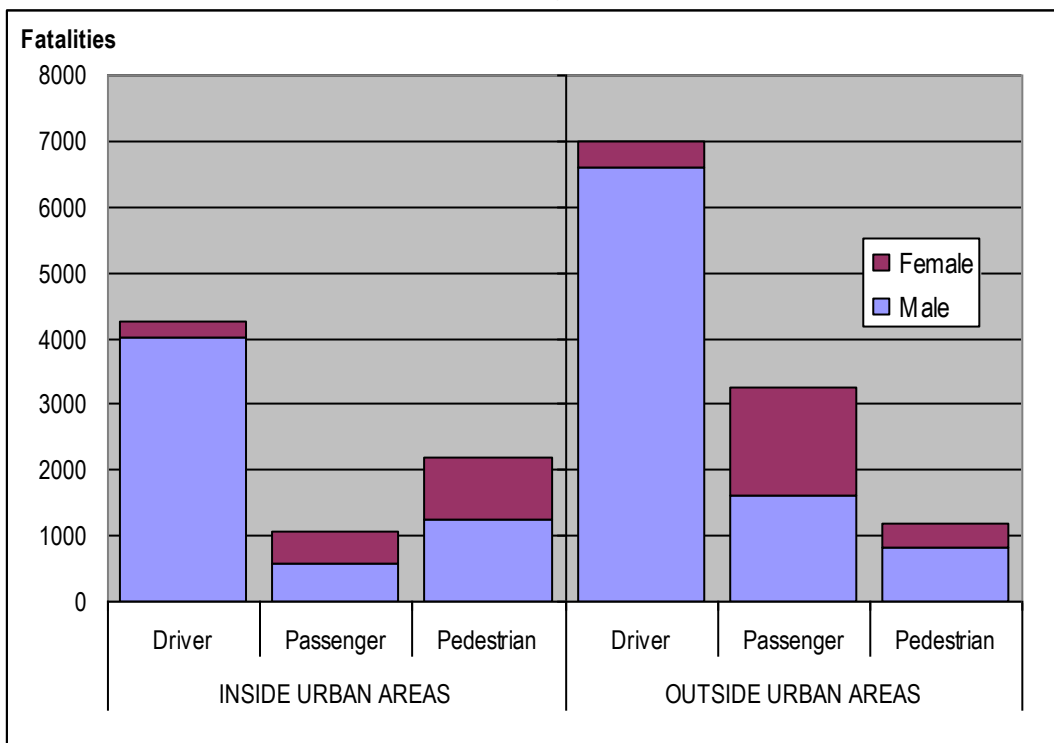
2001	19.671	1.880	5.390	316.451	49.464	710.998
2002	16.809	1.634	5.693	418.421	48.947	1.034.502
2003	15.751	1.605	5.968	447.249	45.546	1.271.217
2004	15.509	1.670	6.302	382.970	40.986	1.281.102
2005	16.914	1.658	6.885	374.712	46.938	1.376.307
2006	15.921	1.675	7.212	373.281	49.084	1.454.868
1996-2006	-34%	-23%	90%	305%	251%	620%

### **Injury accidents characteristics**

Among the 19.044 persons killed in road accidents during the last decade, 59% were drivers, 23% were passengers and 18% were pedestrians. Female road users killed are far fewer (22%) than male road users (78%), as male drivers killed account for 94% of the total drivers killed and male passengers and pedestrians account for 51% and 61% respectively (Figure 1). The fewer female fatalities is not only the result of less exposure of women drivers but also of their driving behaviour as the risk rates (accidents per veh-kms) indicate (Table 2) that men drivers present a 6 times higher probability to get killed on the road than women.

Risk rates presented in Table 2 (Yannis et al., 2005) show remarkably high fatality risk for motorcycle and moped riders especially for the young and the elderly. Motorcycle riders are 10 times less safe and moped riders are 5 times less safe than passenger car drivers. However, the severity rates (fatalities per 100 injury accidents) do not indicate as high differences between the two-wheelers and passenger car drivers, with moped riders showing about double severity than motorcyclist and passenger car drivers. The probability of being involved in an injury accident as well as the severity of an accident, are clearly higher for the younger and older drivers for both the two wheel vehicles and the passenger cars.

**Figure 1.** Fatalities per person class, gender and area type (1996 - 2005)



**Table 2.** Risk and severity rates per vehicle type, driver age and gender (2004)

	Nr of fatalities per million veh-kms				Nr of fatalities per 100 injury accidents			
	Moped	Motorcycle	Passenger car	Mean value	Moped	Motorcycle	Passenger car	Mean value
<b>Driver age</b>								
16-17	47,4	-	-	<b>47,4</b>	5,1	-	-	<b>5,1</b>
18-24	23,1	175,1	21,8	<b>35,2</b>	2,7	3,1	2,6	<b>2,8</b>
25-34	15,9	54	6,7	<b>10,3</b>	2,7	3,1	2,0	<b>2,6</b>
35-44	39,2	51,6	5,4	<b>8</b>	1,5	2,6	2,6	<b>2,2</b>
45-54	36,8	26,1	4,6	<b>5,5</b>	1,1	1,8	2,4	<b>1,8</b>
55-64	23	123	5,6	<b>6,8</b>	7,5	1,4	2,8	<b>3,9</b>
>65	310,1	100	10	<b>14,8</b>	12,1	2,5	4,3	<b>6,3</b>
Mean value	<b>34,7</b>	<b>67,4</b>	<b>6,9</b>	<b>10,2</b>	<b>4,7</b>	<b>2,4</b>	<b>2,8</b>	<b>3,5</b>
<b>Driver gender</b>								
Male	41,1	84,9	8,7	<b>13,5</b>	6,0	4,8	4,2	<b>5,0</b>
Female	9,3	3,9	2,1	<b>2,2</b>	1,7	0,8	1,8	<b>1,4</b>
Mean value	<b>36,2</b>	<b>74,1</b>	<b>7</b>	<b>10,6</b>	<b>3,8</b>	<b>2,8</b>	<b>3,0</b>	<b>3,2</b>

In Table 3 it is shown that even though 72% of injury accidents occur inside built up areas, only 40% of the total number of killed persons is killed in these accidents, showing thus an accident severity almost 5 times higher for the road network outside urban areas. Furthermore, fatality risk is significantly higher outside urban areas for the riders of mopeds and motorcycles and the drivers of passenger cars. Higher risk and severity outside urban areas may be explained by the higher speeds observed in the interurban road network than inside urban areas.

**Table 3.** Risk and severity rates per vehicle type and area type (2004)

Area type	Nr of fatalities per million veh-kms				Nr of fatalities per 100 injury accidents			
	Moped	Motorcycle	Passenger car	Mean value	Moped	Motorcycle	Passenger car	Mean value
Inside urban areas	27,5	63,3	4,9	<b>10,2</b>	4,5	3,7	1,7	<b>3,3</b>
Outside urban areas	92,1	123,2	8,8	<b>11,2</b>	18	15	13,9	<b>15,6</b>
Mean value	<b>36,2</b>	<b>74,3</b>	<b>7,0</b>	<b>10,7</b>	<b>11,2</b>	<b>9,3</b>	<b>7,8</b>	<b>9,5</b>

### Road safety perspectives

The second national road safety strategic plan (2006-2010) (Kanellaidis at al., 2005) consolidated the knowledge from the implementation of the first strategic plan and proposed to achieve the European target of a 50% reduction in road fatalities by 2010 (in relation to the 2000 figures). On that purpose a set of 50 priority measures are proposed and several of them started recently to be implemented focussing mainly on:

- the intensification of road safety enforcement (mainly speeding, drinking and driving and use of seatbelts and helmets),
- a large programme of maintenance and road safety interventions on the interurban road infrastructure,

- an important programme of motorway development, totalling a 2.500 kms of motorways (in comparison of today's 868 kms),
- a modern and stricter Road Code already in force since June 2007,
- frequent and targeted road safety education and information campaigns.

The current low level of road safety in Greece together with the significant reduction of road casualties during the last decade indicate that there is a great potential for further improvements. The consistent and continuous implementation of the priority measures by all parties involved is not only a tool for the achievement of the European and national targets but also a challenge for the citizens and the Authorities to work together for the significant improvement of the current low level of road safety in Greece.

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