

ACEM's view on PTW fatality statistics in Europe

Summary

In February 2006, the European Commission published the Mid Term Review Report on the implementation of the Road Safety Action Plan in which an increase of fatalities was presented in the field of motorcycle safety: *'fatalities among motorcycle riders are among the most worrying'* and *'some figures are alarming'*. To obtain a deeper and more up to date view on the current situation, ACEM has been collecting data and analysing the situation for EU 15, delivering the following key conclusions:

Moped safety has been improving. Between 2000 and 2004, there have been - 26% less moped fatalities, this reduction has been going faster than the decrease in the circulating park (-9.7%). When compared to the European average, high rates of fatalities per 10.000 vehicles were reported in Denmark, Greece, France, Portugal and The Netherlands. Further research is necessary to identify the causes for these higher rates and identify appropriate action.

The motorcycle circulating park has been increasing by 69% between 1994 and 2004. When comparing the trend between 2000 and 2004, an increase of 21% was measured. When looking at the rate of fatalities per 10.000 registered vehicles, improvement was reported in all countries, except Italy which represents 31% of the EU 15 circulating park. The EU 15 average number of fatalities per 10.000 vehicles decreased from 4.7 in 2000 to 3.8 in 2004. In the same period, the EU 15 motorcycle circulating park has increased largely faster (+ 21 %) than the rider fatalities (+3.4 %). The countries with the lowest safety progress rate compared to the 2004 EU 15 average of 3.8 fatalities / 10.000 vehicles are Ireland, Portugal, France, UK, and Greece. Further research is necessary to identify the causes for these higher rates and identify appropriate action.

As a conclusion, the claims on motorcycle-only fatality trends as indicated in the Mid Term Review by the European Commission are in-line with results of analysis by ACEM. However, the Mid Term Review report presented only the trends of motorcyclists. The reverse and positive trends of mopeds (reduction in fatalities) were not reported. This may have led to a misleading view of all PTW safety, which is indeed improving. With this publication, ACEM hopes to provide a more detailed insight in today's safety of Powered Two Wheelers in Europe and looks forward to working with the EC on continuing to develop further knowledge of motorcycle safety statistics in the EU 25.

1 Background and objective

1.1 Introduction

In the Communication from the European Commission on the Mid Term Review (MTR) of the Road Safety Action Plan, particular references are made to the fatality trends of motorcyclists on European Roads. It is presenting a worrying picture with a dramatic increase of motorcycle fatalities in five European countries. The European Commission's MTR also sets out a possible scenario whereby 2010 one out of three fatalities could be motorcyclists.

The data in the Mid Term Review, published by the European Commission were based on the developments between 2001-2002 and 2001-2003. Also, the data focus only on motorcycles, and moped fatalities are not taken into account.

1.2 Objective

To correctly understand and interpret the current road safety situation for Powered Two Wheeler users, ACEM prepared and analysed the most detailed available picture of the situation. Following ACEM's extensive Plan for Action in 2004 and ACEM's response to the Mid Term Review from the European Commission, it is ACEM's intention to support and cooperate with the European Commission in the interpretation of road safety data on Powered Two Wheeler users.

This paper describes the road safety situation for Powered Two Wheeler (PTW) users in the EU 15 member states as a basis for understanding casualty trends across the EU. This will help the industry and stakeholders to identify further effective policies and countermeasures. Due to limited availability of data, in this first step, ACEM performed the analysis only for EU 15.

1.3 Procedure followed

To obtain the picture described in this paper the following procedure was followed:

- 1) Installation of dedicated Task Force with statistics experts from a National Association, leading Manufacturer and ACEM secretariat.
- 2) Collection of data from a diversity of sources in Europe including Directorate-General Transport and Energy of the European Commission, CARE/SafetyNet publications, National Statistics Offices and National Road Authorities in Member States.
- 3) Selection of 'best set of fatality' data based on following criteria
 - Availability of data up to most recent years to be able to present the most reliable trends
 - Comparison with CARE data over periods that data are available (do they show the same trends?)
 - Select a 'best set of available data' giving a most up to date picture
 - Where data was missing, projections for missing years taking the same absolute number as the previous year.
- 4) Collection and verification of data for vehicle circulating park and new registrations in EU member states.

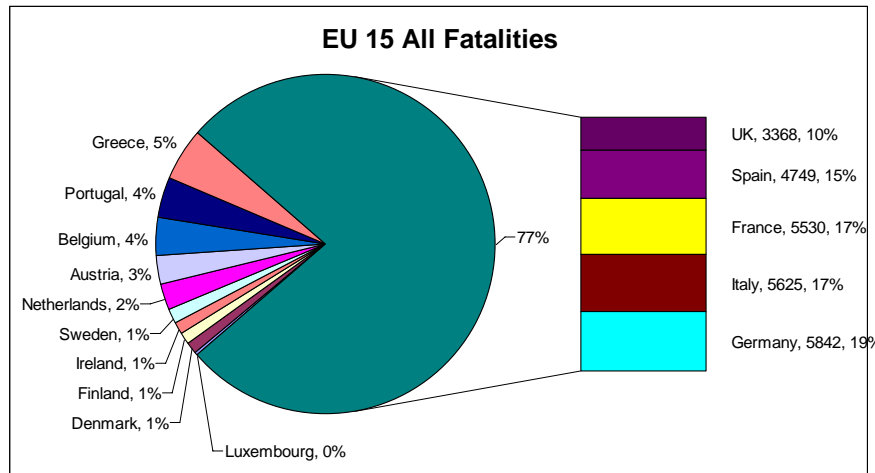
- 5) Calculation of:
 - Fatality share rates showing the percentage of mopeds, motorcycles and PTW's fatalities among all fatalities in the respective country
 - The rate of fatalities per 10.000 vehicles in circulation, based on official registration data where possible
- 6) In some cases absolute data were not accessible or available (e.g. reliable figures for circulating park in Ireland). Results have been obtained through literature analysis and interviews with local experts. Through discussions with ACEM National Associations' experts and literature analysis, key trends were further indicated in country by country reports.
- 7) Production and analysis of EU 15 tables and graphs comparing the trends, followed by a review by ACEM National Associations' experts and a quality control of the ACEM statistics tool. In some cases, the review had led to a re-verification and correction of data. (E.g. correction of vehicle circulating park due to not registered subcategories of vehicles as the max 30 Kilometres / hour mopeds in Denmark).
- 8) Key conclusions on the EU 15 PTW Road Safety Synthesis and publication.

1.4 Notes on data, definitions and sources

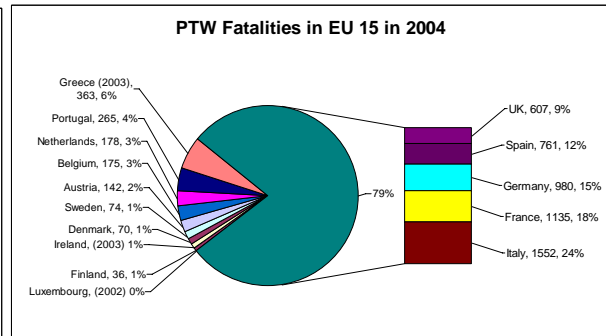
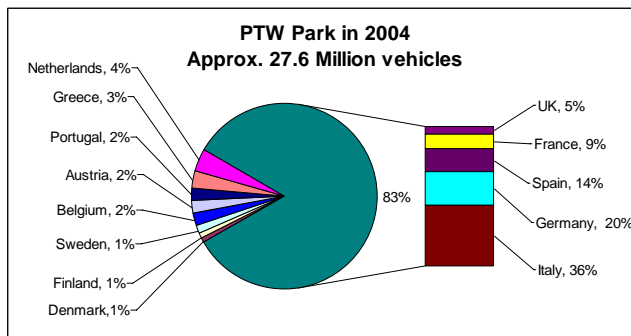
1. As part of the regulation for PTW operation in Europe, PTWs have been divided into several different vehicle categories based upon their engine capacity and design speed. There are currently two dominant PTW legal categories: the L1 and L3 vehicle categories. L1 vehicles include both mopeds and mofas while L3 vehicles include motorcycles. The definitions of these categories are as follows:
 - a. **Motorcycle:** A two wheeled vehicle with an engine cylinder capacity in the case of a thermic engine exceeding 50 cm³ or whatever the means of propulsion a maximum design speed exceeding 50 km/h. A motorcycle is an L3 vehicle.
 - b. **Moped:** A two wheeled vehicle with an engine cylinder capacity in the case of a thermic engine not exceeding 50 cm³ and whatever the means of propulsion a maximum design speed not exceeding 50 km/h. A moped is an L1 vehicle and might be designed to have pedals, or not to have pedals.
 - c. **Mofa:** A mofa is a moped with a maximum design speed not exceeding 25 km/h. A mofa is an L1 vehicle and might be designed to have pedals, or not to have pedals.
2. For some data, it was not clearly reported by sources whether the fatalities include the passenger or concern only the rider. In most cases passengers are included. The ratio of passengers/rider fatalities averages for mopeds and motorcycles approximately 7.5% (CARE data). This aspect needs further verification. For simplification in this report, when referred to rider fatalities, it includes also the passenger.
3. As injury data and accident data do not necessarily match the real situation, ACEM has chosen to first focus only on fatalities. It should be noted that fatalities' analysis does not provide sufficient information on the trends in road safety. Literature analysis furthermore shows that there is still a significant underreporting of fatalities in Europe. (e.g. AVV in the Netherlands indicates a 7 % of underreporting)

4. The analysis uses 2000 as base year: 2000 was a year with relatively high number of motorcycle fatalities. 2003 was a year with also a relatively high number of motorcycle fatalities due to the long summer and long riding season.
5. In the analysis, figures for moped and motorcycle circulating park are used to calculate rates (e.g. number of fatalities per registered 10.000 vehicles per year). We note that in seasonal motorcycling regions the actual park could be larger (estimations of up to +15%). The reason is that in some countries data are reported at a moment that a number of vehicles are not registered (31 December).
6. Due to questionability and public absence of comparable km-figures per year for the circulating park per country, to this stage ACEM has not made use of exposure data.
7. Comparison between countries should be seen as indicative, as underreporting percentage can vary greatly in the different EU countries.
8. Many Member States which joined the EU in 2004 and EU Accession countries have relatively low fatality shares in 2004 compared to EU 15: Czech Republic 7%; Hungary 7%; Slovak Republic 6%; Slovenia 11% and Bulgaria 5%; (IRTAD/OECD ECMT report, 2006). Due to limited availability of data, the focus in this report is on EU 15.
9. In some cases, figures for 2004 were not available. To complete the data, figures from the previous year have been used (Greece, Luxembourg, Ireland). Therefore, projections may not always be in line with the actual developments due to changing trends.

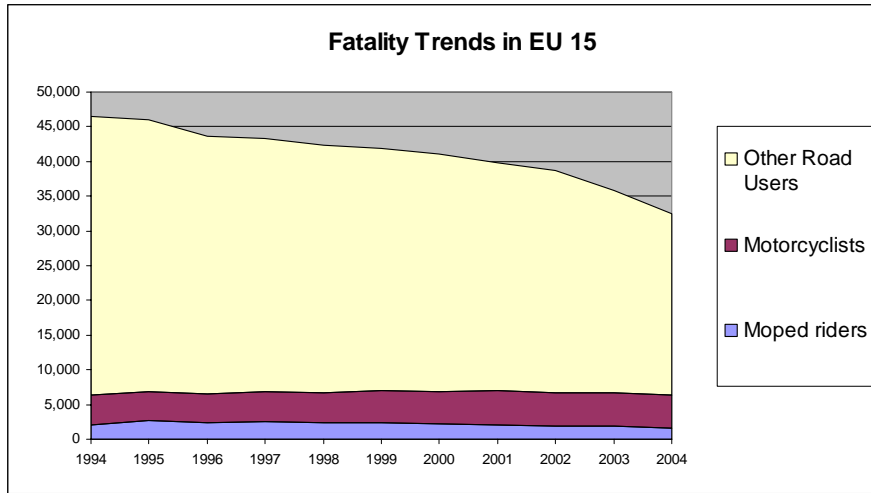
2 PTW Safety overview and developments



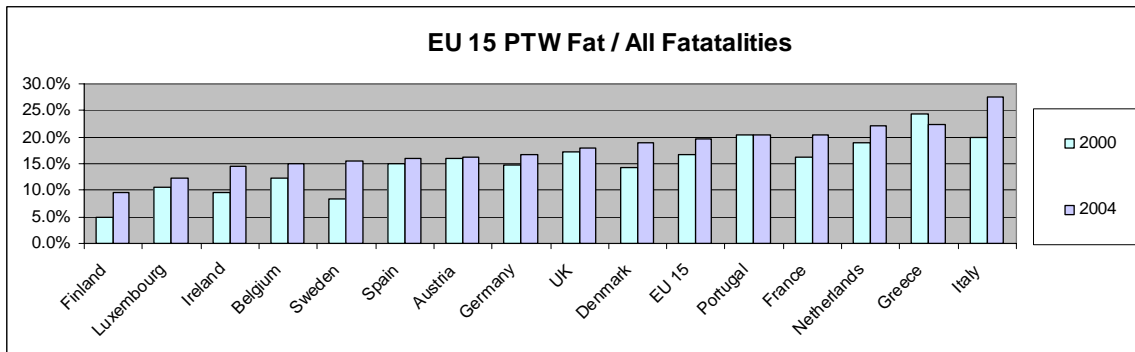
1. In 2004 (CARE) the large countries (DE, IT, FR, ES, UK) are responsible for 77% of fatalities among all road users, including PTW riders.



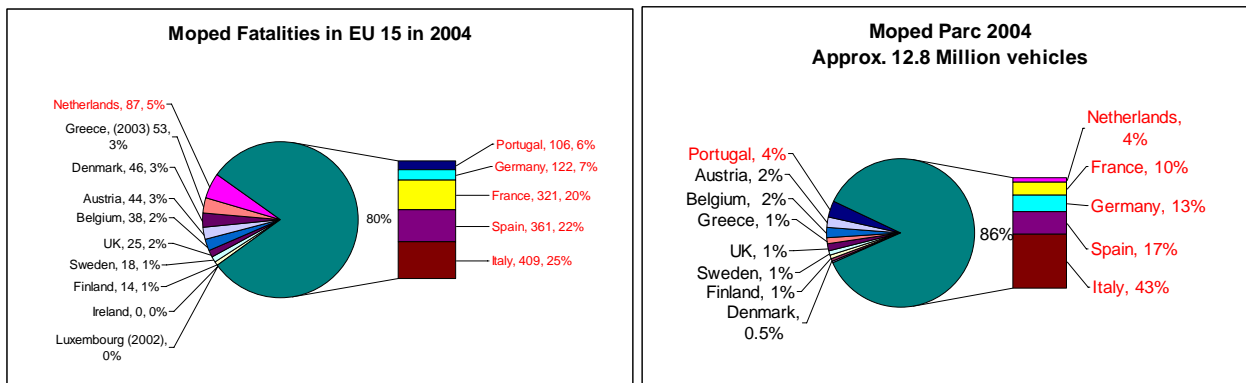
2. The large countries correspond to the main PTW markets, with 83% of the European PTW circulating park. In 2004, 79% of all PTW fatalities in EU 15 happen in the countries Italy, France, Germany, Spain, UK.



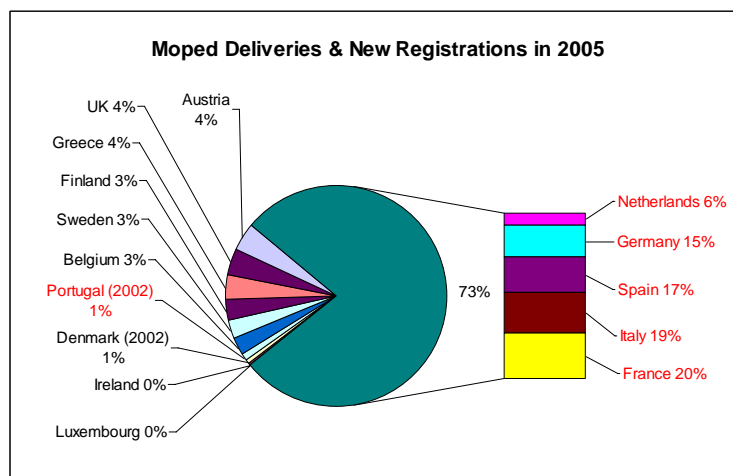
3. Between 2000 and 2004,
- Road fatalities (all road users) decreased by -20.7%,
 - PTW rider/user fatalities decreased by - 6.1%
 - PTW rider/user fatality share increased in almost all countries
 - Moped rider/user fatalities decreased by -25.6%
 - Motorcycle rider/user fatalities increased by +3.4%



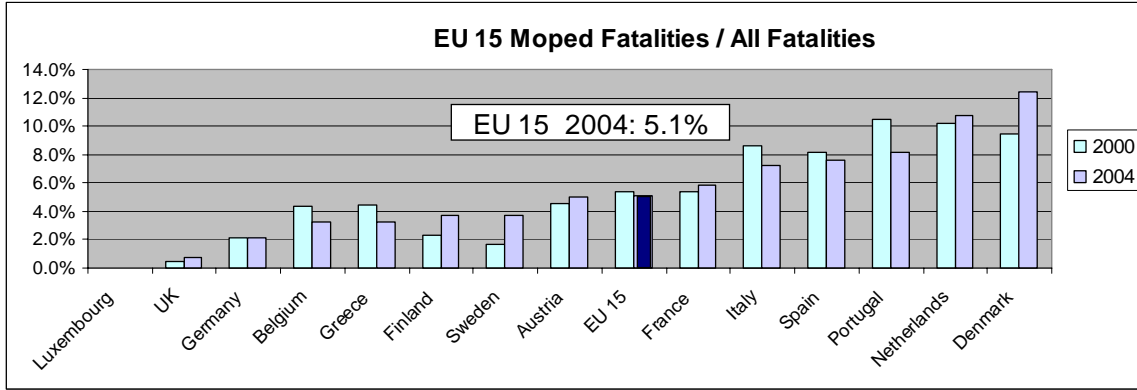
3 Moped trends



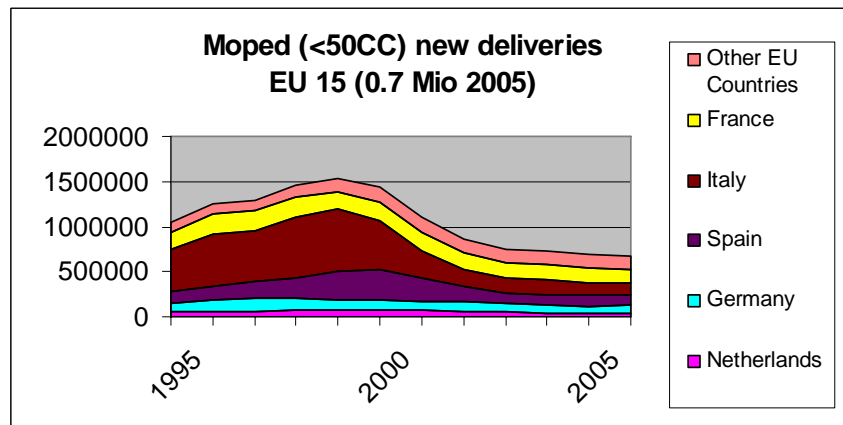
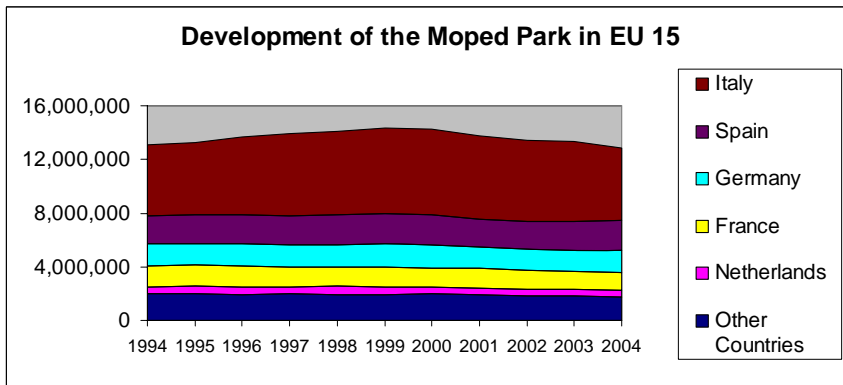
1. 6 countries (IT, ES, DE, F, P, NL) are responsible for 85% of moped fatalities in EU15 and for 90% of the circulating park of EU 15.



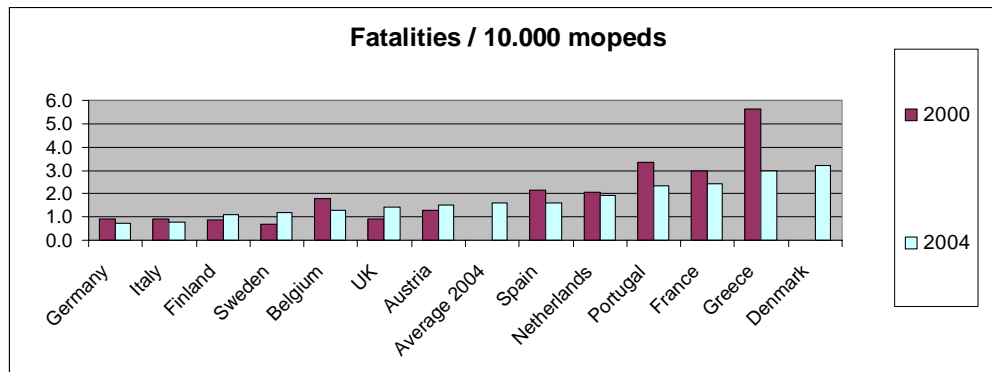
2. 74% of new moped deliveries and registrations are in the 6 countries (F, IT, ES, DE, NL, P). For Portugal recent data are missing.



3. The EU 15 moped fatality share is reducing although in North European Countries and France the Moped fatality shares have been increasing between 2000 and 2004. (Average of EU 15 country values is 5.1%).



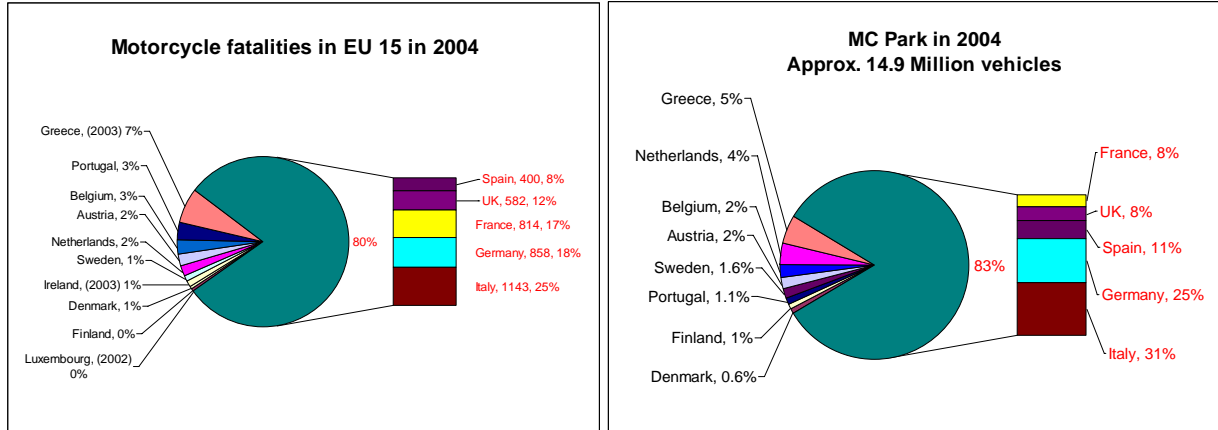
4. The moped park reduced by 9.2% going from 14.2 Million in 2000 to 12.9 Million in 2004. The park is expected to further decrease due to the negative delivery trend and old vehicles leaving the roads.



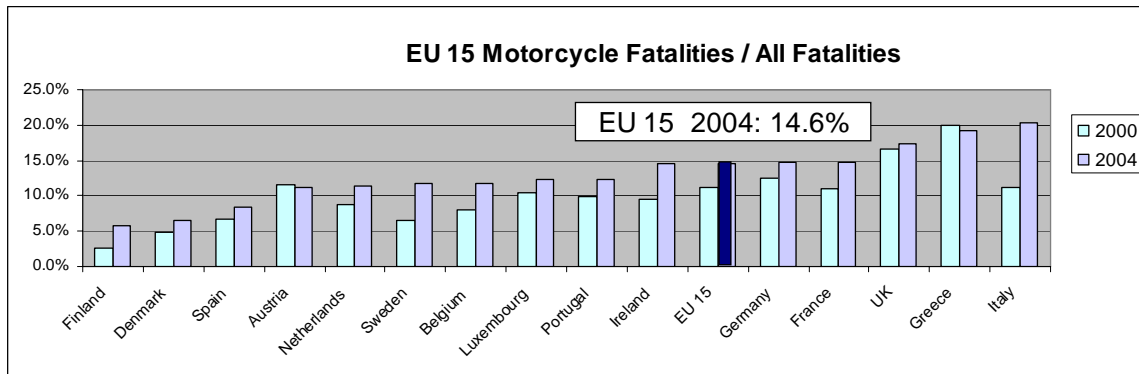
5. Fatalities / 10.000 registered vehicles show improvement in all countries, except Finland, Sweden, and UK.
6. Moped safety has been improving. Between 2000 and 2004, there have been -25.6% less fatalities, this reduction has been going faster than the decrease in the circulating park (-9.2%).
7. EU 2004 country averages 1.9 moped fatalities per 10.000 registered vehicles.
8. The highest safety margins for further progress can be identified in the following countries:

Denmark(*):	3.2 fat. /10.000 vehicles	0.5% of EU 15 park
Greece:	3.0 fat. / 10.000 vehicles	1.4% of EU 15 park
France:	2.4 fat. / 10.000 vehicles	10.4% of EU 15 park
Portugal:	2.3 fat. / 10.000 vehicles	3.5 % of EU 15 park
Netherlands	1.9 fat. / 10.000 vehicles	3.9 % of EU 15 park
- (*) Danish data are based on estimation as mopeds with maximum speed of 30 Km/h are not included in registration data
The 2004 figure is based on assumption of 77.000 30km/h mopeds and 70.000 registered 45 Km/h mopeds.
9. In UK and Finland, there has been an increase in absolute number of fatalities, but it should be noted that the increase is not statistically significant due to the small numbers.

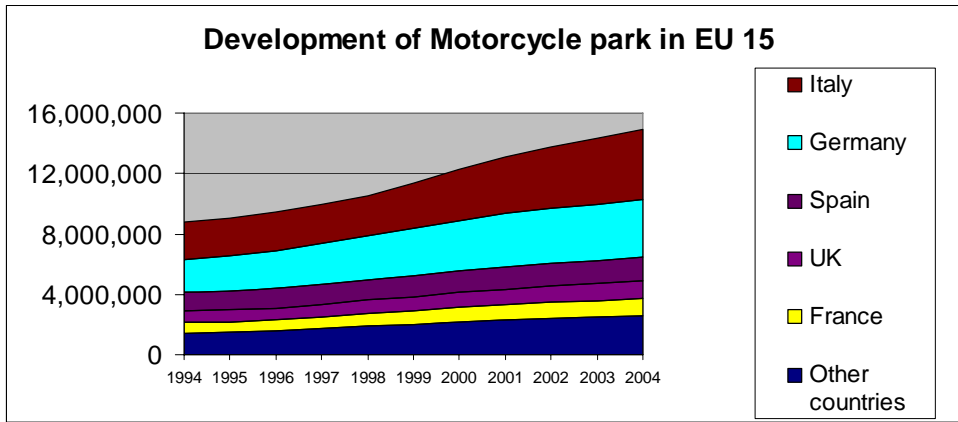
4 Motorcycle trends



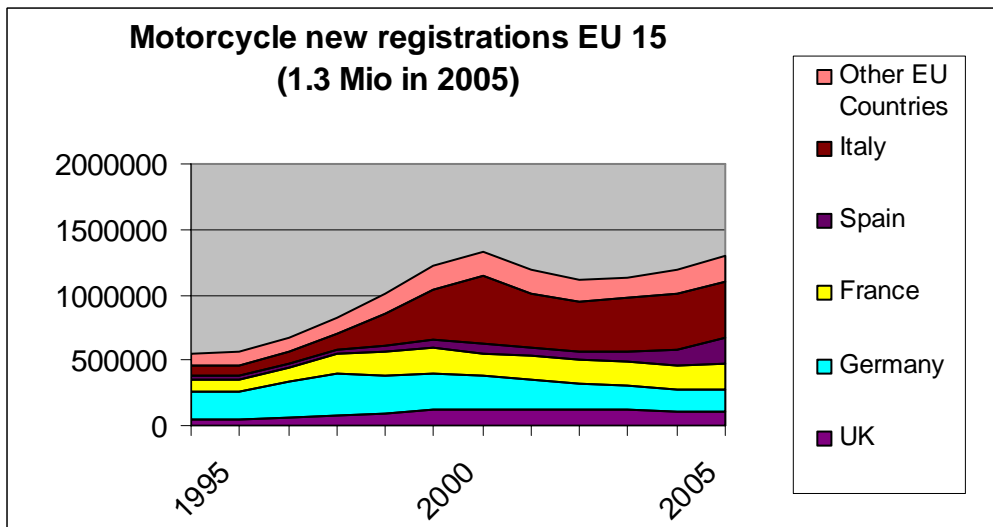
1. Countries (IT, DE, ES, UK, F) are responsible for 80% of motorcycle fatalities in EU15 and for 83% of the circulating park of EU 15.



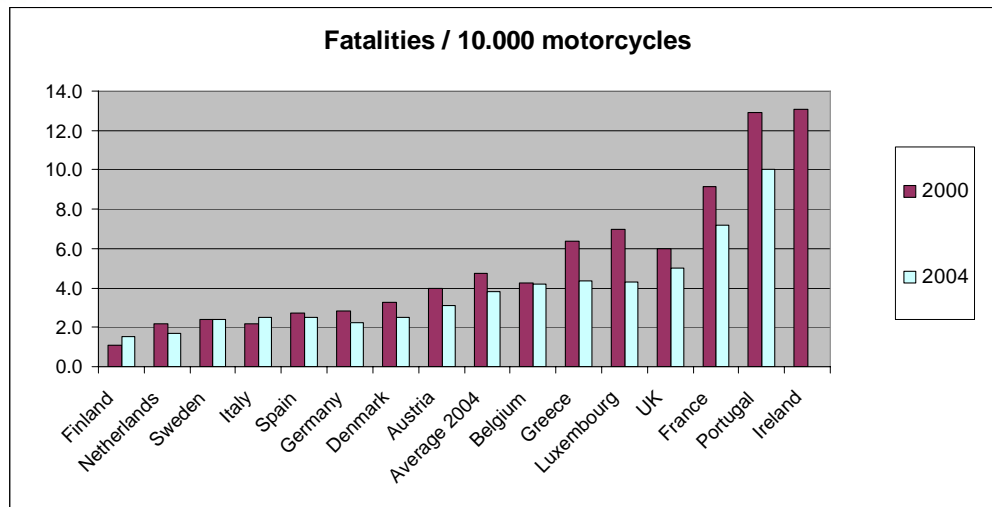
2. Increasing motorcycle fatality share in almost all countries. The share of motorcycle fatalities in EU 15 countries increased from 11.2% in 2000 to 14.6% in 2004.



3. The motorcycle circulating park :
- increased by + 69% between 1994 and 2004
 - increased by + 21% between 2000 and 2004



4. The motorcycle circulating park is expected to further increase over the coming years due to the trend of increasing new registrations.



5. Fatalities / 10.000 registered vehicles show improvement in all countries, except Italy which represents 31% of the circulating park and where the percentage of motorcycles on all motorised vehicles is relatively high compared to the EU average (9.5% versus 5.3%).

6. The EU 15 average number of fatalities per 10.000 vehicles decreased from 4.7 in 2000 to 3.8 in 2004. (Note that this is the average of the country values as the EU 15 cannot be seen as a single market due to significant regional market differences). The EU 15 Motorcycle circulating park increases largely faster than the rider fatalities. Fatalities increased by 3.4 % while the circulating park has increased by 21 %.

7. Positive trend in 5 countries between 2000 and 2004:
 A decrease in the number of fatalities:
 - The Netherlands, -4%,
 - France, -8%,
 - Austria, -13%,
 - Portugal, -15%
 - Greece, -24% (2003)
 A decrease of the number fatalities per 10.000 registered vehicles between -21% and -32%.

8. Contrasting trends in Belgium, Sweden, Spain (2000-2004)
 - An increase of absolute numbers of fatalities: 16%, 44%, 2%,
 - Decrease of fatalities / circulating park: -2.2%, -0.3%, -8.5%,

9. Contrasting trends in Finland, Luxembourg (2000-2004)
 - The increasing trend of absolute numbers is not statistically significant
 - Improvement is shown when circulating park is considered

10. Negative trends particularly

- in Italy (2000-2004) with + 54% fatalities, 2.5 fatalities per 10.000 vehicles in 2004 (2.2 in 2000) but still much lower than European average and an increasing fatality share from +11% to +20%
- In Ireland with +38% of fatalities (2000-2003)

11. Highest safety progress margins compared to the 2004 EU 15 average of 3.8 fatalities / 10.000 vehicles:

- Ireland, 15.7 fat/10.000 vehicles (2003) no park data
- Portugal, 10.0 fat/10.000 vehicles 1.1% of EU park
- France, 7.2 fat/10.000 vehicles 7.6% of EU park
- UK, 5.0 fat/10.000 vehicles 7.8% of EU park
- Greece 4.3 fat/10.000 vehicles (2003) 4.8% of EU park

Motorcycle (+50cc)	EU 15	USA	JAPAN	AUSTRALIA
Total fatalities	32145	42636	7358	1598
Population	358.380.000	281.424.602	127.687.000	20.091.504
Motorcycles per inhabitant	4.1 per 100 persons	2.3 per 100 persons	3.6 per 100 persons	2 per 100 persons
% of MC of all motorised vehicles	6.1%	2.4%	5.1%	2.9%
Total fatalities MC in 2004	4755	4008	673	196
MC fatalities/all fatalities	14.6%	9.4%	9.2%	12.1%
MC circulating park (2004)	14.847.807	6.390.000 (2003)	4.631.164	396.309
Trend in circulating park (2000-2004)	+21.4%	+33%	+4.9%	13% (2001-2004)
Trend MC fatalities (2000-2004)	+3.3%	+38%	-15%	-2.6%

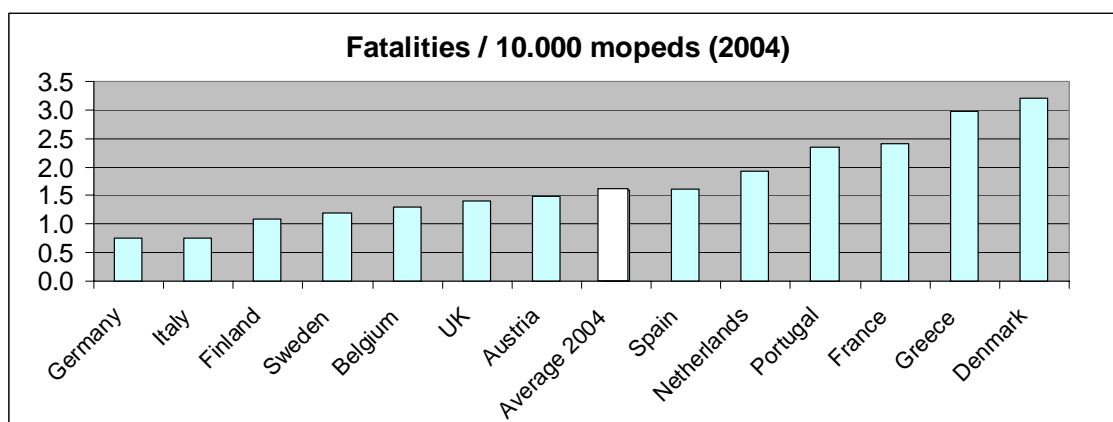
12. In the USA, data are collected for Powered Two Wheelers (both Moped and Motorcycle). The figure provides indications on key trends in EU 15, USA, Japan and Australia.

13. In future studies, exposure or usage data (kms, ages, returning or 're-born' riders, park data) need further attention for evaluating risk exposure. Also, data on injuries, traffic violations and accidents (without human suffering) are of key interest to obtain the most accurate picture.

5 Synthesis and conclusion

5.1 Synthesis

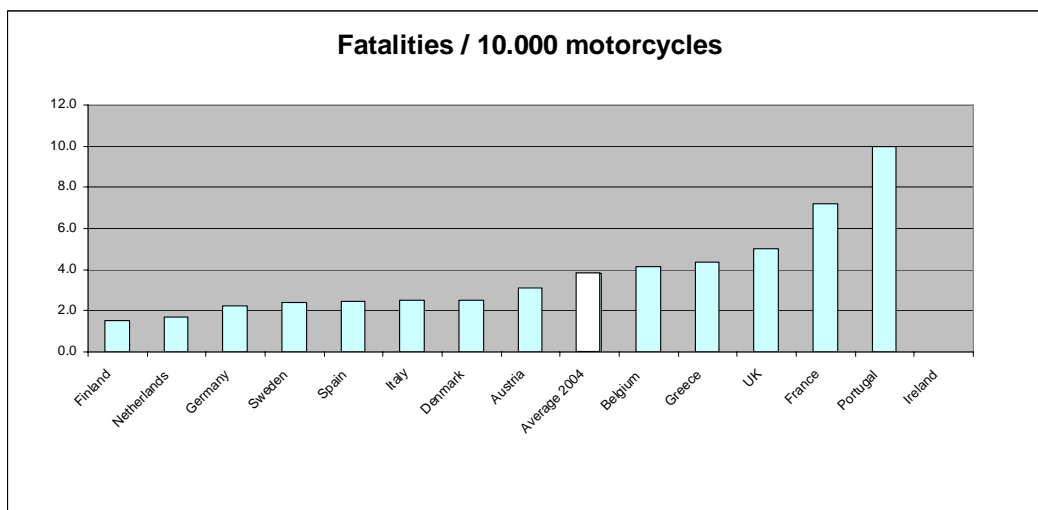
The analysis made clear that due to limited public availability of exposure data, there is today limited data available to address rider fatality risk. As an entity collecting and publishing data on vehicle park and registrations, an effort was made to identify possible safety margins by calculating the rate of absolute fatalities per 10.000 registered vehicles.



When analysing the rate of absolute fatalities per 10.000 registered vehicles for mopeds, the countries *Denmark, Greece, France, Portugal, Netherlands and Spain* become apparent by having a higher score compared to the European Average. Further analysis is recommended to explain the nature and causation in these areas.

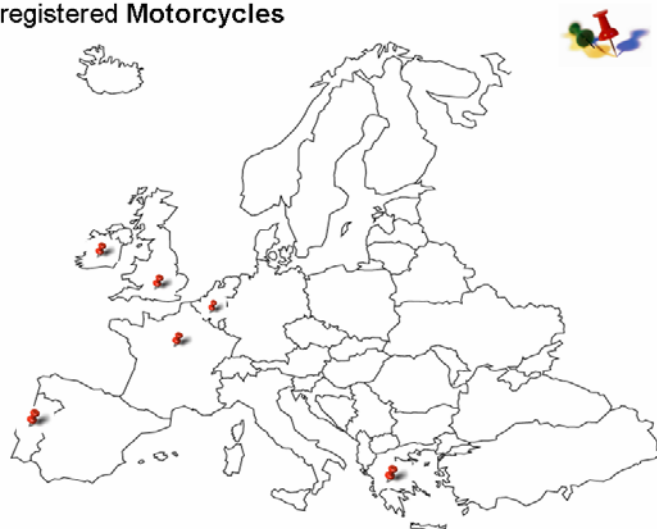
Regions with a relative high rate of fatalities per 10.000 registered mopeds





When analysing the rate of absolute numbers of fatalities per 10.000 registered vehicles for motorcycles; *Ireland* (13.1 in 2003), *Portugal*, *France*, *UK*, *Greece*, and *Belgium* appear to have higher share compared to the European Average.

Regions with a relative high rate of fatalities per 10.000 registered Motorcycles



5.2 Conclusion

The claims on motorcycle fatality trends as indicated in the Mid Term Review by the European Commission in line with conclusions based on analysis by ACEM. In order to have a complete understanding of the whole PTW accident situation in Europe the following issues have to be addressed:

- The Mid Term Review report from the European Commission reported the worst examples, which were not representative for all countries in Europe. Some calculations have been based on data to 2002 or 2003, using 2001 as base year.
- The Mid Term Review report presented only the trends of motorcyclists. The reverse and positive trends of mopeds (reduction in fatalities) were not reported.
- There is a risk of confusion between motorcyclists and PTW riders with the statement that 1:3 of fatalities could be a motorcyclist in 2010.

Availability of data and comprehensive analysis presents a challenge to road safety agencies, the motorcycle industry and the general motorcycle community. The Motorcycle Industry will, as key stakeholder, with its expertise of MAIDS, continue to study safety for Powered Two Wheeler Users and enhance its products based on this knowledge gained in this process.