Mobility and safety of powered two-wheelers in the OECD countries

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Objectives

- Review and synthesis of current know-how for **motorcycling safety**.
- Review and synthesis for **crash configurations** and mechanisms of motorcycles.
- Implementation of **measures** for improvement of PTWs’ safety.
- Progression towards the **safe system approach** for PTW.
A research was carried out by a working group of the OECD ITF, composed of experts from several countries.

- PTW becoming a true mobility tool.
- Increase in PTW fatalities in OECD countries; decrease in other road users fatalities.
- Higher Share of PTW fatalities than their share in the vehicle fleet.
Mobility and safety figures of PTW (1)

- PTW mobility and use
  - **Higher growth** rate of PTW fleet than passenger car fleet.
  - PTWs an important **component** of the transport system.
  - National transport **strategy** for PTWs only in few countries.

<table>
<thead>
<tr>
<th></th>
<th>Passenger cars</th>
<th>Mopeds</th>
<th>Motorcycles</th>
</tr>
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<tbody>
<tr>
<td>Australia</td>
<td>25%</td>
<td>-</td>
<td>88%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>29%</td>
<td>10%</td>
<td>35%</td>
</tr>
<tr>
<td>France</td>
<td>11%</td>
<td>-22%</td>
<td>48%</td>
</tr>
<tr>
<td>Great Britain</td>
<td>13%</td>
<td>-27%</td>
<td>28%</td>
</tr>
<tr>
<td>Greece</td>
<td>52%</td>
<td>-14%</td>
<td>76%</td>
</tr>
<tr>
<td>Japan</td>
<td>11%</td>
<td>-20%</td>
<td>14%</td>
</tr>
<tr>
<td>Spain</td>
<td>22%</td>
<td>27%</td>
<td>82%</td>
</tr>
<tr>
<td>Sweden</td>
<td>8%</td>
<td>84%</td>
<td>91%</td>
</tr>
<tr>
<td>United States (excl. SUVS)</td>
<td>5%</td>
<td>-</td>
<td>67%</td>
</tr>
</tbody>
</table>
Mobility and safety figures of PTW (2)

- Safety development over time
  - Deterioration of the situation of motorcyclists.
  - No analogy between PTW trends and overall fatalities decrease in OECD countries.
  - Importance of appropriate counter measures.

Road fatalities Evolution (2001-2011, %)
Crash characteristics and scenarios

- Motorcyclist is 9 to 30 times more likely to be killed in a traffic crash than a car driver.
- PTWs riders and passengers represent 16.5% of all road fatalities whereas PTWs constitute 8% of the fleet.
- Increase in average age of motorcyclists killed.
- Majority of PTW crashes are single vehicles crashes on rural roads.
- Almost 1 out of 3 fatalities occur at junctions.
Contributory factors of PTW crashes

- Higher risk of injury due to greater vulnerability.
- Key factors:
  - Conspicuity
  - Road-user rationality
  - Road-user vulnerability
  - System forgiveness
- Factors:
  - Speeding
  - Drink and drive
Integrated road safety strategy for PTW (1)

- Safe system approach
  - Situational analysis
  - Definition of strategic objectives
  - Determination of strategies and actions
  - Establishment of supporting arrangements
Integrated road safety strategy for PTW (2)

- PTWs in the safe system
  - Improving safety of PTWs is shared responsibility.
  - Support of measures by broader community and motorcyclists.
  - Focus on strategies avoiding crashes, rather than mitigating their effects.
Licensing, training and education
- Access to PTWs should be gradual.
- Novice riders should be trained.
- Other road users should be aware of PTWs vulnerability and crash patterns.

Enforcement and communication
- Equal application and enforcement of traffic rules.
- Effective combination of enforcement – communication campaigns.
Measures for PTW safety improvement (2)

- **Infrastructure and traffic management**
  
  - Development of self – explaining roads
  
  - Dual purpose of traffic management measures
    - facilitation of PTW traffic;
    - Increase of safety
Measures for PTW safety improvement (3)

- **Vehicles, ITS and protective devices**
  - Improvement of passive and active safety of PTWs.
  - ABS should become a standard.
  - Safety improvement via Motorcycle ADAS (e-Call, blind spot detection, curve and collision warning systems).
  - Promotion and regulation of the use of helmets and other protective equipment.
Key messages and recommendations (1)

- PTWs have a significant role in mobility (due to increase of PTWs population).
- Greater risk of PTWs than car drivers.
- PTW crashes are mainly due to perception and control failures.
- Requirement of a safe system approach for safety improvement of PTWS.
- Requirement of a toolbox of measures for safety improvement of PTW riders.
Key messages and recommendations (2)

- Promotion of appropriate **behaviours** for all road users is a prerequisite.

- Contribution of **self-explaining and forgiving** roads to lower crash risk.

- **Protective equipment** and vehicles with enhanced safety features save lives.

- Extension of **knowledge** on PTW mobility and crash mechanisms is essential.
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