Thailand Motorcycle Accident Situation

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- Asian Institute of Technology (AIT)
- ThaiRoads Foundation

Presented at the 70th Session of UNECE Road Safety Forum

23 March 2015
How many people on this motorcycle?
What about this??... Can you count??
Motorcycle has been a family vehicle in Thailand.

How can we use motorcycle safely?
Population: 64,456,695

Registered Vehicle: 32,476,977

Driver Licenses: 40,366,962
Male: 29,483,525
Female: 10,720,913

Total Road Length: 117,386 km.
National Highways: 68,098 km.
Rural Highways: 49,080 km.
Expressway: 208 km.
VKT National Highways: 213,438 MVKT

GDP: 8,830,957 million-baht
Fuel Consumption in Transportation: 30,214 million-litre

Source: ThaiRoads, 2012
Fatalities and Injuries due to Road Crashes
Road Fatalities from Different Accident Databases

Source: Ministry of Public Health, 2012
Road Crash Severity
Severity Index and Fatality Index from Road Crashes

All road network (Royal Thai Police)

National Highways (DOH)
Who is at Fatal and Injured Risk?
Vehicle Types involved in Road Crashes per 10,000 registered vehicles

Source: Department of Land Transport, Ministry of Transport
Injuries involved in Road Crashes per registered vehicles Classified by Vehicle Types

Source: Ministry of Public Health
Motorcycle Use in Thailand
## Highest Motorcycle per Capita in 2010

Source: Global Status Report on Road Safety (2013)

<table>
<thead>
<tr>
<th>Rank No.</th>
<th>Number of Motorcycle per 1,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vietnam</td>
<td>358</td>
</tr>
<tr>
<td>2. Malaysia</td>
<td>332</td>
</tr>
<tr>
<td>3. Thailand</td>
<td>251</td>
</tr>
<tr>
<td>4. Indonesia</td>
<td>250</td>
</tr>
<tr>
<td>5. Uruguay</td>
<td>182</td>
</tr>
<tr>
<td>6. Italy</td>
<td>166</td>
</tr>
<tr>
<td>7. Republic of Dominican</td>
<td>136</td>
</tr>
<tr>
<td>8. Greece</td>
<td>127</td>
</tr>
<tr>
<td>9. Mauritius</td>
<td>123</td>
</tr>
</tbody>
</table>
Number of New Registered Motorcycle, 1993–2011

Source: Department of Land Transport, Ministry of Transport
Proportion of Registered Vehicles in 2012 classified by Vehicle Type

- Motorcycle: 59%
- Passenger Car: 18%
- Pick-up: 17%
- Others: 6%

Source: Department of Land Transport
Why people choose **motorcycle** for their transportation mode?

Source: Self-Reported Questionnaire Survey by ThaiRaods Foundation and Road Safety Watch Network (2510)

- Convenient and agility (no need to wait and less traffic congestion)
  - Rider: 84%
  - Passenger: 84%
- Low price
  - Rider: 29%
  - Passenger: 25%
- Cannot access to public transport
  - Rider: 22%
  - Passenger: 24%
- Long distance to access public transport
  - Rider: 18%
  - Passenger: 19%
- Recreational purpose
  - Rider: 13%
  - Passenger: 11%
- Need to carry stuff
  - Rider: 12%
  - Passenger: 11%
- Influenced by parents, relatives, and friends
  - Rider: 9%
  - Passenger: 10%
- Others
  - Rider: 4%
  - Passenger: 4%

Rider | Passenger
Proportion of Motorcycle Riders with No Driver License
Classified by Age and Gender

Source: Self-Reported Questionnaire Survey by ThaiRaods Foundation and Road Safety Watch Network (2510)
Motorcycle Crash in Thailand
Proportion of Road Crashes classified by Road User Types in 2002–2011

- Motorcycle: 39.2%
- Passenger Car: 25.0%
- Pick-up Truck: 16.7%
- 6-wheel Truck: 1.8%
- 10-wheel Truck or more: 2.6%
- Large E Van: 2.1%
- Taxi: 1.8%
- 3-wheel MC: 3.6%
- Bicycle: 0.9%
- 3-wheel Bicycle: 0.4%
- Farm vehicle: 0.4%
- Pedestrian: 3.0%
- Others: 1.3%

Source: Royal Thai Police

[Image of pie chart and road users]

[Logo of TARC and ThaiRoads]
Proportion of Fatalities classified by Road User Types in 2012

- Motorcycle: 41%
- Passenger Car: 12%
- Pedestrian: 6%
- Bicycle: 1%
- Heavy Truck: 1%
- Bus: 0%
- 3-Wheelers: 0%
- Pickup Truck or Van: 2%
- Others: 37%

Source: Ministry of Public Health
Proportion of **Severe Injuries** due to Road Crashes classified by Road User Types in 2012

- Motorcycle: 77%
- Passenger Car: 4%
- Pickup Truck or Van: 4%
- Pedestrian: 4%
- Bicycle: 7%
- Heavy Truck: 1%
- Bus: 0%
- 3-Wheelers: 1%
- Others: 2%

Source: Ministry of Public Health
Number of Fatalities due to Motorcycle Crashes, 2010-2012
Source: Ministry of Public Health and Road Accident Victims Protection Co. Ltd. (RVP)

**Fatalities**

<table>
<thead>
<tr>
<th>Year</th>
<th>E-claim</th>
<th>Injured</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>3,306</td>
<td>135,687</td>
<td>4,364</td>
</tr>
<tr>
<td>2011</td>
<td>4,699</td>
<td>172,247</td>
<td>5,713</td>
</tr>
<tr>
<td>2012</td>
<td>5,785</td>
<td>205,980</td>
<td>6,414</td>
</tr>
</tbody>
</table>

**Injuries**

<table>
<thead>
<tr>
<th>Year</th>
<th>E-claim</th>
<th>Serious Injuries</th>
<th>Minor Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>3,306</td>
<td>79,970</td>
<td>55,717</td>
</tr>
<tr>
<td>2011</td>
<td>4,699</td>
<td>87,430</td>
<td>84,517</td>
</tr>
<tr>
<td>2012</td>
<td>5,785</td>
<td>181,658</td>
<td>171,978</td>
</tr>
</tbody>
</table>

Injuries due to Motorcycle Crashes in Thailand, 1994–2012

(Bangkok is not included)

Number of Motorcycles ('000 veh)
Number of Injuries
Injuries per Number of Motorcycles

Source: MOPH
Motorcycle Collision Pattern in Thailand, 2010-2012

Injuries

- Lost Control/Roll Over: 30.6%
- Vehicle collision: 62.7%
- More than 2-vehicle Collision: 0.8%
- Pedestrian Collision: 1.2%
- Fixed Object Collision: 4.7%

Fatalities

- Lost Control/Roll Over: 30.3%
- Vehicle collision: 59.4%
- More than 2-vehicle Collision: 0.4%
- Pedestrian Collision: 5.8%
- Fixed Object Collision: 4.1%

Source: E-claim from Road Accident Victims Protection Co. Ltd.
Other Vehicles Involved in Motorcycle Crashes, 2010–2012

**Injuries**
- Bus: 33.5%
- Truck: 2.2%
- Passenger Car and Pickup: 5.2%
- Motorcycle: 0.7%
- Van: 58.4%

**Fatalities**
- Bus: 13.8%
- Truck: 4.6%
- Passenger Car and Pickup: 1.0%
- Motorcycle: 22.8%
- Van: 57.7%

Source: E-claim from Road Accident Victims Protection Co. Ltd.
Crash Severity by Types of Motorcycle Crashes, 2008–2012

- Pedestrian crash
- Intersection-Head on collision
- Intersection-Right angle
- Straight-Head on
- Straight_Right angle
- Rear End
- Side Swipe
- Overtaking crash
- Fixed object crash
- Animal crash
- Others

Types of crash:
- Run out of road on curve section
- Run out of road on straight section
- Wrong Direction
- Straight Head-On
- Intersection-Right angle
- Intersection-Head on collision
- Pedestrian crash

2008-2012

Fatal Crash
Severe injured Crash
Minor injured Crash
PDO

Source: Department of Highways. Ministry of Transport
Motorcycle Crash Risk Groups
MC Fatalities per 10,000 MC License by Age, 2010-2012

Source: E-claim from Road Accident Victims Protection Co. Ltd.
Number of Motorcycle Casualties by Gender, 2010–2012

Source: E-claim from Road Accident Victims Protection Co., Ltd.
Motorcycle Casualties
Motorcycle Fatalities by Injured Body Region

More than 70% is Head Injuries

Head

Lower Extremity
Spine
Upper Extremity
Abdominal
Chest

จำนวนการเสียชีวิต จำแนกตามช่วงอวัยวะที่บาดเจ็บ

Source: E-claim from Road Accident Victims Protection Co. Ltd.
Motorcycle Casualties by Alcohol Influence, 2008-2012

Source: Injury Surveillance System (ISS)
Motorcycle Casualties by Helmet Use, 2008–2012

Source: Injury Surveillance System (IS)
Helmet Use Rate
<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rider</td>
<td>53%</td>
<td>54%</td>
<td>52%</td>
<td>51%</td>
</tr>
<tr>
<td>Passenger</td>
<td>19%</td>
<td>24%</td>
<td>20%</td>
<td>19%</td>
</tr>
<tr>
<td>Total</td>
<td>44%</td>
<td>46%</td>
<td>43%</td>
<td>43%</td>
</tr>
</tbody>
</table>

* Sample Size
1,484,669 MC Users in 2013
1,502,949 MC Users in 2012
1,244,140 MC Users in 2011
954,956 MC Users in 2010
Helmet Use Rate of MC Users in 2013

Urban: 72% Rider, 83% Passenger, 37%
Suburban: 46% Rider, 56% Passenger, 19%
Rural: 29% Rider, 34% Passenger, 12%
Helmet Use Rate of Motorcycle Users 2010–2013

by Age Group

- **Adult**
  - Rider and Passenger: 52% 53% 49% 49%
- **Young**
  - Rider and Passenger: 32% 34% 28% 23%
- **Kids**
  - Passenger Only: 7% 8% 7% 7%

Legend:
- Blue: 2553
- Red: 2554
- Green: 2555
- Purple: 2556
Land Traffic Act, B.E. 2522 (1979)

Not specific for motorcycle. Only for some sections such as:

Section 35: The driver of truck, passenger car, motorcycle, vehicle of low speed or travelling at lower speed than those of other vehicles moving in the same direction shall keep to the curb side of the roadway as close as possible (Penalty $12-30)

Section 121: The rider of motorcycle shall sit on the saddle, provided for motorcycle rider. If the competent officer specifies in the registration to be able to carry passengers, the passenger shall ride at the back seat provided for the passenger, or in the side-car. (Penalty not more than $15)

Section 122: The rider and passenger of motorcycle shall wear a motorcycle helmet. (Penalty not more than $15)
Speed Limit for motorcycle in urban area is not more than 80 km/hr, and outside urban area is not more than 90 km/hr. (Penalty not more than $30)
Research Agenda on Motorcycle Safety

- Design Standard and Safety Considerations for Exclusive Motorcycle lane
- Child Safety for Motorcycle Usage
- Behavioral Influence Model for Promoting Helmet Use for Young Riders
- Speed Management of Motorcycle in Urban Area
Thank you..