ROAD SAFETY STATUS & WAY FORWARD

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• General statistics
• Known risk factors
• Motorcycle road safety status
• Motorcycle interventions
• Bicycle – a new trend in transport
• Pedestrian infrastructure challenges
• Conclusion and moving forward
GENERAL STATISTICS

Fatalities = 7,152

<table>
<thead>
<tr>
<th>Year</th>
<th>Registered Vehicles</th>
<th>Population</th>
<th>Road Crashes</th>
<th>Road Deaths</th>
<th>Serious Injury</th>
<th>Slight Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>27,613,120</td>
<td>31,660,000</td>
<td>521,466</td>
<td>7,152</td>
<td>4,506</td>
<td>7,415</td>
</tr>
</tbody>
</table>

Approx. 2 Billion USD loss for Malaysia every year

Road fatalities by vehicle type

- Motorcycles: 62%
- Passenger Car: 25%
- Heavy Vehicle: 4%
- Non-motorized: 9%

Road safety index

<table>
<thead>
<tr>
<th>Year</th>
<th>TOTAL DEATH for road user</th>
<th>Per 10,000 vehicles</th>
<th>Per 100,000 populations</th>
<th>Per billion VKT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>7,152</td>
<td>7.37</td>
<td>29.1</td>
<td>33.57</td>
</tr>
</tbody>
</table>

Comparing police and hospital road:

- Only 4.1% of matching rate between the hospital and police record Police reporting rate = 4.7%.

Source: Nor Azreena & Varhelyi (2018), Underreporting study for police records in Malaysia
THE RISK FACTORS

RISK FACTORS CONTRIBUTING TO CRASHES IN MALAYSIA

- Speeding: 23%
- Inadequate vehicle maintenance: 19%
- Poor driving skill: 16%
- Fatigue: 16%
- Lost control: 10%
- Influence of Alcohol / drugs: 2%
- Road design / environment: 4%
- Poor visibility: 1%
- Others: 9%

Source:
1. MIROS (2012-2013) – VSB & RUBC

Risk factors with highest % in fatal crashes involving motorcycle
- Locality - Rural (63%)
- Road type - Federal (Primary) road (35%)
- Road geometry -
  - Straight road section (72%)
  - Curve road section (16%)
- Time - 1600 – 2400 & 0000 – 0600
- Type of collision:
  - Side (19%)
- Type of collision –
  - Multi vehicle crashes are more risky for motorcyclists rather than single crash

* Source: PDRM (2014), analyzed by MIROS (2014)
### MotoCycLe SafetY Status In Malasyia

<table>
<thead>
<tr>
<th>Safe System Approach</th>
<th>Status / Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Safe infrastructure</strong></td>
<td>Exclusive &amp; non-exclusive motorcycle lane&lt;br&gt;Very high usage – 65% to 95%!&lt;br&gt;Established a geometric guidelines</td>
</tr>
<tr>
<td><strong>2. Helmet wearing</strong></td>
<td>98.9% wears helmet,&lt;br&gt;85%.2% put down the visor</td>
</tr>
<tr>
<td><strong>3. Rider protection</strong></td>
<td>51.1% wears shoes / boots,&lt;br&gt;55.1% wears jackets</td>
</tr>
<tr>
<td><strong>4. Enhance visibility</strong></td>
<td>69.4% Daylight running headlight activated,&lt;br&gt;76.5% are categorized as dark riders&lt;br&gt;0.3% wears reflective vest&lt;br&gt;85% has both side mirrors</td>
</tr>
<tr>
<td><strong>5. Rider training and licensing</strong></td>
<td>100% adopted with 98% passing rate after 3rd try&lt;br&gt;16 years old is the minimum age to get a license</td>
</tr>
<tr>
<td><strong>6. Enforcement</strong></td>
<td>Only regular check on motorcycle license and road tax</td>
</tr>
<tr>
<td><strong>7. Speed management</strong></td>
<td>None&lt;br&gt;42.2% exceed the speed limit&lt;br&gt;28.6% exceed the 85th percentile traffic speed</td>
</tr>
</tbody>
</table>

# MOTORCYCLE INTERVENTIONS

<table>
<thead>
<tr>
<th>Road hierarchy</th>
<th>Expressway</th>
<th>Primary road</th>
<th>Benefits</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total length (km)</td>
<td>% from total length</td>
<td>Total length (km)</td>
<td>% from total length</td>
</tr>
<tr>
<td>Exclusive motorcycle lane</td>
<td>89 (1,625km)</td>
<td>5.48%</td>
<td>41 (17,000km)</td>
<td>0.24%</td>
</tr>
<tr>
<td>Non-exclusive</td>
<td>-</td>
<td>-</td>
<td>114 (17,000km)</td>
<td>0.67%</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

ROAD CONDITION MONITORING UTILIZING MOTORCYCLE MOTION

Normal motorcyclists oriented app
- Simple risk mapping
- Simple interface for warning purposes
- Potential for HUD

Road authorities oriented app
- Detail risk mapping
- Detail interface
- Visual tracking
- Attached with customized holder

Road authority database center

Motorcycles are sensitive to road surface!
BICYCLE – A NEW TREND IN TRANSPORT

• There is a **growing trend** of bicycle lane infrastructure development in major cities in Malaysia (Kuala Lumpur, Petaling Jaya, etc.) – (not because of demand!)

• However they are built **without proper policy, needs, standards and safety consideration.**  
  • -This has left the bicycle lane risky to bicycle and also other vehicle.

• Bicycle population is 0.5% of the traffic (in urban)

• iRAP have taken place in assessing these bicycle lane
PEDESTRIAN INFRASTRUCTURE CHALLENGES

- Pedestrian is fighting for space in our transport system. The road authority is trying to accommodate but face few challenges from motorcycle users.

Our transportation system is still vehicle oriented!
A web-based app ‘Safer2School’ was developed by MIROS in 2016.

Database inventory of schools in Malaysia based on road assessment of school infrastructure and also iRAP star rating.

For our ministry of education.

CONCLUSION

• Our number of fatal crashes is increasing steadily!

• 2017 - Malaysian motorcycle crash rate is increasing despite there is a reduction of fatal crash cases.

• We (MIROS, Local universities and research institute) have conducted many research pertaining motorcycle and pedestrian safety. However, many of the findings and countermeasures are NOT being implemented seriously and vehemently by our government.

• Bicyclists is an emerging trend in urban area, but we are not prepare.

• Automated Vehicles (AV) may be a challenge for the VRU especially for motorcycle. Despite many preliminary research have been conducted that shows the high acceptance for this technology, however, NO deep research have been conducted on the interaction between an AV with a motorcycle.
LET’S MAKE MOTORCYCLES A SOLUTION AND NOT THE PROBLEM!