KEYNOTE ADDRESS 2

MIROS & ITS ROLE IN ASEAN

– TOWARDS ACHIEVING FATALITY REDUCTION IN 2020

Presented by;

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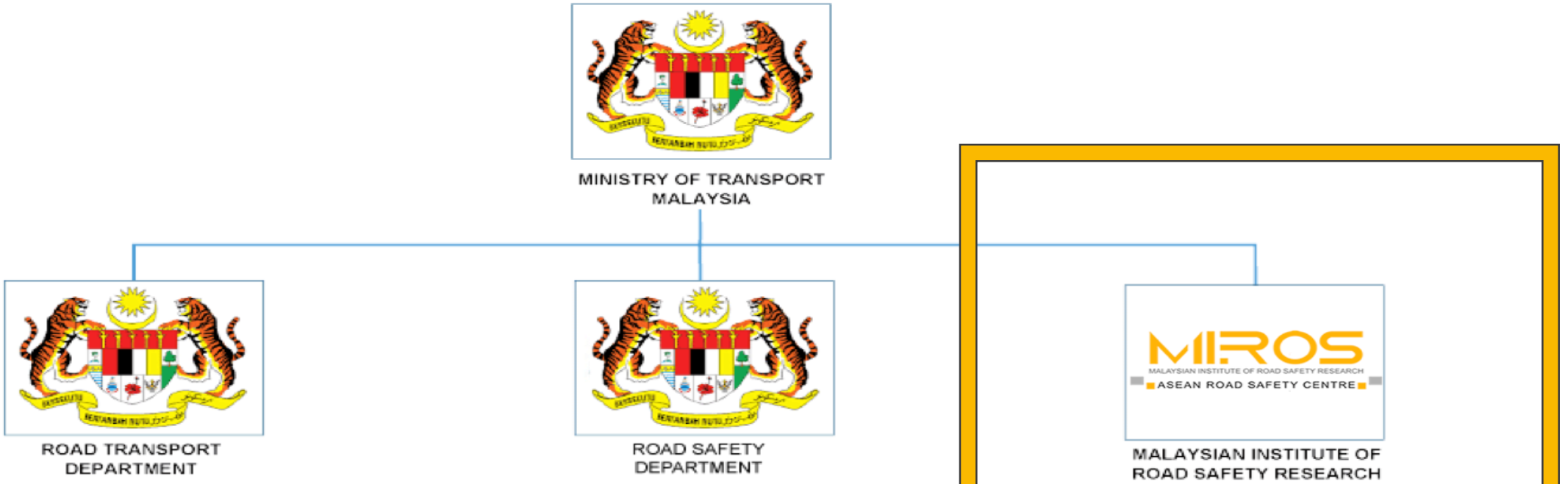
Director General
Malaysia Institute of Road Safety Research (MIROS)

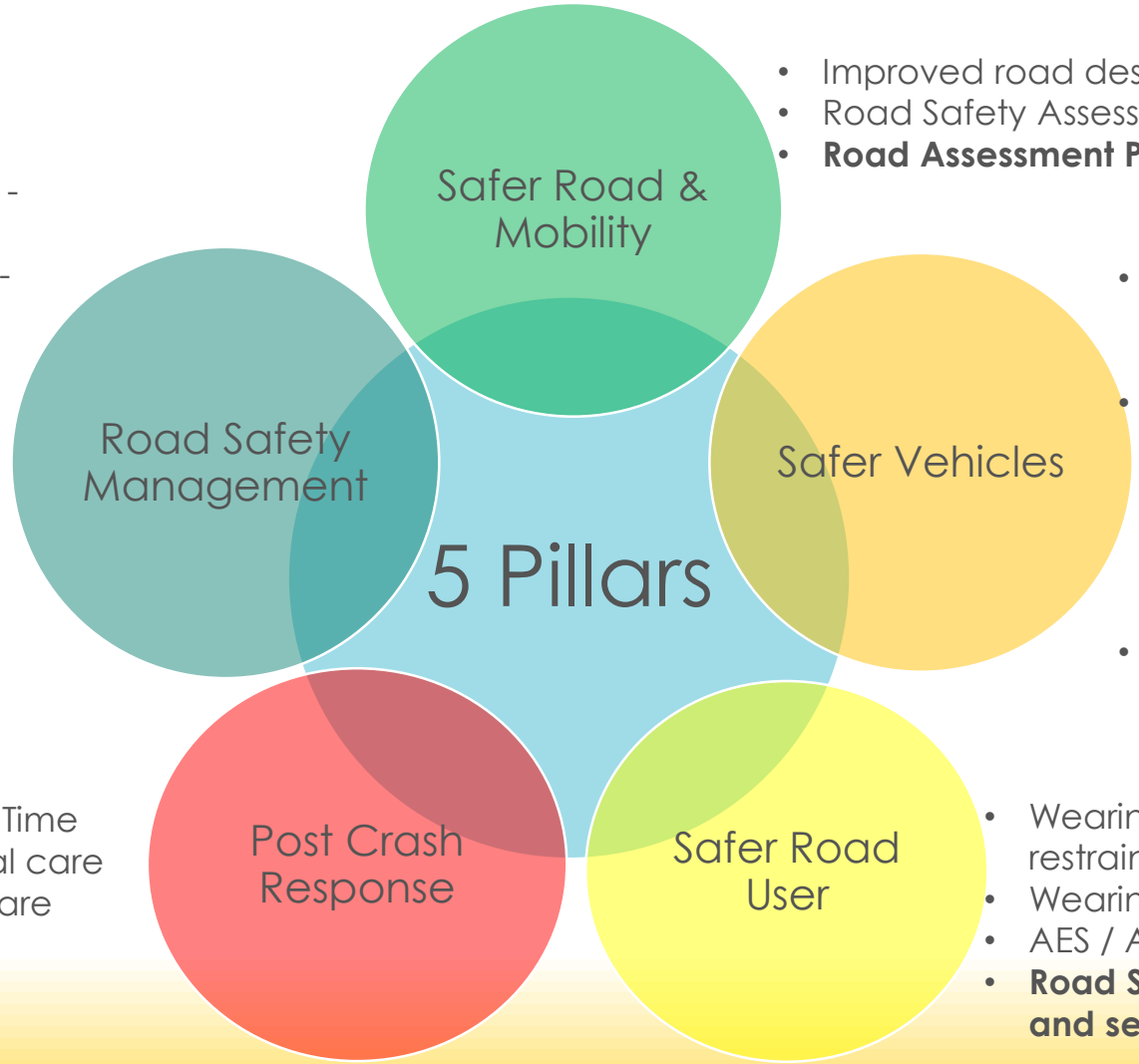
MIROS IN MOT STRUCTURE



- To regulate motor vehicles and road traffic safely and efficiently
- Responsible for advocacy programs and road safety education
- Responsible for planning, conducting research and evaluation on areas relating to road safety sector.

ROAD SAFETY PROGRAM & ACTIVITIES

- Road Safety Priority
  - UNDOA 2011-2020
  - UNSDG 2015-2030
- Lead Agency; Research & Evaluation
- ISO 39001: 2012
- **Safety Star Grading**



- Improved road design
- Road Safety Assessment & Inspection
- **Road Assessment Programme (iRAP)**

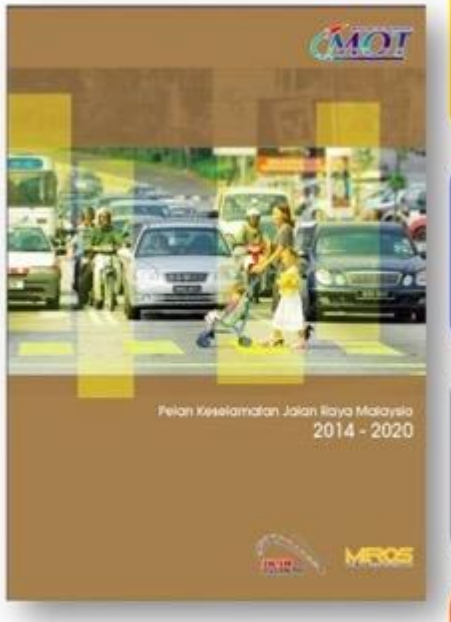
- **New Car Assessment Programme (ASEAN NCAP)**
- Crash Impact Protection Aligning with UN regulation
  - Airbags
  - Seatbelt
  - Vehicle structure
- Electronic Stability Control (ESC)

- Response Time
- Prehospital care
- Trauma Care
- **eCall**

- Wearing Seat belts & child restraints
- Wearing helmets
- AES / AWAS
- **Road Safety Education in primary and secondary schools**

PILLAR 1: ROAD SAFETY MANAGEMENT

MALAYSIA ROAD SAFETY PLAN 2014 - 2020



Formulation of Plan – by the Ministry of Transport through Road Safety Department & Malaysian Institute of Road Safety Research (MIROS)

Developed, since 2011 through series of consultations and workshops

As part of Government's initiatives under the 'United Nations Decade of Action for Road Safety 2011-2020'

To address issues related to road safety in the country. This Plan is designed to achieve a set of outcomes through holistic approach and effective implementation of a comprehensive set of strategies

PILLAR 1: ROAD SAFETY MANAGEMENT

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MIROS CRASH INVESTIGATION - CRASH RECONSTRUCTION UNIT (CRU)

National Inquiry by Ministry

- Cases with interest to the ministry
- Usually involve high number of fatalities
- Report to minister for cabinet decision on potential new policies/regulations

Non Inquiry

- Cases which involve 3 fatalities & above
- Cases with 1 fatality involving commercial vehicles
- Focus issues related to MIROS current & future research

Special Interest

- Cases involving special interest (ambulance, fire, government vehicles)

Project Based

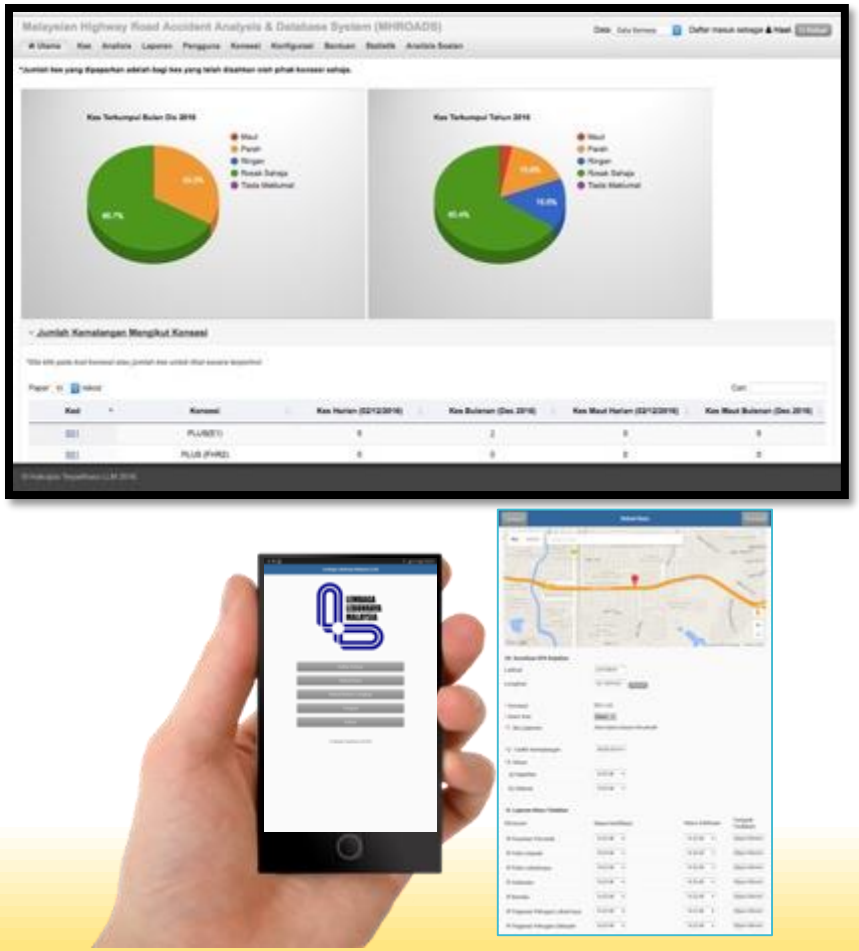
- Crashes involving motorcycles
- Road crashes during festive season (focused enforcement)
- Crashes involving motorcycles - passenger cars (hospital based localized investigation)

PILLAR 1: ROAD SAFETY MANAGEMENT

MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH
ASEAN ROAD SAFETY CENTRE

MIROS ROAD ACCIDENT ANALYSIS AND DATABASE SYSTEM (M-ROADS)

- A data collection & analytics system developed by MIROS to support for **road safety research** and **evidence-based road safety programs and intervention**.
- Currently implemented by:
  - **MIROS** – PDRM crash data analysis, crash investigation and road safety audit
  - **DBKL** – Black-spot identification and monitoring
  - **LLM** – Mandatory for all highway concessionaires to use the system for data collection, analysis and reporting
  - **PLUS** – A customized advanced version developed to support their advanced operational needs



PILLAR 1: ROAD SAFETY MANAGEMENT

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ISO 39001:2012 ROAD TRAFFIC SAFETY MANAGEMENT SYSTEM

- The National Mirror Committee to ISO/TC 241 has established the Malaysian Steering Committee for the Implementation of ISO 39001.
- The chairman and secretariat of the steering committee are from MIROS
- Pilot organizations to implement:
  - PDRM
  - PUSPAKOM
  - Century Total Logistics
  - Shell Malaysia

ROAD TRAFFIC SAFETY
SIRIM

PILLAR 2: SAFER ROADS AND MOBILITY

IRAP MALAYSIA PROGRAMME 2016 - 2020

1ST PHASE: INTER-URBAN EXPRESSWAYS

Star Ratings	Before Intervention	After Intervention
5-star	0.0%	0.6%
4-star	0.8%	10.0%
3-star	51.6%	84.8%
2-star	42.2%	4.6%
1-star	5.4%	0.0%
Total	100.0%	100.0%

Improvements focused on
'quick-fix' to upgrade star ratings

95% OF SURVEYED EXPRESSWAYS ACHIEVED
3-STAR AND ABOVE

PILLAR 2: SAFER ROADS AND MOBILITY

ROAD SAFETY ASSESSMENT (RSA)

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Objectives of RSA:

- To identify safety deficiencies of the road design.
- To recommend safety treatments.

MIROS conducts RSA

↓

Present findings to road authorities

↓

Safety improvements

Guidebook for Traffic & Road Safety Audit

Assessment covers the following aspects:

- Road alignment
- Road cross section
- Roadside safety
- Intersection design
- Visual aid
- Facilities for motorcycles and pedestrians
- Public transport facilities

PILLAR 3: SAFER VEHICLE

ASEAN NEW CAR ASSESSMENT PROGRAM (ASEAN NCAP)

- MIROS is the secretariat for ASEAN NCAP.
- NCAP provides safety information of vehicles to the public via objective, transparent and independent full scale crash tests.
- Introduced to elevate motor vehicle safety standards and encourage a market for safety vehicles in the SEA region.

PILLAR 3: SAFER VEHICLE

MIROS PC3 LAB (CRASH LABORATORY)

17 January 2012 – Ground Breaking Ceremony, JPJ Academy Melaka

24 May 2012 – Opening Ceremony witnessed by HRH Michael of Kent

24 May 2012 – First Crash Demonstration for ASEAN NCAP TEST 001

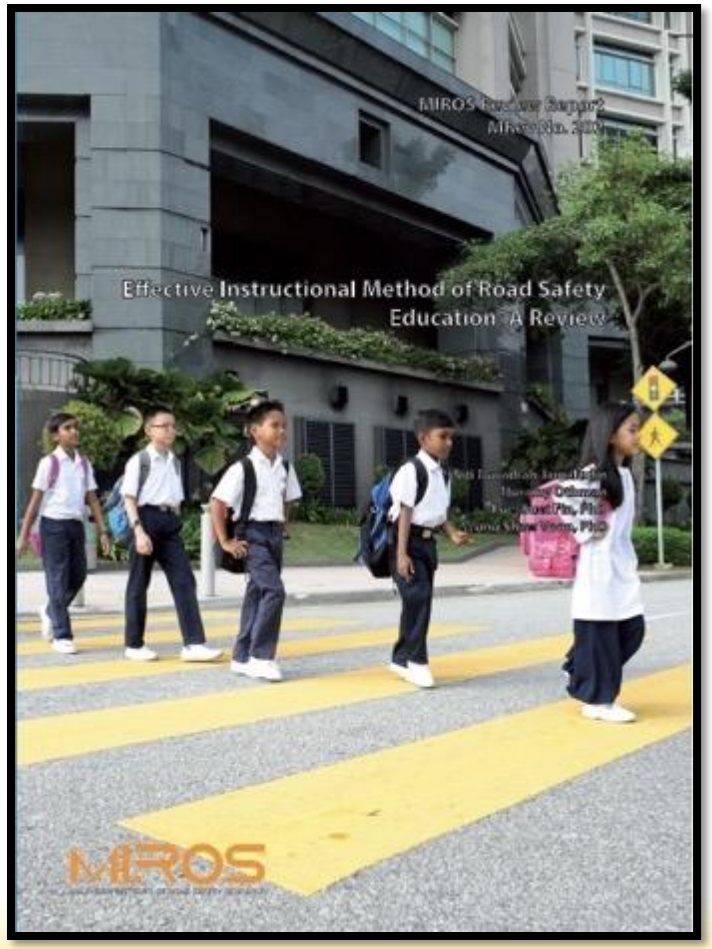
"Here in Melaka, we are turning the UN Assembly's words into action, which is what the Decade should be all about"

Max Mosley
Chairman of Global NCAP

PILLAR 4: SAFER ROAD USER

REVIEW AND REDEVELOPMENT OF ROAD SAFETY EDUCATION (RSE) MODULE

- RSE has been implemented in schools since 2007 as part of the intervention programme by the Road Safety Department of Malaysia (JKJR).
- The effort was supported by Ministry of Education as part of long term proactive action plan **to increase awareness on road safety among primary and secondary students**.
- MIROS' role has been the **review and monitoring** of the programme's evaluation.



PILLAR 4: SAFER ROAD USER
AUTOMATED ENFORCEMENT SYSTEM (AES)

MIROS is actively involved in AES by assisting the ministry with the following:

- Site verification for AES which emphasize on parameter setting
- Crash data analysis – Identification of locations based on criteria's set.
- MIROS as the lead agency for the **Jawatankuasa Penilaian Teknikal UAT**
  - Technical and UAT inspection
  - Finalise the procedure UAT procedure for the AES nationwide roll out
- MIROS on the committee for **proof of concept** of the new proposed technology

PILLAR 4: SAFER ROAD USER

COMMUTING SAFETY SUPPORT PROGRAM (CSSP)

- Objectives:
  - Improvise existing OSH policy by incorporating Commuting Safety Management
  - Improve riding behaviour – defensive riding, safety talk, family safety reminder
  - Riding preparedness – route hazard mapping, motor inspection, fitness to ride assessment
- Module is based on SIRIM 4 : 2014 Good Practices in Implementing Commuting Safety Management
- About 85% of respondent had improved their riding behaviour specifically on compliance of personal protective while riding.

PILLAR 5: POST CRASH RESPONSE

E-CALL MALAYSIA

Reduce notification time – automated by impact

Assist response deployment by accurate time, location, direction & severity data

Reduce fatality rate & severity level by efficient emergency response mgmt.

Support road safety research through data analysis

Additional Function: Anti-Theft

Immediate notification to car owner

Benefit police in reducing and tracking stolen car

Early 2018 – Implementation of Voluntary phase
July 2019 – Implementation of Mandatory phase for new vehicle model

RESEARCH TRANSLATED INTO POLICIES

Compliance to UNECE Regulations	Enhancing Guardrail Standards	Code of Practice on Safety, Health and Environment for Transportation Sector
New Driving Training Curriculum Based on Learning Outcomes	Rear Seatbelt	Road Safety Education in School
Community Based Programme on Safety Helmet	Electric Bicycle	Authorised Left Turn

ON-GOING RESEARCH FOR POLICIES

Malaysian Transportation Safety Board (MTSB)	Safety Star Grading (SSG)	Electronic Stability Control (ESC)
Child Restraint System (CRS)	ASEAN NCAP Labelling	Malaysian Driving Score (MDS)
eCall Malaysia	Revision of RSE	Motorcycle License Age Limit

MIROS OFFICE

Main building: Taman Kajang Sentral, Kajang, Selangor

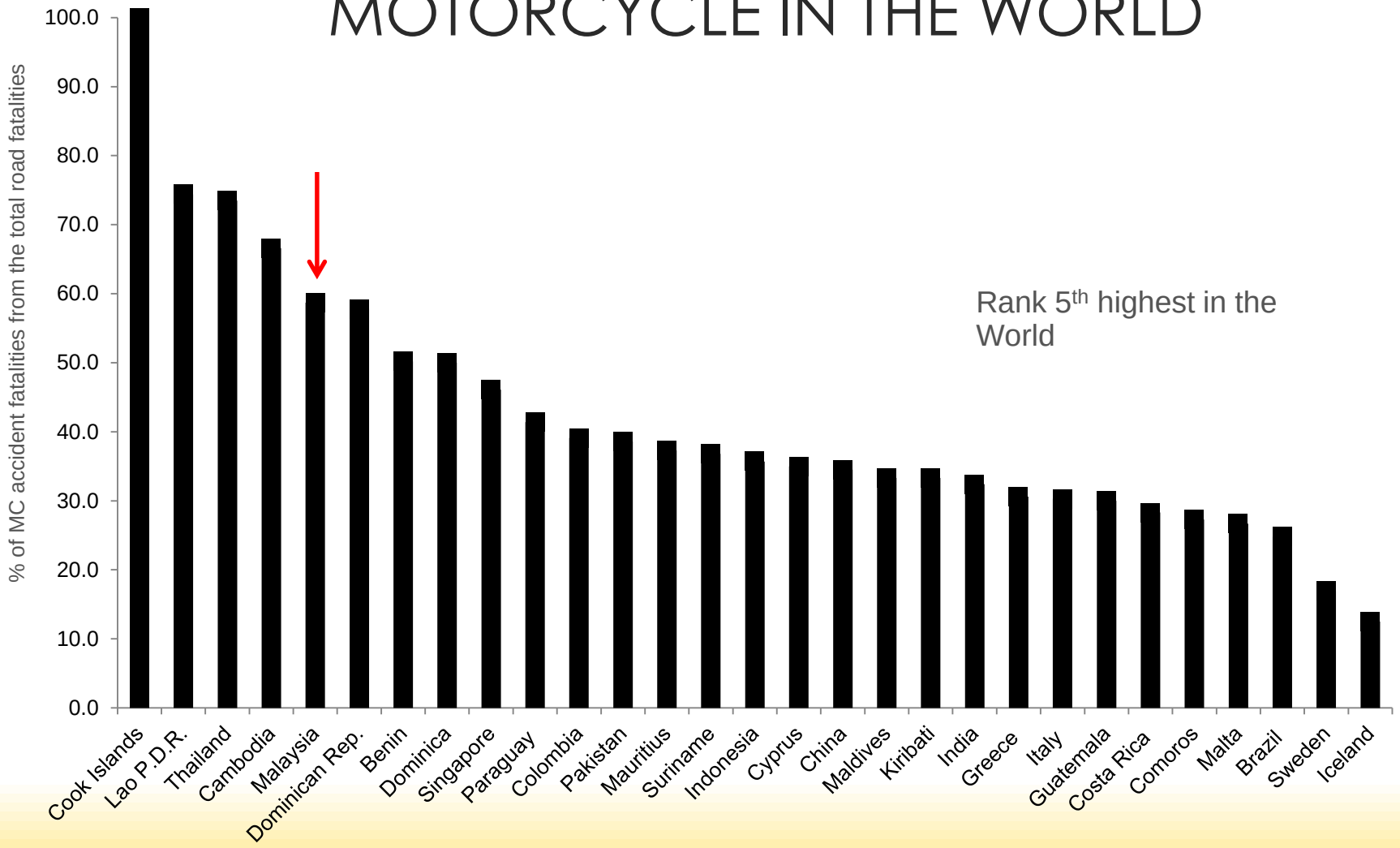
Lab – Provision CRASE Crash Centre (PC3) Akademi JPJ, Melaka

ROAD SAFETY SCENARIO GLOBALLY

- About 1.24 million people die every year due to road crashes
- About 20 – 50 million sustain non-fatal injuries
- RTI – estimated to be the 8th leading cause of death globally
- Estimated to cost low and middle income countries 1-2% of GDP
- Estimated at over US$100 billion a year

VRU DEATHS IN ASEAN COUNTRIES

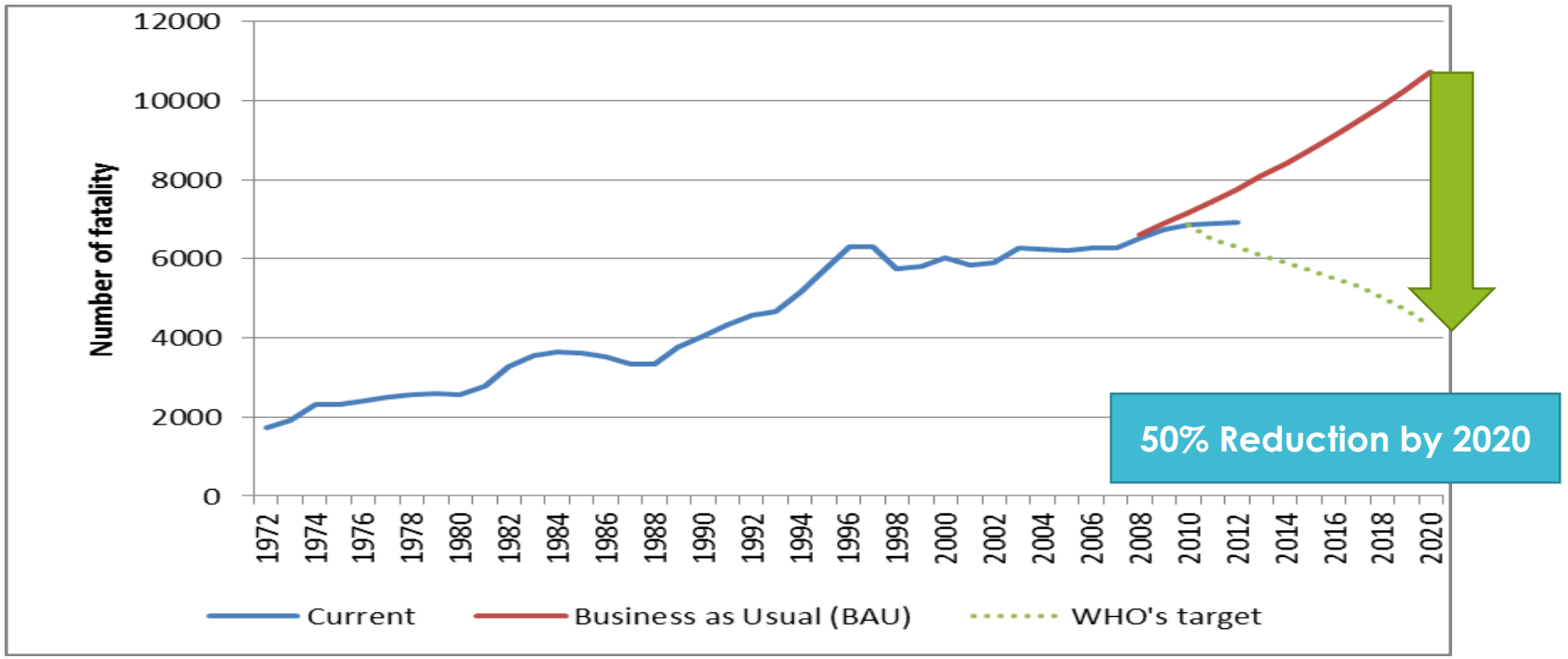
ACCIDENT FATALITIES INVOLVING MOTORCYCLE IN THE WORLD



Rank 5th highest in the World

SOURCE: WHO(2013).
GLOBAL STATUS REPORT ON ROAD SAFETY 2013: SUPPORTING A DECADE OF ACTION. IN. GENEVA, SWITZERLAND

1.2 ACCIDENT SCENARIOS IN MALAYSIA



- In Malaysia, the death toll of 6,740 recorded in 2017
- Based on the scientific study done by MIROS, it is estimated that the road accident fatality in Malaysia will reach to a total of 10,716 deaths by 2020.
- It is estimated that the loss to Malaysia will sum to RM 20.6 billion by 2020.

TREND OF ROAD SAFETY INDICES

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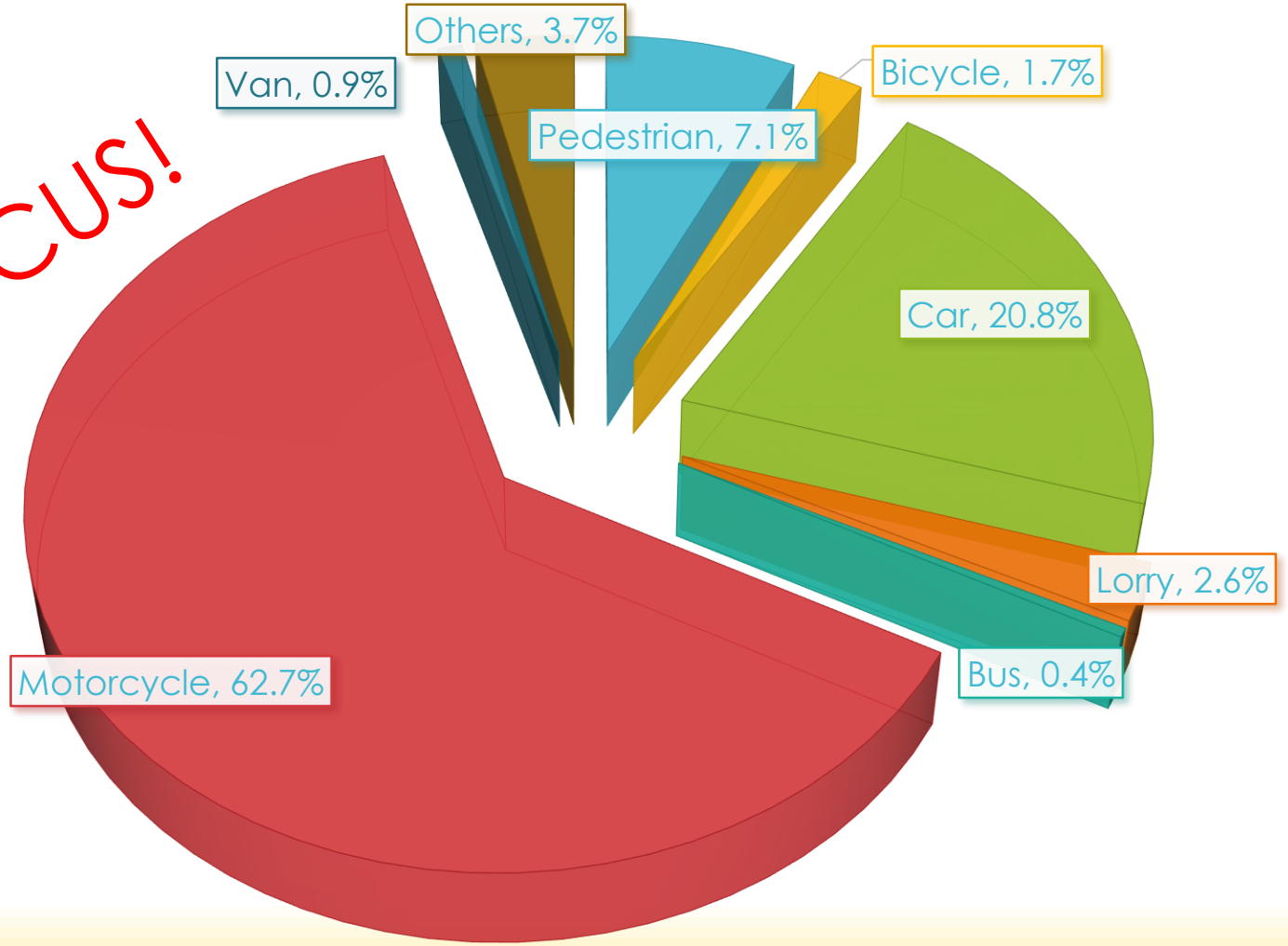
Year	Total death for Road User in Malaysia	Road Safety Index in Malaysia		
		Per 10,000 vehicles	Per 100,000 population	Per Billion VKT (Vehicle Kilometre Travelled)
2006	6287	3.98	23.6	18.69
2007	6282	3.74	23.1	17.6
2008	6527	3.63	23.5	17.65
2009	6745	3.55	23.8	17.27
2010	6872	3.4	23.8	16.21
2011	6877	3.21	23.71	14.68
2012	6917	3.04	23.61	13.35
2013	6,915	2.9	23.1	12.19
2014	6,674	2.66	22	10.64
2015	6,706	2.55	21.5	9.6
2016	7,152	2.59	22.6	10.7
2017	6,740	2.35	21.1	9.6

FATALITIES BY TYPE OF ROAD USER (2016)

SPECIAL FOCUS!



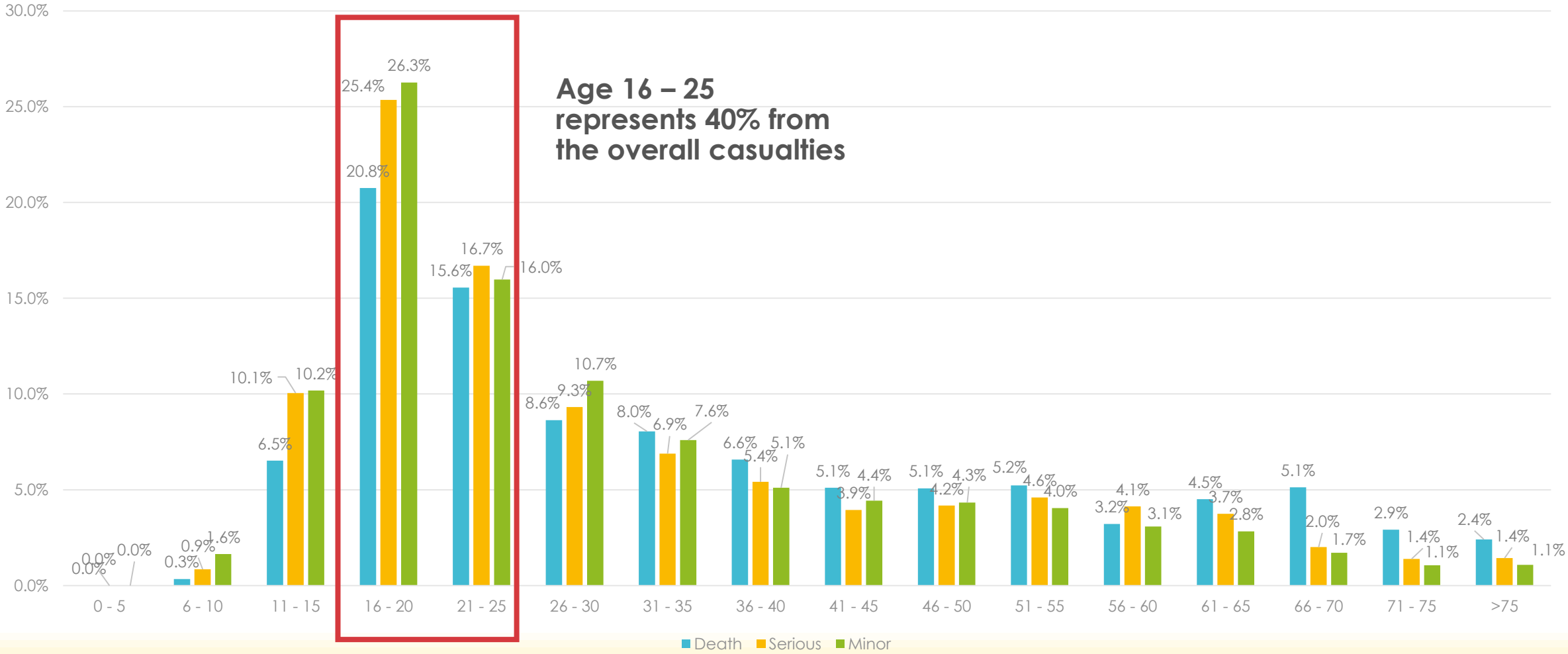
MOTORCYCLIST FATALITIES ARE ON THE RISE

		3%	0.2%	3%	-3%	0.6%	7%
Road User	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Motorcycle	4,036	4,169	4,178	4,294	4,179	4,203	4,485
Car	1,421	1,389	1,435	1,399	1,258	1,358	1,489
Pedestrian	626	530	530	455	515	482	511
Bicycle	192	172	156	159	124	107	123
Van	97	93	86	80	73	71	65
Bus	77	29	32	60	29	20	29
Lorry	202	247	194	210	221	223	186
4WD	154	151	159	158	129	130	142
Other	67	97	147	100	146	75	122
Total	6,872	6,877	6,917	6,915	6,674	6,706	7,152

FACTORS FOR MOTORCYCLE CRASHES IN MALAYSIA

AGE

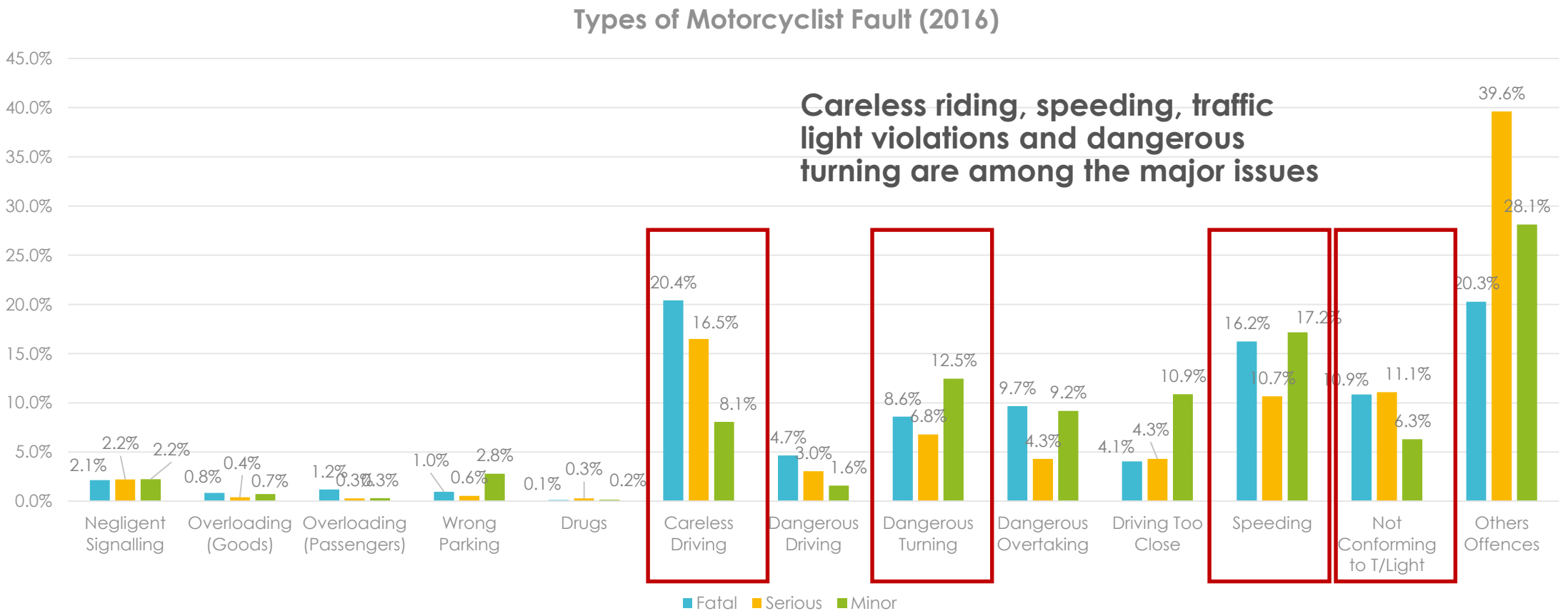
Motorcyclists (Riders) Casualties by Age Group (2016)



Age 16 – 25 represents 40% from the overall casualties

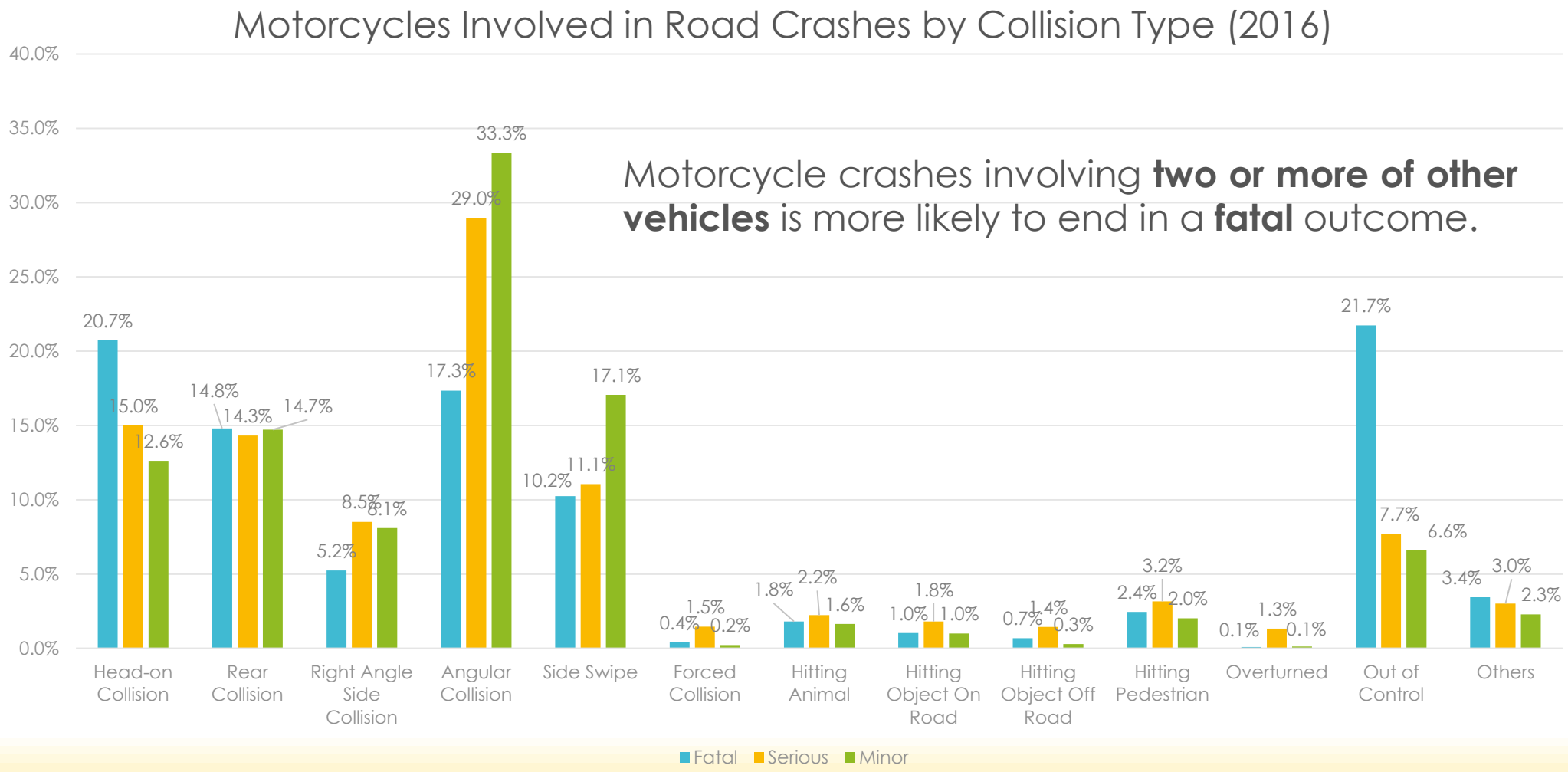
Source: Statistical Report Road Accident, PDRM (2017)

RIDING BEHAVIOUR



Source: Statistical Report Road Accident, PDRM (2017)

COLLISION TYPE



Source: Statistical Report Road Accident, PDRM (2017)

RIDING BEHAVIOUR – DANGEROUS TURNING

Demographic factors

- Age (**teenagers**)
- Gender (**male**)
- Level of income (**lower income group**)

Other factors

- Primary roads
- Roads with no shoulder
- Riding in the middle of the lane or on the shoulder
- Lane splitting and weaving between vehicles

Results

- Majority of motorcyclists **make their turn** to major roads from intersections with **short time gap** (<4s) from the oncoming vehicles and were **involved in serious conflicts.**
- Motorcyclists were observed to be **poor in using their turning signals** and **did not turn their heads** to look for oncoming vehicles.

Source: A Case Study on Risk-taking Behaviours among Motorcyclists in Klang Valley (Mohd Khairul Alhapiz Ibrahim, Siti Maryam Md Noor, Nuura Addina Mohamad & Dr. Mohd Faudzi Mohd Yusoff, 2012)

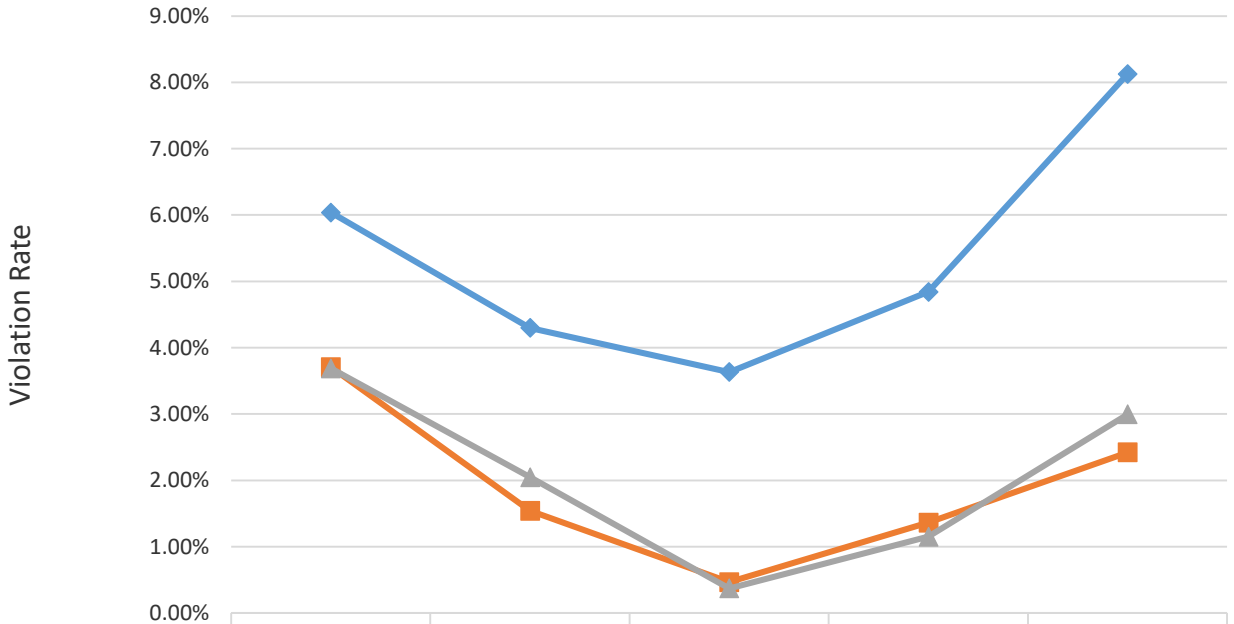
RIDING BEHAVIOUR – TRAFFIC LIGHT VIOLATIONS

Installation of AES camera for red light violation:

- Shows **downward trend** for the first year for all vehicles including motorcycles.

However, after a period of **1 year after** installation:

- The violation trend shows an **increasing trend**.



	Before installation	Six Months after installation	One year after installation	Two years after installation	Four years after installation
Motorcycle	6.04%	4.30%	3.63%	4.84%	8.13%
Cars	3.71%	1.54%	0.46%	1.36%	2.42%
Others	3.69%	2.05%	0.37%	1.15%	3.00%

Source: MRR Awareness Automated Safety System (AwAS) for Red Light Runningafter Four Years of Its Implementation *(In press)*

LICENSING

Factors of riding without a license - MOTORCYCLIST

- Financial problems (67%)
- Expensive fees (60%)
- Unconcerned family members (45%)
- Limited access to public transport (42%)
- Expensive costs of using public transport (53%)
- Never had the experience of being summoned by enforcers (78%)
- Complex licensing procedures (55%)
- Location of driving institutes which are far from home (50%)

Factors of riding without a license – SCHOOL CHILDREN

- **67%** of students who ride a motorcycle to school **do not have a license**.
- **48% of them started** riding at the age of **11 – 13 years old**.

Source: Faktor Penunggangan Tanpa Lesen (Ahmad Azad Ab Rashid, Kaviyarasu Yellapan & Nor Fadilah Mohd Soid, 2016)

VEHICLE DESIGN/ VISIBILITY – USAGE OF HIGH VISIBILITY VEST (HVV)

Survey Results

- **Only 7% respondents always wear HVV** while on the road
- **72%** of the respondents have **never worn HVV**
- 21% respondents "sometimes" wear HVV while on the road
- **13%** of respondents from the **private sector always** put on HVV as compared to **4%** respondents from **public sector.**
- **Male** motorcyclists are more likely to wear HVV as compared to females

Source: Conspicuity of Motorcyclists Using High Visibility Vest from the Perspective Of Other Road Users (Dr. Sharifah Osman @ Liew Shyuan Yei, Nuur Sakinah Azman, Azhani Ali, Mohd Firdaus Mohd Siam, Noradrenalina Isah)

ROAD ENGINEERING/ENVIRONMENT

Factors which increase the probability of motorcycle **single-vehicle fatal crashes:**

- Curve road sections
- No road marking
- Smooth, rut and corrugation of road surface
- Wee hour (between 12 to 6 am)

Factors which increase the probability of **multiple-vehicle crashes** involving motorcycles:

- Type of roads - expressways, primary and secondary roads
- Speed limit - over 70 km/h
- Lane markings - Roads with double lines
- Daytime

Source: Abdul Manan, M. M., Várhelyi, A., Çelik, A. K., & Hashim, H. H. (2017). Road characteristics and environment factors associated with motorcycle fatal crashes in Malaysia. *IATSS Research*

FACILITIES TO SEGREGATE MC WITH OTHER TRAFFIC

MOTORCYCLE LANE

- EXCLUSIVE & NON EXCLUSIVE MOTORCYCLE LANE

FACILITIES TO SEGREGATE MC WITH OTHER TRAFFIC

MOTORCYCLE SHELTER (Type 1 – Stand alone)

General characteristics:

- Provide safe and convenient place for motorcyclists to stop by during bad weather conditions
- Higher maintenance cost
- Need exclusive land for shelter booth and path
- If located too far from the main carriageway, there is a possibility of motorcyclists not noticing the shelter

FACILITIES TO SEGREGATE MC WITH OTHER TRAFFIC

MOTORCYCLE SHELTER (Type 2 – Under bridge)

General characteristics:

- Easy access and provide convenience to motorcyclists
- Low maintenance work required
- Cost effective type of motorcycle shelter

MOTORCYCLE SHELTER

ADVANTAGES

- Stand alone motorcycle shelter can minimize traffic disruption from motorcyclist during wet weather conditions.
- Motorcycle shelter create safer environments for motorcyclist by preventing them stopping on the travelled way/emergency lane.
- Motorcycle shelter allow motorcyclists to stop and take a rest during wet weather and/or when they are tired and in need of rest.

DISADVANTAGES

- The huge number of motorcyclists taking shelter underneath bridge and park on emergency lane has leading to collisions with other vehicles (drivers unable to stop in time due to poor visibility during wet weather conditions).
- The construction of the stand alone shelter is more expensive compared to under bridge shelter types.

Source: Nota Teknik Jalan 33/2015: Guidelines for motorcycle facilities, JKR

MAN – MACHINE – ROAD ENGINEERING RELATIONSHIP IN ROAD SAFETY.

- Technology can assist?
- Contribution from industry on sharing responsibility

WHAT WE COULD DO TO IMPROVE

Type of Collision	Death	%
Head-on Collision	973	**25%**
Rear Collision	587	**15%**
Right Angle Side Collision	173	4%
Angular Collision	720	**19%**
Side Swipe	410	**11%**
Forced Collision	6	0.2%
Hitting Animal	47	1%
Hitting Object On Road	36	1%
Hitting Object Off Road	25	1%
Hitting Pedestrian	21	1%
Out of Control	839	**22%**
Others	38	1%
Total	**3,875**	**100%**

Automatic Headlights for Motorcycle, Daytime Running Light (DRL) for cars, Intelligent detection system RFID, Dedicated Short Range Communication (DSRC), Lane Departure Warning, Forward Collision Warning

Increase Conspicuity of Vehicle, Multi-angle View

Automatic Headlights for Motorcycle, DRL for cars, Intelligent detection system RFID, DSRC,

Blind Spot Indicator, Lane Watch

Skill, Improvement on Driving Under Influence (DUI)

BLIND SPOT TECHNOLOGY (BST)

- Reduce motorcyclist fatalities especially during a lane changing action
- BST warns the driver when a motorcycle is approaching from either the side or rear of the car
- Part of the ASEAN NCAP 2017-2020 protocol, BST technology is now under the Safety Assist (SA) category

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ASEAN ROAD SAFETY CENTRE

MIROS WILL SUPPORT **ASEAN NCAP** TO PUSH HARDER FOR TECHNOLOGY THAT COULD SAVE MOTORCYCLIST FOR THE REGION.

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