

# MIROS and its Roles in ASEAN



Central Asia Regional Economic Cooperation Program

## 2<sup>nd</sup> ROAD SAFETY WORKSHOP

**16-18 August 2016**

Kuala Lumpur, Malaysia

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Director

Road Safety Engineering & Environment Research Centre

# Global Road Safety Scenario



- Every year, there are **1.24 million** road traffic deaths worldwide
- **92% of road traffic deaths** occur in low- and middle-income countries
- **Vulnerable road users** account for half of all road traffic deaths globally

In Malaysia, the death toll of 6,706 recorded in 2015,  
which cost a loss of nearly  
**RM 8.7 billion** to the national economy.



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** in 2020.

It is estimated that the loss to Malaysia will be

**RM 20.6 billion** in 2020.



# Road Safety Scenario in Malaysia

# General Malaysia Road Crash (1997 - 2014)

Year	Registered Vehicles	Population	Road Crashes	Road Deaths	Serious Injury	Slight Injury
1997	8,550,469	21,665,600	215,632	6,302	14,105	36,167
1998	9,141,357	22,179,500	211,037	5,740	12,068	37,896
1999	9,929,951	22,711,900	223,166	5,794	10,366	36,777
2000	10,598,804	23,263,600	250,429	6,035	9,790	34,375
2001	11,302,545	23,795,300	265,175	5,849	8,680	35,944
2002	12,068,144	24,526,500	279,711	5,891	8,425	35,236
2003	12,819,248	25,048,300	298,653	6,286	9,040	37,415
2004	13,828,889	25,580,000	326,815	6,228	9,218	38,645
2005	15,026,660	26,130,000	328,264	6,200	9,395	31,417
2006	15,790,732	26,640,000	341,252	6,287	9,253	19,885
2007	16,813,943	27,170,000	363,319	6,282	9,273	18,444
2008	17,971,901	27,730,000	373,071	6,527	8,868	16,879
2009	19,016,782	28,310,000	397,330	6,745	8,849	15,823
2010	20,188,565	28,910,000	414,421	6,872	7,781	13,616
2011	21,401,269	29,000,000	449,040	6,877	6,328	12,365
2012	22,702,221	29,300,000	462,423	6,917	5,868	11,654
2013	23,819,256	29,947,600	477,204	6,915	4,597	8,388
2014	25,101,192	30,300,000	476,196	6,674	4,432	8,598



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)
1997	6302	7.37	29.1	33.57
1998	5740	6.28	25.8	28.75
1999	5794	5.83	25.5	26.79
2000	6035	5.69	26.0	26.25
2001	5849	5.17	25.1	23.93
2002	5891	4.90	25.3	22.71
2003	6286	4.90	25.1	22.77
2004	6228	4.52	24.3	21.10
2005	6200	4.18	23.7	19.58
2006	6287	3.98	23.6	18.69
2007	6282	3.74	23.1	17.60
2008	6527	3.63	23.5	17.65
2009	6745	3.55	23.8	17.27
2010	6872	3.40	23.8	16.21
<b>2011</b>	<b>6877</b>	<b>3.21</b>	<b>23.71</b>	<b>14.68</b>
<b>2012</b>	<b>6917</b>	<b>3.04</b>	<b>23.61</b>	<b>13.35</b>
2013	6,915	2.90	23.1	12.19
<b>2014</b>	6,674	2.66	22.0	10.64

# MIROS

- Established on 3rd January 2007, MIROS functions as a one-stop centre for the generation and dissemination of road safety information through the print media and a concerted training programme.

- MIROS carries out studies and evaluates current procedures on road safety to generate information that will form the core of its evidence-based intervention programmes to enhance road safety.

## Vision

To emerge as a world leader in road safety research

## Mission

To foster the science and art of road safety interventions





# Function

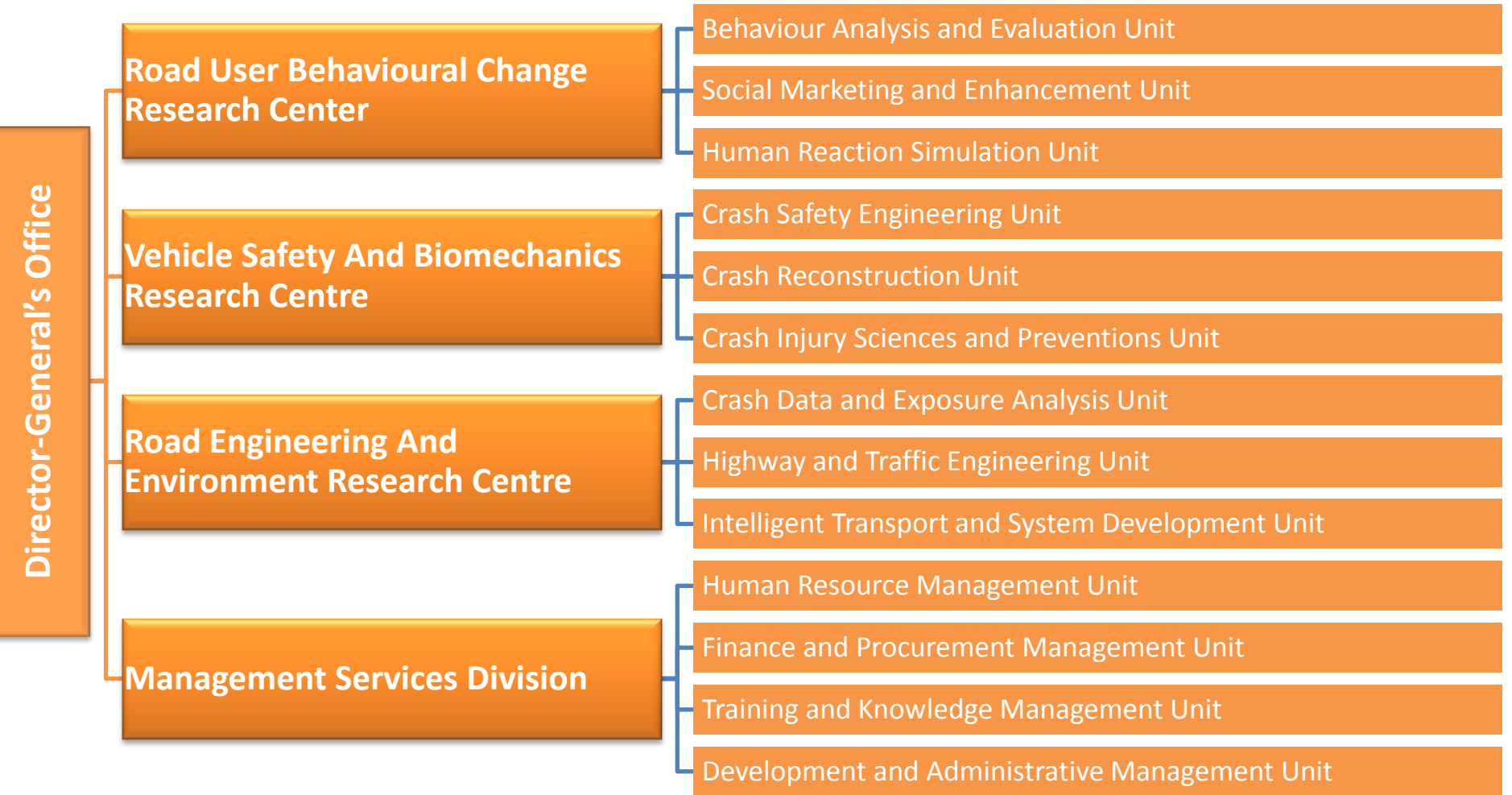
- a) To conduct comprehensive research on road safety, and to provide general directions for activities in respect of road safety research.
- b) To assist in the development of national objectives, policies and priorities for the orderly development and administration of road safety.
- c) To enhance and increase knowledge based on new developments regarding issues related to road safety.
- d) To raise the level of public awareness on road safety.
- e) To propose practical solutions with optimal effectiveness on road safety issues.
- f) To collect, analyze and manage data in relation to road safety.
- g) To develop, promote the use of, value add and commercialize research findings on road safety.



# Function

- h) To collect, collate and disseminate information relating to research finding on road safety by way of publishing or sponsoring the publications of periodicals, journals, book and any other means available, and to provide consultation and advice on road safety issues.
- i) To plan and evaluate road safety programmes, and to conducts related training.
- j) To review standards and learning outcomes of the curriculum for courses of instruction provided by driving institutions and audit the benchmarks in respect of the delivery system of driving institutions
- k) To review testing methods carried out by vehicles inspection organizations
- l) To be member of, be affiliated with or to maintain liaison with, other organizations, both public and private, local and foreign, having similar functions or activities as those of the Institute, and
- m) To co-operate with any person, association or organization, both local and foreign, with a view to furthering the effective performance of the Institute.







# Road User Behavioral Change Research Centre (RUBC)

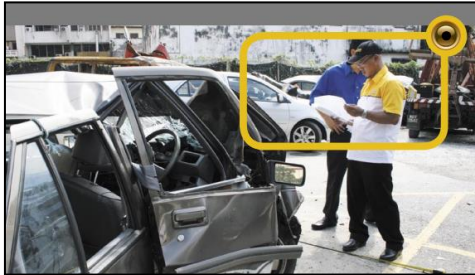
•RUBC performs in-depth research to help convert negative behaviour road user. From administrative aspect, this research centre has 3 units. Each unit has its own focus and specific scope of research in contributing to the general objective of enhancing road safety through positive behaviour . Administratively the Centre is sub divided into:

1. Social Marketing and Education Enhancement Unit (SME2);
2. Behaviour Analysis & Valuation Unit (BehAV); and
3. Human Reaction @ Simulation Unit (HuRAS).

•The major objectives of this Centre are to:

1. Undertake research into the effectiveness of road safety campaigns, traffic calming measures, sociology of transport, enforcement, and psychology of road user behaviour,
2. Assess the effectiveness of road safety knowledge through education, and
3. Oversee and accredit driving institutes nationwide.

# Vehicle Safety and Biomechanics Research Centre



• Administratively, to ensure smooth work flow, the Centre is divided into three units:

1. Crash Injury Sciences and Preventions Unit (CRIS-P);
2. Crash Safety Engineering Unit (CRASE); and
3. Crash Reconstruction Unit (CRU).

• The major objectives of the Centre are to:

1. Carry out crashworthiness investigation in the mechanics of injury, biomechanics and human tolerance to crash, including reconstruction of injury-related crashes;
2. Undertake research on trauma care, post-injury treatment, emergency response and pre- and post-crash medical health;
3. Review policies and current approaches towards improving Standard Operating Procedures, Code of Practice and Industrial Standards through technical reports and publications as well as recommendations;
4. Carry out validation tests on the impact of accidents; and
5. Monitor and audit implementation of SHE.



# Road Safety Engineering and Environment Research Centre

•The Road Safety Engineering & Environment Research Centre (REER) is organized into three units:

1. Crash Data & Exposure Analysis Unit (CDE);
2. Highway and Traffic Engineering Unit (HTE); and
3. Intelligent Transport and System Development Unit (ITS).

•Some of the major objectives of this Centre are to:

1. Provide for a continuously updated national accident and injury database;
2. Map accident data using geographical codes, Road User Movement (RUM) accident code and digital code;
3. Undertake diagnostic analysis on road accidents and assessment of safety interventions;
4. Undertake research on safer road designs and road environment;
5. Develop traffic models on traffic and transportation facilities and;
6. Carry out survey on vehicle which operate annually to assess Vehicle Kilometer Travelled rate (VKT) and Passenger Kilometer Travelled (PKT).

# Research translated into policies

Compliance to UNECE  
Regulations

Enhancing Guardrail  
Standards

Code of Practice on  
Safety, Health and  
Environment for  
Transportation Sector



Implementation of  
New Driving Training  
Curriculum Based on  
Learning Outcomes

Implementation of  
Rear Seatbelt Use

Implementation of  
Road Safety Education  
in School

Implementation of  
Community Based  
Programmed on Safety  
Helmet

Electric Bicycle

Authorised Left Turn

# Major Achievements of MIROS



# ASEAN Road Safety Centre



# MIROS as The ASEAN Road Safety Centre 2014



# ASEAN New Car Assessment Program

# ASEAN New Car Assessment Program



**ASEAN NCAP**  
www.aseanncap.org

"Making Cars Safer in ASEAN Region"

ACT0023FO Proton Prevé

21 October 2013

With 6 Airbags  
SBR: Driver & front passenger  
ESC: YES

	★ ★ ★ ★ ★ AOP: 15.38 / 16.00
	★ ★ ★ ★ ★ COP: 67%

SIDE IMPACT TEST (UNR96): PASS

**MIROS**

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# Background

- Phase 3 started from October 2013 to April 2014.
- Plan to crash 11 models, but only 9 achieved because of logistic matters (vehicle from Thailand and Indonesia)
- New manufacturer joining the test are Volkswagen, Chevrolet, Isuzu, Kia & Peugeot.
  - With Isuzu on-board, 100% Japanese Manufacturer participated in ASEAN NCAP.
- Plan to launch Phase 3 in Bangkok but due to political instability it was diverted to Melbourne and Melaka.
- Phase 3 published 13 ratings with dual rating for 4 cars.

# ASEAN NCAP

- video

# 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

# Crash Reconstruction



# Crash Investigation

Genting – Kuala Lumpur (21 August 2013)

- video

# Crash Investigation

Simpang Pulai, Perak (20 December 2010)



★★★★★ road user

★★★★★ vehicle

★★★★★ road

# Road Safety Education

# Review And Redevelopment Of Road Safety Education (RSE) Module

Currently the RSE module is embedded in Bahasa Melayu subject as a cross curriculum element. Malaysia is aiming to reduce road fatalities in the country by 50% in 2020. The 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.

# Safety Star Grading for Buses



**“Transforming Public Transportation Sector Through Safety Star Grading Programme”**



SSG creates a platform for the bus operators to provide vital information for the consumption of general public in making their choice for the service they desire. With the award of star rating, star rating labels will be provided and the bus operators could display them on their bus, ticket counters or office and premises for marketing purposes. More importantly, customers would be able to compare the different operational safety standard practiced among these bus operators, apart from motivating them to improve their operations to a higher level in safety and health, and service performance.

# Automated Enforcement System

# Automated Enforcement System (AES)

- MIROS is highly involved in AES by assisting the ministry with the following:
  - site verification for AES which emphasize on parameter setting – MIROS collaborate with PWD, MHA to come out with 3 guideline for site verification
  - MIROS has take the initiative to analyze the recent set of accident data obtained from RMP. Based on comments and feedback, MIROS has produced a **new list of Accident Prone Area** (3K) based on certain criteria to ensure the accurate location are determined
  - MIROS is appointed as the lead agency for the **Jawatankuasa Penilaian Teknikal UAT (JKPT UAT)** which responsible for the technical and UAT inspection for the pilot phase as well as to finalise the procedure UAT procedure for the AES nationwide roll out (NRO)
  - Latest development the committee is responsible for the **proof of concept (POC)** for the new proposed technology for AES



# Automated Enforcement System (AES)

1. MCP 115 – Guideline on Accident-Prone Area Identification for AES
2. MCP 116 – Road Engineering Guideline on Verification of AES Camera Location at Signalised Intersections in Malaysia
3. MCP 117 - Road Engineering Guideline on Verification of AES Camera Location on Road Links in Malaysia
4. MRR 129 - Impact Studies on Automated Enforcement System (AES) Implementation
5. MER 144 – Evaluation Report Automated Enforcement System Validation Study – Camera Flash Triggered by Vehicle Travelling below the Threshold Speed Limit
6. MRR 146 - The Effectiveness of Automated Enforcement System in Reducing Red Light Running Violations in Malaysia
7. MCP 125 - Calibration, Verification and Homologation for Automated Enforcement System



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# International Road Assessment Programme (iRAP)

# iRAP in Malaysia

YEAR	ACTIVITIES
2007	Pilot study over 3,700 km roads
2009 - 2010	Results presented to local stakeholders Implementation and evaluation of countermeasure
2011 - 2012	Consulting service to Philippines Appointment of MIROS as iRAP COE
2012 - 2013	Consulting services to Indonesia and local stakeholders
2014	Development of road survey tool
2015	Consulting services to Brunei and Papua New Guinea
2016	iRAP Malaysia Launched



iRAP proposed countermeasure:  
Central hatching on rural primary roads



iRAP Malaysia launched by the  
Minister of Transport in Feb 2016

# MIROS as iRAP Centre of Excellence

## Provide training courses

- iRAP Coding
- iRAP Star Ratings
- iRAP Safer Roads Investment Plan



Dept. of Public Works & Highways, Philippines



Public Works Dept. Malaysia

## Engagement

- Public Works Dept., **Malaysia.**
- Department of Public Works & Highways, **Philippines.**
- Institute of Road Engineering, **Indonesia.**
- Shell **Malaysia**



Institute of Road Engineering, Indonesia



Shell Malaysia

# MIROS as iRAP Centre of Excellence

## Provide consultation services

- iRAP data coding
- iRAP Star Rating
- iRAP Safer Roads Investment Plans

## Clients

- iRAP **Philippines**: Coding and Quality Assurance
- iRAP **Brunei**: Data coding
- iRAP **Papua New Guinea**: Star Rating and Safer Roads Investment Plans

### Road Assessment on Papua New Guinea

- A total of 3,800 km of roads spanning across 18 provinces were assessed.
- More than 50 road attributes were coded.
- More than 90 countermeasure programmes were proposed.



# MIROS as iRAP Centre of Excellence

## Develop road survey tool

- To enable iRAP data collection
- To enable data viewing and coding

## Partner

- Universiti Teknikal Melaka, Malaysia.

## Road Attribute Data Logger & Inspection System (RADIS)



# MIROS Product & Services

- CRASE MECHANICAL LABORATORY
- SAFETY STAR GRADING FOR BUS OPERATOR
- AUDIT SAFETY HEALTH AND ENVIRONMENT MIROS
- FATIGUE, SLEEP QUALITY AND OSA MOBILE SCREENING
- CRASHWORTHINESS & SAFETY PRODUCT EVALUATION BY MIROS
- STRUCTURAL & MECHANICAL ANALYSIS BY CRASE MECHANICAL LAB
- : SIDE IMPACT BAR TEST
- ANALYSIS OF ROAD ACCIDENT DATA FOR SPECIFIC MAKE
- CRASH INVESTIGATION AND RECONSTRUCTION TRAINING
- CRU MATERIAL PROPERTIES (MATPRO) LAB
- CRU UNMANNED AERIAL VEHICLE (UAV) FOR AERIAL PHOTOGRAPHY
- CRASH INVESTIGATION & RECONSTRUCTION SERVICE
- UNMANNED AERIAL VEHICLE (UAV) CONSULTANCY
- FIELDWORK OPERATIONS TEAM (FOT)
- KERETA BERINSTRUMENTASI (MYVI & PERSONA) & MOTOSIKAL BERINSTRUMENTASI
- SIMULATOR PEMANDUAN (MINIDS DAN CABINDS)
- PEMASANGAN PANEL PAPARAN IKLAN PADA BADAN TEKSI
- PENILAIAN KEBERKESANAN PROGRAM PENGUATKUASAAN
- PERUNDINGAN PEMBINAAN SOALAN KUIZ PENDIDIKAN KESELAMATAN JALAN RAYA
- PENGUKURAN ANALISA TINGKAH LAKU PENUNGGANG MOTOSIKAL



**MIROS ROAD SAFETY COURSE 2015 - IT & SOFTWARE DEVELOPMENT FOR TRAFFIC SAFETY DATA COLLECTION & TRAFFIC ENGINEERING**

A customize road safety course on IT & Software development for traffic safety data collection & traffic engineering for 6 Tanzanian Government officers from **6 to 24 April 2015**

# Linkages







# ASEAN Declaration for Road Safety Strategy

Adopted in the 21<sup>st</sup> aSEAN Transport Ministers Meeting (ATM),  
6 November 2015, Kuala Lumpur



# Second Global High-Level Conference on Road Safety

18 – 19 November 2015, Brasilia, Brazil



## PLENARY SESSION: STATEMENTS FROM HEADS OF DELEGATIONS

- Formal statement from participating ministers on behalf of their respective Member State
- Brazil's International Convention Center, Brasilia



Prince Michael  
**INTERNATIONAL  
ROAD SAFETY AWARDS**

*Recognising achievement and innovations  
which will improve road safety*



# The Malaysia Book Of Records

**Makmal Ujian Pelanggaran  
Berskala Penuh**

**31 January 2013**



# MIROS and its Roles in ASEAN



Central Asia Regional Economic Cooperation Program

**2<sup>nd</sup> ROAD SAFETY WORKSHOP**

**THANK YOU**

**16-18 August 2016**  
Kuala Lumpur, Malaysia

**Dr. Siti Zaharah**  
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**MIROS**  
MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH