MRSE 2573 OSHE

CASE STUDY GROUP 4

ROAD ACCIDENT – HEAVY VEHICLES IN MALAYSIA

Group Members:

HAIRUL FAHMY BIN ITHNIN	**MRS161063**
HAGIL AZALI BIN HAMDAN	**MRS161099**
KAMAL BIN MOHAMAD RAINI	**MRS171091**
ALICE LEONG MEI PING	**MRS171092**
ASHOK A/L AMBIKAPATAHY	**MRS171041**
M NERRANJINI A/P MANOHARAN	**MRS171034**
PUVANIESHVARAN A/L AMPANATHAM	**MRS171026**
SUHAN A/L GANASEN	**MRS171040**

Road accident-The Reality Around the World

- World, roads are shared by **cars, buses, trucks, motorcycles, mopeds, pedestrians, animals, taxis and other categories of travellers**
- Travel made possible by motor vehicles supports economic and social development in many countries.
- Yet each year, these vehicles are involved in crashes that are responsible for millions of deaths and injuries.

Reference : Center of disease control and preventation

Shared Roads

Common causes of road accidents

Speeding & Speeding in The Rain

Driving Drunk or Under the Influence

Using the Phone While Driving

Beating the Red Light

Reference : Carsome.con

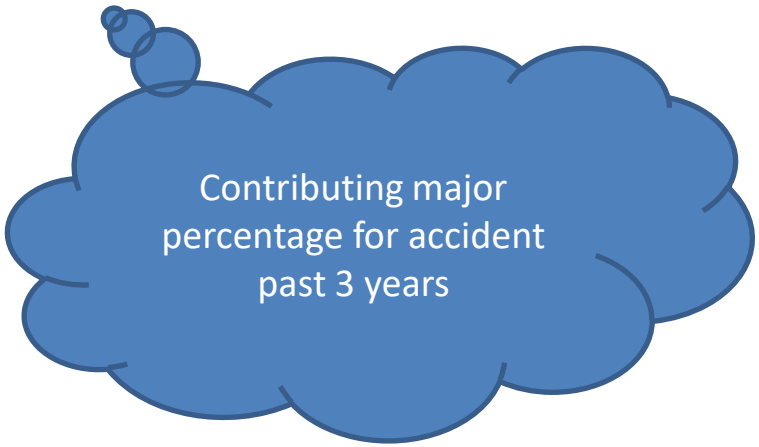
Changing Lanes without Signaling

Driving an Unmaintained Vehicle

Irresponsible Pedestrians

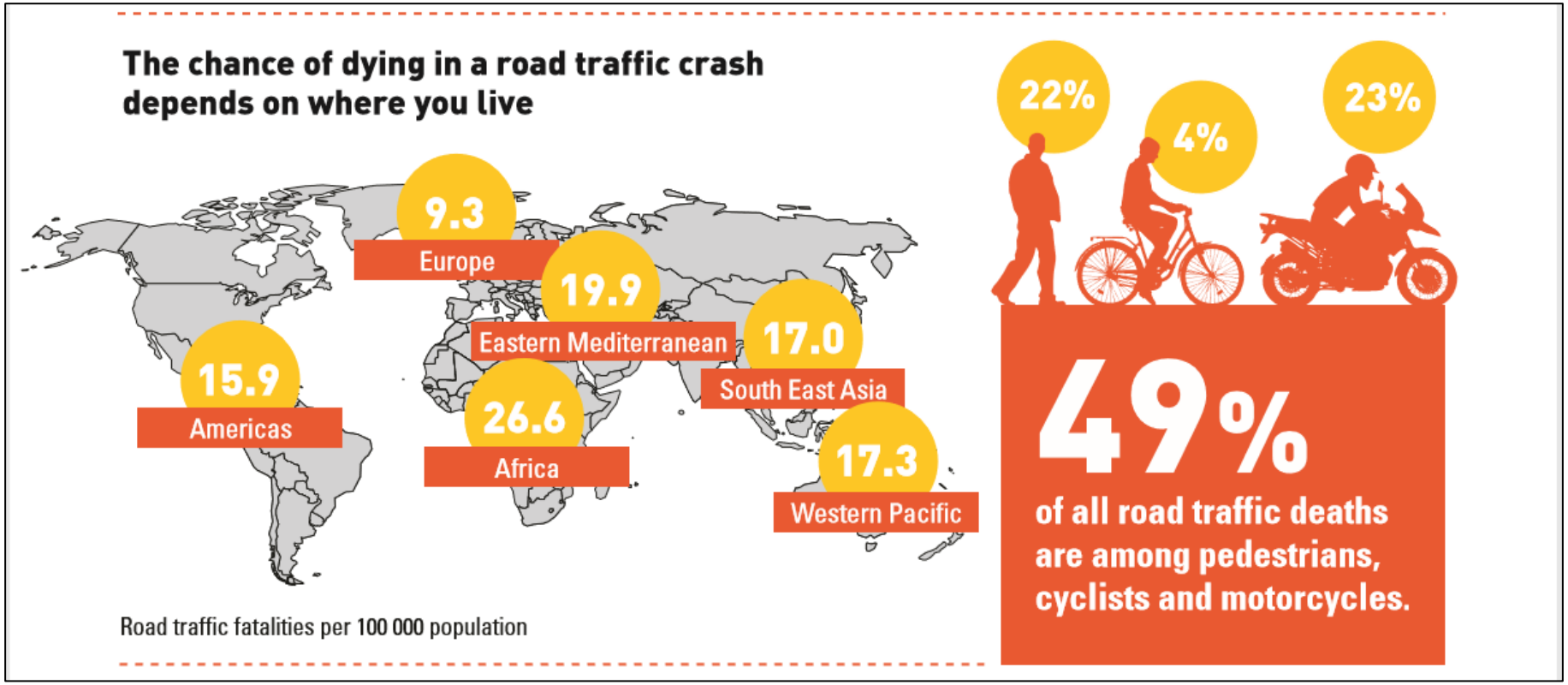
2018 TOP 3 HAZARD – Road accidents

- Poor attitude of drivers
- Fatigue during drive
- Mobile usage while drive



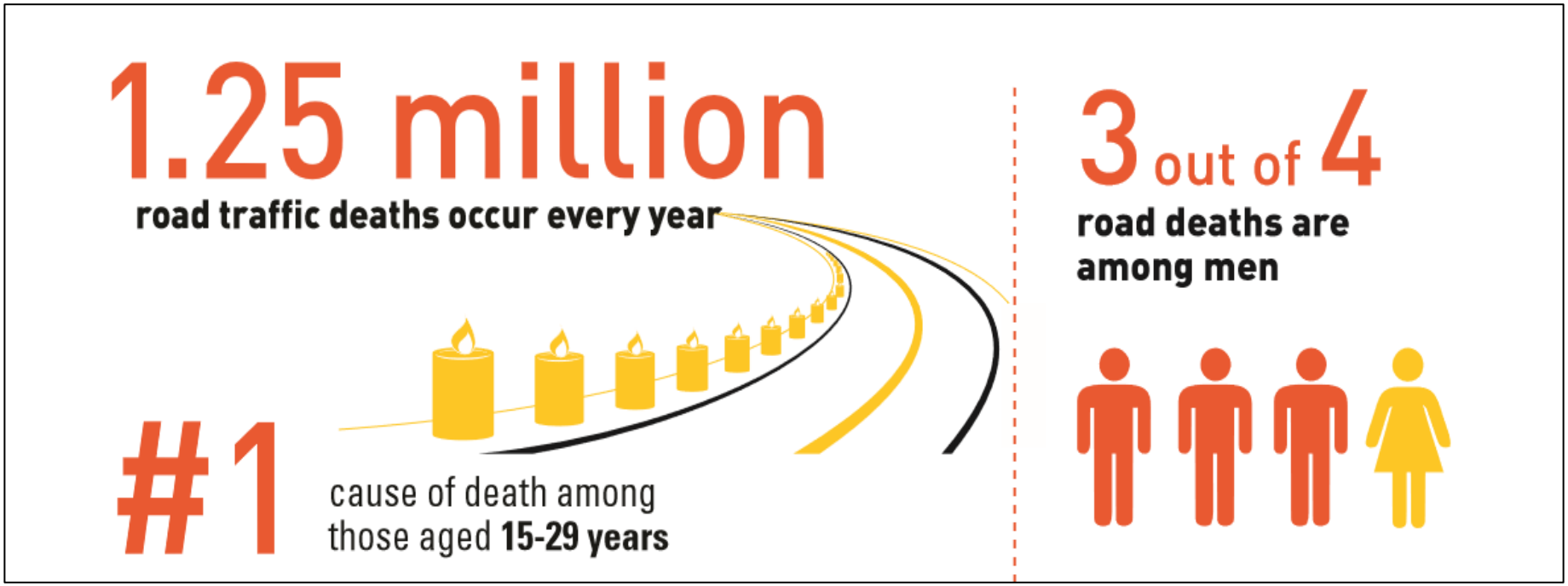
Reference : PDRM

Global Statistics – Road Traffic Crashes



Source: http://www.who.int/violence_injury_prevention/road_safety_status/2015/magnitude_A4_web.pdf?ua=1

Global Statistics – Road Traffic Crashes



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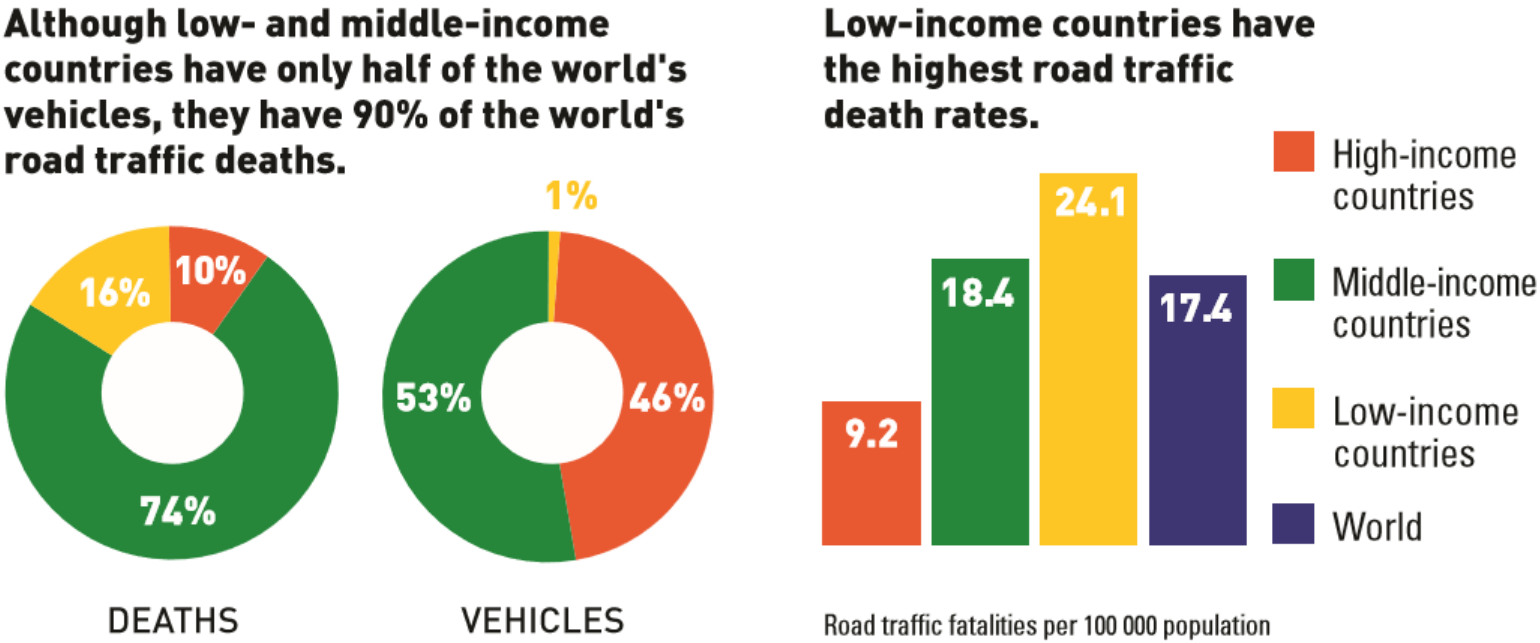
Global Statistics – Road Traffic Crashes



Source: http://www.who.int/violence_injury_prevention/road_safety_status/2015/magnitude_A4_web.pdf?ua=1

Global Statistics – Riskiest Roads in World

Source: https://says.com/my/news/malaysia-s-roads-among-the-world-s-most-dangerous-and-deadliest

Local Statistics – General Road Accident Data

Year	Registered Vehicles	Population	Road Crashes	Road Deaths	Serious Injury	Slight Injury	Index per 10,000 Vehicles	Index per 100,000 Population	Indeks per billion VKT
1997	8,550,469.00	21,665,600.00	215,632.00	6,302.00	14,105.00	36,167.00	7.37	29.10	33.57
1998	9,141,357.00	22,179,500.00	211,037.00	5,740.00	12,068.00	37,896.00	6.28	25.80	28.75
1999	9,929,951.00	22,711,900.00	223,166.00	5,794.00	10,366.00	36,777.00	5.83	25.50	26.79
2000	10,598,804.00	23,263,600.00	250,429.00	6,035.00	9,790.00	34,375.00	5.69	26.00	26.25
2001	11,302,545.00	23,795,300.00	265,175.00	5,849.00	8,680.00	35,944.00	5.17	25.10	23.93
2002	12,068,144.00	24,526,500.00	279,711.00	5,891.00	8,425.00	35,236.00	4.90	25.30	22.71
2003	12,819,248.00	25,048,300.00	298,653.00	6,286.00	9,040.00	37,415.00	4.90	25.10	22.77
2004	13,828,889.00	25,580,000.00	326,815.00	6,228.00	9,218.00	38,645.00	4.52	24.30	21.10
2005	15,026,660.00	26,130,000.00	328,264.00	6,200.00	9,395.00	31,417.00	4.18	23.70	19.58
2006	15,790,732.00	26,640,000.00	341,252.00	6,287.00	9,253.00	19,885.00	3.98	23.60	18.69
2007	16,813,943.00	27,170,000.00	363,319.00	6,282.00	9,273.00	18,444.00	3.74	23.10	17.60
2008	17,971,907.00	27,730,000.00	373,071.00	6,527.00	8,868.00	16,879.00	3.63	23.50	17.65
2009	19,016,782.00	28,310,000.00	397,330.00	6,745.00	8,849.00	15,823.00	3.55	23.80	17.27
2010	20,188,565.00	28,910,000.00	414,421.00	6,872.00	7,781.00	13,616.00	3.40	23.80	16.21
2011	21,401,269.00	29,000,000.00	449,040.00	6,877.00	6,328.00	12,365.00	3.21	23.70	14.68
2012	22,702,221.00	29,300,000.00	462,423.00	6,917.00	5,868.00	11,654.00	3.05	23.60	13.35
2013	23,819,256.00	29,947,600.00	477,204.00	6,915.00	4,597.00	8,388.00	2.90	23.10	12.19
2014	25,101,192.00	30,300,000.00	476,196.00	6,674.00	4,432.00	8,598.00	2.66	22.00	10.64
2015	26,301,952	31,190,000	489,606	6,706	4,120	7,432	2.55	21.5	9.6
2016	27,613,120	31,660,000[e]	521466[a]	7152[a]	NA	NA	2.59	22.6	NA

Source: https://www.miros.gov.my/1/page.php?id=17

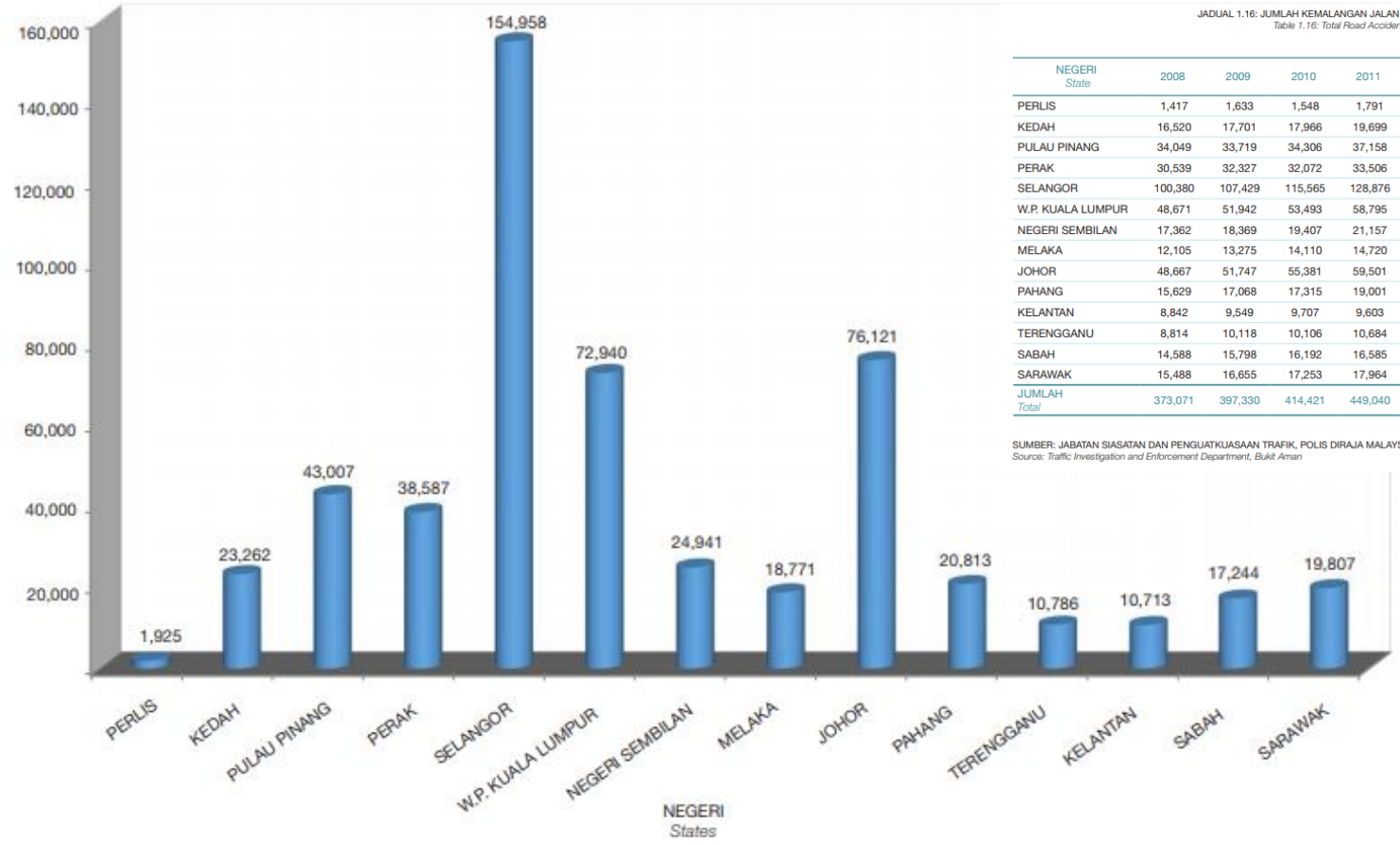
ROAD ACCIDENT STATISTIC IN MALAYSIA 2008-2017

TAHUN *Year*	MOTOSIKAL *Motorcycle*	MOTOKAR *Motocar*	VAN *Van*	BAS *Bus*	LORI *Lorry*	PEMACU 4 RODA *Four Wheel Drive*	TEKSI *Taxi*	BASIKAL *Bicycle*	LAIN-LAIN *Others*	JUMLAH *Total*
2008	111,819	435,665	20,392	9,356	48,250	22,793	8,769	2,463	11,571	671,078
2009	113,962	472,307	19,220	9,380	46,724	23,581	8,669	2,486	9,294	705,623
2010	120,156	511,861	18,788	9,580	50,438	25,777	9,899	2,178	11,756	760,433
2011	129,017	546,702	17,916	9,986	53,078	30,828	11,197	2,033	16,394	817,151
2012	130,080	655,813	15,143	10,617	42,158	32,891	11,680	1,310	21,540	921,232
2013	121,700	632,602	17,148	10,123	39,276	52,512	11,651	1,370	15,441	901,823
2014	125,712	617,578	15,041	9,193	37,481	41,464	10,856	1,275	27,743	886,343
2015	123,408	625,758	14,565	8,804	34,942	46,163	9,591	1,119	29,924	894,274
2016	135,181	670,935	14,470	9,462	35,064	48,907	8,399	1,318	36,833	960,569
2017	108,221	564,491	13,347	7,258	34,747	44,297	5,328	787	24,047	802,523

SUMBER: JABATAN SIASATAN DAN PENGUATKUASAAN TRAFIK, POLIS DIRAJA MALAYSIA (PDRM)
Source: Traffic Investigation and Enforcement Department, Bukit Aman

- Total road accident involving lorry in 2017 = 34,747 cases (4.33%)

❑ Malaysian Road Accidents by State (2008~2017)



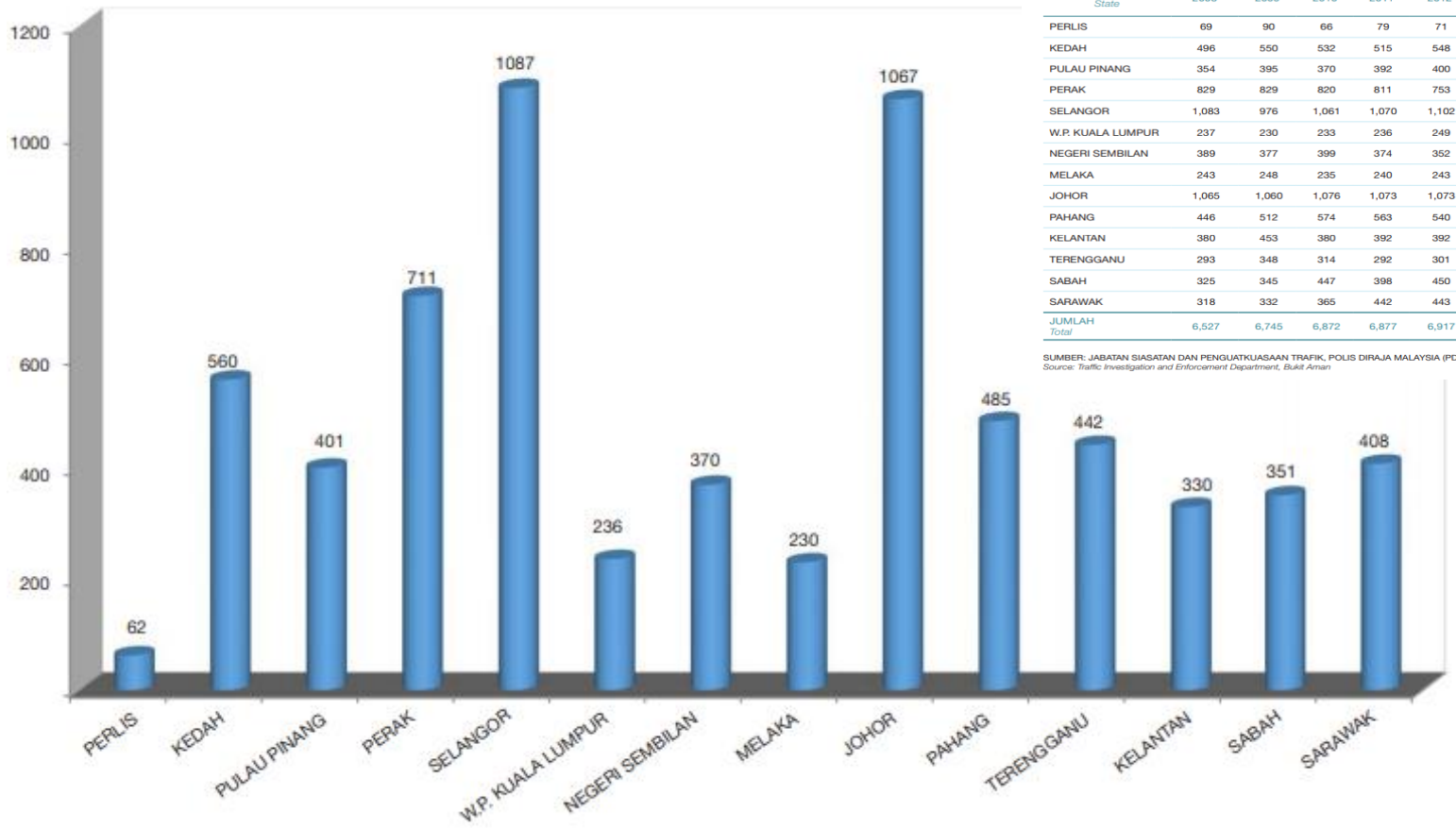
JADUAL 1.16: JUMLAH KEMALANGAN JALAN RAYA MENGIKUT NEGERI, MALAYSIA, 2008-2017
Table 1.16: Total Road Accidents by States, Malaysia, 2008-2017

NEGERI *State*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
PERLIS	1,417	1,633	1,548	1,791	1,881	1,895	1,888	1,861	2,062	1,925
KEDAH	16,520	17,701	17,966	19,699	19,935	20,228	20,159	22,016	23,200	23,262
PULAU PINANG	34,049	33,719	34,306	37,158	37,851	39,361	38,747	39,856	42,244	43,007
PERAK	30,539	32,327	32,072	33,506	34,714	35,408	35,131	36,736	38,531	38,587
SELANGOR	100,380	107,429	115,565	128,876	129,106	135,024	137,809	140,957	151,253	154,958
W.P. KUALA LUMPUR	48,671	51,942	53,493	58,795	61,872	64,527	63,535	64,664	68,866	72,940
NEGERI SEMBILAN	17,362	18,369	19,407	21,157	22,146	23,066	23,748	22,939	24,428	24,941
MELAKA	12,105	13,275	14,110	14,720	15,195	16,083	16,375	17,069	18,601	18,771
JOHOR	48,667	51,747	55,381	59,501	62,316	64,600	64,473	67,112	73,116	76,121
PAHANG	15,629	17,068	17,315	19,001	20,554	20,130	19,071	19,635	20,465	20,813
KELANTAN	8,842	9,549	9,707	9,603	9,968	9,748	10,326	9,960	10,544	10,786
TERENGGANU	8,814	10,118	10,106	10,684	10,861	10,996	9,383	10,381	10,793	10,713
SABAH	14,588	15,798	16,192	16,585	17,446	17,438	17,858	17,290	17,298	17,244
SARAWAK	15,488	16,655	17,253	17,964	18,578	18,700	17,693	19,130	20,065	19,807
JUMLAH *Total*	373,071	397,330	414,421	449,040	462,423	477,204	476,196	489,606	521,466	533,875

SUMBER: JABATAN SIASATAN DAN PENGUATKUASAAN TRAFIK, POLIS DIRAJA MALAYSIA (PDRM)
Source: Traffic Investigation and Enforcement Department, Bukit Aman

***Source :** Traffic Investigation and Enforcement Department, Bukit Aman*

❑ Malaysian Road Fatalities (2008~2017)



JADUAL 1.18: JUMLAH KEMATIAN DISEBABKAN KEMALANGAN JALAN RAYA MENGIKUT TAHUN DAN NEGERI, MALAYSIA, 2008-2017
Table 1.18: Total Deaths Caused by Road Accidents by Year and States, Malaysia, 2008-2017

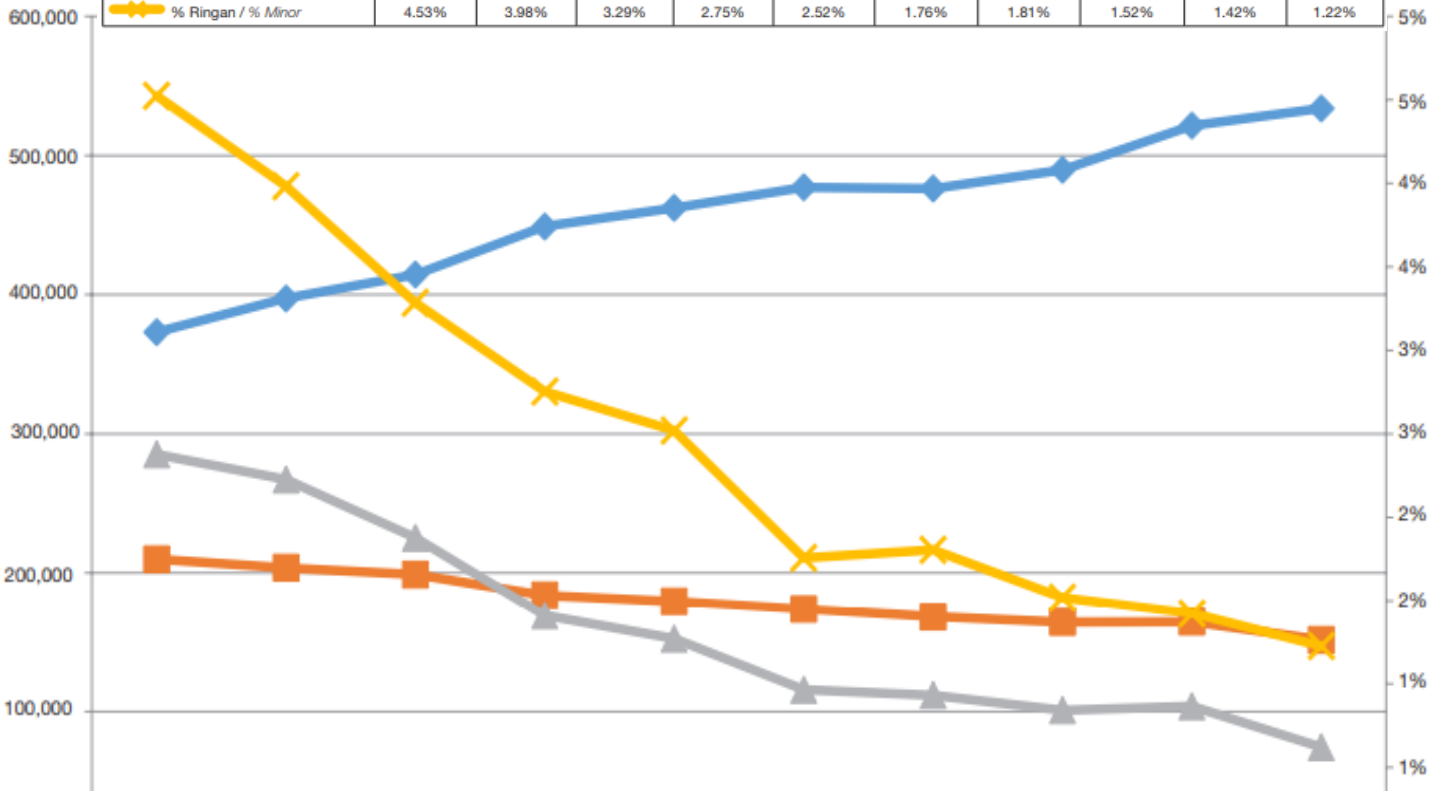
NEGERI *State*	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
PERLIS	69	90	66	79	71	72	61	65	67	62
KEDAH	496	550	532	515	548	517	525	530	572	560
PULAU PINANG	354	395	370	392	400	381	378	360	411	401
PERAK	829	829	820	811	753	770	750	726	789	711
SELANGOR	1,083	976	1,061	1,070	1,102	1,019	1,068	1,028	1,140	1,087
W.P. KUALA LUMPUR	237	230	233	236	249	243	238	256	232	236
NEGERI SEMBILAN	389	377	399	374	352	396	379	355	414	370
MELAKA	243	248	235	240	243	258	236	256	247	230
JOHOR	1,065	1,060	1,076	1,073	1,073	1,128	1,018	1,040	1,135	1,067
PAHANG	446	512	574	563	540	592	539	532	539	485
KELANTAN	380	453	380	392	392	378	354	426	453	442
TERENGGANU	293	348	314	292	301	320	276	307	342	330
SABAH	325	345	447	398	450	420	420	392	379	351
SARAWAK	318	332	365	442	443	421	432	433	432	408
JUMLAH *Total*	6,527	6,745	6,872	6,877	6,917	6,915	6,674	6,706	7,152	6,740

SUMBER: JABATAN SIASATAN DAN PENGUATKUASAAN TRAFIK, POLIS DIRAJA MALAYSIA (PDRM)
Source: Traffic Investigation and Enforcement Department, Bukit Aman

***Source :** Traffic Investigation and Enforcement Department, Bukit Aman*

❑ Malaysian Road Accidents vs Injuries vs Deaths (2008~2017)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Kemalangan / *Accidents*	373,071	397,330	414,421	449,040	462,423	477,204	476,196	489,606	521,466	533,875
% Mati / *% Death*	1.75%	1.70%	1.66%	1.53%	1.50%	1.45%	1.40%	1.36%	1.37%	1.26%
% Parah / *% Severe*	2.38%	2.23%	1.88%	1.41%	1.27%	0.96%	0.93%	0.91%	0.86%	0.62%
% Ringan / *% Minor*	4.53%	3.98%	3.29%	2.75%	2.52%	1.76%	1.81%	1.52%	1.42%	1.22%



Source : *Traffic Investigation and Enforcement Department, Bukit Aman*

CRASH CONFIGURATIONS

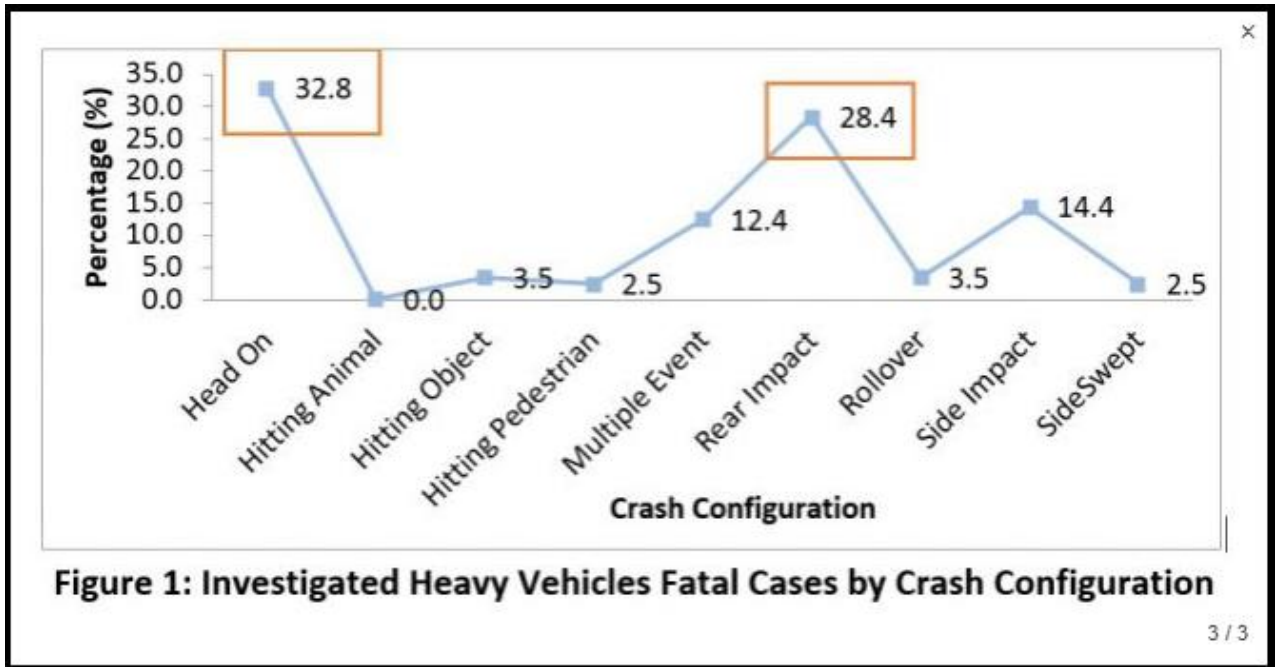


Figure 1: Investigated Heavy Vehicles Fatal Cases by Crash Configuration

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Source : https://www.miros.gov.my/1/publications

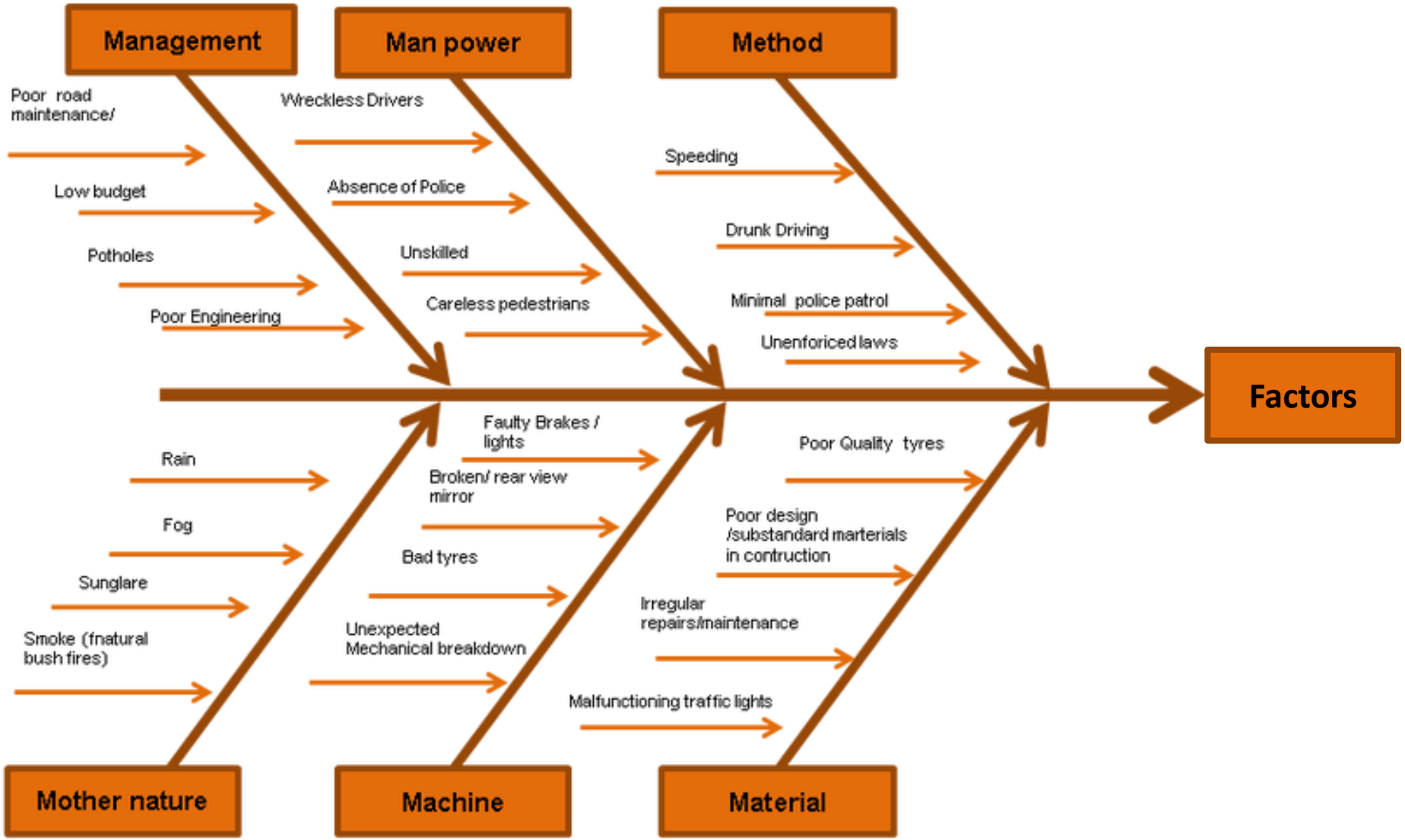
- Head on and rear impact is a highest crash configurations with total 61.8% (MIROS,2017)

Rear Impact

Head on Impact

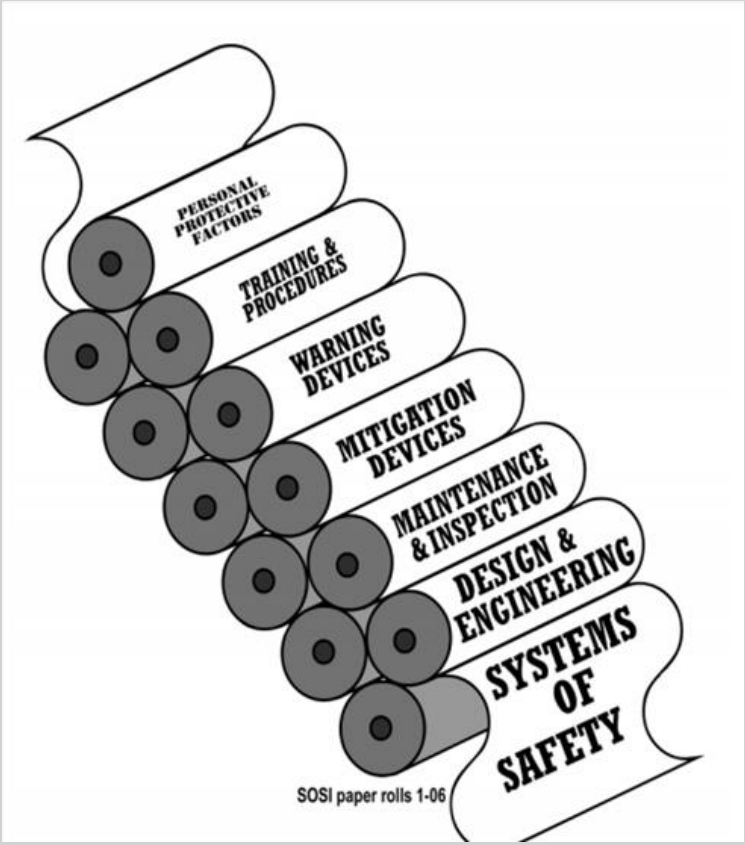
CRASH CONFIGURATIONS

ROAD ACCIDENT FACTORS



SYSTEMS OF SAFETY

- System of safety are proactive system that actively seek to identify, control and/or eliminate workplace hazards.
- Road accident system of safety are as follows:

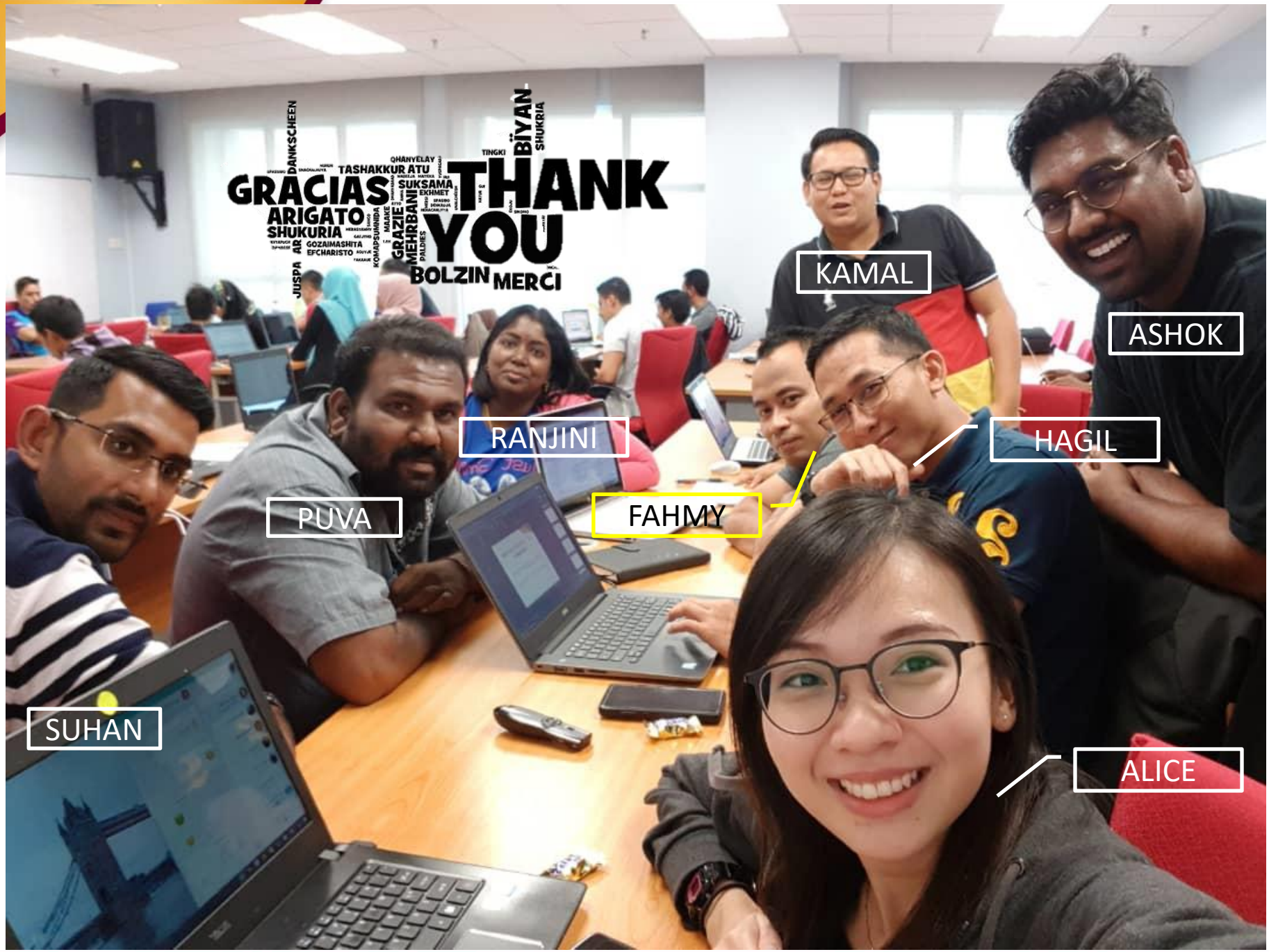


SYSTEMS OF SAFETY

Ser	Risk Assessment	System of Safety	Risk Control
1.	METHOD : Speeding, drunk driving, minimal police patrol, unenforced laws	•Training and procedures	•Rule and regulations enforcement •Educate heavy vehicles driver to follow industry code of practice for road transport •Training and refreshment trainings are very important especially to improve drivers behaviour
2.	MANPOWER : Reckless drivers, unskilled drivers, absence of police	•Warning devices •Mitigation devices	•Speed limit warning system •Speed limit cut-off system •Increase law enforcer patrol •Driver fatigue monitoring system •Enhanced night vision (ENV)
3.	MANAGEMENT : Poor road maintenance, low budget, potholes, poor engineering	•Maintenance and inspection	•JKR to inspect road condition regularly •Segregate road usage according to vehicle types •Use higher quality material •Planned maintenance

SYSTEMS OF SAFETY

Ser	Risk Assessment	System of Safety	Risk Control
4.	MACHINE : Faulty brake/lights, broken rear/side mirror, bad tyres, unexpected breakdown	•Design and engineering •Maintenance and inspection	•Autonomous emergency braking (AEB) •Tire pressure management devices (TPMS) •Made to measure steering systems
5.	MOTHER NATURE : Rain, fog, sun glare, smoke	•Warning devices •Mitigation devices	•Speed limit warning system •Speed limit cut-off system •Increase law enforcer patrol •Glare reduction windshield
6.	MATERIALS : Poor quality tyres, poor design/substandard materials, irregular repairs and maintenance, malfunctioning traffic lights	•Design and engineering •Maintenance and inspection	•JKR to inspect road condition regularly •Use higher quality material •Vehicle health monitoring system •Traffic light monitoring system


THANK YOU
GRACIAS
ARIGATO
SHUKURIA
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MEHRBANI
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GOZAIMASHITA
EFCHARISTO
BOLZIN
MERCI
BIYAN
SHUKRIA
DANKSCHEEN
JUSPA
KAMAL
ASHOK
HAGIL
RANJINI
PUVA
FAHMY
SUHAN
ALICE