

Important Technologies and Activities for Reducing Motorcycle Accidents

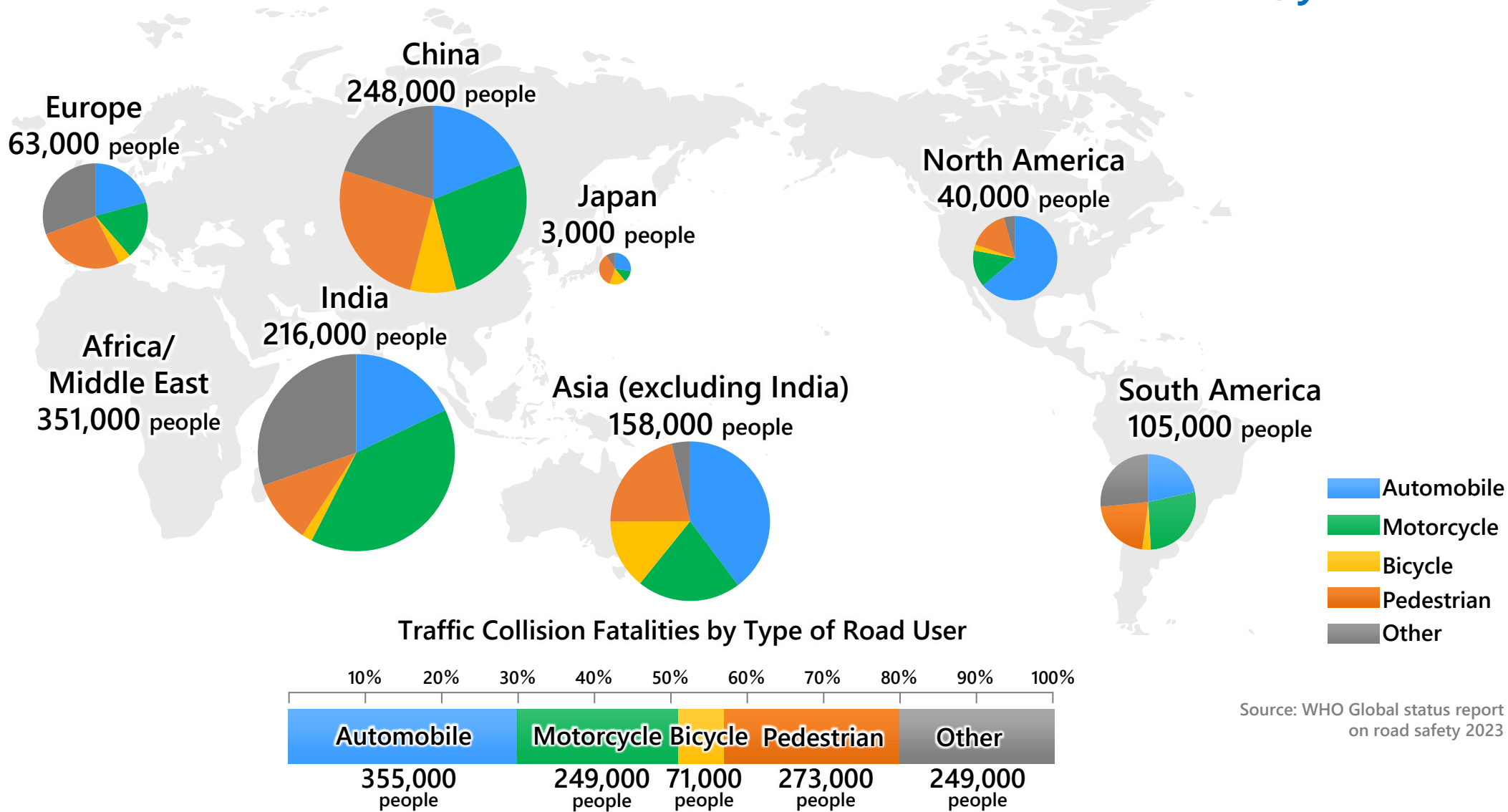
Honda R&D Asia Pacific Co., Ltd

Senior Engineer

Thanakorn Suriyaporn

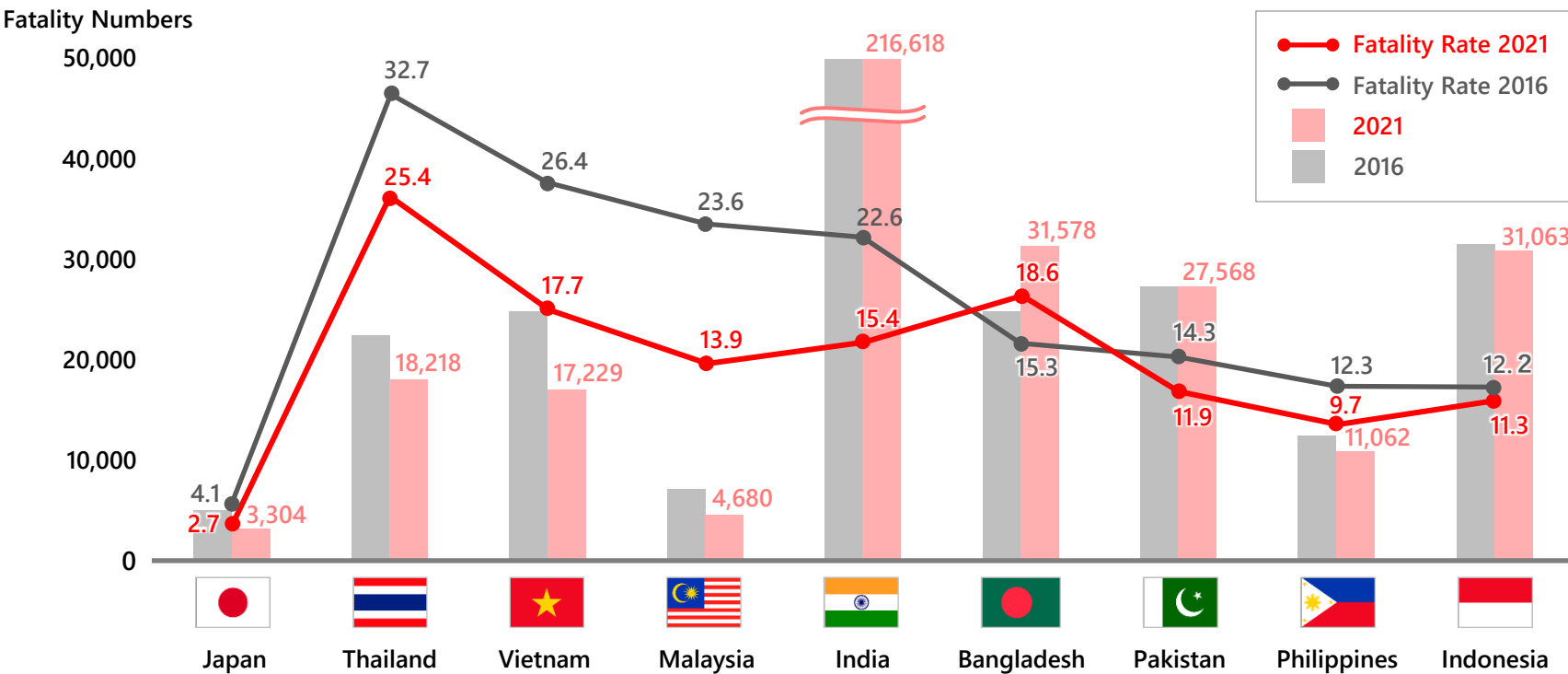


Number of Traffic Collision Fatalities Worldwide: 1.19 million/year



Source: WHO Global status report on road safety 2023

Fatalities numbers from WHO data (2016 & 2021) and Fatality rates/100,000 ppl



Fatality Rates/100K ppl

Year	Japan	Thailand	Vietnam	Malaysia	India	Bangladesh	Pakistan	Philippines	Indonesia
2016	4.1	32.7	26.4	23.6	22.6	15.3	14.3	12.3	12.2
2021	2.7	25.4	17.7	13.9	15.4	18.6	11.9	9.7	11.3
Diff	-34%	-22%	-33%	-41%	-32%	+22%	-17%	-21%	-7%

Although the number of traffic fatalities is on the decline, the fatality rate and number in Asia is still higher than in Japan.

■ Global Safety Slogan

"Honda wants to build a collision-free society where everyone sharing the road can safely and confidently enjoy the freedom of mobility."

Safety for Everyone - Concept of "safe coexistence" -

■ Honda Environment and Safety Vision:

Realization of "the joy and freedom of mobility" and
"a sustainable society where people can enjoy life"

Collision-free Mobility Society

Honda's Safety Cause



Enable people to enjoy the real world while fully engaging their feelings and five senses

Honda Approach to Safety



Safe coexistence:
Provide everyone sharing the road with safety and peace of mind

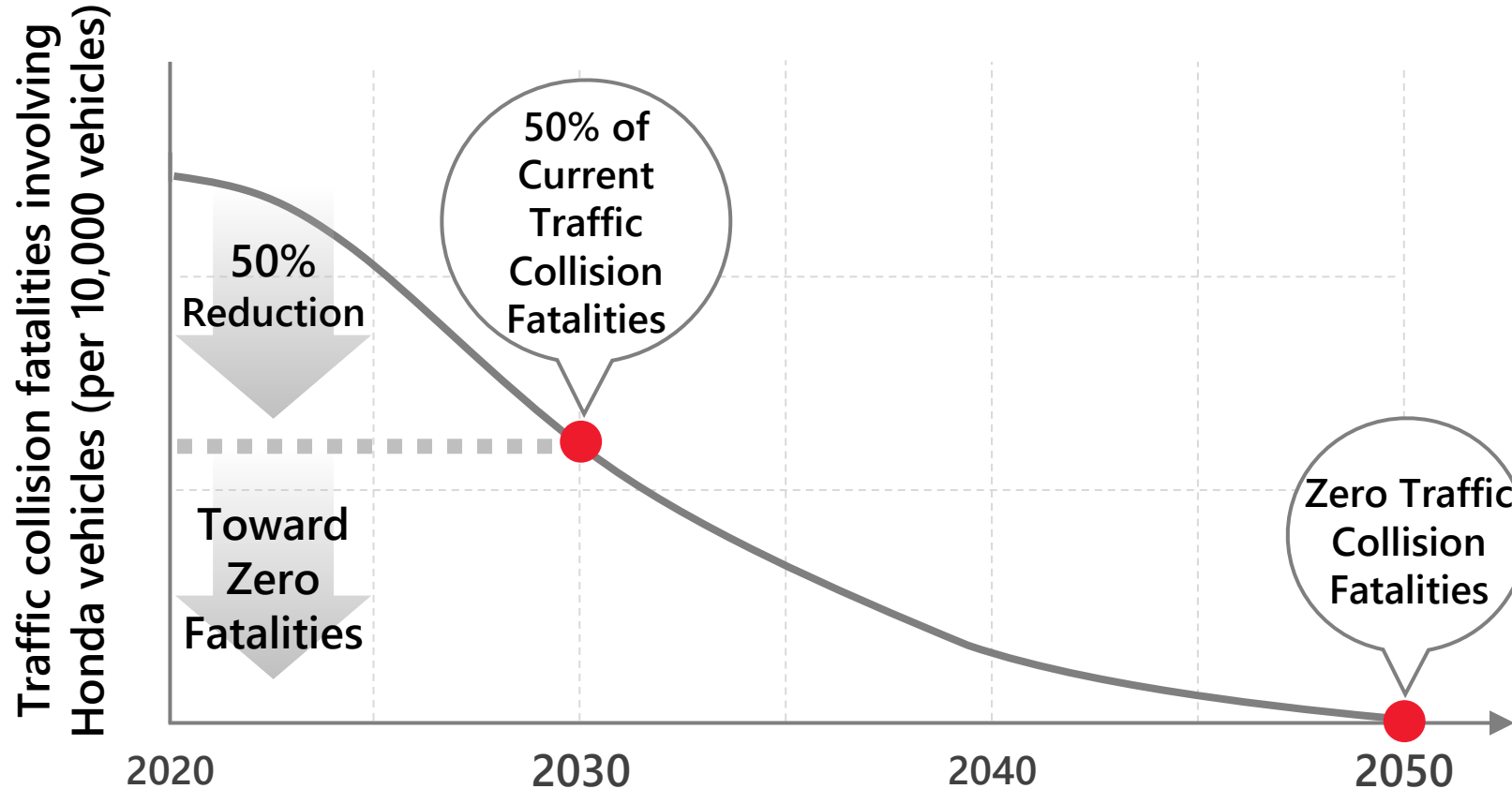


Strive for zero traffic collision fatalities involving Honda motorcycles and automobiles globally by 2050

*Honda vehicle involvement in fatalities among motorcycle riders, automobile occupants, pedestrians and bicycle riders (except for those who are intentionally and flagrantly violating rules and/or in a state of being legally incompetent)

Strive for zero traffic collision fatalities involving Honda motorcycles and automobiles globally by 2050

Strive to reduce traffic collision fatalities involving Honda motorcycles and automobiles by half by 2030



From the 5E perspectives, launch highly-effective measures
in the context of the actual situation of each region

< Asia and Oceania region >

Difficult to realize zero fatalities only with technologies and education

Need to build a foundation for traffic safety such as establishment
of proper infrastructure and institutional reforms



Lead the effort with omnidirectional initiatives based on the 5E perspectives

Evaluation

Collision Analysis/
Behavior Analysis

Education

Traffic Safety
Education

Engineering

Safety Technology/
Infrastructure

Enforcement

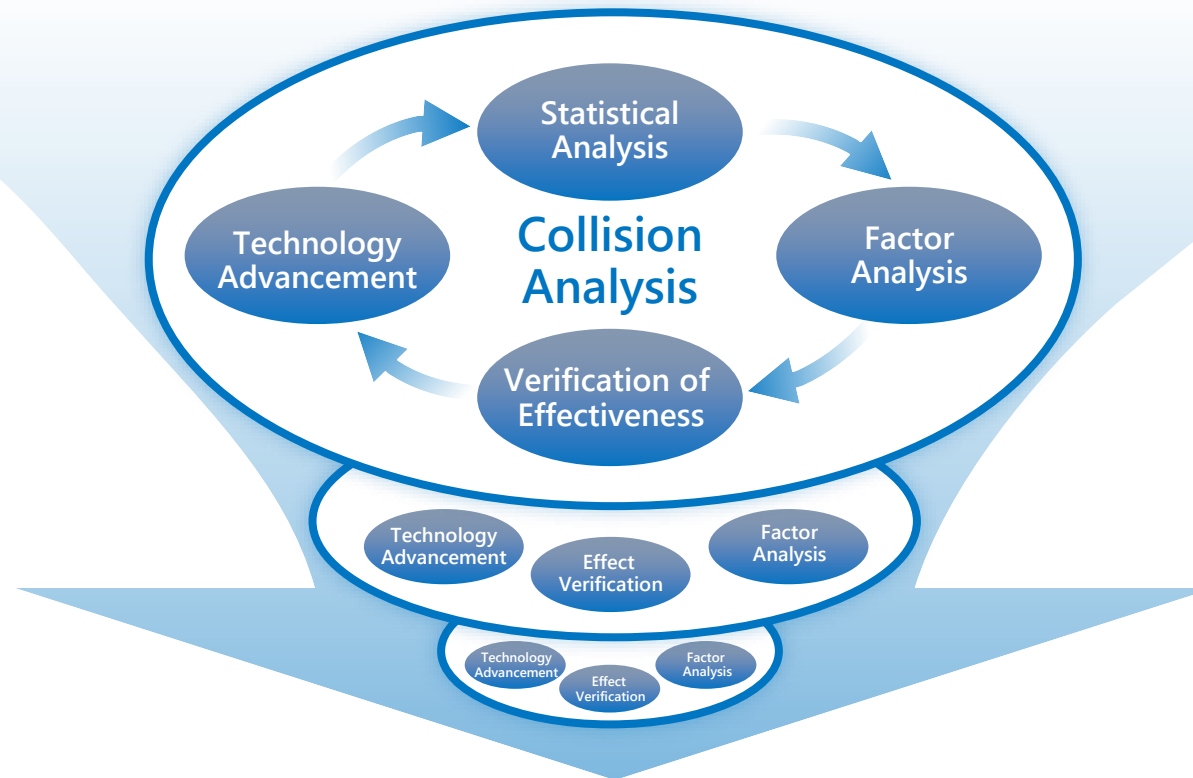
Vehicle Regulations/
Road Traffic Laws

EMS

Emergency Medical
Service

Launch real-world and highly-effective measures by conducting verification of effectiveness based on collision analysis

Strive for zero traffic collision fatalities by the continuous creation and advancement of new technologies based on effect verification.

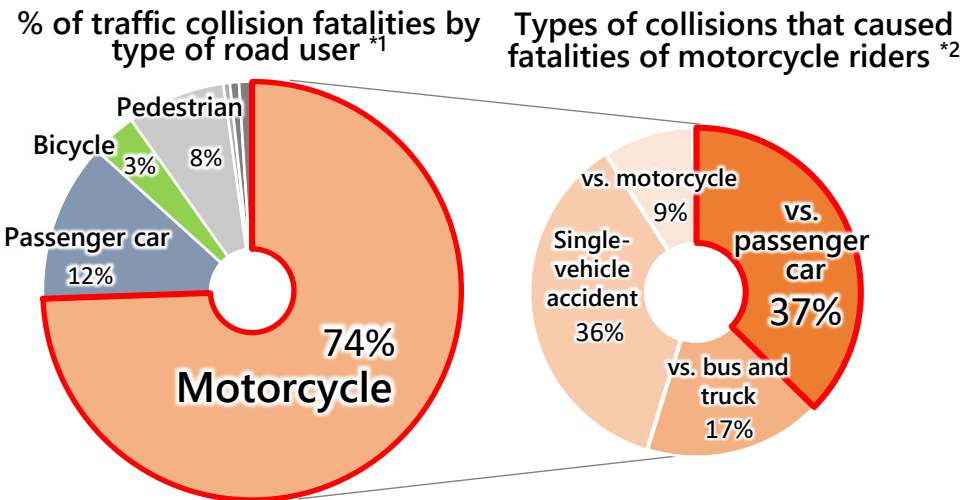


Zero traffic collision fatalities

We need to address issues with both “safety technology” and “safety education” through combined efforts in the areas of both motorcycles and automobiles

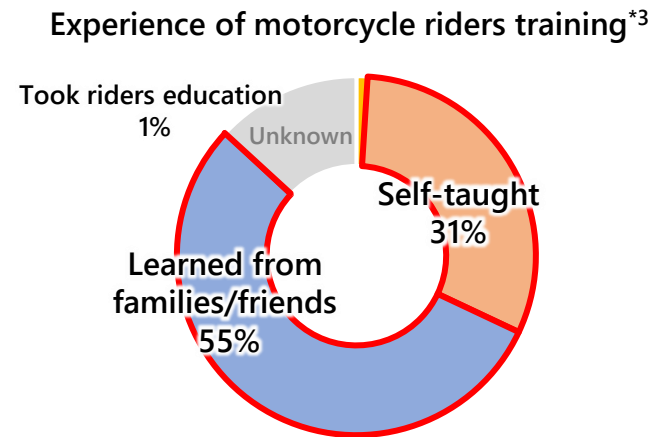
Results of traffic collision investigations (Thailand)

Results of survey on collision classification



74% of traffic collision fatalities involve motorcycles
Approx. 40% of motorcycle rider fatalities are due to collisions with a passenger car

Experience of motorcycle rider training

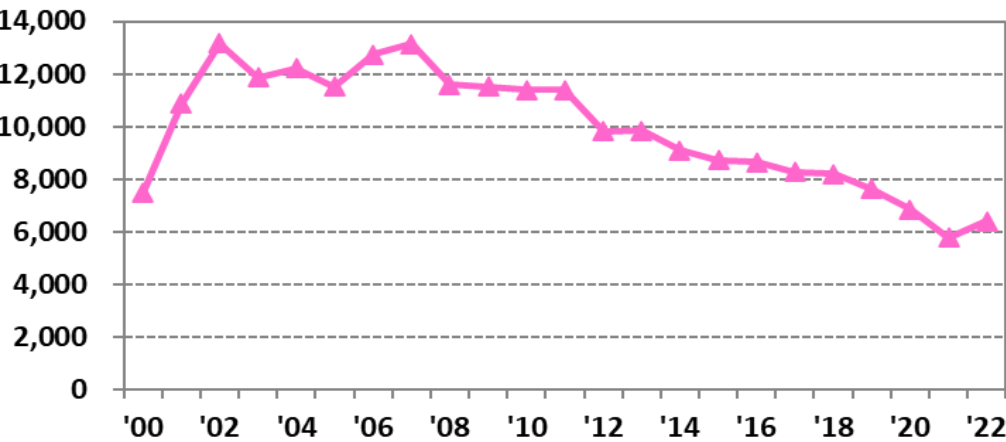


Most riders do not have any experience of rider training/education program

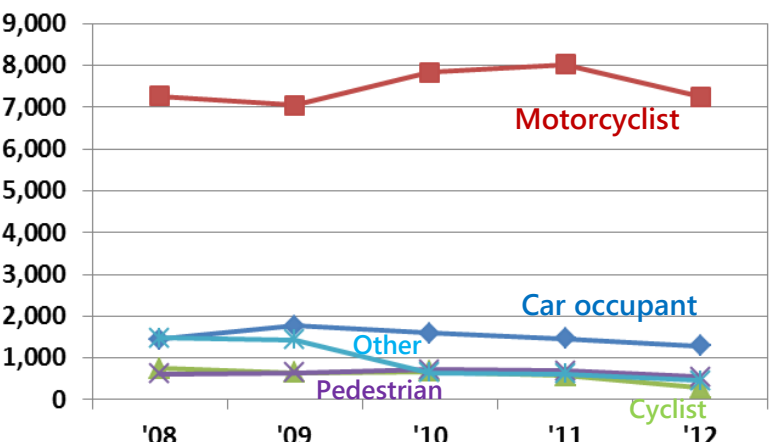
Source *1. WHO「GLOBAL STATUS REPORT ON ROAD SAFETY 2018」
*2. 「Thailand Road Safety Situation by TARC 2014」
by E-claim from Road Accident Victims Protection Co. Ltd.
*3 . microdata analysis of motorcycle collisions

Overview of the accident in Vietnam and Ho Chi Minh City

Trends in traffic accident fatalities in Vietnam



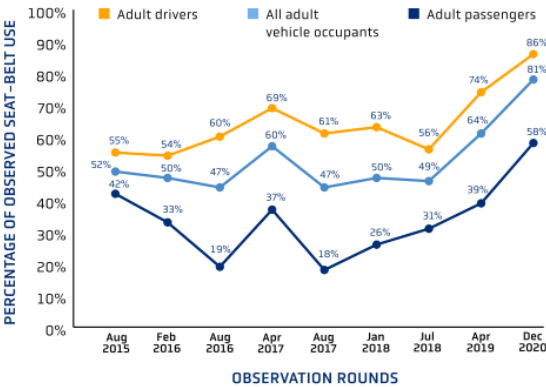
Number of fatalities by road user type



Source: IRF, National Traffic Safety Committee

Key Findings on Seat-Belts in Ho Chi Minh City

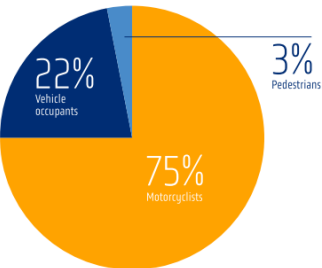
Seat-belt use among all adult vehicle occupants increased from 2015 to 2020, showing the effectiveness of self-belt enforcement



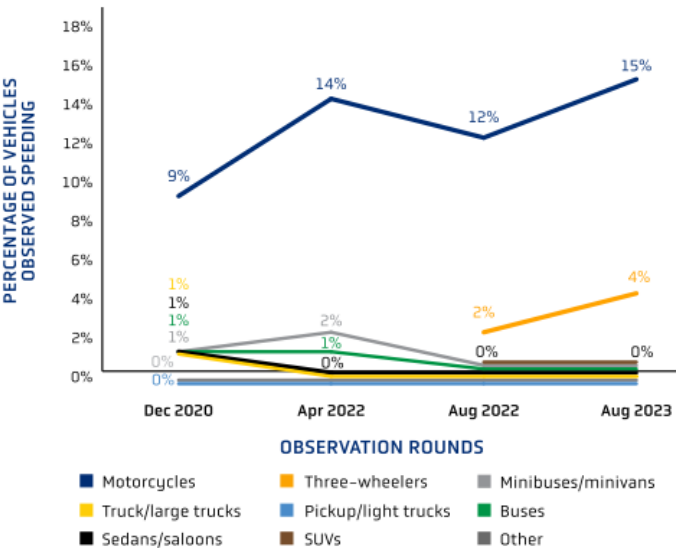
Road Traffic Fatalities and Injuries in Ho Chi Minh City



Deaths by road user, 2020

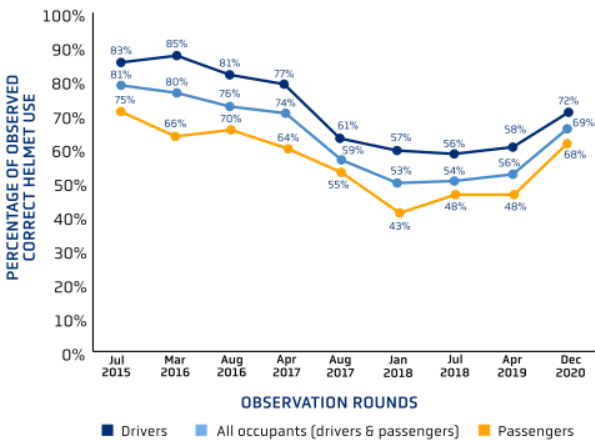


Speeding among motorcycles and three-wheelers was observed increasing between 2020 and 2023

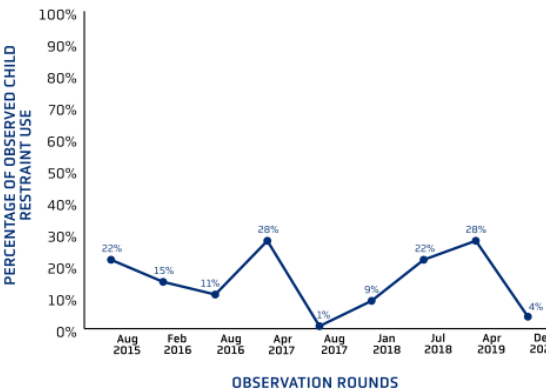


Key Findings on Helmet Use in Ho Chi Minh City

Correct helmet use increased from 2018 to 2020, showing the effectiveness of helmet enforcement

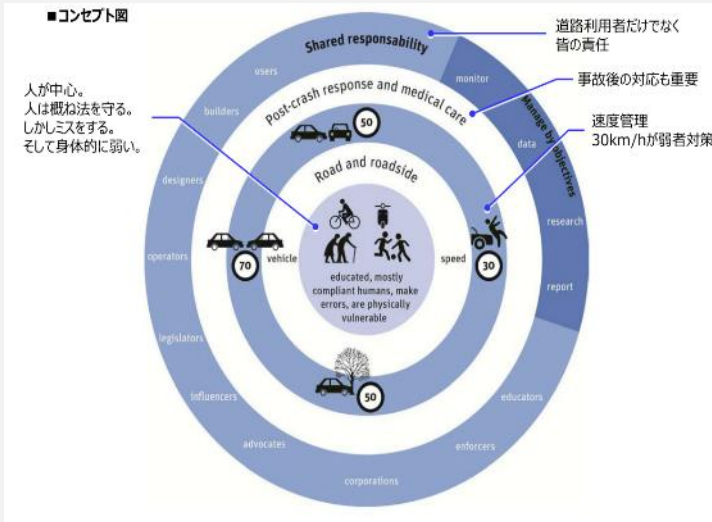


Child restraint use remains low

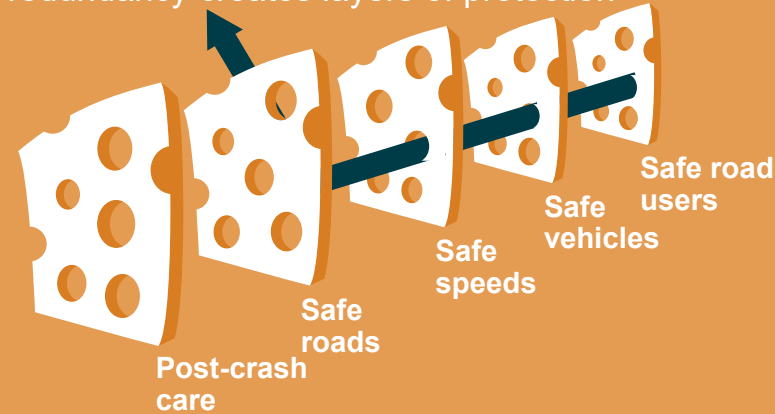


Basic Concept of Reducing Traffic Fatalities

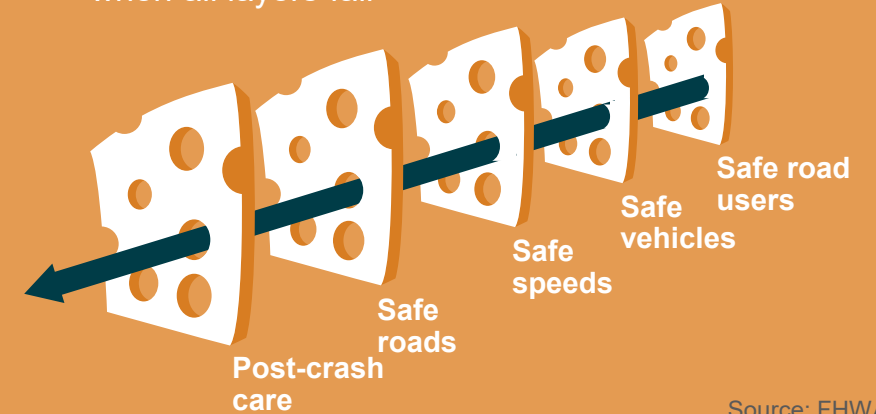
THE 5 SAFE SYSTEM ELEMENTS CREATE REDUNDANCY



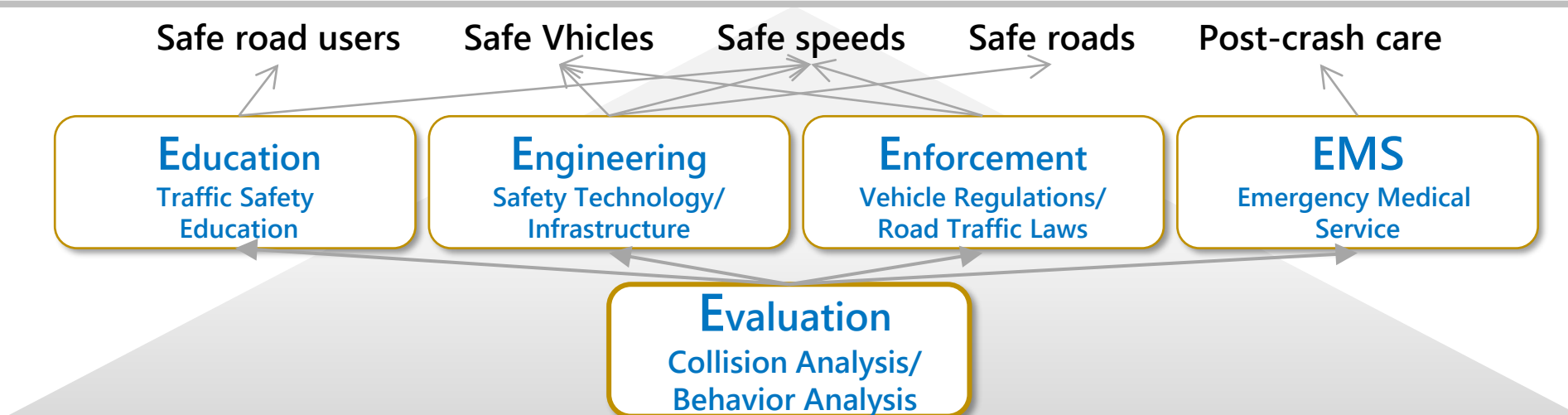
The “Swiss Cheese Model” of redundancy creates layers of protection



Death and serious injuries only happen when all layers fail

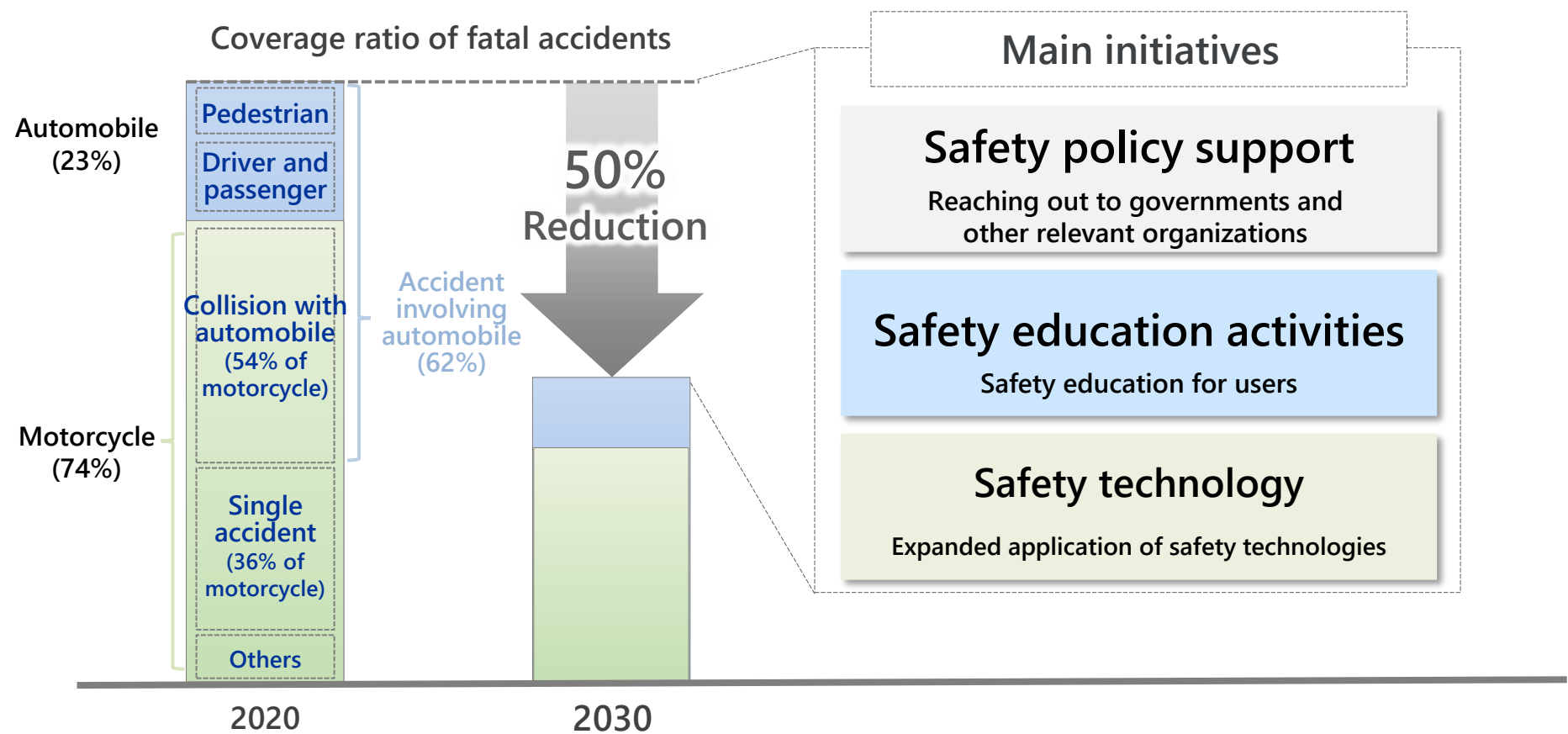


Source: FHWA



- Lead the effort with omnidirectional initiatives based on the 5E perspectives

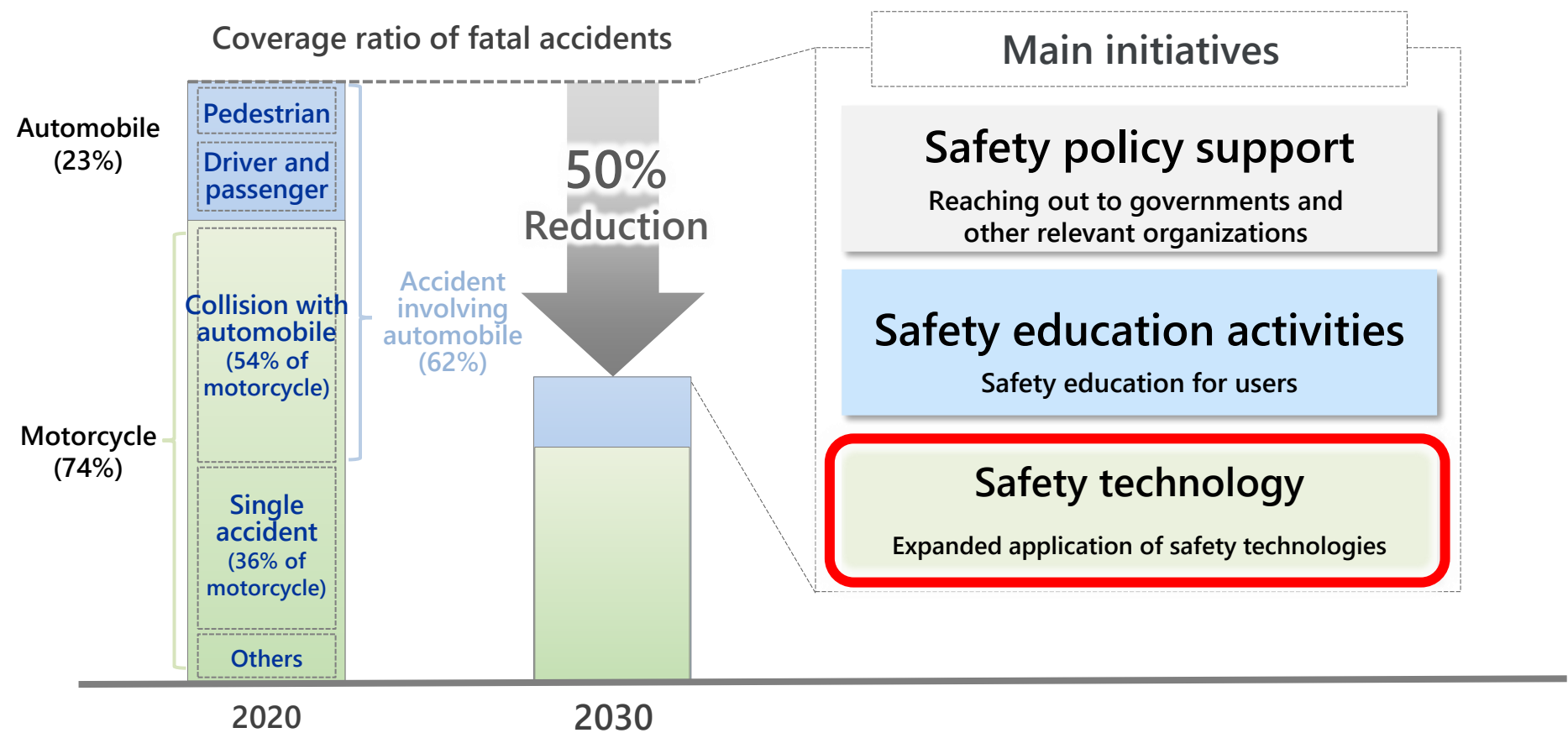
To effectively halve the number of traffic fatalities by 2030, it is important to understand the actual situation of traffic fatalities and develop a scenario that corresponds to the measures



Source : Estimated by combination of WHO Global status report on road safety 2018 and Vulnerable Road Users Safety in Thailand

By installing existing safety technologies to both of all motorcycles and automobiles as a standard equipment and promoting measures of education and external affairs, aiming to 50% reduction of fatalities.

To effectively halve the number of traffic fatalities by 2030, it is important to understand the actual situation of traffic fatalities and develop a scenario that corresponds to the measures



Source : Estimated by combination of WHO Global status report on road safety 2018 and Vulnerable Road Users Safety in Thailand

By installing existing safety technologies to both of all motorcycles and automobiles as a standard equipment and promoting measures of education and external affairs, aiming to 50% reduction of fatalities.

Supports safe driving in more situations by evolving its recognition and detection functions

Honda
SENSING



Honda
SENSING
Elite



World's first Level 3 certification
for autonomous driving

Utilize and feed back the knowledge and technologies gained through Level 3 autonomous driving development

The new CR-V and Accord is equipped with the safety driver-assistive functions

Honda SENSING

A driver-assist system that provides safety while keeping driving fun



NEW Function

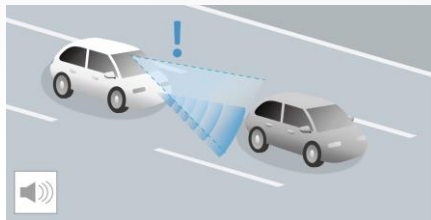
Adaptive Driving Beam



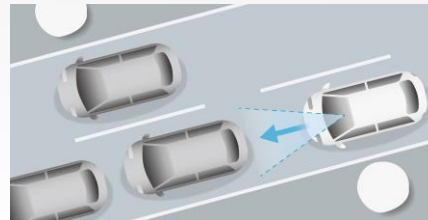
New CR-V



automatically adjusted high beam distribution



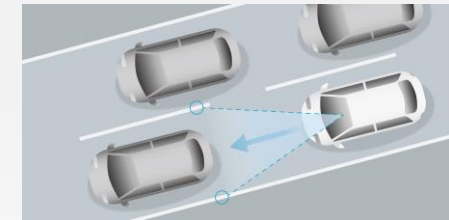
Collision Mitigation Braking System (CMBS)



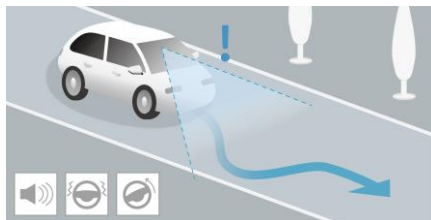
Adaptive Cruise Control with Low Speed Follow (ACC)



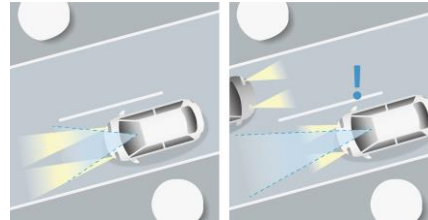
Lane Keeping Assist System (LKAS)



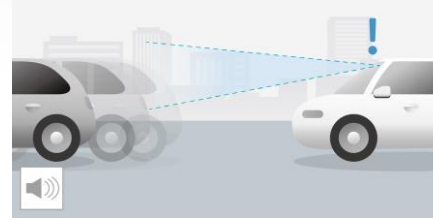
Low Speed Follow (LSF)



Road Departure Mitigation System



Auto High-Beam



Lead Car Departure Notification System



Parking Sensor System

Introduce motorcycle-automobile coexistence measures
by leveraging unique strengths of Honda

First to obtain 5★ in the latest ASEAN NCAP
With a vehicle equipped with motorcycle detecting function

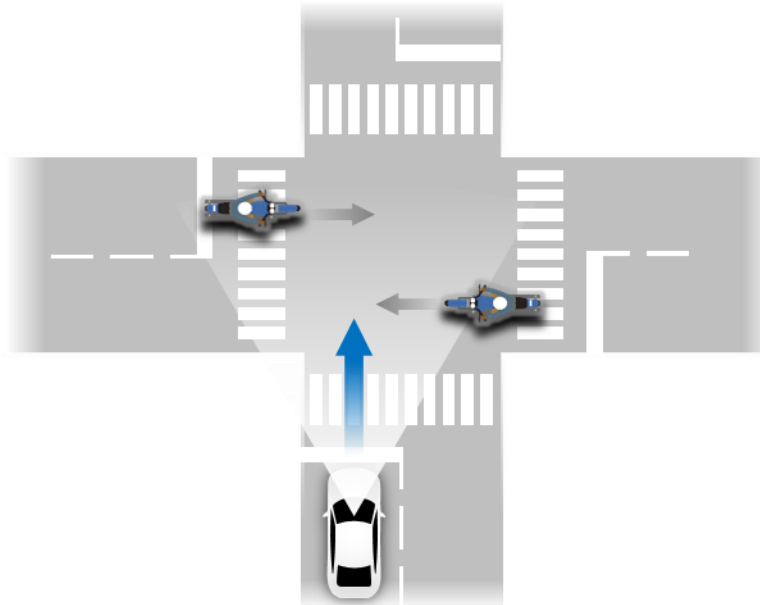
Honda
SENSING

<Honda plans to expand the range of scenarios covered>

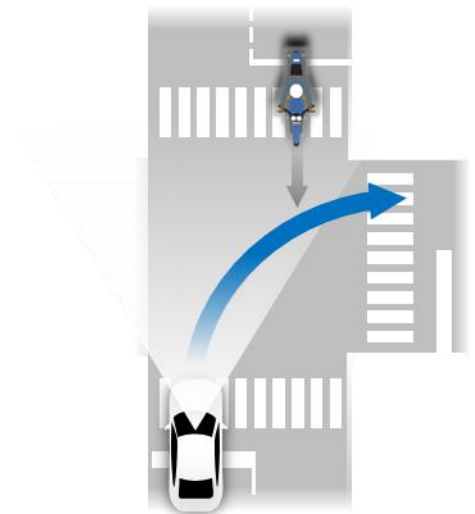


Rear-end collision
(2021 CIVIC -)

Straight through an intersection*



Turning into an intersection*



*When the speed of the other vehicle is lower than
the speed of the vehicle with Honda SENSING

Equip as many models as possible, with advanced braking systems and lights which enhance visibility and noticeability

Advanced braking systems
Combined braking system/ABS



Combined braking system: front and rear wheel linked brake system
ABS: Antilock brake system

Lights (Visibility and noticeability)

Daytime running light, cornering lights, emergency stop signal



For all types of Honda motorcycles, we will offer products that customers worldwide can use with total confidence and peace of mind

Aim to apply highly effective advanced safety technologies as a standard equipment by 2030
towards reducing traffic fatalities by half by 2030

Automobiles

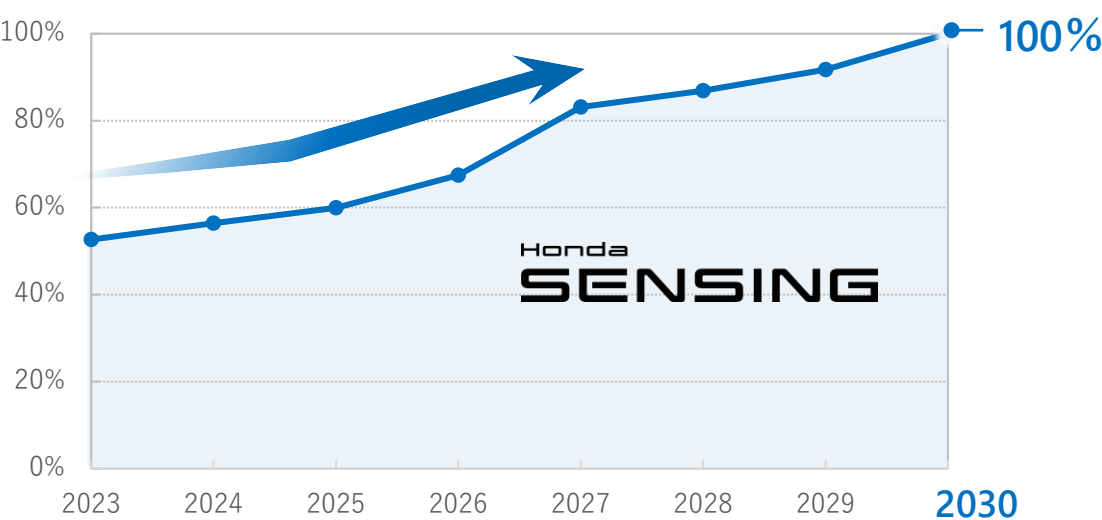
**Honda
SENSING**

With motorcycle
detection function

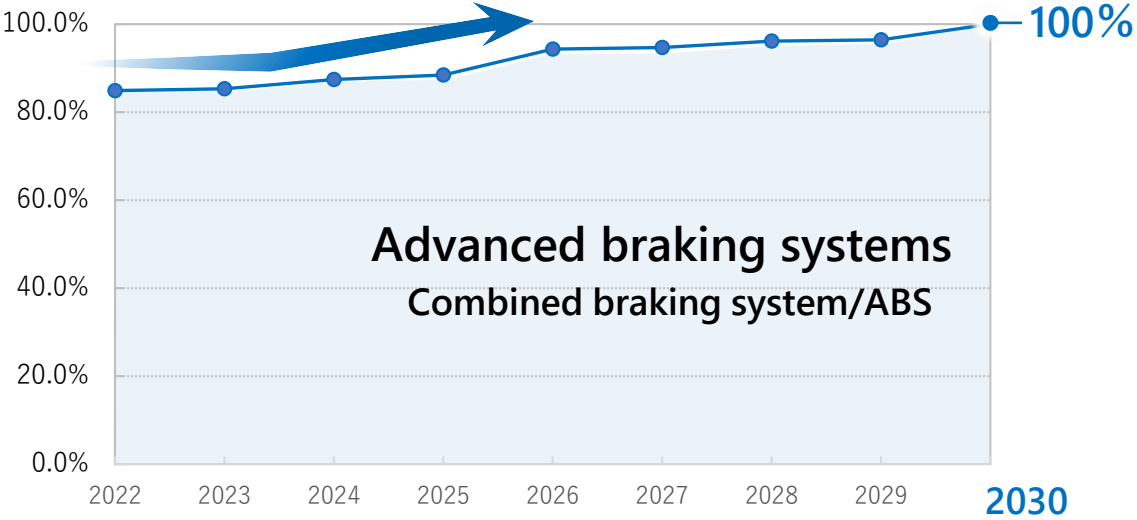


Motorcycles in
emerging countries

Advanced braking
systems
ABS/CBS



Target countries: Asia & Oceania (India, Indonesia, Malaysia, Thai), Brazil



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Our new ACCORD achieved the highest 5 star ranking in ASEAN NCAP which provide independent assessment on the safety performance of vehicles in the ASEAN region

Other models that have achieved the new 2021-2025 protocol



New ACCORD
Obtained 5★
(2024)



WR-V (2022)



HR-V (2022)



CR-V (2023)



BR-V (2022)



CIVIC (2021)

Many Honda models have achieved high safety ratings by ASEAN NCAP



「MIROS」is ASEAN NCAP organizer in Malaysia has evaluate NCAP motorcycles with the cooperation from「MARii*」 since in 2021

*Malaysia Automotive Robotics & IoT Institute



ADV160 (2024)



Vario (2024)



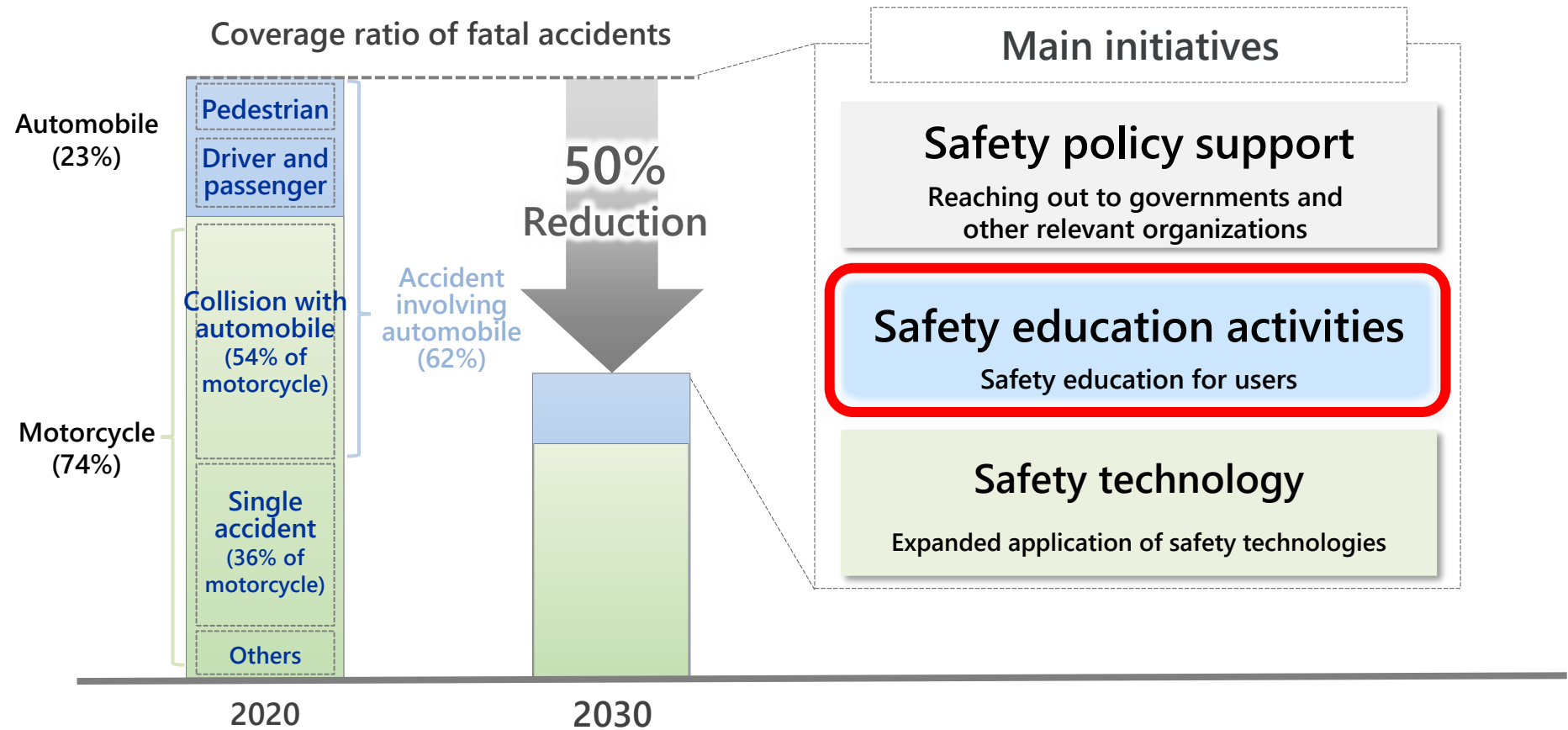
CBR150R (2024)



RS-X (2024)

Lastest 2024 evaluation result 5★ 4 models from Honda

To effectively halve the number of traffic fatalities by 2030, it is important to understand the actual situation of traffic fatalities and develop a scenario that corresponds to the measures



Source : Estimated by combination of WHO Global status report on road safety 2018 and Vulnerable Road Users Safety in Thailand

By installing existing safety technologies to both of all motorcycles and automobiles as a standard equipment and promoting measures of education and external affairs, aiming to 50% reduction of fatalities.

In Japan, Honda has provided education and actual training on traffic safety to more than 6.79 million customers

Traffic Safety
Promotion Operations
established in 1970



Spread of “Participatory Experiential Lifelong Education”

Enchants•Children



Students
(high school, university)



Riders•drivers



Elderlies



Driving simulator



Riding simulator



Bicycle simulator



Safety-Navi



DOUGA KYT
hazard prediction training



43 countries and regions throughout the world provide training programs to 4.5 million customers in CY 2023

Countries and regions engaged in traffic safety activities



As of the end of CY 2023

Expand safety riding & driving centers to expand safe driving promotion activities

Traffic education centers in the Asia & Oceania region:
8 countries, 33 locations



Traffic Training Park in
Karnal, India
(opened in August 2022)



Honda Safety Riding Center in
Samut Prakan, Thailand



Traffic Safety Education Center in
Vinh Phuc, Vietnam


India ●
16 locations


Thailand ●
4 locations


Malaysia ●
1 location


Vietnam ●
2 locations


Singapore ●
2 locations


Indonesia ●
1 location


Philippines ●
3 locations


Australia ●
4 locations



Safety Driving Center in Parañaque,
Philippines



Astra Honda Motor Traffic Education
Center, Indonesia
(opened in 2020)

Safety education initiatives have been carried out working
in unison with dealers for both motorcycles and automobiles

~Develop expansion in volume of safety education initiatives and enhance quality~

Direct training

(Practical driving/riding instruction)

2022 actual results
(Asia Oceania)

Approx. 1.33 million people



Safety seminar

(Classroom learning)

Approx. 370,000 people



PDSA

(Safety advice at time of delivery)

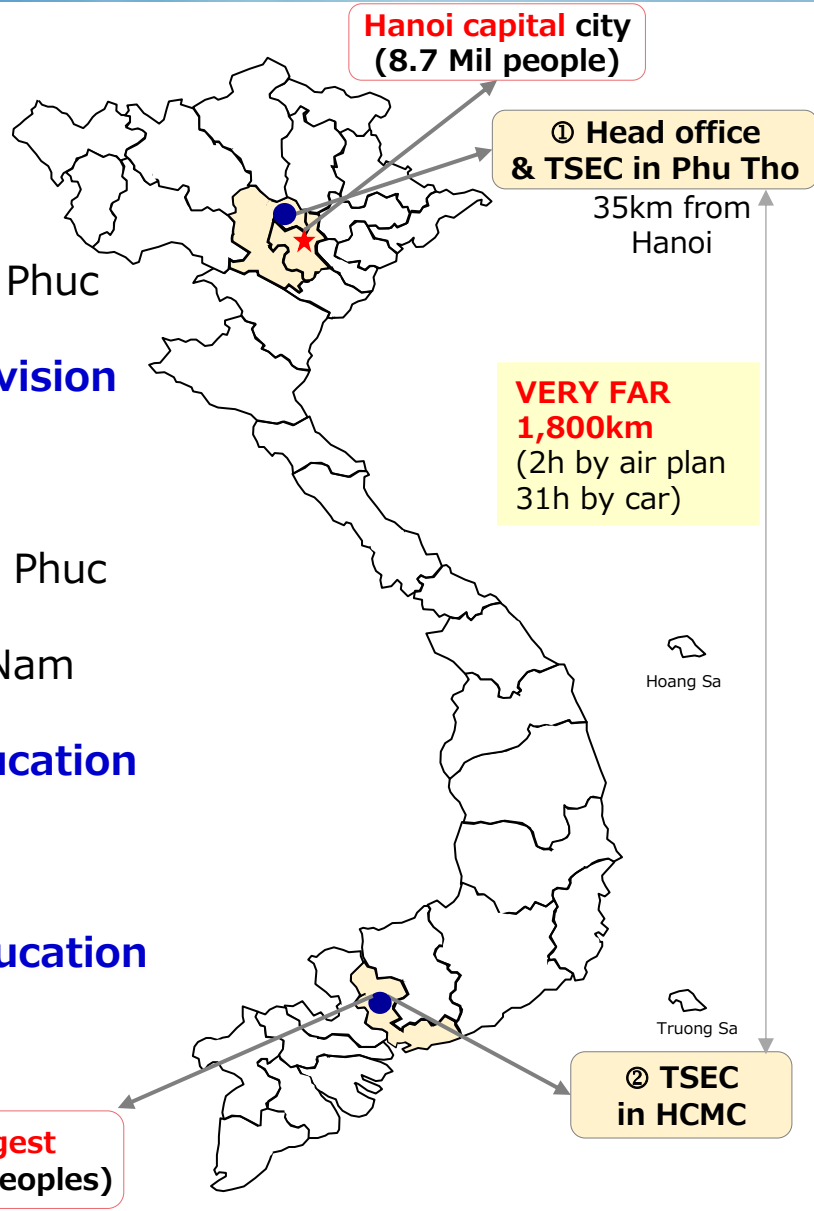
100%



PDSA: Pre-delivery safety advice

◆ **HVN & TSEC History**

- **1996:** Establishment
- **1998:** 1st 2R Factory in Vinh Phuc
- **1999:** **Safety Promotion Division**
- **2006:** Start 4R Factory
- **2008:** 2nd 2R Factory in Vinh Phuc
- **2014:** 3rd MC Factory in Ha Nam
- **2017:** **1st Traffic Safety Education Center in Vinh Phuc**
- **2024:** **2nd Traffic Safety Education Center in HCMC**



◆ **TSEC information** *TSEC: Traffic Safety Education Center*

Training center	1 st TSEC (Vinh Phuc)	2 nd TSEC (HCMC)
Image		
Establishment	Mar 2017	Mar 2024
Square (m2)	32,000	4,500
Capacity (Trainee/year)	30,000	10,000
Training type	<ul style="list-style-type: none">- HVN associate- Corporate (other company staff)- Sub-Instructors- License	
Employee	19 Instructors	5 Instructors

Creating a society without collisions

Active and Safe Society

Expanding life's potential through mobility



Cooperation among all road users with individualized peace of mind

Empower human capability

Compassion for others

Safety for Everyone

HONDA
The Power of Dreams

How we move you.
CREATE ► TRANSCEND, AUGMENT