

Submitted by the expert from Japan

Informal document **GRRF-83-17**
83nd GRRF, 23-27 January 2017
Agenda item 2

Proposal for UN Regulation on AEBS for M1/N1

MLIT, Japan

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Progress on harmonization of AEBS under WP.29

Sep. 2008, GRRF

First proposal for a new UN Regulation on **AEBS**

Initial Scope: **M2, N2, M3, N3** (Future target: **M1, N1**)

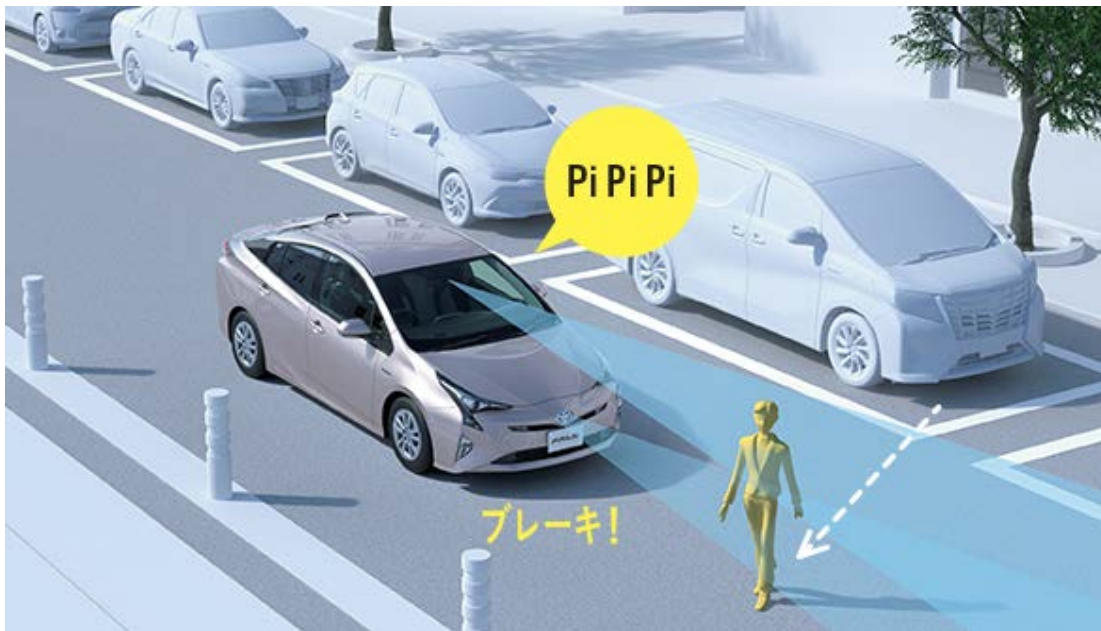
July 2013

Entry into force of UNR131(**AEBS**) 00 series and 01 series

Scope 00series: **N2** above 8 tons, **M3, N3**

01series: **M2, N2, M3, N3**

Spread of technology on AEBS for passenger vehicles



Source: [Upper-left]Fuji Heavy Industries Ltd. Homepage, [Upper-right]Volvo Car Japan Co., Ltd. homepage
[Lower-right]Toyota Motor Corporation homepage, [Lower-right]Mercedes-Benz Japan Co., Ltd. homepage

CPs' targets on AEBS for passenger vehicles

Japan Motor Vehicle Safety Policy (from FY2016 to FY2020)

To prevent accidents arising from human errors by utilizing advanced safety technology, e.g. **AEBS**

EU Draft amendment General Safety Regulation (for CARS2020)

To make **AEBS** mandate for **M1** and **N1** categories to avoid collisions with vehicles(moving obstacle by 2020, stationary obstacle by 2022) and pedestrians(by 2024)

USA Commitment on Automatic Emergency Braking

To make **AEB** a standard feature on **light duty vehicles** and **trucks 8,500 lbs. GVWR or less** no later than 2022 voluntarily by twenty automakers representing more than 99% of the U.S. market

CPs' roadmaps of NCAP on AEBS for passenger vehicles

Japan JNCAP 2016 Roadmap

2014 moving/stationary obstacle

2016 pedestrian detection

EU Euro NCAP 2020 Roadmap (March 2015)

2014 moving/stationary obstacle

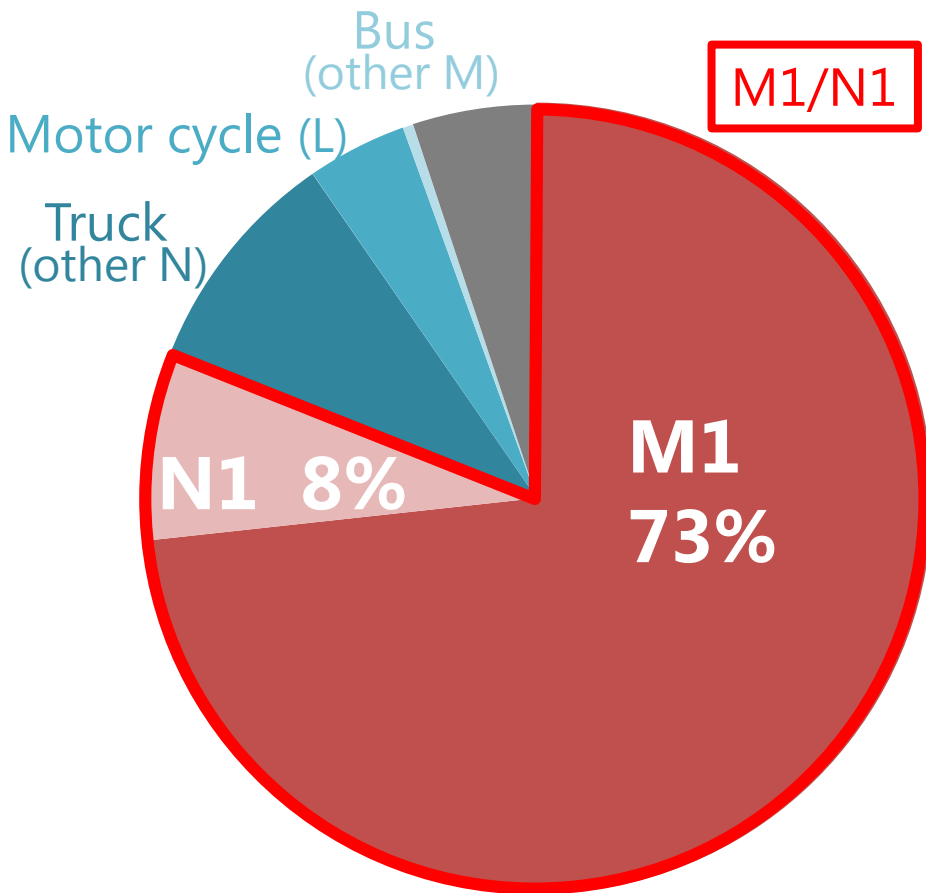
2016 pedestrian detection

USA Federal Register (November 5, 2015)

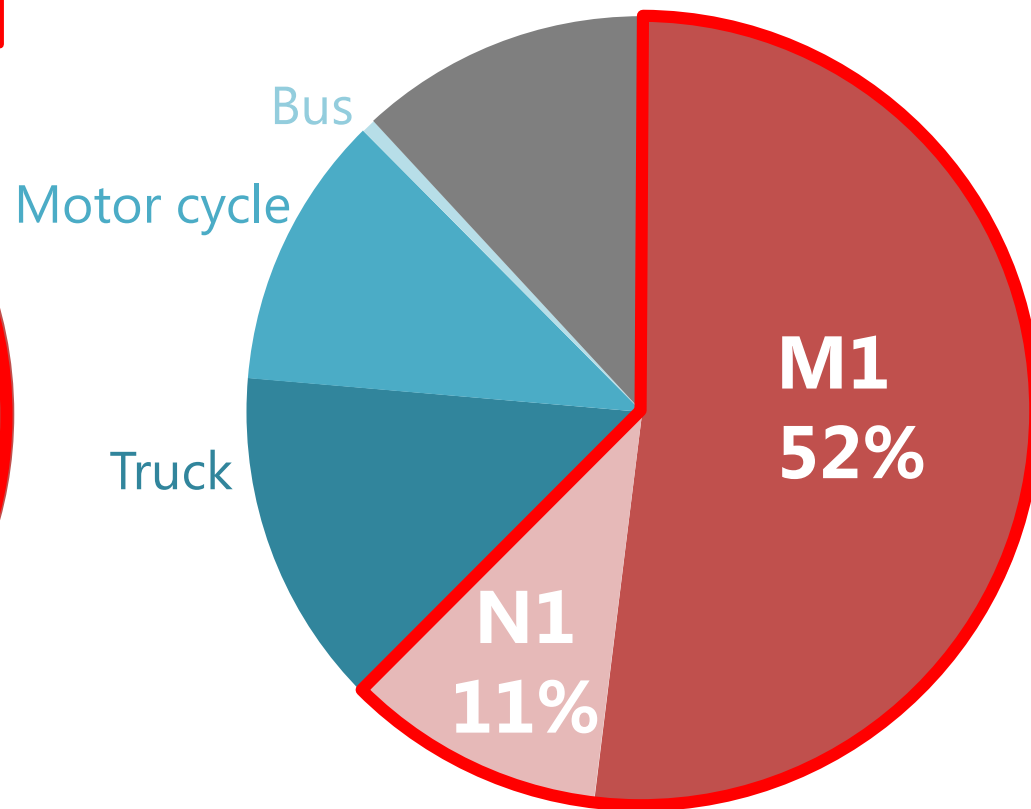
2018 moving/stationary obstacle

(By IIHS 2013 moving/stationary obstacle)

Accidents



Fatal accidents

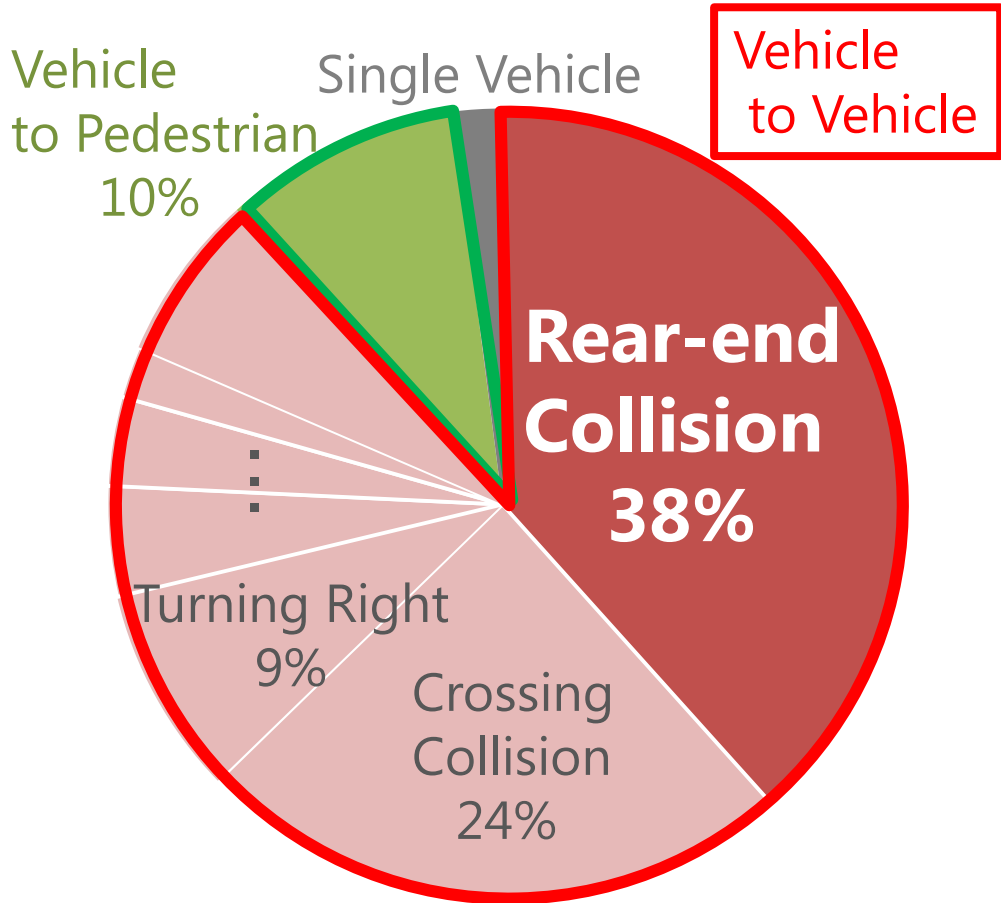


Source: 2015 Road traffic accident statics (ITARDA)

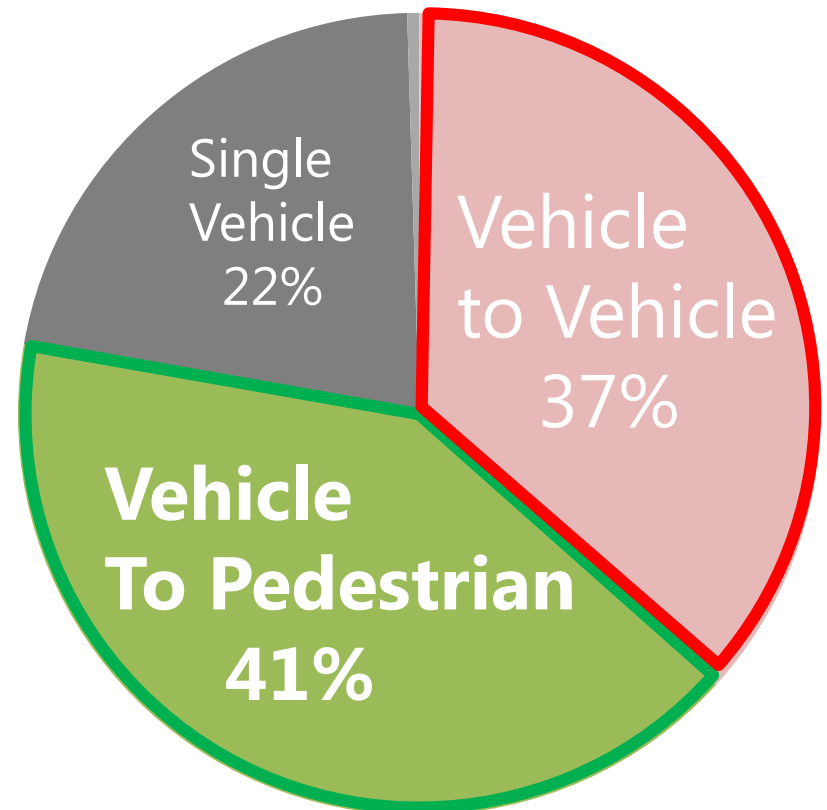
■ M1
 ■ N1
 ■ Truck(N other than N1)
 ■ Motor cycle(L1~L5)
 ■ Bus(M other than M1)
 ■ Other/Unknown

Number of accidents: 536,899 Number of fatal accidents: 4,028

Accidents of M1/N1



Fatal accidents of M1/N1



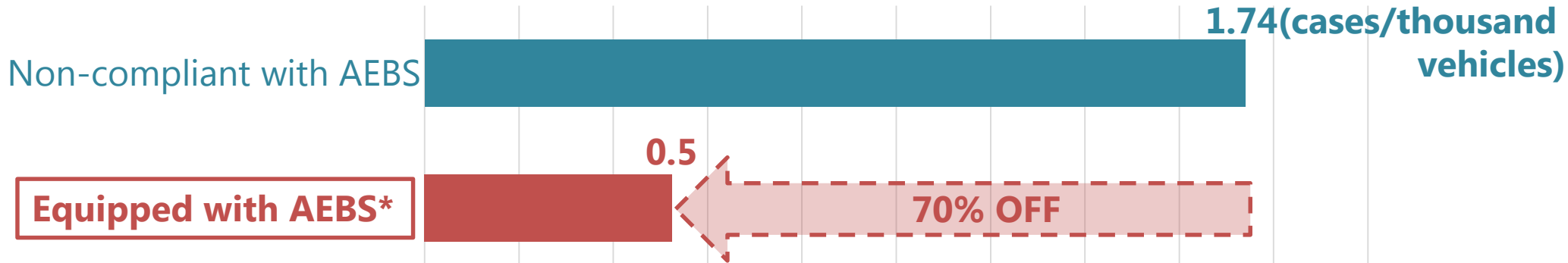
Source: 2015 Road traffic accident statics (ITARDA)

■ Vehicle to Vehicle ■ Vehicle to Pedestrian ■ Single Vehicle ■ Other/Unknown

Number of M1/N1 accidents: 434,328 Number of M1/N1 fatal accidents: 2,516

Effectiveness for Moving/stationary obstacle

Number of M1/N1 accidents of Rear-end collision per 1,000 vehicles decrease by 70%.

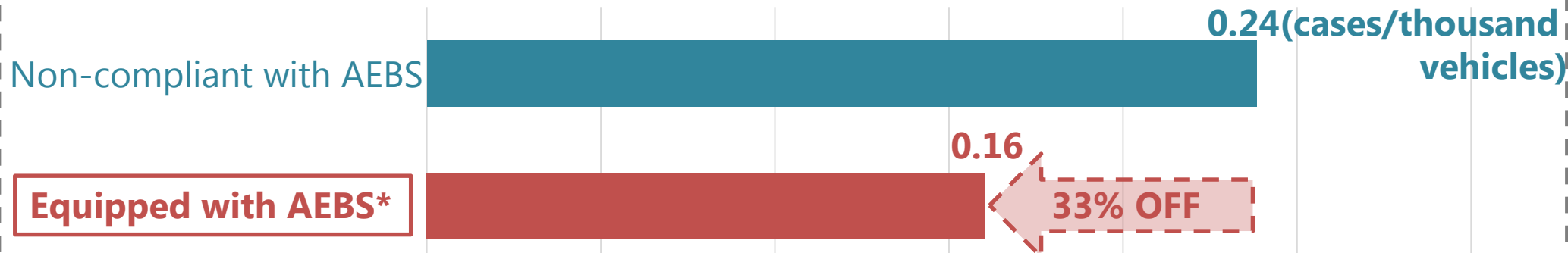


*AEBS designed for avoiding Rear-end collision of Vehicle to Vehicle

Only reference

Effectiveness for Pedestrian

Number of M1/N1 accidents of Vehicle to Pedestrian per 1,000 vehicles decrease by 33%.



*AEBS designed for avoiding Rear-end collision of Vehicle to Vehicle

Source: Created from data of 2016 Vehicle Safety Measure Study Committee, Japan

■ Vehicle non-compliant with AEBS (55.6 million units, Rear-end collision: 96,755 accidents, 43 fatalities, VtoP: 13,253 accidents, 626 fatalities)

■ Vehicle equipped with AEBS as standard (0.8 million units, Rear-end collision: 419 accidents, 0 fatalities, VtoP: 128 accidents, 6 fatalities)

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Proposal: Revision of UNR131(Advanced Emergency Braking System) to establish new requirements of AEBS for M1/N1

Scope

To extend to **M1, N1**

*Based on test procedures of JNCAP/Euro NCAP

02 series Moving obstacle/Stationary obstacle for M1/N1

Timeline: 2020 for new types of vehicles
2022 for new vehicles

Test procedure*:

Obstacle	Start speed	Requirement
Moving	60 km/h	Avoid impacting a moving target (20km/h)
Stationary	50 km/h	Avoid impacting a stationary target

03 series Pedestrian detection for M1/N1

Timeline: 2024 for new types of vehicles
2026 for new vehicles

Test procedure*:

Obstacle	Start speed	Requirement
Moving	50 km/h	Avoid impacting a cross-moving target (5km/h) ₂

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Next step

- At the 83th GRRF, Japan has submitted the draft ToR of the new IWG (GRRF-83-18).
- If the other CPs kindly support it, we would like to hold preparatory meetings before the 84th GRRF. (e.g. during the week of ACSF-IWG) to discuss and refine the draft of ToR.
- Japan welcome CPs and stakeholders' participation to the preparatory meetings.

Thank you for your attention.

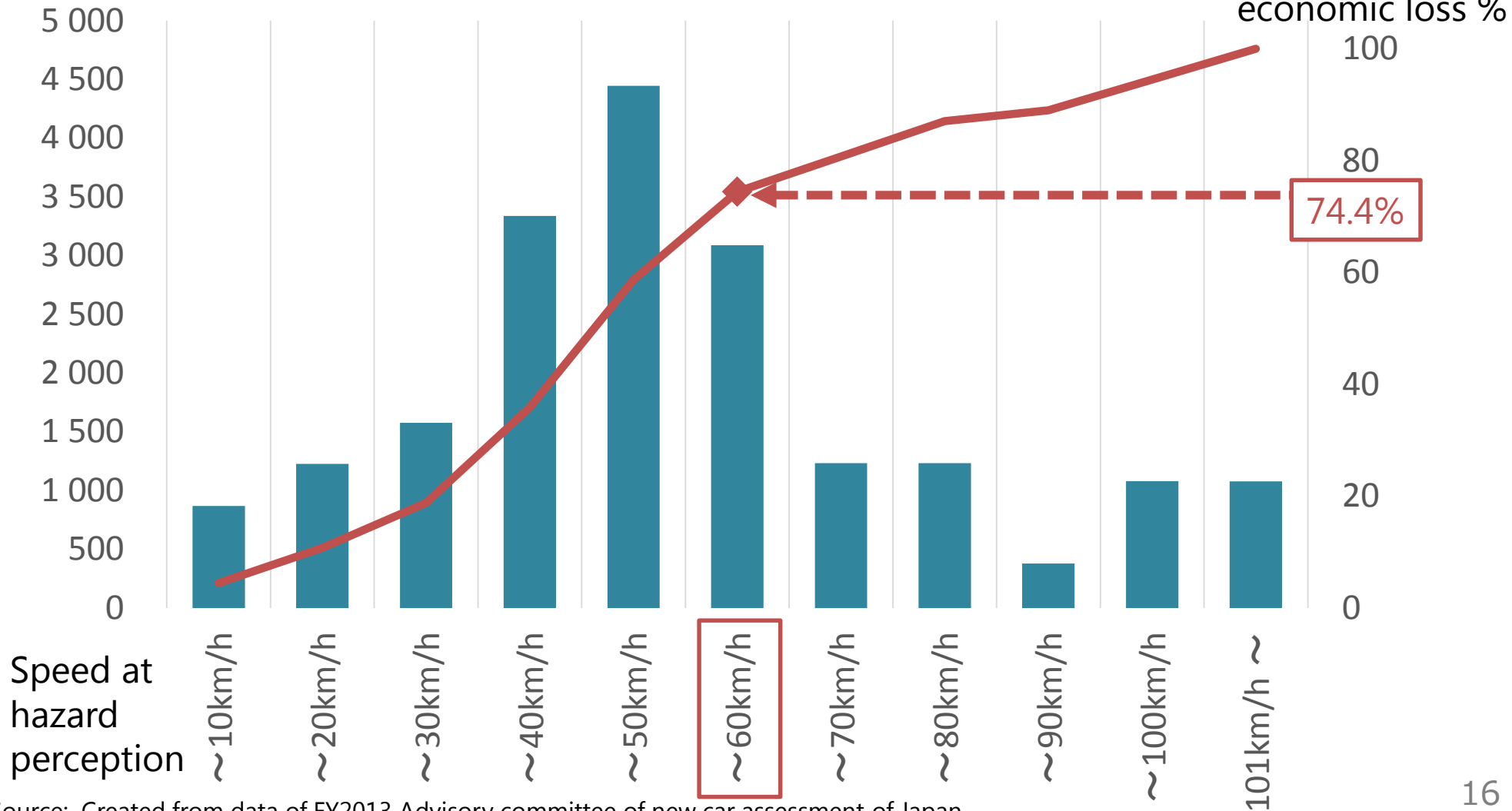
Ref. Basis of regulation value (Moving obstacle)

Japan case

■ Rear-end collision with moving vehicles (2009)

Total economic loss (million yen)

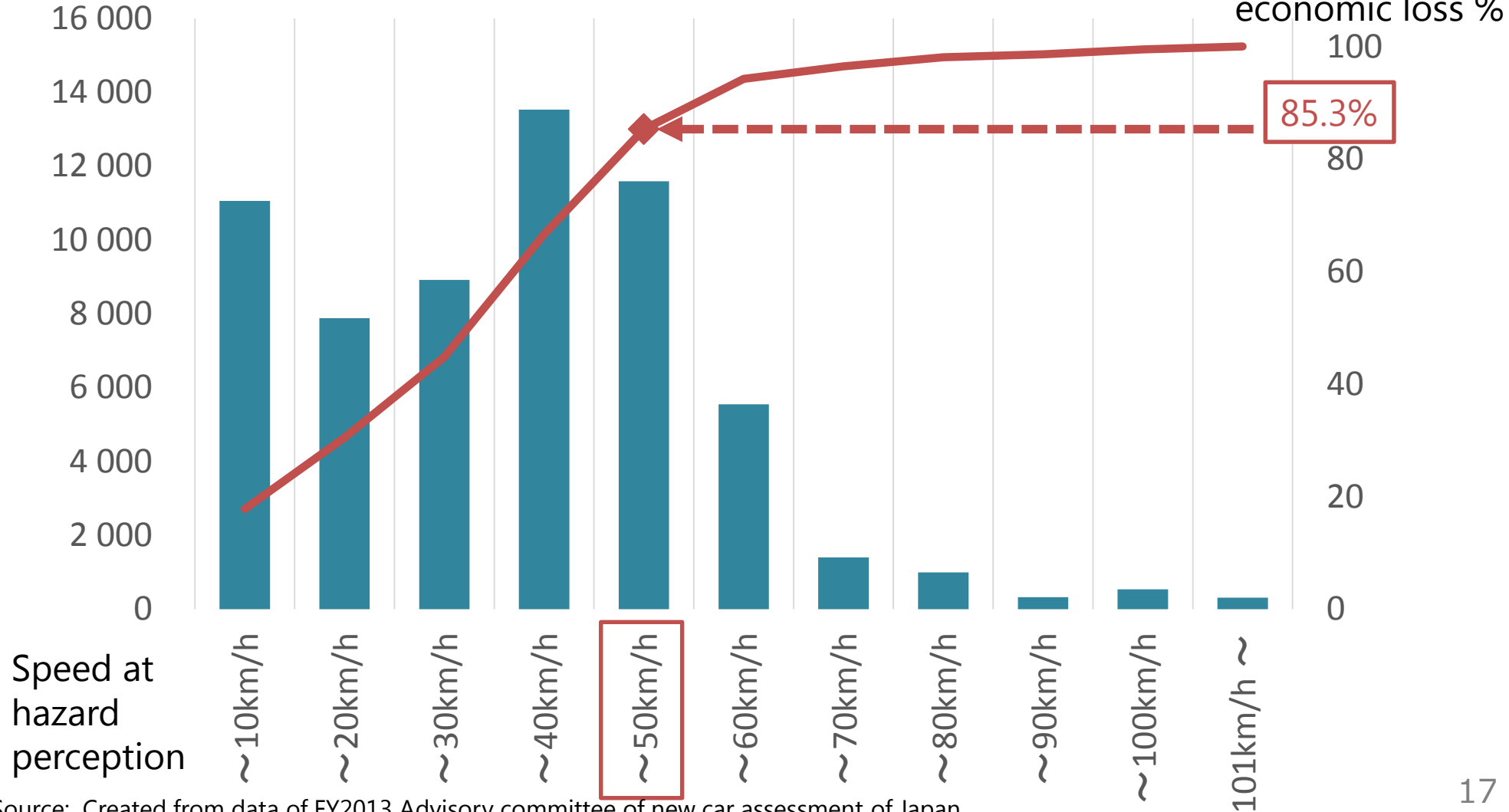
(= Killed or seriously injured people x Economic loss)



■ Rear-end collision with stationary vehicles (2009)

Total economic loss (million yen)

(= Killed or seriously injured people x Economic loss)



Ref. Basis of regulation value (Pedestrian detection)

Japan case

Collision with cross moving pedestrians(excl. rush out), daytime(2009)

Total economic loss (million yen)

(= Killed or seriously injured people x Economic loss)

