# AEBS HDV IWG

## Industry Questions and Comments
to JAPAN presentation of Nov.9, 2020
(ref. AEBS-HDV-01-02)

AEBS-HDV-SP-02
January 25-27, 2021

# General comments

- Accidents data are of primary importance to guide industry innovation in the field of safety, and help prioritizing regulatory developments.

- With this regard, document AEBS-HDV-01-02 from Japan contains valuable information.

- However, the presentation does not demonstrate the need for a city-AEBS on HDVs, nor permits selecting the right work priority between e.g. an enhanced "highway-AEB" (on the base of current R131) and a city-AEB (including pedestrian and/or cyclist avoidance). Some information are indeed lacking or would require some further details, for example to assess how many accidents could be yearly addressed by one or the other measures, e.g. with regard to pedestrians and cyclists.

- A comparison of the accidents data from different CPs would also help GRVA prioritizing the work.
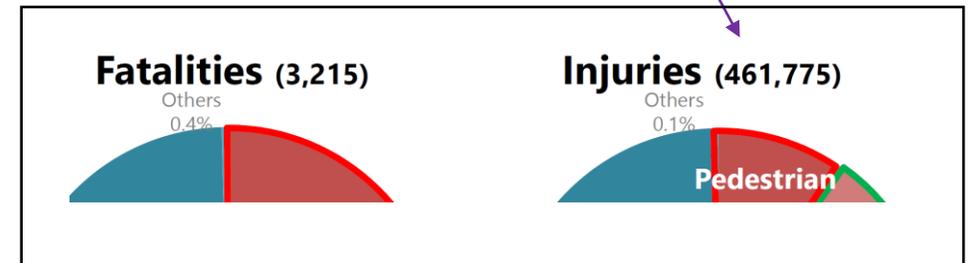
*slide 2*
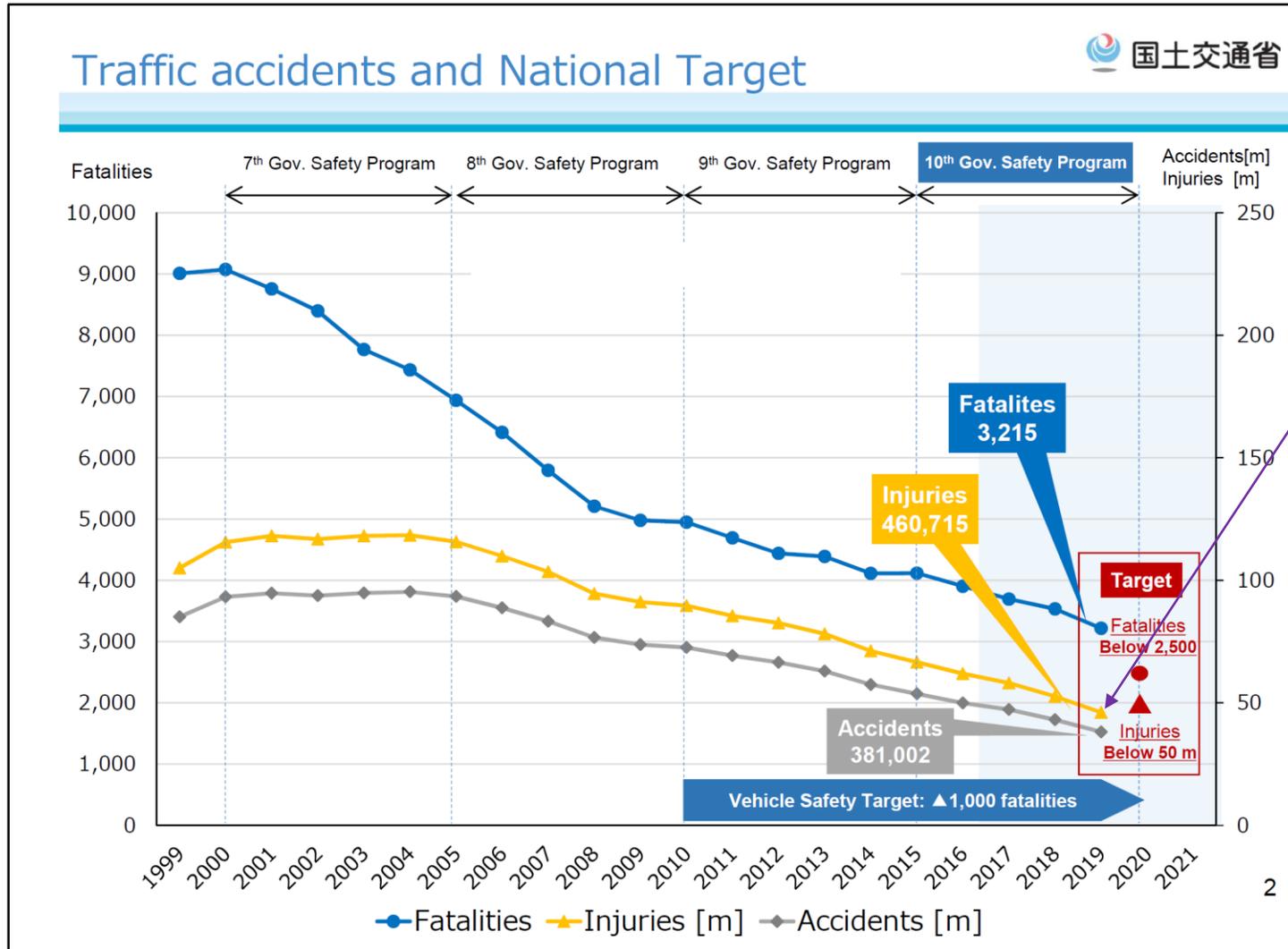
**Industry comments/questions:**

Consistency between this slide and slide 5:
- Slide 2: ~457,000 in 2019
- Slide 5: 461,775 in 2019

*From slide 5*

**Motor Vehicle Safety Policy** (June 24th 2016)

**<Four Pillars>**

◆ **Safety Measures for Child and Elderly Person**

◆ **Safety Measures for Pedestrian and Cyclist**

◆ **Safety Measures for Serious Accidents related to HDVs**

◆ **Utilization of Advanced Technology**

➡ Necessary to reduce fatalities and injuries (pedestrians and cyclists) caused by HDVs with advanced technology such as AEBS

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**Industry comments/questions:**

AEBS is only one advanced technology.

How are future UN regulations on such as BSIS (R151) and MOIS (R160) taken into account?

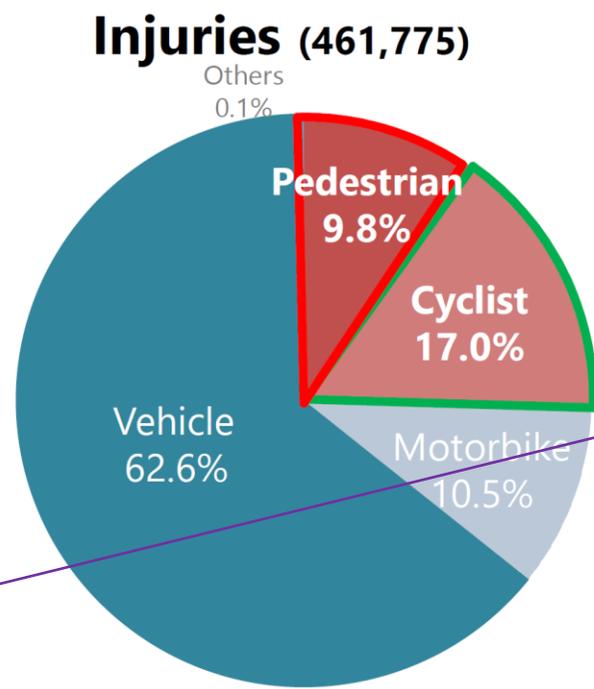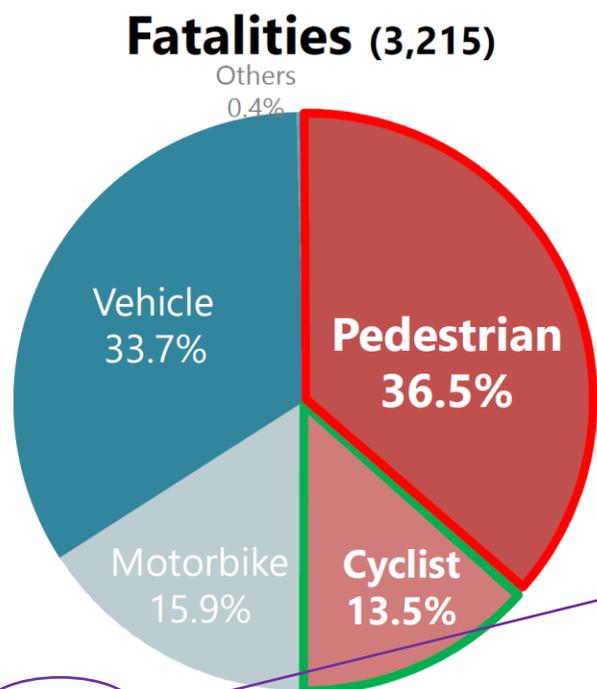How about the respective effects expected from BSIS / MOIS vs AEB ?

A breakdown of the accidents data would be really useful to select the most relevant measures, in order to address in the best way the most frequent / severe cases.

**Industry comments/questions:**

These graphics are a good introduction but are not sufficient to demonstrate the need for a city-AEB.

For that we would need a breakdown of the pedestrian and cyclist accidents, with an analysis of the accident cause relevant for an AEB.

Advantageous, because very new data from 2019 is used, unlike slides 5, 6, 7 and 8 which are based on data from 2016. Could updated sources from 2019 be used on all slides, to be able to synchronize the data all over the presentation?

*slide 4*



Fatalities and Injuries by road user type  国土交通省

- Fatalities: pedestrians and cyclists account for 50% (70% of them are elderly persons (age 65+))
- Injuries: pedestrians and cyclists account for 27%

**Fatalities** (3,215)
- Others 0.4%
- Vehicle 33.7%
- Pedestrian 36.5%
- Motorbike 15.9%
- Cyclist 13.5%

**Injuries** (461,775)
- Others 0.1%
- Pedestrian 9.8%
- Cyclist 17.0%
- Vehicle 62.6%
- Motorbike 10.5%

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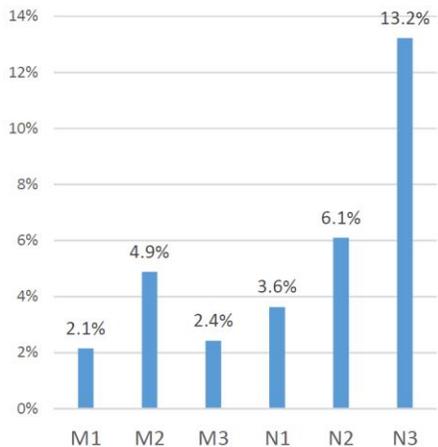Source: 2019 Road traffic accident statics (National Police Agency)
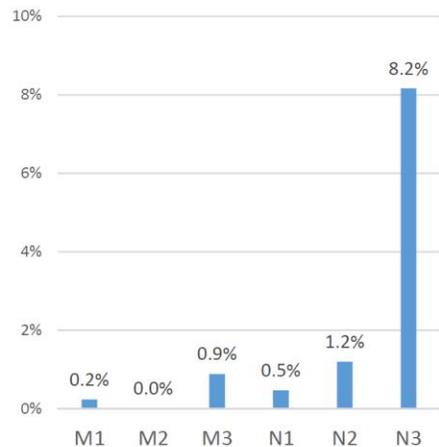
*slide 5*



**Fatality rate by vehicle category** — 国土交通省
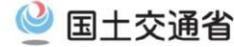
- HDVs have higher fatality rate* over CtP, CtB and CtC, compared with LDVs
  *rate of number of fatality cases divided by number of all injury cases
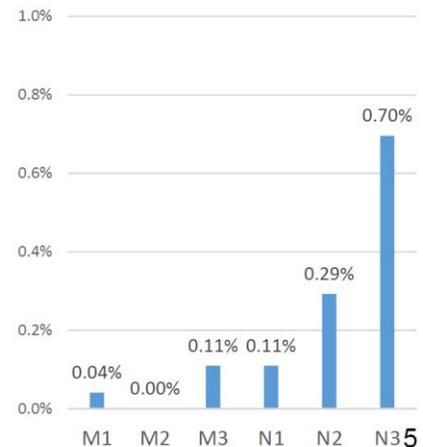
Fatality rate (Car to Pedestrian): M1 2.1%, M2 4.9%, M3 2.4%, N1 3.6%, N2 6.1%, N3 13.2%

Fatality rate (Car to Bicycle): M1 0.2%, M2 0.0%, M3 0.9%, N1 0.5%, N2 1.2%, N3 8.2%

Fatality rate (Car to Car*) *Including stationary and moving: M1 0.04%, M2 0.00%, M3 0.11%, N1 0.11%, N2 0.29%, N3 0.70%

Source: 2016 Road traffic accident statics (ITARDA)

**Industry comments/questions:**

Industry is keen to know what values of "all injury cases" are considered in each of the graphs below. We would then be able to calculate the frequency of fatalities of collisions with:
- Pedestrians
- bicycles
- cars…       for each vehicle category.

such absolute values of fatalities would permit assessing the magnitude of the problem in Japan.

A further breakdown of the accidents looks necessary in order to assess the efficiency of the AEBS with regard to the accident frequencies:
- what is the share between: Front accidents; Turning situation; lateral/side collisions; crossing scenarios; Rear end?
- Area of accidents: urban, interurban, countryside…?
- Speed ranges ?

The source data is from 2016. Updated sources from 2019 would permit to synchronize the data with slide 4

*slide 6*



**Fatalities by road type** · 国土交通省
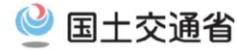
● 75% of death-caused accidents are on non-highways related to HDVs (M2, M3, N2 and N3).

**M1 and N1**

2%

98%

■ Highways  ■ Non-highway (city, suburb)

**M2, M3, N2 and N3**

25%

75%

■ Highways  ■ Non-highway (city, suburb)

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Source: 2016 Road traffic accident statics (ITARDA)

**Industry comments/questions:**

What do the percentage values mean in absolute fatalities figures?

**How many accidents on passenger cars compared to CVs ?**

Further breakdown is needed:
- what is the share between: Front accidents; Turning situation; lateral/side collisions; crossing scenarios; Rear end?
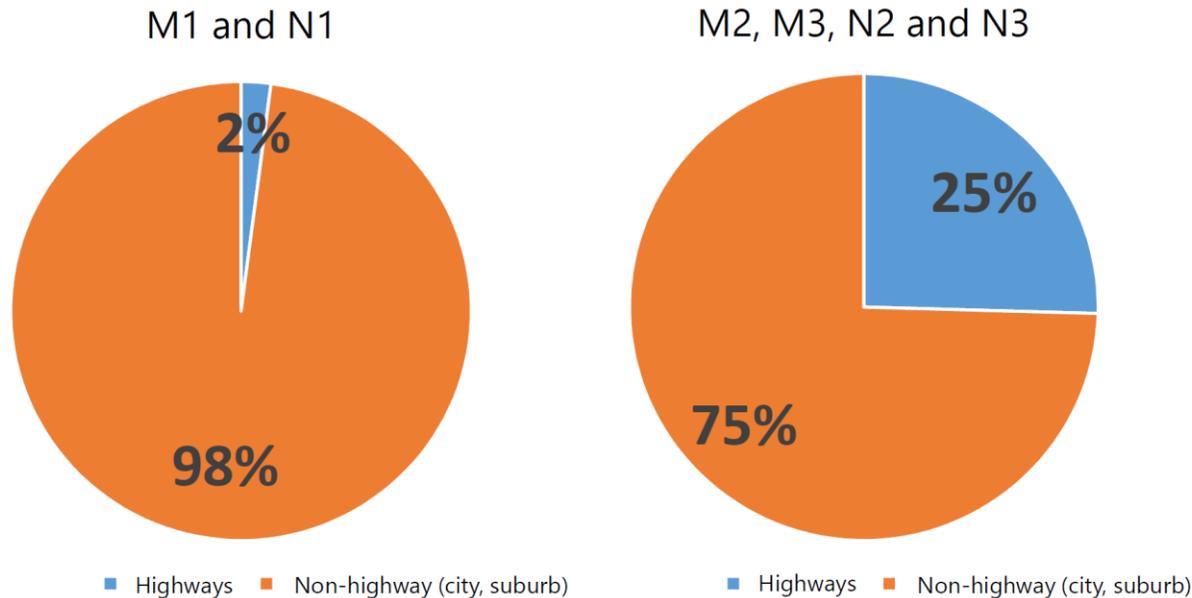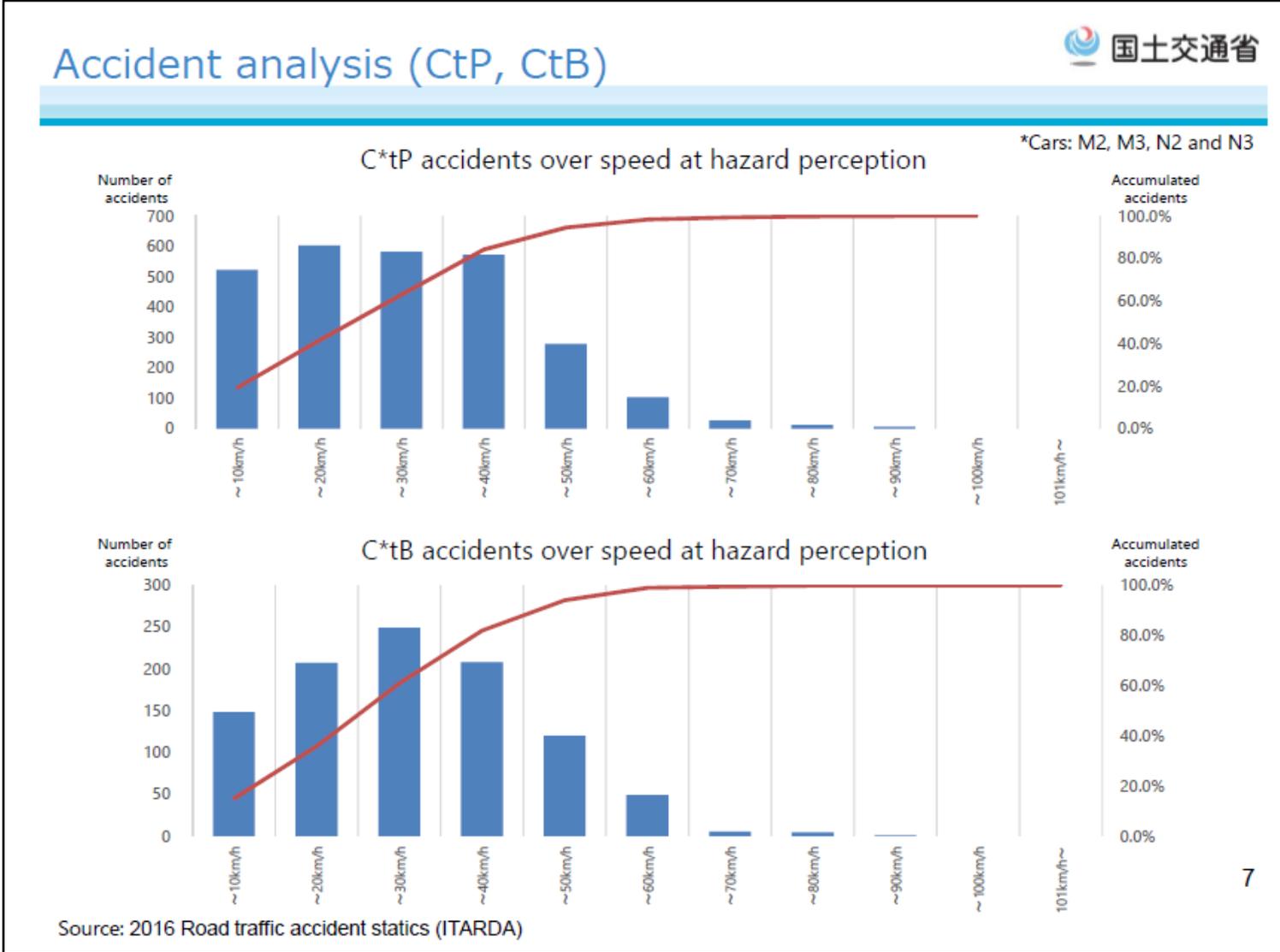- Area of accidents: urban, interurban, countryside?
- Speed ranges?

The source data is from 2016. Updated sources from 2019 would permit to synchronize the data with slide 4

*slide 7*



**Industry comments/questions:**

**Are all scenarios considered or only AEB-relevant scenarios (e.g. crossing scenarios according to UN R152) ?**

If all scenarios are considered, could a breakdown be done with regard to:
  a) scenarios:
   • front accidents;
   • turning situation;
   • lateral/side collisions;
   • crossing scenarios?
  b) individual vehicle categories?

The source data is from 2016. Updated sources from 2019 would permit to synchronize the data with slide 4
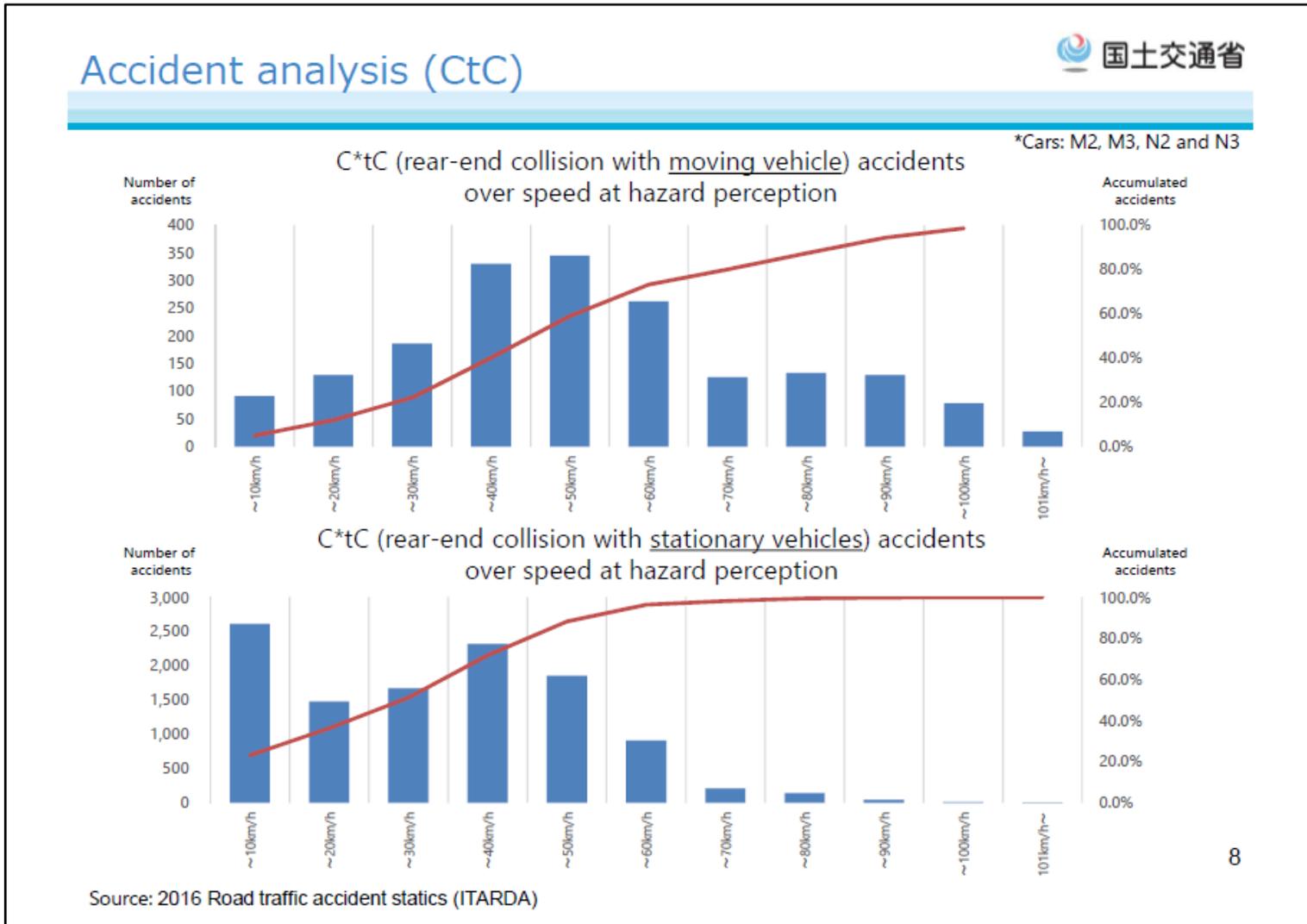
*slide 8*

**Industry comments/questions:**

Is the data given here only related to AEB relevant accidents?

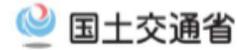Could a breakdown be done on individual vehicle categories (M1 N1 M2 N2 M3 N3)?

The source data is from 2016. Updated sources from 2019 would permit to synchronize the data with slide 4
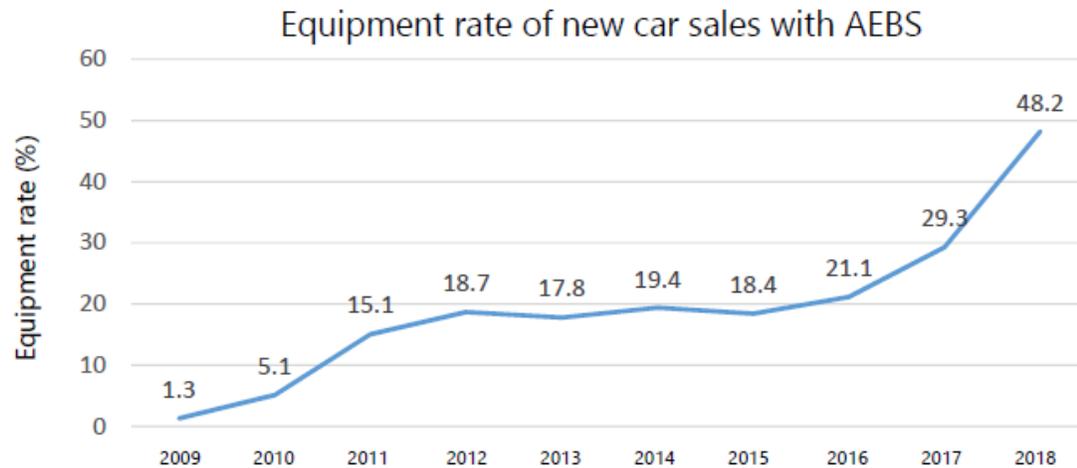
*slide 9*

**Technical feasibility**                    国土交通省

- More new HDVs have been equipped with AEBS.
- UNR131-02 will be mandatory for all the new HDVs after Nov 2021.

Equipment rate of new car sales with AEBS

48.2

29.3

21.1
18.7  17.8  19.4  18.4
15.1

5.1
1.3

2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

Equipment rate (%)

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**Industry comments/questions:**

This chart shows the state of the art and market penetration of AEBS on passenger cars.

Passenger cars and CVs have different vehicle dynamics, usage, sensors installation... Passenger cars AEB strategies cannot be copy-pasted on HCVs, with the same expected level of efficiency or driver acceptance.

**Summary** 国土交通省

Summary

・Immediate kick-off for technical requirements is desired to spread AEBS to the market, which has significant potential for reducing accidents.

・Further VRU (pedestrians and cyclists) protection is necessary for HDVs which may have huge impact on society.

・75% of fatalities caused by HDVs are on non-highway (city, suburbs). Thus, it is important to take measures for CtP and CtB accidents.

・All the new HDVs will be mandated by UNR131-02 after Nov. 2021. Thus, expansion to city mode, in addition to improvement of highway mode, is necessary for next step.

➡ Japan, as one of the co-chair countries, would like to contribute to technical discussion on AEBS-HDVs, incorporating the experience of UNR152.

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**Industry comments/questions:**

The discussion regarding the tightening of requirements based on the current UN R131 has already started in 2017. C2P and C2B have not been in focus so far.

A detailed consideration, based on the questions asked, is necessary, especially with regard to scenarios breakdown and vehicle categories.

An expansion of the level of performance and scope only makes sense if a detailed analysis has taken place, in Japan and in other countries/regions.