

Distr.: General
4 May 2017

English only

Working Party on Transport Statistics

Sixty-eighth session

Geneva, 7–9 June 2017

Item 4 (d) of the provisional agenda

Data collection, methodological development and harmonization of transport statistics

Data availability for safety performance at level crossings in UNECE member States

Submitted by the UNECE Secretariat

I. Background

1. At its previous session May 2016, the Working Party on Transport Statistics (WP.6) UNECE Group of Experts on Improving Safety at Level Crossings presented its proposal for a set of indicators on safety at level crossings¹. The Expert Group chose these indicators in an effort to facilitate (1) the collection of a minimum data set on safety at level crossing by UNECE member States outside of the European Union in line with the indicators and their definitions proposed by the UNECE Group of Experts on Improving Safety at Level Crossings; and (2) the collection of an optimal data set would be feasible by all UNECE member States.

2. The Working Party suggested further research into the availability of these indicators through a pilot questionnaire based on these indicators. This pilot questionnaire as well as definitions of terms can be found in the annex in this document.

II. Preliminary Data Availability

3. To further investigate the data availability based on a pilot questionnaire of these indicators, the UNECE secretariat discussed the correspondence of data in this questionnaire with the existing suite of indicators that are already being used by the European Rail Agency (ERA)/Eurostat. The number of countries with data available in ERA's database by year and indicator are shown in the Annex to this document.

¹ Informal document WP.6 No. 2 (2016)

4. Notably, data from ERA are available for over 25 countries for the large majority of indicators. Gaps in data availability are observed in data on *total number of fatal accidents*, data on *total number of all railway accidents* by different types of level crossing and *Fatalities* and *Injured* by type of level crossing user. In each of these cases ERA does not have an indicator which corresponds directly to those in the pilot questionnaire.

5. The UNECE secretariat plans to request additional data or information on data availability from countries not already covered by the ERA database through this questionnaire in the last half of 2017.

Annex

Indicators for assessing safety performance at level crossings and data availability in ERA database

Table A
Number of countries with data available in ERA database by year and indicator, 2010-2015

<i>Issue</i>	<i>Main indicator</i>	<i>Sub-indicator</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>		
Train network characteristic	1	Million train-km	22	22	24	24	25	26		
	2	1,000 line-km	25	26	26	26	26	26		
Level crossing characteristics	3	Total no. of level crossings	25	25	25	26	26	26		
	4	Passive level crossings	25	26	26	26	26	26		
	5	Active level crossings	5.1	Manual	1	1	1	1	9	26
			5.2	Automatic with user-side warning	26	26	27	27	27	27
			5.3	Automatic with user-side protection	25	25	26	26	26	26
			5.4	Rail-side protected	-	-	-	-	-	-
Type of accident	6	Total number of fatal accidents		-	-	-	-	-	-	
		6.1	Per 1,000 level crossings: indicator 6 per indicator 3.1	-	-	-	-	-	-	
		6.2	Per million train-km: indicator 6 per indicator 1	-	-	-	-	-	-	
		6.3	Per 1,000 line km: indicator 6 per indicator 2	-	-	-	-	-	-	
		6.4	At passive level crossings	-	-	-	-	-	-	
		6.5	At active level crossings	-	-	-	-	-	-	
		6.6	At active level crossings – manual	-	-	-	-	-	-	
		6.7	At active level crossings – with user side warning	-	-	-	-	-	-	
		6.8	At active level crossings – with user-side protection	-	-	-	-	-	-	
		6.9	At active level crossings – with rail-side protection	-	-	-	-	-	-	
		7	Total number of significant accidents		27	26	26	26	26	26
7.1	Per 1,000 level crossings: indicator 7 per indicator 3.1		25	25	25	26	26	26		
7.2	Per million train-km: indicator 7 per indicator 1		26	26	26	26	24	26		
7.3	Per 1,000 line km: indicator 7 per indicator 2		1	1	1	1	9	26		
7.4	At passive level crossings		-	-	-	-	7	24		
7.5	At active level crossings		-	-	-	-	7	24		
7.6	At active level crossings – manual		-	-	-	-	7	24		
7.7	At active level crossings – with user side warning		-	-	-	-	7	23		
7.8	At active level crossings – with user-side protection		-	-	-	-	7	23		
7.9	At active level crossings – with rail- side protection		-	-	-	-	7	23		
8	Total number of all railway accidents		27	26	26	26	26	26		
	8.1	Per 1,000 level crossings: indicator 8 per indicator 3.1	25	25	25	26	26	26		
	8.2	Per million train-km: indicator 8 per indicator 1	22	22	24	24	25	26		
	8.3	Per 1,000 line km: indicator 8 per indicator 2	25	26	26	26	26	26		
	8.4	At passive level crossings	-	-	-	-	-	-		
	8.5	At active level crossings	-	-	-	-	-	-		
	8.6	At active level crossings – manual	-	-	-	-	-	-		
	8.7	At active level crossings – with user side warning	-	-	-	-	-	-		

<i>Issue</i>	<i>Main indicator</i>	<i>Sub-indicator</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
		8.8 At active level crossings – with user-side protection	-	-	-	-	-	-
		8.9 At active level crossings – with rail-side protection	-	-	-	-	-	-
Fatalities	9	Total number of persons killed	26	26	26	26	26	26
		9.1 Per 1,000 level crossings: indicator 9 per indicator 3.1	25	25	25	26	26	26
		9.2 Per million train-km: indicator 9 per indicator 1	26	26	26	26	26	26
		9.3 Per 1,000 line km: indicator 9 per indicator 2	25	26	26	26	26	26
		9.4 Of which pedestrians	-	-	-	-	-	-
		9.5 Of which cyclists	-	-	-	-	-	-
		9.6 Of which motor-vehicle users	-	-	-	-	-	-
		9.7 Of which other level crossing users	-	-	-	-	-	-
		9.8 Of which railway passengers	26	26	26	26	26	26
		9.9 Of which railway employees	26	26	26	26	26	26
		9.10 Of which other persons (excluding trespassers)	26	26	26	26	26	26
Injuries	10	Total number of persons seriously injured	26	26	26	26	26	26
		10.1 Per 1,000 level crossings: indicator 10 per indicator 3.1	25	25	25	26	26	26
		10.2 Per million train-km: indicator 10 per indicator 1	26	26	26	26	25	26
		10.3 Per 1,000 line km: indicator 10 per indicator 2	25	26	26	26	26	26
		10.4 Of which pedestrians	-	-	-	-	-	-
		10.5 Of which cyclists	-	-	-	-	-	-
		10.6 Of which motor-vehicle users	-	-	-	-	-	-
		10.7 Of which other level crossing users	-	-	-	-	-	-
		10.8 Of which railway passengers	26	26	26	26	26	26
		10.9 Of which railway employees	26	26	26	26	26	26
		10.10 Of which other persons (Excluding trespassers)	26	26	26	26	26	26

Source: ECE/TRANS/WP.1/GE.1/2016/2 and ERA database

Definitions

Accidents at level crossings and their outcomes (Common Glossary of transport statistics²)

Accident (railway) [A.VII-01]

Unwanted or unintended sudden event or a specific chain of such events which have harmful consequences. Railway accidents are accidents in which at least one moving rail vehicle is involved.

Level crossing accidents [A.VII-13]

Any accident at level crossings involving at least one railway vehicle and one or more crossing vehicles, other users of the road such as pedestrians or other objects temporarily present at or near the track.

² Illustrated common glossary for transport statistics (UNECE, OECD, Eurostat)
www.unece.org/fileadmin/DAM/trans/main/wp6/pdfdocs/glossen4.pdf.

Fatal accident [B.VII-02]

Any injury accident resulting in a person killed.

Person killed [A.VII-09, B.VII-05]

Any person killed immediately or dying within 30 days as a result of an (injury) accident, excluding suicides.

Person seriously injured [A.VII-10, A.VII-6]

Person seriously injured.

Any person injured who was hospitalised for more than 24 hours as a result of an accident.

Level crossing users [A.VII-16]

Persons using a level crossing to cross the railway line by any mean of transportation or by foot.

(Bi) cycle [B.II.A-05]

A road vehicle which has two or more wheels and generally is propelled solely by the muscular energy of the persons on that vehicle, in particular by means of a pedal system, lever or handle (e.g. bicycles, tricycles, quadricycles and invalid carriages).

Road motor vehicle [B.II.A-06]

A road vehicle fitted with an engine whence it derives its sole means of propulsion, which is normally used for carrying persons or goods or for drawing, on the road, vehicles used for the carriage of persons or goods.

Convention on Road Signs and Signals, of 1968 (Vienna Convention)

Motor vehicle [Article 1 (n)]

Any power-driven vehicle which is normally used for carrying persons or goods by road or for drawing on the road, vehicles used for the carriage of persons or goods. This term embraces trolley-buses, that is to say, vehicles connected to an electric conductor and not rail-borne. It does not cover vehicles, such as agricultural tractors, which are only incidentally used for carrying persons or goods by road or for drawing, on the road, vehicles used for the carriage of persons or goods;

**EU Commission Directive 2014/88/EU – Appendix to Annex I –
Common definitions for CSIs**

Indicators relating to accidents

Significant accident [Item 1.1]

Any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person, or in significant damage to stock, track, other installations or environment, or extensive disruptions to traffic, excluding accidents in workshops, warehouses and depots.

Train [Item 1.4]

Means one or more railway vehicles hauled by one or more locomotives or railcars, or one railcar travelling alone, running under a given number or specific designation from an initial fixed point to a terminal fixed point, including a light engine, i.e. a locomotive travelling on its own.

Indicators relating to technical safety of infrastructure

Level crossing [Item 6.3]

Any level intersection between a road or passage and a railway, as recognised by the infrastructure manager and open to public or private users. Passages between platforms within stations are excluded, as well as passages over tracks for the sole use of employees.³

Road [Item 6.4]

For the purpose of Rail Accidents Statistics, means any public or private road, street or highway, including footpaths and bicycle lane.

Passage [Item 6.5]

Any route, other than a road, provided for the passage of people, animals, vehicles or machinery.

Passive level crossing [Item 6.6]

A level crossing without any form of warning system or protection activated when it is unsafe for the user to traverse the crossing.

Active level crossing [Item 6.7]

A level crossing where the crossing users are protected from or warned of the approaching train by devices activated when it is unsafe for the user to traverse the crossing.

Protection by the use of physical devices includes:

- Half or full barriers;
- Gates.

Warning by the use of fixed equipment at level crossings includes:

- Visible devices: lights;
- Audible devices: bells, horns, klaxons, etc.

Active level crossings are classified as:

- (a) **Manual:** a level crossing where user-side protection or warning is manually activated by a railway employee;
- (b) **Automatic with user-side warning:** a level crossing where user-side warning is activated by the approaching train;

³ CSI definition of “level crossing” includes a “passage”, so it is more universal than the Eurostat definition.

(c) **Automatic with user-side protection:** a level crossing where user-side protection is activated by the approaching train. This shall include a level crossing with both user-side protection and warning;

(d) **Rail-side protected:** a level crossing where a signal or other train protection system permits a train to proceed once the level crossing is fully user-side protected and is free from incursion.

Definitions of the scaling bases

“train-km” [Item 7.1]

The unit of measure representing the movement of a train over one kilometre. The distance used is the distance actually run, if available, otherwise the standard network distance between the origin and destination shall be used. Only the distance on the national territory of the reporting country shall be taken into account.

“line-km” [Item 7.3]

The length measured in kilometres of the railway network. For multiple-track railway lines, only the distance between origin and destination is to be counted.

“track-km” [Item 7.4]

The length measured in kilometres of the railway network. Each track of a multiple-track railway line is to be counted.
