

Distr.: General
6 November 2015

English only

Economic Commission for Europe

Inland Transport Committee

Working Party on Road Traffic Safety

Group of Experts on Improving Safety at Level Crossings

Fifth session

Geneva, 5 – 6 November 2015

Item 2 (b) of the provisional agenda

An evaluation and analysis of the safety performance of types of level crossings in UNECE member States and in selected non-UNECE member States such as Australia, India, New Zealand and South Africa

Submitted by France, Ireland, UK, ERA, UIC and Community Safety Partnerships Ltd.

This informal document submitted by France, Ireland, UK, ERA, UIC and Community Safety Partnerships Ltd (CSP) presents the outcomes of the actions requested by the Group of Experts of this subgroup:

I. Proposed safety indicators

1. It remains desirable to adopt an existing suite of indicators that are already being used, for example those specified by the European Rail Agency (ERA) / Eurostat. However, the starting point for wider collection and analysis of safety indicators needs to be built around the data sets most likely to be available in all countries prepared to provide national data. Therefore, the proposed indicators have to allow easy aggregation and extraction of data in respect of those jurisdictions collecting more comprehensive statistics and not place an unacceptable burden on those presently collecting less complete data.

2. Clearly, there needs to be a set of baseline definitions against which participating jurisdictions are encouraged to report annually. Where possible, definitions and terms defined in UNECE Glossary for Transport Statistics should be used, complemented, where appropriate, with the definitions used by Eurostat/ERA/UIC. A glossary of terms and definitions will be presented in a formal document for consideration at the sixth meeting of the working group. Where different definitions have been used for submitted data this should be explicitly stated by the party submitting data and covered by way of notes linked

to any comparative analysis. Where a party does not collect the data needed to populate the benchmarking database, these fields should be marked with a dash.

3. Should a country choose to provide retrospective time series data it should be submitted for the years 2005-2014 with the first voluntary annual submission being for 2015 by April 1st, 2016. This will allow the data used in support of the International Level Crossing Awareness Day (ILCAD) annually in June.

4. Accidents at level crossings on functionally independent transit systems should be excluded (e.g. tramways).

5. In so far as classes of user are concerned, initially at least, this should be limited to differentiating pedestrian and cyclist from each other transport as is the case with data collected annually by the International Union of Railways (UIC) in connection with ILCAD. CARE/CADAS provides a comprehensive taxonomy of road users based on UNECE Glossary for Transport Statistics definitions.

A. The proposed input data sets are:

1. The total number of level crossings at December 31st by type of protection and a break-down on the following types of level crossings (classified by type of protection)

- (a) Passive (unprotected) level crossing
- (b) Active (protected) level crossing:
 - (i) manual,
 - (ii) automatic with user-side warning,
 - (iii) automatic with user-side protection,
 - (iv) rail-side protected.

2. The total number of fatal¹, significant² and all accidents³ at level crossings with the break-down per type of level crossing (as defined under 1).

3. The total number of persons killed and seriously injured⁴ in accidents at level crossings and a break-down on the following types:

- a. Pedestrians
- b. Cyclists
- c. Motor vehicle users
- d. Other road users⁵
- e. Railway passengers
- f. Railway Employees⁶

4. The indicators 1-3 per

¹ EU CARE database harmonized glossary

² EU CSI data collection (significant railway accidents)

³ All accidents registered in a given jurisdiction (not necessarily comparable between them). Also used in UNECE road safety statistics.

⁴ Common definitions already in place at international level.

⁵ Users of non-motorized vehicle such as horse, ox and cart

⁶ Gate keepers, trackside workers and train crew members

- Billion Train-km
- 1,000 Line-km
- 1,000 LC

The data used for normalization (such as traffic volumes and network length) are already available under UNECE/OECD/Eurostat data collection.

Ad 1: These have been developed and recently revised under CSIs for EU countries. As the categorization is functional, it should be feasible to apply in non-EU countries as well.

Ad 2: Different existing data collection processes use different thresholds. See the footnote for more details.

Ad 3: An alternative would be to consider all vehicle users (including cyclists), which would leave pedestrians, others and railway users as additional categories. The type of vehicle is less relevant, with partly harmonized categorization developed under CARE database.

The data used for normalization (such as traffic volumes and network length) are already available under UNECE/OECD/Eurostat data collection.

Ad 1: These have been developed and recently revised under CSIs for EU countries. As the categorization is functional, it should be feasible to apply in non-EU countries as well.

Ad 2: Different existing data collection processes use different thresholds. See the footnote for more details.

Ad 3: An alternative would be to consider all vehicle users (including cyclists), which would leave pedestrians, others and railway users as additional categories. The type of vehicle is less relevant, with partly harmonized categorization developed under CARE database.

Ad 4: Need additional category (f.) for railway employees (train crew and gatekeepers) [proposed by IRL].

A dataset for 28 EU MSs for 2014 can be presented at the meeting (mostly drawing from ERA and CARE) data, as to demonstrate the feasibility of the proposal.

As regards the potential regular data collection arrangements, one can either make use of existing transport data collection structures (UN/OECD/ESTAT) – notably their common questionnaire, or establish a brand new database hosted by either UNECE or UIC. For the latter, a specific arrangement would have to be provided. This should be discussed and agreed during the coming session.

6. Normalising the raw data to enable better comparisons of performance can be undertaken in a number of ways using the data set out above or other publicly available data (e.g. road safety statistics): A glossary of agreed terms and definitions to support the proposed indicators is provided as an annex to this paper . .

-
1. Level crossing accidents per 1,000 level crossings
 - a. By status
 - b. By type
 - c. By class of user
 2. Fatal level crossing accidents per 1,000 level crossings
 - a. By status
 - b. By type
 - c. By class of user
 3. Fatalities at level crossings per 1,000 level crossings
 - a. By status
 - b. By type
 - c. By class of user
 4. Level crossing accidents per 1,000 route kilometres of railway
 - a. By status
 - b. By type
 - c. By class of user
 5. Fatal level crossing accidents per 1,000 route kilometres of railway
 - a. By status
 - b. By type
 - c. By class of user
 6. Fatalities at level crossing accidents per 1,000 route kilometres of railway
 - a. By status
 - b. By type
 - c. By class of user
 7. Level crossing fatalities as a percentage of road accident fatalities
 8. Level crossing fatalities per million population
-

II. Holding and managing the benchmarking data

7. The organisations identified as potential data hosts are UNECE, ERA/Eurostat and UIC. 8 UIC indicated in principle its willingness to host a wider geographic suite of level crossing safety data than presently included in the UIC Safety Database and/or collected for ILCAD.

9. A formal request would have to be made to the UIC to seek its agreement to host the level crossing safety data, to analyse the data annually and to publish the results of the analysis annually in connection with ILCAD.

In this case the UIC should be given a mandate from UNECE to collect the data.

III. Analysis of data already collected

10. The analysis of data collected using the proposed classification as provided by the sub-group should be presented at the next session in March 2016.

Annex

Appendix 1 - Definitions

Indicators relating to accidents

“train” 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,;

“level crossing accident” means any accident at level crossings involving at least one railway vehicle and one or more crossing vehicles, other crossing users such as pedestrians or other objects temporarily present on or near the track if lost by a crossing vehicle or user;

“death (killed person)” means any person killed immediately or dying within 30 days as a result of an accident, excluding any suicide;

Indicators relating to suicides

“suicide” means an act to deliberately injure oneself resulting in death, as recorded and classified by the competent national authority.

Indicators relating to technical safety of infrastructure and its implementation

“level crossing” means 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.

“road” means, for the purpose of railway accident statistics, any public or private road, street or highway, including adjacent footpaths and bicycle lanes.

“passage” means any route, other than a road, provided for the passage of people, animals, vehicles or machinery.

“passive level crossing” means 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” means 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:

- 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.
- (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” means 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” means the length measured in kilometres of the railway network in Member States, whose scope is laid down in Article 2. For multiple-track railway lines, only the distance between origin and destination is to be counted.

“track-km” means the length measured in kilometres of the railway network in Member States, whose scope is laid down in Article 2. Each track of a multiple-track railway line is to be counted.
