

UNECE Level Crossing Expert Group - Subgroup on Level Crossing Safety Performance

Remit:

"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".

TOR:

Deliverables, measurements, evaluation including sustainability, and the identification of gaps for the future strategy and action plan of the Expert Group.

Deliverables:

- Make use of relevant and universally available data (UIC statistics etc.)
- Adopt a safety related common typology for Level Crossings:
 1. Passive level crossing
 - (a) passage
 - (b) road
 2. Active level crossing
 - (a) manual protection or warning
 - (b) automatic with user-side warning
 - (c) automatic with user-side protection
 - (d) rail-side protected
- Use the Eurostat accepted terms and definitions per Regulation 1192 of 2003, as further expanded in the Safety Directive Annex I (revised format for which received the favourable opinion of DG-MOVE's RISC69 meeting on 30th January 2014, see Appendix 1), i.e.:-
 1. Train
 2. Level crossing accident
 3. Death (killed person)
 4. Suicide
 5. Level crossing
 6. Road
 7. Passage
 8. Passive level crossing
 9. Active level crossing
 10. Manual warning or protection
 11. Automatic with user-side warning
 12. Automatic with user-side protection
 13. Rail-side protected
 14. Train-km
 15. Line-km
 16. Track-km
- Consider possible additional definitions, e.g.:-
 1. Level crossing type safety performance index
 2. Traffic saturation
 3. Risk value
 4. Benefit value
 5. Annuitised cost

Measurements:

- Consider relevant Safety Performance Measurements for relevant State or Region:
 1. Train-km
 2. Line-km
 3. Track-km
 4. Track-km/line-km ratio
 5. Active level crossings/ route-km
 6. Passive level crossings/ route-km
 7. Persons killed/ 1000 active level crossings/ annum
 8. Persons killed/ 1000 passive level crossings/ annum
 9. Level crossing accidents/ 1000 active level crossings/ annum
 10. Level crossing accidents/ 1000 passive level crossings/ annum
 11. Type % ratios for:
 - passive passage
 - passive road
 - active manual
 - active automatic warning
 - active automatic protection
 - active rail-side protection).

Evaluation including sustainability

- Risk registration and risk ranking:-
 1. Level crossing type safety performance index
 2. Train speed at level crossing
 3. Traffic saturation index
 4. Risk value
 5. Annuited operation and maintenance cost

- Cost/benefit analysis of upgrade or closure:-
 1. Level crossing type safety performance index
 2. Train speed at level crossing
 3. Traffic saturation index
 4. Risk value
 5. Benefit value
 6. Annuited installation, operation and maintenance cost

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.