



# Economic and Social Council

Distr.: General  
22 May 2014

Original: English

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## Economic Commission for Europe

### Inland Transport Committee

#### Working Party on Road Traffic Safety

##### Group of Experts on Improving Safety at Level Crossing

###### Second session

Geneva, 12-13 May 2014

## Report of the Group of Expert on Safety at Level Crossing on its second session

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## **I. Attendance**

1. The Group of Experts on Safety at Level Crossing (GE.1) held its second session in Geneva from 12-13 May 2014, chaired by Mr. Martin Gallagher (United Kingdom of Great Britain and Northern Ireland). Representatives of the following member States participated: Austria, Belgium, Bulgaria, Finland, France, Greece, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Sweden, Switzerland, Turkey and the United Kingdom of Great Britain and Northern Ireland (UK).

2. The representatives of a non-ECE member State also participated: India. The following non-governmental organizations were represented: European Railway Agency (ERA), International Union of Railways (UIC), Community Safety Partnerships Ltd. (CSP), European Transport Safety Council, German Aerospace Center e.V. (DLR), Instytut Kolejnictwa and La Trobe University.

## **II. Adoption of the Agenda (agenda item 1)**

3. The Group of Experts adopted the annotated provisional agenda for the second session (ECE/TRANS/WP.1/GE.1/3).

## **III. Programme of Work (agenda item 2)**

4. For items (a) to (f), the Group of Experts agreed that a questionnaire, comprised of information being sought from the various subgroups, would be compiled and circulated by the secretariat to the Group of Experts by mid-June. In this regard, the subgroups were requested to prepare a select number of questions as directed by the Group of Experts (see paragraphs below) in a format that would be easy for the Group of Experts and their colleagues to respond to, and to provide this to the secretariat as soon as possible. The Group of Experts agreed to complete and return the questionnaire to the secretariat by the end of August. Based on the responses, each of the subgroups would prepare informal papers to be discussed at the next session, including a summary of the issues, findings and proposed recommendations/next steps for the work of their subgroup.

5. For items (i) to (k), the Group of Experts agreed to keep these items on the agenda for discussion at the third session.

### **A. A review and analysis of the economic costs of level crossing accidents based on data provided by countries**

6. On behalf of the subgroup, Poland gave a presentation, based on the work undertaken by the World Bank, relating to the costs of road accidents in Poland. The subgroup proposed to adopt the “willingness to pay” as the preferred method to calculate the “value of statistical life” for various countries. The proposed methodology uses the estimates of the costs of road accident fatalities to calculate the costs related to the fatalities and serious injuries during the level crossing accidents. Poland emphasized that this methodology did not take into account other costs (i.e. damage to infrastructure, train delays and so on).

7. To improve the methodology, the Group of Experts requested that the subgroup prepared a questionnaire to be circulated to the members of the Expert Group which would

seek information on the costs of delays, material damages incurred by all, i.e. railways and road users and other losses or expenses arising from level crossing accidents.

8. The secretariat drew the attention of the Group of Experts to a recent Transport Research Board (TRB) report, No. 755, "Comprehensive Costs of Highway-Rail Grade Crossing Crashes".

**B. 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**

9. On behalf of the subgroup, Community Safety Partnerships Ltd gave a general overview of the nature of level crossing-related safety data being collected, including through the ERA. It suggested that any additional data sets be accommodated only if required and provided that they did not duplicate other existing work. To take the work of the subgroup forward, it suggested some considerations not presently captured such as public-private split in level crossing populations, pedestrian level crossings at stations as a distinct category of crossings.

10. The Group of Experts agreed that the questionnaire should seek information from countries on different aspects of safety performance being measured as well as any cultural differences identified from existing data and papers, and anything else that countries might wish to share. UIC expressed its intention to join and contribute to the work of the subgroup.

**C. A summary of best practices including education**

11. On behalf of the subgroup, Finland gave a brief update on the status of the subgroup. It suggested that there were linkages between the work of the subgroup to the work of other subgroups. It indicated that it would appreciate receiving information from countries on level crossings safety best practices that had worked for them (as well as practices which did not work even if these were successful in other countries). The Group of Experts agreed to include a request for information on best practices in the questionnaire.

**D. A survey of prevailing national legislation and/or legal arrangements at level crossings**

12. On behalf of the subgroup, Instytut Kolejnictwa, (Poland,) gave an extensive presentation on a suggested survey on level crossings related legislation. It proposed that the survey cover six key aspects, including legal acts regulating level crossing issues, relevant responsible entities, types of level crossing regulations, road signalling issues, railway signalling issues and regulations related to level crossing accidents.

13. The Group of Experts agreed that a first step to collecting the above information was to ascertain what legislation exists, and that this could be ascertained through a series of structured (such as yes/no) questions relating to the six key aspects through the questionnaire. The Russian Federation expressed its interest in contributing to the work of this subgroup.

## **E. A survey of technology and technological solutions to improve safety at level crossings**

14. On behalf of the subgroup, La Trobe University Centre for Technology Infusion, (Australia,) provided an overview of new types of interventions being explored in Australia to reduce the number of collisions/accidents at level crossings.

15. The subgroup proposed an assessment of the effectiveness of current and emerging technological solutions, including Cooperative Intelligent Transport Systems, to address safety at level crossings. The proposed assessment would focus on the safety impact of the intervention, deployment cost, effects on the drivers' and road traffic around the crossings and drivers' acceptance of the technology, with a view to developing a road map of deployable technological solutions and recommendations.

16. The Group of Experts agreed that the questionnaire should include questions related to the current or proposed technological solutions being explored or implemented within countries. The Russian Federation expressed their interest in contributing to the work of this subgroup.

## **F. Identification of the key causes and possible solutions related to human factors contributing to unsafe conditions at level crossings**

17. On behalf of the subgroup, the German Aerospace Center DLR provided an update on the work progress of the subgroup including a work programme. This included a review of the human information processing model by Wickens and Holland which emphasized that attention was a capacity that was limited and could be directed, switched or shared. On the roads, the question was what could be done to make drivers more alert when approaching level crossings. Influential factors included age, long waiting times, assumptions related to safety, problematic (local) norms, lack of police surveillance and so on.

18. The subgroup proposed that through a questionnaire, information on other psychological models could be obtained and reviewed for their potential to add to the description of cognitive processes active while crossing a level crossing. Based on this further study, it would formulate various hypotheses of means to enhance safety at level crossings.

19. To facilitate the work of the subgroup, the Group of Experts agreed that information collected from accidents, research or studies on human factors, and signals and lighting systems should be collected through the questionnaire.

20. The Group of Experts also agreed to have additional items for the next session on the topic of solid red lights and flashing red lights, and how road users and rail operators respond to them, and level crossing related road signs and signals.

## **G. List of network contacts**

21. The secretariat circulated a list of network contacts based on attendance from the first and this (second) session. The Group of Experts agreed to review the draft list and to provide comments for changes (if any). Then, the list would be finalized and made available on the website of the Group of Experts.

## **H. Key factors contributing to unsafe conditions at level crossings**

22. The Group of Experts agreed that a subgroup focussing on “Enforcement” should be created. The UK proposed to take the lead on the work of this subgroup.

## **I. Development of a road/rail interface strategy with supporting action plan**

## **J. Workshops to support the strategic plan**

## **K. Future strategic and operational research needs**

## **IV. “Safety at level crossings” report (agenda item 3)**

23. The Expert Group noted that the European Commission had been invited to give a presentation on its December 2003 “Safety at level crossings” report at the next session.

24. The UK provided an overview of a recent UK parliamentary select committee review of government departments and agencies involved in the safety of level crossings. The presentation shared a number of the diverse recommendations and how they were being used as a catalyst to challenge safety culture and for further investment in the UK.

## **V. Exchange of Experiences (agenda item 4)**

25. The Group of Experts had the opportunity to provide information (e.g. presentations) about and to discuss low cost solutions that were potentially transferable to low and mid-income countries, technical solutions and preliminary proposals relating to safety initiatives based on a system’s approach.

26. Hungary’s presentation gave an overview of the level crossings in Hungary, including the number of level crossings, accident related statistics, safety interventions and results from the past years. Hungary advised that the interventions had decreased the number of accidents at level crossings and had increased safety at level crossings.

27. Italy’s presentation was on “Reducing the risk at level crossings, optimizing the time of notice of the closure of the barriers”. In 2012, accidents on the Italian railway network heavy vehicles had been trapped between the barriers, one of which had deadly consequences for the driver of the train. Italy emphasized that the optimization of the time of notice between the turning on of the light signals and the beginning of the motion of lowering of the barriers was a possible low cost solution. In particular, the warning time between the lighting of the signals and the beginning of the lowering of the barriers could be optimized according to its “standard values” and should vary according to the situations that might affect the movement of road vehicles such as the presence of intersections in the proximity of the level crossing, the length of vehicles allowed to circulate on the road, and the exact distance between the barriers.

28. Poland’s showed on “Awareness campaign: Safe rail-road level crossing – “Stop and Live!” that between 200 and 250 accidents involving dozens of casualties occur on level crossings in Poland every year. Despite financial limitations, Poland was doing its best to address the problem. Their goal was to limit the number of accidents on level crossings as well as those involving trespassing by education, enforcement and modernization.

29. Sweden's presentation was on "Project ALEX". It shared that Trafikverket (Swedish Transport Administration) was responsible for about 6,500 level crossings including 2,800 active protections. There are difficulties to maintain the system and many signaling systems have passed their economic and technical life time. Sweden advised that the aim of Project ALEX is to establish framework agreements with 2-3 suppliers according to its Public Procurement Act and that suppliers had to take responsibility for the supply of components and safety cases during their economic lifetimes.

30. Turkey provided an extensive presentation on the number and types of level crossings in Turkey, its relevant authorities and stakeholders, recent improvement studies and works including signs in accordance with new regulations. Turkey expressed its willingness to be a volunteer country for a pilot project on improving level crossings safety.

31. Ireland proposed a visual system model for level crossings to help to explain the context of the Terms of Reference (ToR) of the Group of Experts. The three areas of infrastructure design and safety management, user behaviour management, and national legislation/ resources were being considered. The four elements of engineering, education, enforcement and economics also already appeared in the terms of reference, and the fifth element of 'engagement' was shown as 'enablement and encouragement'. Ireland suggested that the associated elements of ergonomics, evaluation, emergency planning and environment were also implicit in the ToR. The Group of Experts agreed to revisit the visual system model at its third session discussions on the development of a road/rail interface strategy with supporting action plan.

32. France provided a comprehensive overview of level crossings in France with details on crossings with barriers, public crossings, speed radars, level crossing related statistics and an analysis of level crossing related data and observations.

33. India provided various statistics on level crossings in India. It also provided information on its program to eliminate all unmanned level crossings by 2020, its long term vision to eliminate all level crossings in India, and other initiatives under the 5Es of Engagement, Education, Engineering, Enforcement and Economics.

34. UIC informed the Group of Experts that the International Level Crossing Awareness Day 2014 would be on Tuesday, 3 June. It has been organizing various commemorative activities including the ILCAD 2014 programme in Lisbon, and invited the Group of Experts to attend. It also highlighted its other ongoing advocacy and awareness raising activities which include social media.

## **VI. Other Business**

35. The Group of Experts adopted the report of its first session (ECE/TRANS/WP.1/GE.1/2).

36. The secretariat provided a presentation on the function, nature and rules of procedure relating to ECE expert groups. These included a brief overview of the Terms of Reference and Rules of Procedure of the ECE (E/ECE/778/Rev.5), Guidelines on Procedures and Practices for ECE bodies (E/ECE/1468), Terms of Reference for the Working Party on Road Traffic Safety (TRANS/WP.1/100/Add.1) and Guidelines for the Establishment and Functioning of Working Parties within UNECE (ECE/EX/1) and Guidelines for the Establishment and Functioning of Teams of Specialists within UNECE (ECE/EX2/Rev.1).

37. In particular, the secretariat emphasised that the meetings of the Group of Experts forum for the members to discuss and provide direction on the work of the various

subgroups. It encouraged the subgroups to make progress on their work between the sessions.

## **VII. Date and Place of Next Meeting**

38. The Group of Experts was informed that its third session will be on 23-24 October 2014 in Geneva.

## **VIII. Adoption of the Report**

39. The Group of Experts adopted the report of its second session.

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