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Group of Experts on Improving Safety at Level Crossings

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Item 2 (d) of the provisional agenda

Programme of Work:

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

Programme of Work

A survey of prevailing national legislation and/or legal arrangements at level crossings¹²

Submitted by Poland, Russian Federation, European Railway Agency and European Union

1. Due to the importance of the hazards present at level crossings, certain aspects of their usage and layouts have been subject to regulatory requirements. Those often have different footing and scope, as depicted in the list below.

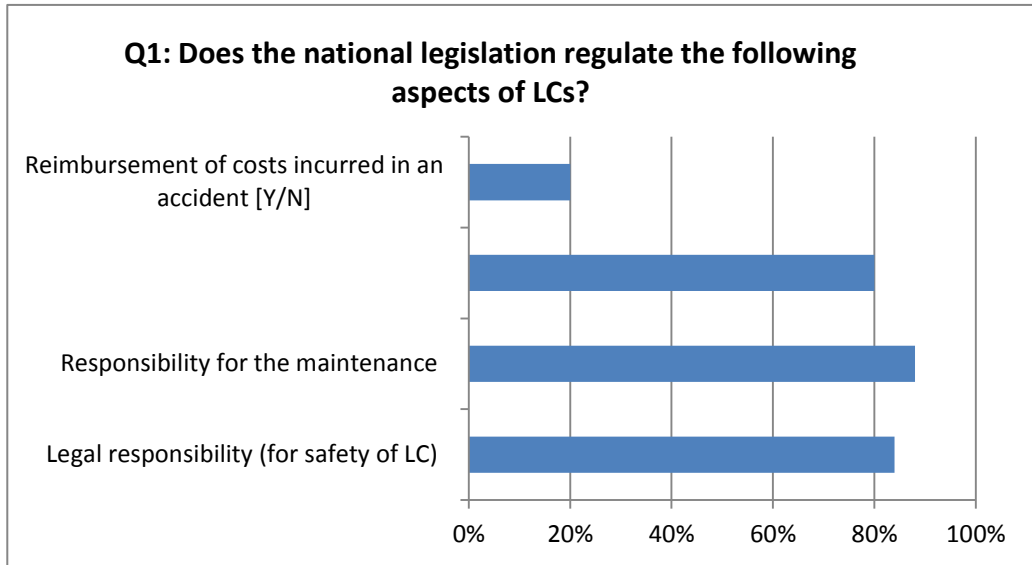
- International conventions (e.g. UNECE convention on road traffic signs);
- International legislation (e.g. EU Directive);
- National legislation (e.g. Road Traffic Code).
- Internal regulations (e.g. infrastructure manager rules)

2. They all have their often complementary roles and have potential to contribute to safe design of level crossings and to the safe behavior of users of level crossings. Their more detailed overview is available in the annex.

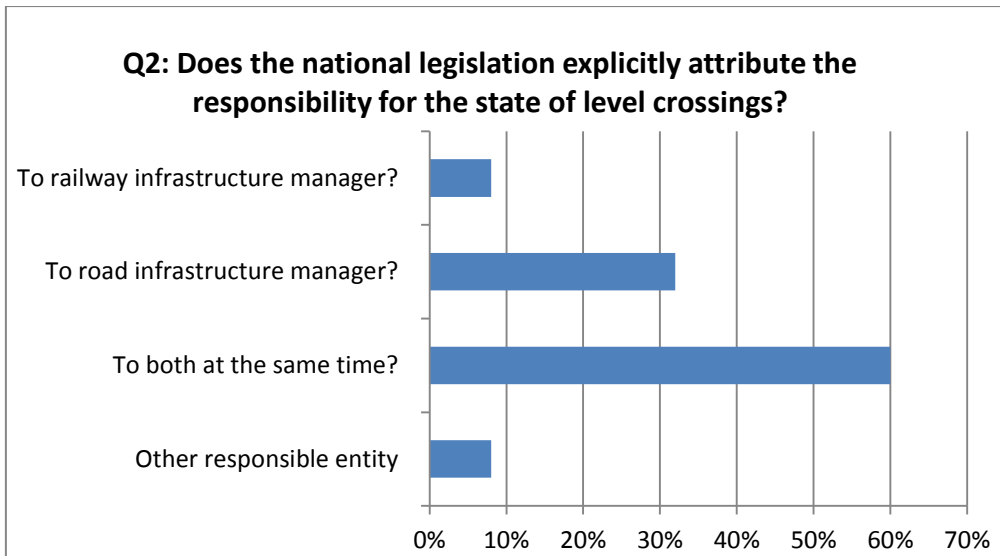
¹ This document was submitted late due to delayed inputs from other sources.

² The present document was not edited before being sent to the United Nations translation services.

3. National legislation has a prominent role, as there are no direct supra-national legal requirements on level crossings, besides the UNECE conventions. The national legislation often regulates aspects that may directly or indirectly contribute to higher safety at level crossings. In the majority of UNECE countries, the national legislation attributes the responsibility for the maintenance and safety performance of level crossings and prescribes requirements on the equipment and type of level crossings. In few countries, legal provisions exist for retrieving damage costs following the accidents.



4. The explicit attribution of legal responsibility for the state of level crossings is usually given to both rail and infrastructure managers, though in one third of countries, the railway infrastructure manager bears the full responsibility. Clear distribution of responsibilities is key to the safety assurance.



I. Design aspects of level crossings

5. From the review among expert group members, it emerged that the requirements on protecting different types of level crossings are usually governed by internal operational rules, standards and procedures, as opposed to national laws and requirements. Since such requirements essentially stem from the risk analysis and are function of available resources, they should continue to be regarded as of the merit of the infrastructure managers.

6. National rules often prescribe the minimum protection requirements as a function of the railway line and road characteristics. E.g. open railway line with design speed of 120 kph crossed by an inter-urban road must be equipped by full barriers, or removed. These requirements are useful as much as they actually contribute to replacement and upgrade of level crossings.

7. Regarding the technical requirements on the protective devices, it has been found that they are typically national and while they may be over-present at the design and implementation stage, they are not necessarily referred to in the lifetime of the equipment. E.g.: Intensity of flashing lights or barriers closing times. Regular inspections and effective monitoring of the functioning of the protective equipment needs to be assured by the authorities on all level crossings.

8. Road traffic signs and lights are a specific category of level crossing design. They help to raise awareness of the hazard at level crossings and steer behavior of road users. To be efficient, they must be easily recognizable and fully understood by road users. Their international harmonization was showed to be effective in limiting the variety of signs and light signals used elsewhere in the world. To this aspect, the group of experts identified several issues in the current Conventions on road traffic and road traffic signs.

(a) No requirements/recommendations on sound levels and light intensity of warning available in the Convention

(b) No requirements on warning and guidance messages (and symbols) placed on the barriers (to avoid being trapped between closed gates) and those helping to assure timely identification of the level crossing.

(c) No requirements/recommendations on traffic calming (road infrastructure) measures at the approach to (un-) protected level crossings is present in the Convention (see also Article 19).

(d) No (sufficient) requirements on horizontal marking (painting) at the approach to level crossing, in particular in urban areas.

(e) Traffic signs defined in Vienna convention are not consistently used in practice and there is not a good understanding of the underlying reasons. Moreover, some traffic signs, in particular the Danger Signal (triangle traffic sign) displaying a steam locomotive may need to be updated.

(f) The use of tricolor lights at level crossings is felt as possibly confusing. Similarly, the use of non-flashing versus flashing one or two lights remains an issue (prevailing inconsistency).

9. It is recognized that some of these issues may be better addressed outside of the Vienna convention and that a better adherence to the Convention has a merit of its own. However, a proposal was made to address some of the issues above in the next revisions of the two Conventions.

II. Other regulatory aspects

10. Prevailing **insurance practices and arrangements** that arise from the national legal framework may contribute to the overall approach to securing level crossings at a country level. Their extent and role is not well described and understood. The absence of standardized and systematically collected data on costs is contributing to this situation. Some good practices have been in place in several countries, allowing a fair and motivating distribution of all types of costs of accidents. E.g. at a strategic level, some rail infrastructure managers have a contract with the state that may cover the maximum allowable number of safety disruption events at level crossings, and/or be required to systematically pursue level crossing safety improvement programmes.

11. In most UNECE countries, an obligation is put on involved actors and even on the independent investigation body to investigate level crossing accidents. If such investigation looks behind direct cause, it has great learning potential to all actors involved.

12. The assurance of regular inspections, monitoring and risk analysis is part of the safety oversight by the regulatory authorities. Legal provisions are needed to facilitate this oversight work.

Annex: LC aspects addressed by national/international legal requirements

Aspects that are nowadays addressed by either national or international requirements.

<i>Area</i>	<i>Sub-area</i>	<i>Aspects</i>	<i>Where addressed</i>
1. Control, command, signalling	Stop signals and ETCS block markers		TSI CCS
	Delayed clearance of signals, delayed display of driver's LC indicators and delayed issue of ETCS movement authorities		National rules
	Operating sequences	Sequence, timing	National rules
	Wrong-direction train movement and bi-directional control	Resetting times	National rules
	Shunting movements over level crossings		National rules
	Automatic LC locally monitored by train drivers	Indication of correct operation, permissible crossing speeds, LC signboards, LC warning signs	National rules
	Identification	Names, signs, information at signal boxes	National rules
2. SMS-related requirements	Risk management	Risk model application	<i>CSM on monitoring and supervision</i>
	Operational procedures	Rules for failure management	TSI OPE
	Safety monitoring	Data collection, tools, database, analysis	<i>CSM on monitoring and supervision</i>
	Investigation (process /template)	Process/template	<i>Annex V – RSD / ERA Guidance</i>
	Inspection (process/template)	Process/template	<i>CSM on supervision</i>
3. Infrastructure requirements	Protection level minimum requirements	Rules for new / upgraded LCs	National rules
	Lay-out and conditions	Design, illumination	National rules
	Road design and conditions	Slopes, sight distance	National rules
4. Road-side	Horizontal / vertical signing	Type, size, place, ...	UNECE & National

<i>Area</i>	<i>Sub-area</i>	<i>Aspects</i>	<i>Where addressed</i>
protection operations			rules
	Light and audible devices	Type, colour, intensity, sequence, sound characteristics	National rules
	Barriers	Type, marking, signs, message, functional requirements	National rules
	Clearance (obstacle detection) devices	Technical requirements	National rules
	Rules for des-/activation	Times, functioning	TSI OPE
	Failure / acceptable risk	...	RAC-TS
