EUROPEAN UNION AGENCY FOR RAILWAYS

Making the railway system work better for society.

Report

2017 assessment of achievement of safety targets

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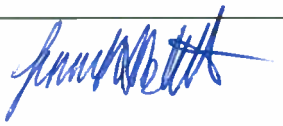
Signature			

Document History

Version	*Date*	*Comments*
1.0	31/03/2017	Final version for the Commission

Contents

1. Executive summary

This report presents the sixth assessment of achievement of the second set of Common Safety Targets (CSTs) and National Reference Values (NRVs) carried out in accordance with the Common Safety Method (CSM) defined in the Commission Decision 2009/460/EC [2], and in particular Article 4 of the Decision. The 2017 assessment is the eighth assessment of achievements of safety targets carried out by the Agency in accordance with the CSM (see the overview of annual assessments in Annex 5). The assessment concerns 26 of 28 EU Member States that have a railway system, plus Norway.

The NRVs and the second set of CSTs were established using Eurostat data for the years 2004-2009 and published as the Commission Decision 2012/226/EU [5] in 2012, which was later amended by the Commission Implementing Decision 2013/753/EU [6]. This assessment is based on Eurostat data for the years 2011-2015 that were retrieved from Eurobase[1] on 22 February 2017 and updated on 24 March 2017.

For all railway user categories, the respective NRV was lower than the corresponding CST; the NRVs represented the maximum tolerable level of the risk to which it refers for this assessment. As with the assessments carried out in the past, NRVs represent the safety targets used for the assessment as described in the CSM.

The results of the assessment of achievements of NRVs indicate other than acceptable safety performance in four Member States, as follows:

"possible deterioration of safety performance":

- Bulgaria (Employees);
- Italy (Unauthorized persons);
- Slovakia (Employees, Whole society);
- Sweden (Employees).

At the same time, the results of the assessment indicate that the railway safety performance remains acceptable at the EU level for all categories of railway users under consideration.

In accordance with Article 5 of the Method [2], the Member States for which there is a possible deterioration in safety performance in any category of user, shall send to the Commission a report explaining the likely causes of the results obtained.

The Agency considers that, as with any statistical method, the results obtained through this assessment should be used and considered with caution. In particular, the Agency recognises;

- A limitation in the data used for establishment of NRVs and for their assessment (data submitted by Member States to Eurostat via their national statistical offices);
- The need to update the NRVs used for the assessment; and
- The difficulty of using the Method in relation to categories involving small numbers of fatalities.

To note, the Agency will conduct a wider consultation on the value and possible negative effects of assessing quantitative safety targets, to support the revision of the Method.

In this context, it is also notable that the Agency currently conducts various assessment activities within the Priority Countries programme, notably in Slovakia, which will lead to the preparation of a safety enhancement plan. The advice on safety performance in Slovakia will be submitted to the Commission by the Agency by the end of 2017.

[1] *Statistical database of Eurostat: http://ec.europa.eu/eurostat/data/database*

2. Introduction

This report presents the results of the annual assessment of achievement of NRVs and CSTs in accordance with the requirements of the Commission Decision 2009/460/EC [2], Article 3.1.3.

No later than 31 March each year the Agency shall report to the Commission on the overall results of the assessment of achievement of NRVs and CSTs.

The CSM for assessing the achievement of CSTs and of NRVs is set out in Commission Decision 2009/460/EC [2] (hereafter also referred to as the Method).

In 2011, the Agency received a mandate from the Commission with the following three tasks: first – prepare a second set of NRVs (CSTs) in accordance with the existing CSM in 2011; second – propose a revision of CSM in 2015; and third – propose a third set of NRVs (CSTs) in accordance with the revised CSM in 2015.

The first task from the mandate was accomplished by the Agency in 2011 with a proposal of the second set of NRVs (CSTs) published as Commission Decision 2012/226/EU [5]. The values for the second set of CSTs were calculated on the basis of the data from 2004 to 2009, which were supplied to Eurostat by statistical offices of Member States in accordance with Regulation (EC) No 91/2003 [3]. They have been calculated using the methodology set out in points 2.1.1 and 2.3.1 of the Annex of the Method [2].

Following the accession of Croatia to EU in 2013, the Agency recommended the amendment of the second set of NRVs (CSTs) to notably incorporate the NRVs for Croatia. The second set of NRVs (CSTs) was amended through the Commission Implementing Decision 2013/753/EU [6].

As regards the second and third task from the mandate (revision of CSM and proposal of the third set of NRVs), the Agency carried out the necessary work in 2012-2014 with the Working Party on Safety Performance. This work was further reviewed by the Agency in 2015. A draft recommendation was prepared, but the Agency decided to recommend no change to the CSM at that time. Recognising the difficulty of imposing such ambitious safety targets at a time when Member States were preparing to implement the 4th railway package, the Agency wanted to ensure CSTs were accompanied by support to improve, provided by the ongoing Priority Countries programme and an Assessment of Feasibility of Efficient Risk Reduction for European Railways which provided a methodology for identifying and costing safety improvements. In parallel with publication of this assessment, the Agency is launching a wider consultation on the value and possible negative effects of assessing quantitative safety targets, to support the revision of the Method.

This 2017 annual assessment, eighth annual assessment carried out by the Agency so far, concerns the assessment of the achievement of the second set of NRVs and of CSTs with reference to the data available for the period 2011-2015. The data used for the assessment was taken from the Eurostat database, as set out in point 1.1 of the Annex of the Method [2]. In cases where data was not available in Eurostat database, the CSI data was used (see the input data overview in Annex 4).

NRVs and CSTs were calculated for each Member State and for each of the following risk categories: Passengers (1.1 and 1.2), Employees (2), Level crossing users (3.1), Others (4), Unauthorized persons on railway premises (5) and Whole society (6). Similarly to the past assessments, the assessment was not done for the category of level crossing users (3.2)[2] due to the absence of relevant data in the Eurostat database.

[2] *Assessment was carried out for the category of level crossing users (3.1) that uses different measurement scale.*

3. Method for assessing achievement of safety targets

3.1. Data

To assess the achievement of NRVs, the Agency has used the Eurostat data for the five most recently reported years (2011-2015), in accordance with point 3.1.4 of the Annex of the Method [2]. The data of 2015 is the latest observed safety performance (OSP), as referred to in the first step of the assessment procedure.

The data was extracted from the Eurostat database on 22 February 2017. The data were sent by Statistical Offices of Member States within five months after the end of the reference period for the 2015 datasets. According to the information from Eurostat, the data in datasets "rail_ac_catvict" and "rail_ac_catnmbr" were last updated on 9 February 2017 and 16 November 2016 respectively and the data in dataset "rail_tf_trainmv" and "rail_pa_quartal" were updated on 17 February 2017. These updates were taken into account in the assessment. The consistency of data was verified by the Agency for year 2015 by comparing the Eurostat data with CSI data. There were no major differences[3]. In some instances, data were not available in the Eurostat database by 17 March 2017; in these cases the CSI data were used instead. The CSI data were extracted on the 17 March 2017 from the Agency's ERAIL-CSI database. The Annex 4 of this report shows the overview of instances in which the CSI data had to be used in place of Eurostat values. The data for carrying out the assessment for the categories level crossing users, unauthorised persons and others were inferred as described in the Annex of the "Report on the development of the second set of CSTs", as they are not directly available in Eurobase[4].

3.2. Four-step assessment procedure

The four-step assessment procedure described in chapter 3 of the Annex of the Method [2] has been applied for each of the six risk categories:

- passengers (1.1 and 1.2);
- employees (2);
- level crossing users (3.1);
- others (4);
- unauthorised persons on railway premises (5);
- whole society (6).

There are four steps in the procedure for assessing the achievement of NRVs; these are described in the flowchart in Figure 1, which is taken from the Appendix 2 to the Annex to the Method [2]. The "yes-arrows" correspond to a passed result and the no-arrows to a failed result at each step.

The first step and first part of the second step are performed autonomously by the Agency using the Eurostat data. In the second part of the second step, the Agency has to use the input of the Member States concerned for the specifics of the single highest-consequence accident in the most recent years excluding the years used to set the NRVs.

The third and fourth steps are carried out by the Agency autonomously with the Eurostat data.

The detailed description of the content of the each step is available in chapter 3.2 of the Annex to the Method [2].

[3] *Minor differences may exist due to the minor differences of the reporting scopes for CSI data and Eurostat data. Two minor differences were identified: number of accidents in 2015 in Poland and number of train-kms in 2014 in Denmark.*

[4] *In Eurobase only the following 3 categories of victims are available: passengers, employees and others.*

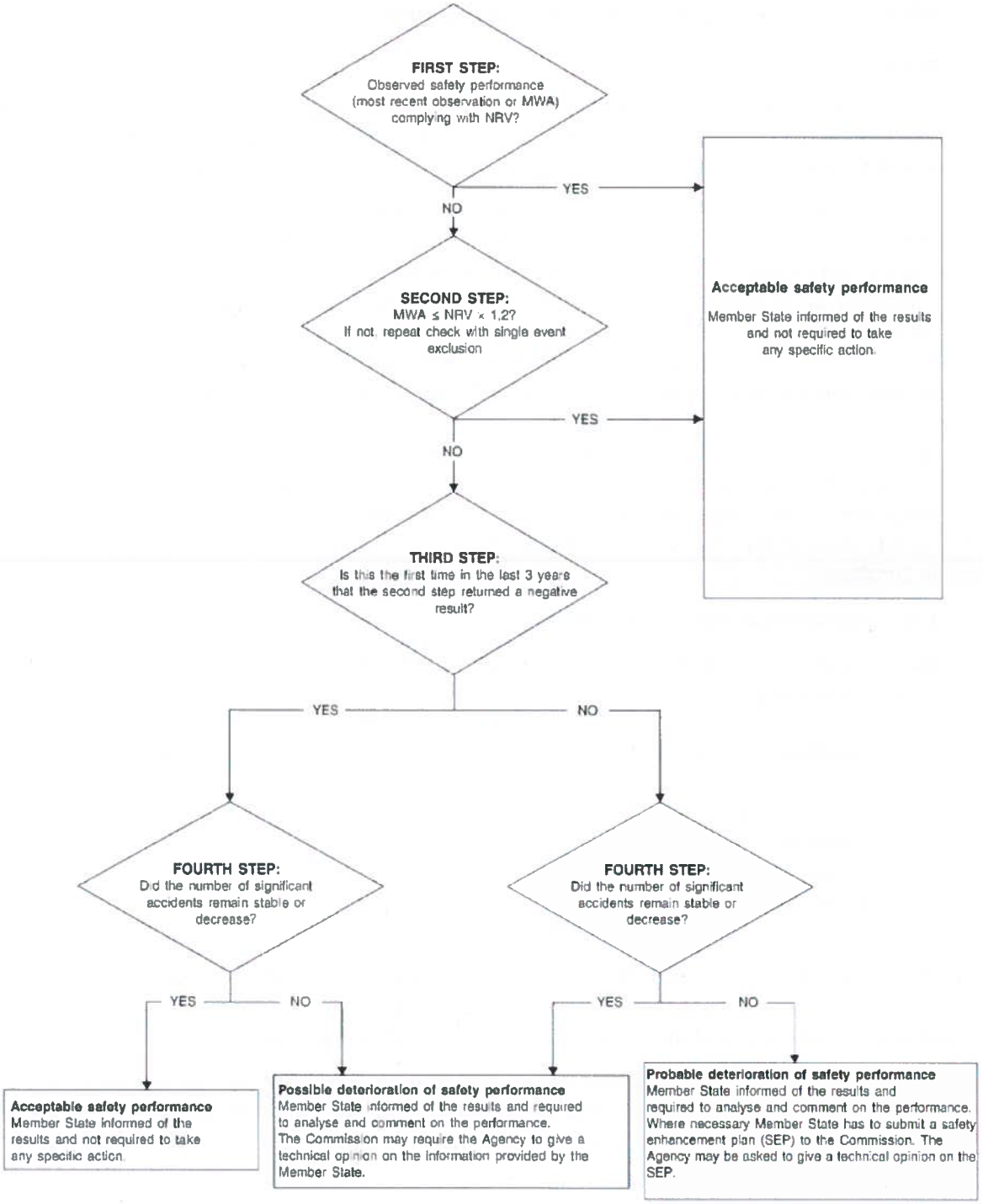


Figure 1 : Decision flowchart for the assessment procedure of CSTs

4. Results of the assessment

4.1. First and second step of the assessment procedure

The majority of Member States achieved a 'passed' result at either the first or second step of the assessment for all risk categories considered, indicating acceptable safety performance (see Figure 1). For seven Member States and Norway, there was a 'failed' result for one or more specific risk categories in the intermediate second step (see Annex and Table 1)[5].

Table 1 : Intermediate results of the 2017 assessment: Member States failing after two steps of the assessment method - after applying the 20 % tolerance.

Risk category	Passengers		Employees	Level crossing users	Others	Unauthorised persons	Whole society
	1.1	1.2	2	3.1	4	5	6
Failing after 2nd step	none	none	Austria Bulgaria Slovakia Sweden	[Norway]	none	Italy [Norway]	Slovakia [Norway]

Note: [ ] in Tables 1-4 and in Annex 3 refer to the fact that Norway is not a MS so the CSM does not formally apply to it.

According to the Annex of the Method [2] describing the assessment method, if the tolerance of 20 % is not met, the Agency shall ask the safety authority of the Member State concerned to provide the specifics of the single highest-consequence accident in the most recent years excluding the years used to set NRV, here namely in the period 2011-2015.

The single highest-consequence accidents were identified in cooperation with Member States (Table 2). Only if this single accident occurring in the period 2011-2015 was more severe, in terms of consequences, than the most severe single accident included in the data used for setting the NRV (years 2004-2009), then it will be excluded from the statistics for the revised calculation. The overview in Table 2 shows whether this was the case.

Table 2 : Single highest-consequence accidents in the period 2011-2015 for Member States failing after two steps of the assessment

MS	NRV	Accident specifics (relevant highest-consequence accident in 2011-2015)	Excluded
AT	2	27/03/2013 – Trains collision in Obereggendorf station resulting in 2 killed and 3 seriously injured employees	No
BG	2	12/07/2014 – Train derailment at the station of Kaloyanovetz resulting in 1 person killed (train driver) and 4 persons seriously injured (employees)	Yes
IT	5	19/10/2012 – Accident to persons in Viareggio Station resulting in 3 persons killed (others)	Yes
SK	2	23/01/2013 – Level crossing accident at section between railway stations Liptovsky Hradok and Liptovsky Mikulas, resulting in 1 killed employee and 1 seriously injured passenger	No
SK	6	17/11/2011 – Level crossing accident at station Velky Meder, resulting in 3 killed LC users	No
SE	2	Four accidents occurred on 15/08/2011, 03/11/2011, 20/09/2012 and 21/01/2015, resulting in 1 employee killed in each accident	No

[5] The NRVs and CST for the risk category 3.2 were not established in the second set due to the lack of data reliability.

[NO]	*3.1*	*28/01/2014 – Level crossing accident near Eidsberg resulting in 1 fatality and 1 seriously injured level crossings users*	*No*
[NO]	*5*	*Few accidents to person resulting in 1 unauthorized person killed in each accident*	*No*
[NO]	*6*	*28/01/2014 – Level crossing accident near Eidsberg resulting in 1 fatality and 1 seriously injured level crossings users*	*No*

The MWA were recalculated for NRVs of MSs where the single highest-consequence accident was excluded from the dataset. The final results of the second assessment step are summarised in Table 3.

Table 3 : Intermediate results of the assessment: Member States failing after two steps of the assessment method (after exclusion of the single highest-consequence accident).

Risk category	*Passengers*		*Employees*	*Level crossing users*	*Others*	*Unauthorised persons*	*Whole society*
	1.1	*1.2*	*2*	*3.1*	*4*	*5*	*6*
Failing after 2nd step	*none*	*none*	*Austria Bulgaria Slovakia Sweden*	*[Norway]*	*none*	*Italy [Norway]*	*Slovakia [Norway]*

The values and the result of the second step are summarized in the Annex 3.

4.2. Third and fourth step of the assessment procedure

Third and fourth assessment steps were applied to the above cases leading to a 'passed' result – acceptable safety performance – for the majority of cases, except the ones summarized in Table 4. Since in some cases it was not the first time in the last three years that the second step returned negative result, the final result of the assessment is "possible deterioration of safety performance" despite the decreasing trend in significant accidents.

Table 4 : Final result of the assessment after applying all four steps of the assessment method.

Risk category	*Passengers*		*Employees*	*Level crossing users*	*Others*	*Unauthorised persons*	*Whole society*
	1.1	*1.2*	*2*	*3.1*	*4*	*5*	*6*
Result after 4th step: possible deterioration	*none*	*none*	*Bulgaria Slovakia Sweden*	*[Norway]*	*none*	*Italy [Norway]*	*Slovakia [Norway]*

For **Bulgaria**, it was the second time in the past three years that the second step returned negative result in the category of Employees (2). Since the number of relevant significant accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Employees (2).

For **Italy**, it was the third time in the past three years that the second step returned negative result for the category of Unauthorized Persons (5). Since the number of relevant significant accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Unauthorized persons (5).

For **Slovakia**, it was the third time in the past three years that the second step returned negative result in the category of Employees (2) and in the category of Whole society (6). Since the number of relevant significant

accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Employees (2) and in the category of Whole society (6).

For **Sweden**, it was the second time in the past three years that the second step returned negative result in the category of Employees (2). Since the number of relevant significant accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Employees (2).

For **Norway**, it was the third time in the past three years that the second step returned negative result for the categories of Level Crossing users (3.1), Unauthorized persons (5) and Whole society (6). Since the number of relevant significant accidents has decreased, the result of the assessment is possible deterioration of safety performance in the categories of Level Crossing users (3.1), Unauthorized persons (5) and Whole society (6).

This completes the eighth assessment on the achievement of the second set of CSTs and NRVs.

4.3. Analysis of the results

The eighth annual assessment of achievements of safety targets led to acceptable safety performance in the categories of passengers (1) and others (4) in all Member States. Possible deterioration of safety performance was identified in the categories of employees (2), level crossing users (3), unauthorised persons (5) and whole society (6).

Employees and unauthorized persons categories are the two categories in which other than acceptable safety performance has been identified most commonly across all annual assessments (see Annex 6).

As regards the category of Employees (2), due to the small number of fatalities for Member States failing in this category (between 0 and 3 fatalities per year), the negative results of the assessment may not necessarily reflect a trend in underlying safety performance, or, more usefully, risk management in this category.

For the EU as a whole, the safety performance remains acceptable in all categories of users with decreasing trends in all accident categories.

4.3.1. Trend in significant accidents

Although not required by the legislation, the Agency used the procedure to give information to the Member States on the possible trends in the number of significant accidents. The third and fourth step of the assessment procedure was applied to examine the data for a trend in the number of significant accidents, which might suggest that safety performance should be looked at more closely in the future. The Agency applied these steps to the data for those Member States and risk categories, which had passed either the first or the second step. The results indicated a 'failed' outcome in the following Member States and risk categories (Table 5).

Table 5 : Member States in which there was statistically significant increase in accident risk in 2015

Risk category	*All significant accidents*	*Accidents involving level crossing users*	*Accidents to persons caused by rolling stock in motion*
Trend in significant accidents neither decreasing nor stable	*Greece* *Poland*	*Hungary* *Poland*	*none*

4.3.2. Data limitations

In the case of Poland, a major discrepancy was noticed between the Eurostat and CSI data for 2015 for the number of significant accidents. However, this had no impact on the result of this assessment, as Poland has not failed after the second assessment step and thus the fourth assessment step was not formally applied. The Agency will of course confirm the correct data with the Polish NSA, but this was not possible in time for

the current assessment. The formal process requires that the Polish Statistical Office corrects the data directly in the Eurostat database, at which point we will be able to update the assessment.

In the case of Slovakia, following the correction of Eurostat data by the Slovakian statistical office in 2013, in the Decision 2013/753/EU [6] amending the second set of NRVs (CSTs), the NRVs for categories of passengers (1.1 and 1.2), emloyees (2) and unauthorised persons (5) have been updated. However, this update did not take into account the category of the whole society (6), which should have been updated as well. The Agency had been alerted about this discrepancy by email from the Slovakian NSA on 22 March 2017. After applying the assessment to the correctly calculated NRVs, the result of the assessment was acceptable safety performance in the category of the whole society (6).

5. Conclusions

The Agency finds that it is not always possible to draw firm conclusions on trends in safety performance in all individual Member States in the framework of safety targets. This is especially the case for categories involving small number of fatalities (e.g. Employees), where the Method is necessarily limited to the small set of lagging indicators collected according to Annex 1 of the Railway Safety Directive [1]. In order to provide more proactive trend analysis, the Agency is developing proposals for wider occurrence reporting and will initiate a wider discussion with stakeholders about the value of numerical safety targets. This will be the basis for the future mandate to the Agency for revising or retaining the current CSM and CSTs.

The Eurostat database is the source of data having precedence over the CSI data, as set out in point 1.1.2 of the Annex of the Method [2]. There is still a limitation associated with reliance on the Eurostat data used for the establishment of the second set of NRVs (e.g. case of Slovakia, as mentioned in chapter 4.3.2.) and for this evaluation, as they are in some cases inconsistent with the CSI data collected by the NSAs and reported to the Agency.

Noting the constraints of using the current set of NRVs as set out in the Method, this 2017 assessment of achievements of safety targets identified "possible deterioration of safety performance" in three categories of railway users in four EU Member States.

In accordance with Article 5 of the Method [2], the Member States that achieved a negative result in this assessment, with a possible deterioration of railway safety in one or more categories, "*shall send to the Commission the likely causes of the results obtained*".

The Commission may consider specifying the deadline and format of the report, since these are not provided in the Article 5 of the Method, as well as underlining the requirements on the content of the report.

Annex 1 References

N°	Description	Reference	Version
[1]	Directive 2004/49/EC of the European Parliament and of the Council on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive)	2004/49/EC (Railway Safety Directive)	Amended by Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community and by Directive 2008/110/EC of the European Parliament and of the Council of 23 December 2008 amending the Railway Safety Directive and by Commission Directive 2009/149/EC of 27 November 2009 amending Directive 2004/49/EC of the European Parliament and of the Council as regards Common Safety Indicators and common methods to calculate accident costs
[2]	Commission Decision on the adoption of a common safety method for assessment of achievement of safety targets, as referred to in Article 6 of Directive 2004/49/EC of the European Parliament and of the Council	2009/460/EC (CSM)	OJ L 150/11, 5 June 2009
[3]	Regulation (EC) No 91/2003 of the European Parliament and of the Council on rail transport statistics	(EC) 91/2003	Amended by Commission Regulation (EC) 1192/2003
[4]	Commission implementing decision of 22 July 2011 on a mandate to the European Railway Agency on the revision of common safety targets and related common safety method for period 2011-2015	C(2011) 5158	22 July 2011
[5]	Commission Decision on the second set of common safety targets as regards the rail system	2012/226/EU	23 April 2012
[6]	Commission implementing decision of 11 December amending Decision 2012/226/EU on the second set of common safety targets for the rail system	2013/753/EU	11 December 2013

Annex 2 Abbreviations

Abbreviation	*Definition*
Agency	European Union Agency for Railways (formerly European Railway Agency, ERA)
CSI	Common Safety Indicator
CSM	Common Safety Method
CST	Common Safety Target
EC	European Commission
ERAIL	European Railway Accident Information Links (Agency's database)
EU	European Union
MS	Member State
MWA	Moving Weighted Average
NSA	National Safety Authority
NRV	National Reference Value
OSP	Observed Safety Performance

Annex 3 Intermediate results of the assessment (after second step)

	Risk to passengers (1.1)				
	*NRV (*10e-9) [2004-2009]*	*OSP (*10e-9) [2015]*	*OSP [2015] < NRV [2004-2009] Yes/No*	*MWA (*10e-9) [2011-2015]*	*MWA ≦ NRV*1.2 Yes/No*
Belgium (BE)	37,3	0,00	Yes		
Bulgaria (BG)	207,00	129,16	Yes		
Czech Republic (CZ)	46,5	55,67	No	27,65	Yes
Denmark (DK)	9,04	3,37	Yes		
Germany (DE)	8,13	5,85	Yes		
Estonia (EE)	78,2	0,00	Yes		
Ireland (IE)	2,74	0,00	Yes		
Greece (EL)	54,7	30,00	Yes		
Spain (ES)	29,2	9,21	Yes		
France (FR)	22,5	11,03	Yes		
Croatia (HR)	176,9	6,72	Yes		
Italy (IT)	38,1	8,35	Yes		
Latvia (LV)	78,2	0,00	Yes		
Lithuania (LT)	97,2	0,00	Yes		
Luxembourg (LU)	23,8	0,00	Yes		
Hungary (HU)	170	46,43	Yes		
Netherlands (NL)	7,43	2,06	Yes		
Austria (AT)	26,3	18,83	Yes		
Poland (PL)	116,1	17,42	Yes		
Portugal (PT)	41,8	3,27	Yes		
Romania (RO)	57,4	55,51	Yes		
Slovenia (SI)	25,3	0,00	Yes		
Slovakia (SK)	62,1	11,71	Yes		
Finland (FI)	9,04	0,00	Yes		
Sweden (SE)	3,54	0,85	Yes		
United Kingdom (UK)	2,73	0,56	Yes		
[Norway] (NO)	2,83	0,02	Yes		

	Risk to passengers (1.2)				
	*NRV (*10e-9) [2004-2009]*	*OSP (*10e-9) [2015]*	*OSP [2015] < NRV [2004-2009] Yes/No*	*MWA (*10e-9) [2011-2015]*	*MWA ≦ NRV*1.2 Yes/No*
Belgium (BE)	0,318	0,000	Yes		
Bulgaria (BG)	1,911	1,743	Yes		
Czech Republic (CZ)	0,817	0,844	No	0,462	Yes
Denmark (DK)	0,110	0,029	Yes		
Germany (DE)	0,081	0,051	Yes		
Estonia (EE)	0,665	0,000	Yes		
Ireland (IE)	0,0276	0,000	Yes		
Greece (EL)	0,503	0,238	Yes		
Spain (ES)	0,270	0,067	Yes		
France (FR)	0,110	0,050	Yes		
Croatia (HR)	1,135	0,028	Yes		
Italy (IT)	0,257	0,053	Yes		
Latvia (LV)	0,665	0,000	Yes		
Lithuania (LT)	0,757	0,000	Yes		
Luxembourg (LU)	0,176	0,000	Yes		
Hungary (HU)	1,650	0,513	Yes		
Netherlands (NL)	0,089	0,017	Yes		
Austria (AT)	0,292	0,174	Yes		
Poland (PL)	0,849	0,141	Yes		
Portugal (PT)	0,309	0,025	Yes		
Romania (RO)	0,607	0,692	No	0,416	Yes
Slovenia (SI)	0,362	0,000	Yes		
Slovakia (SK)	0,883	0,116	Yes		
Finland (FI)	0,110	0,000	Yes		
Sweden (SE)	0,033	0,008	Yes		
United Kingdom (UK)	0,028	0,005	Yes		
[Norway] (NO)	0,033	0,000	Yes		

	Risk to employees (2)				
	*NRV (*10e-9) [2004-2009]*	*OSP (*10e-9) [2015]*	*OSP [2015] < NRV [2004-2009] Yes/No*	*MWA (*10e-9) [2011-2015]*	*MWA ≦ NRV*1.2 Yes/No*
Belgium (BE)	24,6	0,00	Yes		
Bulgaria (BG)	20,40	35,01	No	38,02	No
Czech Republic (CZ)	16,5	17,80	No	16,00	Yes
Denmark (DK)	9,10	15,93	No	3,24	Yes
Germany (DE)	12,6	11,52	Yes		
Estonia (EE)	64,8	0,00	Yes		
Ireland (IE)	5,22	0,00	Yes		
Greece (EL)	77,9	0,00	Yes		
Spain (ES)	8,81	4,76	Yes		
France (FR)	6,06	4,45	Yes		
Croatia (HR)	73,65	60,86	Yes		
Italy (IT)	18,9	0,27	Yes		
Latvia (LV)	64,8	128,17	No	40,97	Yes
Lithuania (LT)	41,0	0,00	Yes		
Luxembourg (LU)	12,0	0,00	Yes		
Hungary (HU)	9,31	12,96	No	10,99	Yes
Netherlands (NL)	5,97	0,00	Yes		
Austria (AT)	20,3	46,94	No	27,56	No
Poland (PL)	17,2	16,62	Yes		
Portugal (PT)	53,1	0,00	Yes		
Romania (RO)	22,3	5,00	Yes		
Slovenia (SI)	40,9	0,00	Yes		
Slovakia (SK)	2,71	45,66	No	27,42	No
Finland (FI)	9,21	2,06	Yes		
Sweden (SE)	2,86	7,20	No	7,32	No
United Kingdom (UK)	5,17	0,35	Yes		
[Norway] (NO)	2,82	0,00	Yes		

	Risk to level crossing users (3.1)				
	*NRV (*10e-9) [2004-2009]*	*OSP (*10e-9) [2015]*	*OSP [2015] < NRV [2004-2009] Yes/No*	*MWA (*10e-9) [2011-2015]*	*MWA ≦ NRV*1.2 Yes/No*
Belgium (BE)	138	115,9	Yes		
Bulgaria (BG)	141,6	94,5	Yes		
Czech Republic (CZ)	238	125,2	Yes		
Denmark (DK)	65,4	15,9	Yes		
Germany (DE)	67,8	51,2	Yes		
Estonia (EE)	400	0,0	Yes		
Ireland (IE)	23,6	0,0	Yes		
Greece (EL)	710	793,6	No	550,38	Yes
Spain (ES)	109	34,3	Yes		
France (FR)	78,7	57,1	Yes		
Croatia (HR)	611,3	461,6	Yes		
Italy (IT)	42,9	23,7	Yes		
Latvia (LV)	239	139,8	Yes		
Lithuania (LT)	522	142,9	Yes		
Luxembourg (LU)	95,9	0,0	Yes		
Hungary (HU)	274	240,7	Yes		
Netherlands (NL)	127	78,3	Yes		
Austria (AT)	160	156,5	Yes		
Poland (PL)	277	288,4	No	283,46	Yes
Portugal (PT)	461	164,2	Yes		
Romania (RO)	542	235,2	Yes		
Slovenia (SI)	364	124,1	Yes		
Slovakia (SK)	309	308,8	Yes		
Finland (FI)	164	133,9	Yes		
Sweden (SE)	64	42,6	Yes		
United Kingdom (UK)	23,5	3,5	Yes		
[Norway] (NO)	21,6	23,1	No	26,19	No

	Risk to others (4)				
	*NRV (*10e-9) [2004-2009]*	*OSP (*10e-9) [2015]*	*OSP [2015] < NRV [2004-2009] Yes/No*	*MWA (*10e-9) [2011-2015]*	*MWA ≦ NRV*1.2 Yes/No*
Belgium (BE)	2,86	0,00	Yes		
Bulgaria (BG)	35,47	0,00	Yes		
Czech Republic (CZ)	2,41	0,64	Yes		
Denmark (DK)	14,2	19,11	No	6,51	Yes
Germany (DE)	3,05	1,06	Yes		
Estonia (EE)	11,6	0,00	Yes		
Ireland (IE)	7,00	0,00	Yes		
Greece (EL)	4,51	0,00	Yes		
Spain (ES)	5,54	4,76	Yes		
France (FR)	7,71	0,00	Yes		
Croatia (HR)	7,28	0,00	Yes		
Italy (IT)	6,70	2,73	Yes		
Latvia (LV)	11,6	0,00	Yes		
Lithuania (LT)	11,6	0,00	Yes		
Luxembourg (LU)	5,47	0,00	Yes		
Hungary (HU)	4,51	0,00	Yes		
Netherlands (NL)	4,70	0,00	Yes		
Austria (AT)	11,1	1,96	Yes		
Poland (PL)	11,6	0,00	Yes		
Portugal (PT)	5,54	0,00	Yes		
Romania (RO)	2,83	0,00	Yes		
Slovenia (SI)	14,50	5,64	Yes		
Slovakia (SK)	2,41	0,00	Yes		
Finland (FI)	14,2	0,00	Yes		
Sweden (SE)	14,2	6,55	Yes		
United Kingdom (UK)	7,00	0,00	Yes		
[Norway] (NO)	14,15	0,00	Yes		

	Risk to unauthorized persons (5)				
	*NRV (*10e-9) [2004-2009]*	*OSP (*10e-9) [2015]*	*OSP [2015] < NRV [2004-2009] Yes/No*	*MWA (*10e-9) [2011-2015]*	*MWA ≦ NRV*1.2 Yes/No*
Belgium (BE)	72,6	34,1	Yes		
Bulgaria (BG)	900,2	560,1	Yes		
Czech Republic (CZ)	301	29,9	Yes		
Denmark (DK)	116	114,7	Yes		
Germany (DE)	113	86,1	Yes		
Estonia (EE)	1550	1194,7	Yes		
Ireland (IE)	85,2	0,0	Yes		
Greece (EL)	723	775,1	No	652,49	Yes
Spain (ES)	168	58,5	Yes		
France (FR)	67,2	44,9	Yes		
Croatia (HR)	676,3	334,8	Yes		
Italy (IT)	119	140,8	No	145,25	No
Latvia (LV)	1310	302,9	Yes		
Lithuania (LT)	2050	514,5	Yes		
Luxembourg (LU)	79,9	0,0	Yes		
Hungary (HU)	588	746,3	No	633,16	Yes
Netherlands (NL)	15,9	0,0	Yes		
Austria (AT)	119	62,6	Yes		
Poland (PL)	1210	840,2	Yes		
Portugal (PT)	834	355,4	Yes		
Romania (RO)	1388,2	816,9	Yes		
Slovenia (SI)	236	0,0	Yes		
Slovakia (SK)	1758	824,1	Yes		
Finland (FI)	249	22,7	Yes		
Sweden (SE)	94,8	57,0	Yes		
United Kingdom (UK)	84,5	38,2	Yes		
[Norway] (NO)	91,8	467,1	No	455,75	No

	Societal risk (6)				
	*NRV (*10e-9) [2004-2009]*	*OSP (*10e-9) [2015]*	*OSP [2015] < NRV [2004-2009] Yes/No*	*MWA (*10e-9) [2011-2015]*	*MWA ≦ NRV*1.2 Yes/No*
Belgium (BE)	275	150,02	Yes		
Bulgaria (BG)	1440	784,20	Yes		
Czech Republic (CZ)	591	218,06	Yes		
Denmark (DK)	218	168,82	Yes		
Germany (DE)	203	154,28	Yes		
Estonia (EE)	2110	1194,67	Yes		
Ireland (IE)	114	0,00	Yes		
Greece (EL)	1540	1596,38	No	1175,03	Yes
Spain (ES)	323	110,40	Yes		
France (FR)	180	115,79	Yes		
Croatia (HR)	1467	760,80	Yes		
Italy (IT)	231	174,93	Yes		
Latvia (LV)	1660	570,93	Yes		
Lithuania (LT)	2590	657,38	Yes		
Luxembourg (LU)	210	0,00	Yes		
Hungary (HU)	1020	1036,11	No	928,85	Yes
Netherlands (NL)	148	80,21	Yes		
Austria (AT)	329	281,63	Yes		
Poland (PL)	1590	1156,98	Yes		
Portugal (PT)	1360	522,32	Yes		
Romania (RO)	1704	1099,56	Yes		
Slovenia (SI)	698	129,70	Yes		
Slovakia (SK)	1130	1187,24	No	1406,63	No
Finland (FI)	417	158,59	Yes		
Sweden (SE)	169	113,92	Yes		
United Kingdom (UK)	120	42,56	Yes		
[Norway] (NO)	51	64,93	No	73,12	No

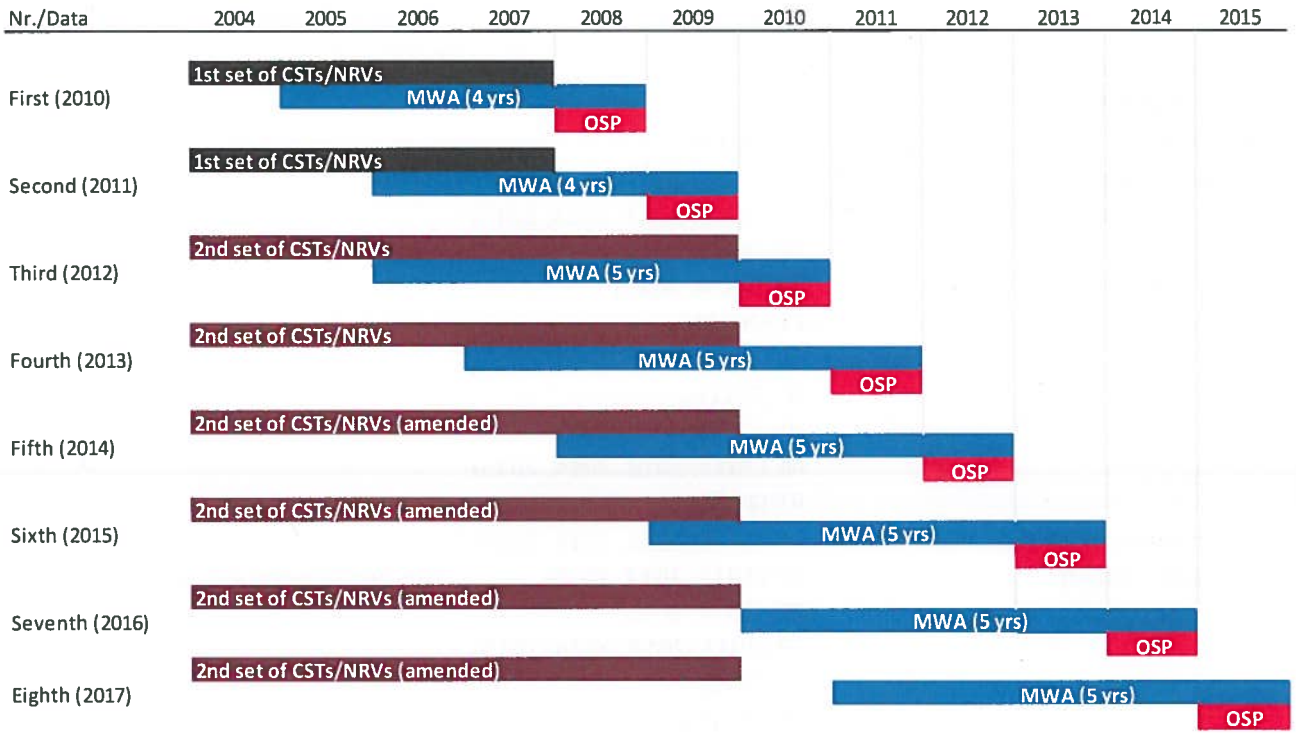
Annex 4 Input data overview

The table below shows the instances in which the CSI data had to be used in place of Eurostat data, as they were not available in Eurobase.

Data category	*Country and year*	*Remark (Eurostat)*
Fatalities and serious injuries (rail_ac_catvict)	none	
Rail accidents (rail_ac_catnmbr)	PL (2015)	
Train movement for all trains Train-km (rail_tf_trainmv)	BE (2012, 2013, 2014, 2015) DE (2011, 2012, 2015) DK (2014, 2015) EL (2012) FR (2011, 2013, 2014, 2015) IT (2011) HU (2015) NL (2012, 2013, 2014, 2015) PT (2014)	Not published due to quality issues.
Train movement for passenger trains Passenger train-km (rail_tf_trainmv)	BE (2012, 2013, 2014, 2015) DE (2011, 2012, 2015) DK (2014, 2015) FR (2011, 2013, 2014, 2015) IT (2011) HU (2015) NL (2012, 2013, 2014, 2015)	Not published due to quality issues.
Train movement Passenger-km (rail_pa_quartal)	BE (2013, 2014, 2015) AT (2011, 2012, 2013, 2014, 2015)	Data are confidential.

Annex 5 Overview of annual assessments

This assessment is the eighth assessment of achievements of CSTs carried out by the Agency. The table below provides an overview of the specificities of all assessments made by the Agency so far in respect to the years considered for these assessments.



Annex 6 Overview of the results of all annual assessments

The results of all assessments carried out by the Agency are summarized in the table below.

Risk category	*Passengers*		*Employees*	*Level crossing users*	*Others*	*Unauthorised persons*	*Whole society*
	1.1[6]	*1.2*[7]	*2*	*3.1*	*4*	*5*	*6*
2010			*Romania*	*Romania*	*Romania*	*Romania*	
2011			*Lithuania*			*Romania* *Slovakia*	
2012						*Sweden*	
2013	*Slovakia*	*Slovakia*	*Romania* *Slovakia* **Bulgaria**		*Romania*	*Romania* *Slovakia* *Sweden*	*Romania*
2014			*Bulgaria* *Romania* *Slovakia* *Sweden*	*Bulgaria*	*(Croatia*[8]*)* *(Romania)*		*[Norway]*
2015			*Romania* *Slovakia*	*Bulgaria*		*Italy* *[Norway]*	*Slovakia* *[Norway]*
2016			*Hungary* *Romania* *Sweden* **Slovakia**	*Bulgaria* *[Norway]*	*Hungary*	*France* *Italy* *[Norway]*	**Slovakia**
2017			*Bulgaria* *Slovakia* *Sweden*	*[Norway]*		*Italy* *[Norway]*	*Slovakia* *[Norway]*

Note: For countries in **bold**, the result of "probable deterioration", for countries in *italic* "possible deterioration" of safety performance. In all other cases, the result was "acceptable safety performance".

[6] *Scaling base: passenger train-km per year.*
[7] *Scaling base: passenger-km per year.*
[8] *The assessment was carried out retrospectively for 2010 and 2011 for Croatia with the results showed here.*