The Railways: SAFETY OF TRANSPORT, SAFETY OF WORK AND SAFETY OF LIFE

Third Railway Safety Framework Document

Published by the
Ministry of Transport, Public Works and Water Management

PO Box 20901 | 2500 EX The Hague, The Netherlands
www.rijksoverheid.nl

June 2010

This document can be downloaded from www.rijksoverheid.nl
The name of the Ministry of Transport, Public Works and Water Management is changed to the Ministry of Infrastructure and the Environment in October 2010. This Third Railway Safety Framework still refers to the 'Ministry of Transport, Public Works and Water Management'. Consequently, as from October 2010 this should be read as the 'Ministry of Infrastructure and the Environment'.
Contents

Summary

1 Introduction
1.1 Reason for and objective of the Third Railway Safety Framework Document 8
1.2 Scope 9
1.3 Approach to the preparation of the Framework Document and its contents 13

2 Context of railway safety policy
2.1 Viewpoint on safety 16
2.2 Results from the evaluation of the Second Railway Safety Framework Document 18
2.3 Developments in railway safety 19
2.3.1 Based on the European context 19
2.3.2 Technology and innovations 21
2.3.3 Utilisation of the railway network and growth ambitions 22

3 Administrative organisation and division of responsibilities
3.1 Partners in safety 24
3.2 Division of responsibilities 24
3.2.1 System responsibility: policy, legislation and supervision 26
3.2.2 Operational responsibility: safety of railway transport 31

4 Policy agenda for 2010–2020: safety of transport, safety of work and safety of life
4.1 Contents of the policy agenda 33
4.2 Objectives 33
4.2.1 Specification of the objectives 33
4.2.2 Selection of indicators 34
4.2.3 Targets 34
4.2.4 European indicators and targets 35
4.3 Activities: based on output control 36
4.4 Monitoring 37

5 Safety of transport
5.1 Objective: Safety of transport in 2020 40
5.2 Safety risk to train passengers 41
5.3 Accidents involving passenger, freight and other trains 44
5.4 Railway infrastructure 46
5.5 Rolling stock 47
5.6 Railway tunnels 50
5.7 Disaster organisation and crisis control 51
5.8 Security 52
5.9 Personal security of passengers 54

6 Safety of work
6.1 Objective: Safety of work in 2020 58
6.2 Prevention of occupational accidents 59
6.3 Training and competence 64
The title of this Third Railway Safety Framework Document is ‘The Railways: SAFETY OF TRANSPORT, SAFETY OF WORK AND SAFETY OF LIFE’. This Framework Document follows on from the Second Framework Document and contains an update of the policy together with an indication of the relationships between the most important railway safety issues and existing and new policy designed to achieve permanent railway safety improvements. This Framework Document was drawn up in an iterative process together with the railway sector and social organisations and, consequently, has broad support.

This Third Railway Safety Framework Document relates both to traditional safety and security. An annex to this Third Railway Safety Framework Document contains the Security on the Railways Policy Document that includes a review of the relationship between the security activities that have already been implemented and new initiatives. The security policy is outlined in Subsection 5.8 of the main text.

The Third Railway Safety Framework Document relates to the medium-term period from 2010 to 2020. An interim evaluation is scheduled for 2015. The end of this period, 2020, is in line with the time horizon of the Mobility Document (Nota Mobiliteit) and the High Frequency Railway Transport Programme (PHS).

The Dutch railways have achieved a high level of safety for many years - also when viewed from an international perspective - whilst the volume of rail transport has increased in recent years and the Dutch railway network is used much more intensively than the networks in other countries. This high level has been achieved by the measures that have been implemented as is demonstrated by the evaluation of the Second Framework Document.

However, at the same time it is necessary to conclude that there is no such thing as absolute safety and that it is unrealistic to expect that incidents or accidents will never occur. It is
The Railways: safety of transport, safety of work and safety of life | 5

necessary to obtain the best possible insight into the risks and implement the appropriate measures to control those risks. Consequently, all parties will need to remain vigilant.

The railway safety policy laid down in the Third Railway Safety Framework Document is based on the provision of assurances for the current high safety level of the railways by endeavouring to achieve permanent improvement. This is included in the Third Railway Safety Framework Document in the form of a Policy agenda for 2010-2020.

The railway safety policy laid down in this Third Framework Document has a pronounced European perspective and is in line with European indicators and definitions. Europe has implemented targets based on rolling averages. In this document the implementation of the rolling targets uses a method which is compatible with the system adopted in the European Union. This is applicable – self-evidently – to the European indicators for which the European Union has already specified rolling targets, as well as to the European indicators for which rolling targets have yet to be specified and the supplementary, non-European indicators included in this document.

This document also outlines a number of developments that have been or are of influence on railway safety and play a role in the implementation of railway safety policy. These relate, in addition to the aforementioned influence of European and national legislation and regulations, on advances such as technological developments and innovations, railway developments such as high frequency rail transport (train services operated without a timetable) and factors including the growth in railway traffic. Where relevant, the significance of these developments is discussed in more detail in the specific themes of the Policy agenda for 2010-2020.

The Minister of Transport, Public Works and Water Management is responsible for the formulation of policy, the performance of the statutory framework, the initiation of new legislation and regulations and the arrangements for and the organisation and performance of the supervision of railway safety. The railway sector is responsible for the safe and secure day-to-day operation of railway transport within this framework and these preconditions.

The Third Railway Safety Document formulates for the themes of the Policy agenda for 2010-2020 (safety of transport, safety of work and safety of life) objectives and then specifies the required results for each theme. The relevant indicators and the targets for these indicators are stated for each result as far as indicators can be linked to the relevant result: quantitative targets cannot be specified for all types of results. Each required result is accompanied by an explanation of the activities that will take place to achieve the intended result (and, in so doing, the objective). These lists of activities are not exhaustive, since the railway sector bears the primary responsibility for the implementation of operational measures.

The evaluation of the Second Railway Safety Framework Document and the consultations with the railway sector served as important input for the selection and specification of the objectives and results.

Since output control is an important characteristic of the control relationship between the Ministry of Transport, Public Works and Water Management and the railway sector this Third Framework Document is also based on output control. Where possible the achievement of the objectives refers to NS Dutch Railway’s Transport Plan and ProRail’s Management Plan and to the annual agreements reached in those plans: for example, NS Dutch Railway’s Transport Plan is required to include a specification of a lower limit for personal security. The Third Framework links up with this process.
This Framework Document implies that all organisations are responsible for achievement of the objectives. Each theme described in this document contains a heading results, listing more specifically the relevant organisations responsible. This assigns these organisations the express responsibility for the achievement of the relevant objective, whereby the organisations are, in principle, free to exercise their discretion in deciding which activities they will carry out to achieve the objective.

On occasion, specific measures have been formulated for some of the organisations bearing a responsibility for safety. On occasion, a number of organisations are responsible for a measure to be implemented to achieve the objective: these measures are accompanied by a specification of the lead party, the party that is expected to play a directional role in the implementation of the relevant measure. Other elements include a statement that a number of parties shall cooperate in the submission of a joint (implementation) plan.

The progress and achievement of the targets specified in this Third Framework Document will be monitored and assured at various levels. Firstly, the responsibilities of the railway companies are laid down in the relevant legislation and regulations. The Inspectorate for Transport, Public Works and Water Management supervises compliance with the safety provisions. Secondly, the parties bear a personal responsibility for safety. The parties are expected to exhibit an adequate approach to safety issues and to cooperate in areas in which their responsibilities interact (such as at the interface between the infrastructure and transport). Thirdly, the Inspectorate for Transport, Public Works and Water Management carries out an annual trend analysis of railway safety that provides a periodic insight into the progress in arriving at the intended results, completing the activities and achieving the targets. Fourthly, the achievement of the targets is – when possible – integrated in the concession relationship between the Ministry of Transport, Public Works and Water Management and the holders of the main railway network transport concession and the main railway network infrastructure management concession, as well as in the concession relationships between the regional authorities and the regional passenger carriers.
The importance of joining forces in the achievement of permanent railway safety improvement is beyond question. Railway safety is not an issue solely for the authorities: safety can be achieved solely in cooperation between the various railway parties, each on the basis of their specific role and responsibility. For this reason the railway sector, the central government, other authorities and companies and organisations affiliated with the railways have long appreciated the need for structural attention to and permanent improvements in railway safety. In addition, in recent times the Member States have put a communal approach to railway safety high on the European agenda.
1 Introduction

1.1 Reason for and objective of the Third Railway Safety Framework Document

Safety on and in the vicinity of the railways is of greatest importance - the safety of the passengers, the employees working on the trains, stations and tracks, the users of level crossings and the residents in the vicinity of the railway.

Railway safety has always attracted a great deal of political and social interest. Railway safety is not an issue solely for the authorities: railway safety is addressed in cooperation between the various railway parties, each on the basis of their specific role and responsibility. The railway sector, the central government, other authorities and companies and organisations affiliated with the railways have long appreciated the need for structural attention to and permanent improvements in railway safety. In addition, in recent times the Member States have put a communal approach to railway safety high on the European agenda.

The First Railway Safety Framework Document was published in 1999, and was followed by the Second Railway Safety Framework Document in 2004, which was titled Veiligheid op de rails ('Safety on the railways'). Both framework documents played a directional role for the railway sector and were drawn up making use of the railway sector’s knowledge and insights.

The Framework Document has since proven its function and value to the railway sector. The Framework Document is an instrument designed both to give account for railway safety to politicians and society and to achieve a safety level on the railways that is acceptable to society. The Inspectorate for Transport, Public Works and Water Management (the IVW)

publishes annual railway safety trend analyses which provide an insight into the degree to which the objectives specified in the Framework Document have been achieved. The Second Railway Safety Framework Document related to the period until 2010. For this reason, in 2009 the Ministry of Transport, Public Works and Water Management carried out an evaluation of the achievement of the objectives specified in the Second Railway Safety Framework Document. In addition to the need for an evaluation of the policy on the expiry of the horizon there were also a number of substantive arguments for an evaluation. A number of developments had taken place since 2004: for example, more knowledge, experience and studies about specific safety issues had become available and European railway safety policy had developed further in the intervening years. In addition, railway transport had grown during this period.

This Third Railway Safety Framework Document, titled ‘The Railways: SAFETY OF TRANSPORT, SAFETY OF WORK AND SAFETY OF LIFE’ contains an update of the policy together with an indication of the relationships between the most important railway safety issues and existing and new policy designed to achieve permanent railway safety improvements. The substantive themes addressed in the Framework Document are supplemented with the viewpoint on the organisation of safety together with the roles and distribution of responsibilities between the organisations involved in railway safety. Consequently, this Third Railway Safety Framework Document addresses the system responsibility for railway safety and cooperation within the railway sector with the objective of achieving the safe day-to-day operation of railway transport.

1.2 Scope

The Third Railway Safety Framework Document addresses the safety of the railways in a broad sense: the Framework Document relates both to ‘traditional’ safety and security. The Security on the Railways policy document is enclosed in Annex A to this Third Railway Safety Framework Document. This policy document lays down the viewpoint on the approach to the control of railway security risks as broadly supported by the railway sector. The contents of the document include a review of the relationship between the security activities that have already been implemented and new initiatives. The outlines of this document are given in Section 5.8.

Security is a relatively new policy and working field: none of the EU member states have yet drawn up a pan-sector, structural approach to the control of railway security risks. The aviation and shipping sectors’ approaches have been found to be inapplicable to the railway sector. The Security on the Railways Document takes the first step towards a specification of the approach to the security of the Dutch railways, an approach that will need to be elaborated and detailed in the coming years.

Term

The Third Railway Safety Framework Document relates to the medium-term period from 2010 to 2020: the end of this period, 2020, is in line with the time horizon of the Mobility Document (Nota Mobiliteit) and of the High Frequency Railway Transport Programme (PHS). An interim evaluation is scheduled for 2015.

Applicability

The Railways Act that came into force on 1 January 2005 classifies the railways into three categories, namely main railway lines, local railway lines (tram and metro lines) and special railway lines (museum railway lines and junction railway lines). The Railways Act currently

---

2 The definition of these terms is enclosed in Annex C (Glossary).
3 Within this context ‘railway sector’ refers to the infrastructure manager and the railway carriers.
governs the main railway lines. It should be noted that branch railway lines were designated as main railway lines as from 1 January 2010.4

The policy laid down in the Third Railway Safety Framework Document is compatible with railway legislation and is focused on railway transport on railway lines designated as main railway lines by Royal Decree. This relates to railway lines with an infrastructure that is managed and maintained on the request of the Minister of Transport, Public Works and Water Management.

The responsibility for the management and maintenance of tram and metro lines has been vested with the plus-regions and provinces. Pursuant to the prevailing legislation5 the Minister of Transport, Public Works and Water Management supervises the inter-local tram lines and city railway lines (metro lines). The supervision of city tram lines and similar tram lines was decentralised in 1920.

The legislation and regulations will continue to be applicable until the new Wet lokaalspoorwegen (‘Local Railway Lines Act’) comes into force (the provisional contours of this new Act are outlined in the following box). This new Act is being prepared for tram and metro lines since the current legislation and regulations6 are fragmented and outdated: they are no longer compatible with today’s administrative relationships and responsibilities. The new local railways legislation and regulations are expected to come into force in 2011.

---

**Provisional contours of the new Wet lokaalspoorwegen (‘Local Railway Lines Act’)**

The current classification of local railway lines into city tram lines, tram lines equivalent to city tram lines, interlocal tram lines and city railway lines is no longer tenable: the administrative relationships relating to the construction, management and operation have changed, as have the insights with respect to safety in tunnels. The government and cities no longer bear the responsibility for these railway lines, which has now been assigned to the plus-regions7 and provinces. Spatial planning procedures have also changed, as a result of which tram and metro services are increasingly adopting an urban district role.

The new legislation and regulations make arrangements for the responsibilities relating to the local railways that are compatible with decentralisation and provide assurances for safety by means of adequate safety management and independent

---


6 The following acts and regulations govern the tramways and city railways (metro); the Railways Act (1875); ‘Local Railways and Tramways Act’ (1900); ‘Construction of Local Railways and Tramways Act’ (1917); ‘Tramways Regulations’ (1920); ‘Stray Currents Act’ (1924); (Metro Regulations’ (1981).

7 This relates to the following seven regions: City Region of Amsterdam (SRA), City Region of Rotterdam (SRR), City Region of Haaglanden (SGH), Administrative Region of Utrecht (BRU), City Region of Arnhem-Nijmegen (SAN), Region of Twente and City Region of Eindhoven (SRE).
Pursuant to the new legislation the decentral authorities grant the local railway carrier a concession for the operation of public transport on the local railway line in accordance with the Passenger Transport Act, 2000. The decentral authorities designate a manager of the infrastructure. The manager and carrier carry out their operations in accordance with a safety assurance system. The regulations include a stipulation of the criteria to be met by the safety assurance system implemented by the carrier and manager. The supervision is carried out by an independent supervisor designated by the provinces and plus-regions unless the railway line is a local railway line that connects directly to a main railway line and is used by through services, when the Inspectorate for Transport, Public Works and Water Management – in its role as an independent supervisor – supervises the entire railway line comprised of main railway line and local railway line. The independent supervisor reports to the decentral authorities.

The classification of the infrastructure no longer makes a distinction with respect to tram and metro lines, which are now regarded as local railway lines. The legislation and regulations impose functional requirements on the safety of these local railway lines.

Transport on special railway lines, in analogy with local railway lines, does not fall under the primary scope of this Framework Document. Most special railway lines are privately-owned railway lines that have traditionally been operated with little involvement of the Ministry of Transport, Public Works and Water Management. The extensive safety regulations governing the main railway lines laid down in the Railways Act are not applicable to special railway lines. However, the Minister can be regarded as the party bearing the system responsibility for the formulation of the legislation and regulations intended to guarantee the safety of special railway lines.

Further legislation is also being developed for the special railway lines (see the following box). This makes clear that the special railway lines cannot constitute an integral element of the policy laid down in this Framework Document, since the characteristics of the special railway lines are too specific and the system of safety requirements differs too greatly from that for the main railway network. The legislation for the special railway lines is still under development. However, this does not imply that there are no interfaces: the relevant trends and insights relating to the main railway network addressed in this Framework Document will be taken into account during the development of the new regulations for the special railway lines.

Provisional contours of the new regulations for the special railway lines.

'Special railway lines' refers to a residual category that was introduced when the new Railways Act came into force in 2005. This category relates to sections of railway line that are not designated as main railway lines or local railway lines. In practice, special railway lines are largely comprised of two types of railway lines located at the extremities of the railway network, namely private junction railway

---

8 This relates to the railway lines for which the decentral authorities make arrangements for both the management of the infrastructure and the operation. In fact, this relates to the metro networks in Amsterdam and Rotterdam, the tram networks in Amsterdam, Rotterdam, The Hague and Utrecht (the SUN line), RandstadRail and, in the future, the section of the Ringouwelijn railway line that is not part of the main railway lines and the rail connections outside the main railway network to be constructed in the future.
lines and museum railway lines. The regulations currently governing these types of railway lines are also fragmented and outdated.¹

The special railway lines have a structure that is relatively simple in comparison with the main railway lines: the majority are short railway lines used by trains travelling at low speeds and which do not form complex networks with intensive services. The owner relationships, management and operations of special railway lines vary, although in general the railway lines are controlled by the company accessed by the junction railway line or the museum organisation that makes use of the relevant railway line.

These characteristics will be determinative for the development of the new regulations. The current regulations include many articles that are no longer compatible with the manner in which the operation of the special railway lines is now organised. Nor do the regulations include an unequivocal specification of the party responsible for safety assurance. This will be clarified, whereby the regulations will be based on the manner in which safety management is currently conducted. The museum organisations have already implemented a safety assurance system that is prescribed by their sectoral association and is standardised. The system is supervised by the Inspectorate for Transport, Public Works and Water Management. The safety assurance systems for the larger companies’ junction railway lines are often already integrated in the safety assurance system for the entire company site as the majority of these junction railway lines are located on the company site. The Inspectorate for Transport, Public Works and Water Management’s involvement in the sidings located on company sites is limited solely to specific regulations for dangerous goods. Another factor of importance to safety assurance on sidings relates to the ‘visiting’ rail carriers, carriers that make use of the main railway lines to access the junction railway lines and, consequently, are governed by the stringent safety requirements applicable to the main railway lines. These requirements govern the competence of the employees, the technical requirements imposed on the rolling stock and the implementation of the appropriate working methods and a safety assurance system.

The current regulations applicable to the authorities’ supervision of these railway lines are also outdated and unclear Consequently, an amendment of the regulations to accommodate the current, modern insights into the role and duties of a supervisor would be a logical step. These amendments could be based on the supervisory system the Inspectorate for Transport, Public Works and Water Management has developed for museum railway lines.

Level crossings are an important point for attention during the formulation of the legislation for the special railway lines, since incidents involving road traffic on level crossings have regularly occurred while freight trains were being shunted. The new legislation will need to formulate an appropriate framework that will enable the parties involved to implement the measures needed to provide adequate protection to the users of level crossings. In addition, assurances will need to be provided for the adoption of safe working methods when passing level crossings.

¹ The most important regulations for junction railway lines are the Reglement op de Raccordementen (‘Sidings Regulations’, 1966) and the Reglement Dienst hoofd- en Localspoorwegen (‘Main and Local Railway Line Services Regulations’, 1977). The following legislation and regulations govern museum railway lines: the Railways Act (1875); Localspoor en Tramwegwet (‘Local Railways and Tramways Act’) (1900); Wet aanleg Localspoor en Tramwegen (‘Construction of Local Railways and Tramways Act’) (1917); Tramwegreglement (‘Tramways Regulations’) (1920) and the Reglement Dienst hoofd- en Localspoorwegen (‘Main and Local Railway Line Services Regulations’, 1977).
1.3 Approach to the preparation of the Framework Document and its contents

The preparation of the Third Railway Safety Framework Document can be characterised as an iterative process carried out in collaboration with the stakeholders. This process began with an evaluation of the Second Railway Safety Framework Document in 2009. The Ministry of Transport, Public Works and Water Management requested the Kwink Groep to carry out this evaluation.

Supervision by the Steering Committee
The assessment of the evaluation of the Second Framework Document and subsequent preparation of the Third Framework Document was carried out by a Steering Committee comprised of representatives from NS Dutch Railways, ProRail, the Royal Dutch Association of Transport Companies (KNV), the Inspectorate for Transport, Public Works and Water Management and the Ministry of Transport, Public Works and Water Management’s railway transport policy directorate. The Steering Committee adopted the plan of approach and served as a sounding board during the assessment of the interim results. The Steering Committee was also involved in the preparations for the consultation meetings with representatives from the railway sector and social organisations.

Involvement of the railway sector and social organisations
Assurances for the quality and support of the Third Railway Safety Framework Document could be provided solely by involving the relevant parties in the substance of the Framework Document in good time. For this reason (consultation) meetings with parties in the railway sector were organised on a number of occasions during the preparation of the Third Railway Safety Framework Document. A number of social organisations were also involved in these consultations.

A kick-off meeting was held with these parties in February 2009 to explain the plan of approach. This offered the parties an opportunity to state their perception of their involvement in the process and the substance of - in the first instance - the evaluation of the Second Framework Document. Some forty parties were subsequently consulted on the substance: they submitted information about the achievement of the objectives specified in the Second Framework Document. Possible priority themes for the Third Framework Document were also explored. An analysis workshop was organised in May 2009 for a discussion of the provisional results from the evaluation. From the summer of 2009 the focus shifted from a review of the past to a review of the future. A large-scale meeting with parties from the sector and social organisations was organised in December 2009. During the workshop the various parties exchanged ideas about the content of the Third Railway Safety Document and reached follow-up agreements on the process. Copies of the draft Third Framework Document were officially presented to these parties in February 2010 for the consultation round. This iterative process ultimately resulted in the broadly-supported Third Railway Safety Framework Document.

The contents of the Security on the Railways Document
The Railways: Safety of transport, Safety of work and Safety of life - these are the main themes of this Third Railway Safety Framework Document. These main themes are elaborated to give shape and substance to the railway safety policy priorities.

The next section, Section 2, outlines the context of railway safety policy and reviews the viewpoint on safety and the principles for the formulation of safety policy. The Section also outlines relevant (European) developments.
Section 3 discusses the organisation of railway safety and the division of responsibilities, with a review of the players, partners in safety, and a discussion of the system responsibility for railway safety.

Sections 4 to 8 inclusive lay down the policy agenda for 2010-2020. This policy agenda contains an as specific as possible summary of the current and future policy issues, the intended results, the current initiatives and new measures to be implemented. Section 4 contains an introduction to and explanation of the policy agenda, together with an explanation of the organisation of the monitoring and communication relating to the Third Framework Document. Sections 5 to 7 respectively discuss the 'Safety of transport', 'Safety of work' and 'Safety of life' themes. Section 8 concludes with a discussion of the overall objective which includes a number of general issues for attention.

Section 9 contains the financial section accompanying the Third Framework Document.

The Framework Document is completed with the following annexes:
- ‘Security on the Railways’ Document (Annex A)
- Summary of the quantitative targets of this Third Railway Safety Framework Document (Annex B)
- Glossary (Annex C).
2. Context of railway safety policy

2.1 Viewpoint on safety

Viewpoint on safety: permanent improvement
The endeavours to achieve permanent improvement are based on the structural reduction of the probability of fatalities, injuries and damage. Even when the relevant targets have been achieved it will certainly be necessary to continue to implement measures that are beneficial to safety provided that they are desirable, feasible and economical (‘from good to better’). This is also referred to as the As Low As Reasonably Practicable principle (ALARP).

The second core element of the viewpoint relates to the approach to use a number of scenarios in which an increasing ambition level is related to costs, results and feasibility. This ensures that the choices available to politicians and society are transparent.

The third element of the viewpoint on safety relates to the recognition and acceptance of risks, a process that results in the insight that safety extends beyond solely the implementation of preventive measures: the recognition of the effects and consequences of incidents and the control of those effects is of equal importance.

The fourth core element is the performance of safety management as an important condition to be met for the achievement of permanent improvement and the control of safety issues in a structural, preventive manner.

In combination, the first two elements of the viewpoint on safety result in endeavours to achieve permanent improvement in a manner in which safety is part of an integral assessment that also takes due account of cost effectiveness.
Safety chain
A range of measures can be distinguished within the safety chain:

- **Pro-action**: the elimination of structural causes of threats and the prevention of their materialisation. Pro-action in the earliest phase of the planning process can be of assistance in the recognition and prevention of hazards (for example, by including safety regulations in a schedule of requirements and by providing safety recommendations during spatial and infrastructural planning);

- **Prevention**: the elimination of the immediate causes of threats and the minimisation of the consequences of the materialisation of threats;

- **Preparation**: plans to be implemented in the event that threats materialise, such as the formulation of a contingency plan to control any disaster that occurs. This link in the safety chain also extends to issues such as courses, training and drills, the presence of the appropriate equipment, the formulation of procedures and preparations for the provision of information;

- **Repression**: the limitation and control of any threats that materialise and the provision of first aid in emergencies;

- **Follow-up**: everything required to return to the normal situation and conditions as soon as possible after the incident. This also extends to taking care of those involved in the incident (including the employees) and the preparation of a report and evaluation of the incident.

Core elements of the view on safety

- endeavouring to achieve permanent safety improvements, whereby interim targets and objectives such as milestones can be set;
- making the measures and the associated costs transparent and submitting them as choices to the political arena and society;
- preparing for unavoidable risks (there is no such thing as absolute safety);
- implementing or making arrangements for the implementation of safety management and a safety culture within organisations and maintaining the safety management system/safety culture.
These links are not autonomous elements: they are integral elements of a chain since they have a mutual influence on each other. Each party, depending on the relevant safety theme, will play a role in one or more of these links.

2.2 Results from the evaluation of the Second Railway Safety Framework Document

The Dutch railways have achieved a high level of safety for many years, as is demonstrated by the Inspectorate for Transport, Public Works and Water Management’s annual railway safety trend analyses. An external study carried out in 2008 also revealed that the Netherlands achieves average or above average scores for railway safety indicators as compared to other European countries.\(^\text{10}\) In addition, developments in railway safety have been followed since the railways legislation came into force.\(^\text{11}\) These findings have led to the conclusion that the favourable development of railway safety levels has continued and


\(^{11}\) This is detailed in the sub-report on the evaluation of the long-term monitoring of performance and the effects of one measurement, the Inspectorate for Transport, Public Works and Water Management’s annual trend analyses and the McKinsey report.
that no deterioration in safety levels has taken place.

The 2009 evaluation of the achievement of the Second Railway Safety Framework Document reveals favourable developments in all fields - and this whilst the volume of passengers and freight carried by railway (passenger and freight tonne kilometres) has increased in recent years and the Dutch railway network is used much more intensively than the networks in other countries: for example, during the period from 2005-2007 the number of parties with an access agreement increased from 22 to 30 and the number of train kilometres increased from 127 million to 143 million.

A large number of measures designed to increase and maintain high levels of safety have also been implemented during the period between 2005 and 2010. The policy is focused on providing assurances for a high level of safety by endeavouring to achieve permanent improvements. However, the safety of track workers and the number of signals passed at danger (what are referred to as SPADs) continue to give cause for concern and, consequently, have been assigned priority in railway safety policy. All parties in the railway sector will need to continue to devote a great deal of attention to these issues.

The policy agenda - enclosed in this Third Framework Document - summarises the results from the evaluation of each issue.

2.3 Developments in railway safety

This subsection outlines a number of developments that have been or are of influence on railway safety and which, consequently, play a role in the implementation of railway safety policy. These relate, for example, to the influence of European and national legislation and regulations, technological developments and innovations, railway developments such as high frequency rail transport (train services operated without a timetable) and the growth in railway traffic. The significance of these developments is examined in more detail, where relevant, in the discussions of the specific policy themes in the following sections.

2.3.1 Based on the European context

The railway sector is acquiring an increasingly international character: the development of policy and formulation of regulations increasingly take place in an international environment. This process began in the nineteen-nineties and is continuing at an accelerating pace. The technical railway regulations are increasingly being developed on an European scale rather than at a national level. Dutch railway companies are increasingly active outside the Netherlands and foreign railway companies are increasingly active in the Netherlands.

The European Union’s railway agency (ERA) was founded in 2004, and has since evolved into the leading centre of expertise and preparatory body for European railway regulations. The directives of relevance to railway safety, the Interoperability Directive and the Railway Safety Directives, were amended in 2008: these directives now form a coherent basis for a very wide range of implementation regulations relating to railway safety.

This relates to the amended Railway Safety Directive\(^1\) and the amended Interoperability Directives\(^2\). These amendments have not resulted in major changes to the existing system. The amendments, based on experience gained in practice, have clarified the roles to be played by the existing players and improved the requisite procedures. The objective of both directives is to provide assurances for safety, improve safety and enhance access to

\(^2\) 96/48 and 2001/16
the market for railway transport services. Since these two directives elaborate a number of railway safety issues in more detail this means the international context is leading for future national legislation and regulations. 14

Pursuant to these directives, for example, the safety management systems (SMSs) of the Member States must be based on the contours outlined in the Railway Safety Directive 15. In addition, the ERA intends to publish a guideline to clarify the criteria to be met by SMSs. The ERA is preparing a proposal for this guideline which specifies a large number of detailed criteria. The national safety authorities will ultimately use these criteria for the assessment of SMSs prior to the issue of safety certificates. The Inspectorate for Transport, Public Works and Water Management has been appointed the Netherlands’ national safety authority on behalf of the Minister of Transport, Public Works and Water Management. The scope of the statutory obligation to implement an SMS is also expected to be expanded: for example, the implementation of an SMS will become obligatory for parties such as trainers, examination institutes and workshops. The ERA will also prepare a guideline for the national inspectorates which explains how they can supervise the relevant railway company’s compliance with the SMS. In addition, the ERA submitted proposals that have since resulted in the adoption of regulations governing the assessment criteria and the model (format) of the safety certificates.

European Common Safety Indicators (CSI) were adopted in 2009. 16 The Member States’ national safety authorities will use these indicators to report their safety performance to the ERA. The ERA will then be able to compile a biennial report on developments in the safety of

14 These are mainly longstanding principles for the safety domain. These still need to be detailed for the ‘new’ security field (to the extent that they cannot be derived from the Security on the Railways Policy Document). The principles for Safety Management Systems, Common Safety Indicators and Common Safety Methods certainly still need to be formulated for the security domain.
15 Annex C to 2004/49/EC
the European Union’s railway traffic. The Inspectorate for Transport, Public Works and Water Management has already implemented these CSIs and devotes specific attention to the indicators in its annual trend analyses.

The first set of Common Safety Methods (CSM) for risk analyses has been adopted. A regulation imposes an obligation on railway companies to evaluate the risks by using a standardised method to analyse and assess the risks. The objective of the Common Safety Methods is to maintain or to improve the level of safety on the EU’s railways, when and where necessary and reasonably practicable. The Common Safety Methods are also intended to harmonise access to the market for railway services and, in so doing, simplify access.

The European reference framework for the railway safety system is not yet complete: European and national targets and definitions are not always compatible at present. The CSM system will be expanded and the scope will be increased. The Common Safety Targets (CST) have yet to be adopted, although a method has been adopted for the specification of these targets. What are referred to as National Reference Values (NRV) have been adopted for each Member State: the ERA specifies the Dutch NRVs on the basis of the information the Inspectorate for Transport, Public Works and Water Management submits on behalf of the Netherlands.

The recent Interoperability Directive\textsuperscript{17} is implemented via many documents that have already been published or will be adopted within the near future. The most important documents are the Technical Specifications Interoperability (TSIs): All TSIs for the high-speed railway network have been readopted, together with seven TSIs for the conventional network. Four TSIs for the conventional network will follow. The ERA will amend the TSIs at periodic intervals. Decisions have also been reached on the registration of rolling stock and the numbering of rolling stock.

A separate TSI lays down further specifications for tunnel safety. Europe promotes safety systems based on the use of the European Rail Traffic Management System (ERTMS) and the ERTMS’ implementation in new trains. The EU has reached binding agreements with the Member States on the implementation of ERTMS in the European railway corridors. The European Commission is currently preparing a European implementation plan which is based on the national plans.

The Train Driver Directive that was adopted at the end of 2007 is of relevance to safety (in general). This Directive lays down international regulations for the train drivers’ competence and training, and lays down a framework that ensures that train drivers are no longer restricted to the railways within their national borders and can operate on an international scale.

European legislation often has fewer consequences for the Netherlands since the Netherlands is in the vanguard of the implementation of the safety and interoperability directives. However, the scope for Dutch national supplementary requirements is decreasing: when the Netherlands and the other Member States continue to make an active contribution to the legislative programme being prepared within the ERA then the need to implement supplementary national requirements may be reduced and these supplementary requirements may even become superfluous.

\subsection{Technology and innovations}

Numerous technological developments and innovations result in increased safety: for example, mobile workplaces have been developed and commissioned for rail maintenance Systems have also been developed for video inspections of the track (inspections of

\textsuperscript{17} Interoperability Directive 2008/57/EC.}
the track using a train equipped with video cameras). Innovations are resulting in continual improvements in the collision safety of new trains and an Online Systeem Vervoer Gevaarlijke Stoffen (‘Online registration system for the Transport of Dangerous Goods’, OVGs) contains information about the transport of dangerous goods that enables the emergency services to work faster and more effectively following a disaster. In addition, an improved version of the Netherlands’ ATB automatic train protection system (ATB-Vv) is being introduced and ERTMS is being installed on a number of track sections. The new public transport smart card can result in a further improvement of personal security in the trains and at the stations. Track workers active on the A15 track section of the Betuweroute railway line can make use of a newly-developed handheld terminal introduced as part of the railway line’s ERTMS system: the track worker is then certain that the track is safe for work since any trains approaching the track section will be stopped automatically.

These and other innovations contribute to an improvement in safety levels. However, innovations and new working methods can give cause to (new) safety risks, for example because those involved are still unfamiliar with the methods (and may make errors) or because the methods may still suffer from teething problems. The challenge is then to ensure that the existing regulations do not impede the introduction of desirable innovations and that measures are implemented to correct any undesirable side-effects of new innovations and methods.

### 2.3.3 Utilisation of the railway network and growth ambitions

A number of passenger and freight carriers are active on the Dutch railway network. The responsibility for the operation of a number of regional train services has been decentralised to the provinces and plus-regions, which conclude contracts for these operations following periodic tendering procedures. As a result, regional passenger carriers are active alongside NS Dutch Railways and the decentral authorities are more directly involved in the planning of the services and in the connections between the national railway network and the regional networks. Pursuant to the European regulations freight carriers have free access to the railway network.

The utilisation rate of the Dutch railway network is very high: Approximately 16 thousand million passenger kilometres are travelled every year, and about 44 million tonnes of goods are carried per annum. The Balkenende IV Government specified a railway passenger transport growth ambition of 5% per annum (2007 coalition agreement). The growth in the use of the railway network is expected to grow further in the period until 2020, as is demonstrated by the national market and capacity analyses (LMCAs) and the transport plan studies carried out for the High Frequency Railway Transport Programme (PHS). The objective of the PHS is to introduce high-frequency railway transports on the busiest railways in the broad Randstad conurbation and to arrive at a future-proof route strategy for railway freight transports.

The initiators of planned further increases in the frequency of rail transports carry out risk analyses prior to the implementations of the plans to provide the necessary assurances for the retention of the current level of railway safety and, where possible, to achieve permanent improvements in the level. The level crossing situation is also taken into account within the context of the PHS plan studies and the budgets adopted for the PHS include funds for the improvement of any level crossings that are found to be necessary.
3 Administrative organisation and division of responsibilities

3.1 Partners in safety

The figure on the adjacent page shows the organisations that play a role in the promotion of or the provision of assurances for the three central themes of this Framework Document that are also at the centre of the figure, namely the Railways: safety of transport, safety of work and safety of life.

3.2 Division of responsibilities

In the first instance the legislator’s Railways Act states that no party may act in a way that could cause hazards on the railways.18 The Act also states that violations are an offence.19 The Penal Code states that causing a hazard ‘to traffic by mechanical power on a railway’ is a criminal offence, whereby deliberately causing a hazard results in a harsher punishment.20

The legislator’s Railways Act and the regulations based on the Act assign the relevant responsibilities, duties and powers to the various parties by means of mandatory and prohibitory provisions and the attribution of duties and powers. The legislator has delegated regulatory powers relating to the safety of the infrastructure, rolling stock and the employees and the use of the railways to the government and the Minister. The Railways Act assigns these outline responsibilities, duties and powers relating to the safe operation of the entire system to those bearing the primary administrative responsibility, namely the

---

18 Railways Act, Article 3.
19 Railways Act, Article 86, second paragraph.
20 Dutch Penal Code, articles 165 and 164.
government (policy), the supervisory agencies, the manager of the infrastructure and the railway companies.

The Minister of Transport, Public Works and Water Management bears the responsibility for the safety framework governing rail transports and the infrastructure, a responsibility which the Minister discharges by formulating strategic policy and the legislation and regulations required for the implementation of the policy.

A variety of orders in council and ministerial regulations detail railway safety regulations.

Pursuant to the Railways Act the Minister is assigned the duty of assessing whether railway companies that have been issued an operating permit come into consideration for a safety certificate. The Minister has the duty of supervising compliance with the provisions laid down by or in accordance with the law and, consequently, provisions relating to safety. The Inspectorate for Transport, Public Works and Water Management carries out this supervision on the Minister’s behalf. The Ministry of Transport, Public Works and Water Management, in particular the Inspectorate for Transport, Public Works and Water Management, is also deemed to be the safety authority as referred to in the Railway Safety Directive.

---

21 Railways Act, 32 through 35.
22 Railways Act, Article 69.
23 Besluit aanwijzing toezichthouders spoorwegen (‘Ministerial Order on the designation of railway supervisors’) and Instellingsbesluit Inspectie Verkeer en Waterstaat (‘Decree establishing the Inspectorate for Transport, Public Works and Water Management’).
24 Instellingsbesluit Inspectie Verkeer en Waterstaat (‘Decree establishing the Inspectorate for Transport, Public Works and Water Management’), Article 2, second paragraph.
A distinction can be made between system responsibility and operational responsibility for the safety of rail transports. The Minister of Transport, Public Works and Water Management bears the system responsibility for the safety of the main railway network.

### 3.2.1 System responsibility: policy, legislation and supervision

System responsibility relates to the organisation and performance of the system as such (and the responsibility for the creation of the requisite conditions), the determination and specification of the regulations, division of responsibilities and the organisation of supervision.

Consequently, the Minister of Transport, Public Works and Water Management is responsible for the formulation of policy, the performance of the statutory framework, the initiation of new legislation and regulations and the institution, organisation and performance of the supervision of railway safety. This system responsibility is given shape in the form of:

- The formulation and adoption of railway safety policy in documents including the Railway Safety Framework Document;
- The formulation of mandatory and prohibitory provisions and requirements in railway legislation governing the railway sector;

#### Organisation of system safety

The organisation of the Minister of Transport, Public Works and Water Management’s system responsibility is in line with the Railway Safety Directive which states that: “All those operating the railway system, infrastructure managers and railway undertakings, should bear the full responsibility for the safety of the system, each for their own part. Whenever it is appropriate, they should cooperate in implementing risk control measures. Member States should make a clear distinction between this immediate responsibility for safety and the safety authorities’ task of providing a national regulatory framework and supervising the performance of the operators.”

#### Policy

A distinction can be made between four phases in the development and review of policy. These are shown in the following figure.

#### Legislation and regulations

The current railway legislation came into force on 1 January 2005. The entry of this railway legislation into force did not result in major changes in railway safety regulations: nor was this the intention. The legislation has given the safety requirements that had already been imposed in practice for some years a public-law basis. The Railways Act and the regulations based on the Act have assigned the safety responsibilities, duties and powers to the various ‘railway parties’ by means of mandatory and prohibitory provisions and the attribution of

---

27 Preamble, under 5, of 2004/49/EC.
28 Deming Circle method: Plan, Do, Check, Act.
**The Railways: safety of transport, safety of work and safety of life | 27**

**DO**
Specification of preconditions. Directing ProRail and NS Dutch Railways, consultations with parties in the sector and other authorities. Detailing (examples):
- NS Dutch Railway’s transport concession,
- ProRail’s management concession,
- shareholdership in NS Dutch Railways and ProRail,
- concession agreement with HSA,
- subsidies, LOCOV, OVS and SPAD working party,
- suicide approach (with VWS),
- railAlert Foundation.

**ACT**
Updating policy, formulation of new or supplementary policy, initiatives for new risk analyses. Detailing (examples):
- Government position on railway legislation,
- Beter Geregeld (‘Regulated Better’), policy evaluations, specific evaluations (such as Op de Rails (‘On the rails’) and ProRail ICT systems),
- provision of information and giving account to the House of Representatives of the States-General.

**PLAN**
Strategic policy. Legislation and regulations, specification of results to be achieved. Detailing (examples):
- Railways Act, Railway Safety Framework Document, implementation of national/international directives, level crossing policy,
- SPAD sector policy and ATB-Vv project.

**CHECK**
Enforcement, monitoring of results achieved, initiation of supplementary safety measures. Detailing (examples):
- Progress reports and meetings with ProRail/NS Dutch Railways, IVW trend analyses, IVW theme and incident reports, audits and investigations by Dutch Safety Board.
duties and powers and the stipulation of, for example, job and training requirements for professions of importance to safety (such as the profession of train driver). The last amendments were made in May 2007, in connection with the implementation of the European Railway Safety Directive (2004/49/EC). Some further amendments are expected in the second half of 2010.

Pursuant to the Railways Act the responsibility for the day-to-day implementation of railway safety has shifted more towards the parties in the railway sector. This has been achieved by means such as the incorporation of a duty of care in the concessions granted to NS Dutch Railways and ProRail and the introduction of a mandatory SMS requirement for all railway companies. The infrastructure manager and railway carriers are positioned as equal parties who can reach mutual agreements on the basis of private-law instruments such as access agreements. The government’s role is to stipulate the framework: the sector is responsible for the day-to-day implementation within that framework. The various elements of the Railways Act are supervised by the Inspectorate for Transport, Public Works and Water Management and the Office of Transport Regulation of the Netherlands Competition Authority (NMa).

The railway legislation was evaluated in 2008. One of the conclusions from this evaluation relating to railway safety was that the objective of providing assurances in the railway legislation for the government’s care for safety in the public interest has been achieved. The responsibilities of the various parties involved in safety have, in part on the basis of the European directives, been laid down in the railway legislation. The government position on the evaluation states that the evaluation demonstrates the necessity for more cohesion in and an overview of the regulatory system.

Conclusions in the government position on the evaluation of railway legislation with respect to railway safety and the regulations

• There is no reason to make fundamental changes to the regulatory framework. However, there is a need for more cohesion in and an overview of the regulatory system. A programme has been drawn up to meet these needs.
• One specific issue relates to the wish of many parties in the railway sector to replace a number of criminal provisions laid down in the Railways Act by administrative law instruments.
• There is no reason to lay down further system responsibility in the regulations or to assign this to one organisation. The Minister bears the system responsibility for the policy, legislation and regulations and the assignment of responsibilities such as the supervision. The selected arrangements and legislation assign the responsibility for the day-to-day implementation to the railway parties: this is in line with the EU directives.
• The railway sector bears the responsibility for the development and implementation of the sector’s safety management systems.

A programme has now been initiated for the improvement of the legislation and regulations, the Coördinatie Implementatie Regelgeving Evaluatie Spoorwetgeving (‘Coordination of the Implementation of Regulations relating to the Evaluation of Railways Legislation’, CIRES) programme. This programme includes specific proposals for the improvement of

---

[29] Spoor in Beweging (‘Rail in Movement’), government position following the evaluation of the railway legislation (Ministry of Transport, Public Works and Water Management, June 2009).
railway safety submitted by the railway sector (introduced in the Beter Geregeld (‘Regulated Better’) and the legal-technical test of each article) and the implementation of EU directives.

### Statutory safety measures in the CIRES programme

1. **Extension of the period of validity of safety certificates from three to five years.**
   
   Relates to an amendment of the Railways Act. Scheduled to come into force in the autumn of 2010.

2. **Implementation of the Train Driver Directive.**
   
   Relates to an amendment of the Railways Act and an integral amendment of the railway transport regulations based on the Act. Scheduled to come into force in the autumn of 2010.

3. **Implementation of the Interoperability Directive.**
   
   Relates to an amendment of the Railways Act and an integral amendment of the rolling stock inspection and railway infrastructure regulations based on the Act. Scheduled to come into force in the autumn of 2010.

4. **Implementation of the amended Railway Safety Directive.**
   
   Relates to an amendment of the Railways Act. Scheduled to come into force in the autumn of 2010.

5. **Transformation of criminal provisions into administrative-law provisions.**
   
   Relates to an amendment of the Railways Act. Scheduled to come into force at the beginning of 2012.

6. **Integral revision of the railway transport regulations.**
   
   Scheduled to come into force in 2011/2012.

7. **Legal-technical improvements to the regulations.**
   
   Relates to amendments of the Railways Act and regulations based on the Act. Scheduled to come into force in 2012.

### Supervision of safety

Pursuant to Article 69 of the Railways Act the Minister of Transport, Public Works and Water Management supervises compliance with the safety provisions laid down by or in accordance with the Railways Act. The Minister has designated the Inspectorate for Transport, Public Works and Water Management to carry out this supervision. The IVW is also the National Safety Authority on behalf of the Minister as referred to in the Railways Safety Directive (2004/49/EC).

The supervision of compliance with the safety aspects laid down in the management concessions is also mandated to the Inspectorate for Transport, Public Works and Water Management.

The Dutch legislation and regulations have also assigned a duty to the Inspectorate for Transport, Public Works and Water Management with respect to the issue of permits, such as the issue of operating permits and safety certificates to railway companies, the approval of workshops and repair shops and the appointment of inspection institutes. As from 1 September 2010 the Inspectorate for Transport, Public Works and Water Management —

---

30 Directive 2004/49/EC, Article 16, first paragraph. And: Instellingsbesluit Inspectie Verkeer en Waterstaat (‘Decree establishing the Inspectorate for Transport, Public Works and Water Management’), Article 2, second paragraph. An amendment to the Decree establishing the Inspectorate for Transport, Public Works and Water Management came into force on 21 December 2006. Pursuant to this amendment the Inspectorate for Transport, Public Works and Water Management is now entrusted with the duties of the National Safety Authority as referred to in Directive 2004/49/EC. The National Safety Authority is entrusted with monitoring, promoting, and, where appropriate, enforcing and developing the safety regulatory framework including the system of national safety rules (Guideline 2004/49/EC, Article 16, second paragraph, under f).

31 Article 1, first and second paragraph, Besluit aanwijzing toezichthouders spoorwegen (‘Ministerial Order on the designation of railway supervisors’).

32 The European Railway Safety Directive is comprised of 35 articles, the majority of which had already been implemented in the prevailing legislation and regulations. Amendments were required to implement approximately 13 articles.
in addition to issuing permits for rolling stock - will also issue permits for new and modified infrastructures. The issue of permits constitutes the starting point of the supervision of railway companies.

The Inspectorate for Transport, Public Works and Water Management uses three methods to enforce compliance with the legislation and regulations, namely the provision of services, supervision and investigations.\(^{33}\) The Inspectorate for Transport, Public Works and Water Management also carries out investigations of accidents, incidents and irregularities.

**Provision of services**
The provision of services to the supervised parties relates to the provision of information about the legislation and regulations, as well as the simplification of the fulfilment of obligations by means such as the digitalisation of the mandatory applications and provision of information, the simplification of forms and the maintenance of an appropriate complaints procedure.

**Supervision**
Supervision is based on the principle of ‘confidence unless’. Risk analysis is used to prioritise risks and issues for inspections.

The degree of supervision of parties that comply in full with the requisite requirements is reduced. The other tools are comprised of physical inspections (of objects, products and persons), audits, company inspections, random inspections and campaigns (national, regional or focused on a theme). The Inspectorate for Transport, Public Works and Water Management’s risk selection for the organisation of inspections and audits is based on the risks and safety standards. In view of the limited number of companies in the railway sector there is virtually no direct risk selection on the basis of individual companies. Safety risks are an issue at every company. The Inspectorate for Transport, Public Works and Water Management selects the aspects to be examined during an inspection or audit on the basis of accident inspections, earlier inspections and audits and the relevant company’s response to those inspections and audits. These analyses can result in one company being placed under more intensive supervision than another company.

**Investigations**
In some instances compliance has to be compelled by the implementation of hard measures such as the imposition of administrative-law penalties, orders with conditional penalties, administrative orders and the withdrawal of permits or even criminal proceedings. In the last instance enforcement is transferred to the police and the Public Prosecutions Service (OM).

**Accident investigation**
The Minister of Transport, Public Works and Water Management can request the Inspectorate for Transport, Public Works and Water Management to carry out investigations into the cause of accidents and incidents on the main railway network and into other irregularities that endangered safety or could have endangered safety.\(^{34}\)

In addition to these investigative powers of the Minister of Transport, Public Works and Water Management, the independent Dutch Safety Board (OvV) has been granted investigation duties and powers relating to accidents such as railway accidents. The Dutch Safety Board’s powers accrue from the Rijkswet Onderzoeksraad voor Veiligheid ("Dutch Safety Board Kingdom Act") and the Besluit Onderzoeksraad voor Veiligheid ("Dutch Safety Board Decree") based on the Act.\(^{35}\)


\(^{34}\) Railways Act, Article 66, third paragraph.

\(^{35}\) Pursuant to Article 25 of the Besluit Onderzoeksraad voor Veiligheid ("Dutch Safety Board Decree") the Dutch Safety Board and State Inspectorates drew up a joint outline harmonisation protocol in 2006. An annex to this protocol lays down issues relating to specific fields.
3.2.2 Operational responsibility: safety of railway transport

The railway sector bears the operational responsibility within the policy and statutory frameworks and the preconditions relating to the Minister of Transport, Public Works and Water Management’s system responsibility, i.e. the railway sector is responsible for the safe day-to-day operation of railway transport.

The Second Framework Document specified the following ambition for 2010: “All parties in the railway sector have implemented a safety management system and have what can be referred to as an enhanced safety culture.” This ambition is embedded in the Railways Act and the regulations based on the Act.

The infrastructure manager is responsible for ensuring that trains can travel safely on the infrastructure. This responsibility is worked out in more detail in the management concession granted to ProRail. The infrastructure manager is responsible for promoting safe conditions during work on and close to the track. Safety is part of the duty of care assigned to ProRail in Article 3 of the management concession.

The railway companies are under the obligation to implement a safety assurance system. Requirements are imposed on the substance of these safety assurance systems. The Inspectorate for Transport, Public Works and Water Management tests compliance with these requirements. The infrastructure manager is also under the obligation to implement a safety assurance system. European regulations also impose this obligation on the manager.

The railway companies bear the responsibility of paying due regard to safety. The Act gives shape to this responsibility in the form of the denial of access to the main railway network to railway companies that have not been issued a safety certificate and the imposition of the obligation to implement a safety assurance system. The railway companies are responsible for ensuring that safe rolling stock is used. This is given shape by means of the implementation of a system for the inspection, admission and maintenance of rolling stock. Article 6 of the transport concession assigns responsibilities to NS Dutch Railways within the context of the company’s duty of care which include ensuring for an acceptable degree of safety for their passengers and employees. The regional carriers are assigned a comparable duty of care.

System safety:

- Is incorporated in the harmonised safety management systems and agreements on cooperation at the interfaces between the infrastructure and transport;
- The responsibility for cooperation is incorporated in the Railway Safety Directive and the safety assurance systems implemented by the manager and the railway companies that are tested by the Inspectorate for Transport, Public Works and Water Management.

---

37 Railways Act, Article 64, first paragraph.
38 Main railway infrastructure management concession, Article 3, under b.
39 Railways Act, Article 32, first paragraph, under b.
40 Preference is now given to ‘safety management system’ rather than ‘safety assurance system’.
41 Regeling veiligheidsattest hoofdspoorwegen (‘Regulations on safety certificates for main railway lines’), articles 2 through 9.
42 Management concession, Article 7.
43 Railway Safety Directive, Article 9.
44 Railways Act, Article 27, second paragraph, under b.
45 Railways Act, Article 32, first paragraph, under b.
46 Railways Act, articles 36 through 48.
4 Policy agenda for 2010-2020: safety of transports, safety of work and safety of life
4.1 Contents of the policy agenda

The policy agenda makes a distinction between three themes:

1. Safety of transport
2. Safety of work
3. Safety of life

Safety of transport relates to the primary railway product: transport on the railways. Safety of work can be regarded as a precondition that needs to be met for transport on the railways. Safety of life emphasises the railways' relationship with their surroundings.

The issues discussed in each theme are listed below. The list also indicates the pan-theme issues (the right-hand column in the table).

<table>
<thead>
<tr>
<th>Safety of transport (Section 5)</th>
<th>Safety of work (Section 6)</th>
<th>Safety of life (Section 7)</th>
<th>Pan-theme issues (Section 8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Safety risk to train passengers</td>
<td>• Prevention of occupational accidents</td>
<td>• Level crossing safety</td>
<td>• Integral cooperation on the interfaces between responsibilities</td>
</tr>
<tr>
<td>• Accidents (passenger and freight trains)</td>
<td>• Training and competence</td>
<td>• Unauthorised persons on the tracks</td>
<td>• Innovation</td>
</tr>
<tr>
<td>• Railway infrastructure (and safety systems)</td>
<td></td>
<td>• Prevention of railway suicides</td>
<td>• Safety management</td>
</tr>
<tr>
<td>• Rolling stock</td>
<td></td>
<td>• External safety (transport of dangerous goods)</td>
<td>• Safety culture</td>
</tr>
<tr>
<td>• Railway tunnels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Disaster organisation and crisis control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Personal security of passengers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Security</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Objectives have been formulated for the three themes (safety of transport, safety of work and safety of life) and the pan-theme issues.

The intended results have been specified for each theme. The relevant indicators and the targets for these indicators are stated for each result when indicators can be linked to the relevant result; some results cannot be expressed in terms of quantitative indicators.

Each result is accompanied by an explanation of the activities that will take place to achieve the result (and, in so doing, the objective).

Finally, information about the supplementary means that will be used to achieve the results and objectives are explained in Section 9.

4.2 Objectives

4.2.1 Specification of the objectives

The specified objectives have been selected on the basis of the following three criteria:

1. **The probability** of the materialisation of the risk. This relates to the probability of the occurrence of fatalities and (serious) injuries and the occurrence of economic damage.
2. **The effect** of the materialisation of the risk. This relates to the number of fatalities and (serious) injuries and the extent of economic damage.
3. **The risk reduction potential**. This relates to the safety improvements that can still be achieved in relation to the efforts and investments. The risk reduction potential depends
on factors including the extent to which the railway sector can exert an influence on the risk and the extent to which quick wins can be achieved.

The evaluation of the Second Railway Safety Framework Document and the consultations with the railway sector served as important sources of information for the selection and specification of the objectives and results. Section 1 contains a further explanation of the approach.

4.2.2 Selection of indicators
Indicators have been specified for a number of results. The specifications were drawn up on the basis of the following principles:

1. **Indicators that are as SMART as possible**: Specific, Measurable, Acceptable, Realistic and Time-bound.
2. **Output and outcome indicators**. The control relationship between the Ministry and the sector’s parties has been transformed into output control. For this reason this document focuses on output and outcome indicators (rather than on indicators relating to the activities to be carried out).
3. **In line with European indicators and definitions**. The European Union has specified Common Safety Indicators and Common Safety Methods for the calculation and assessment of Common Safety Targets. The indicators are compatible with these specifications.
4. **Significant subdivision of European indicators**. Since specific attention needs to be devoted to the safety of track workers and shunters this Framework Document also lays down indicators for these target groups. The European indicator relates ‘solely’ to the number of deaths and weighted serious injuries among railway employees in their totality.
5. **Supplementation on the basis of Dutch (political) priorities**. Political priorities have also been determinative for the selection of indicators, for example indicators relating to personal security.
6. **Based on the results from the evaluation of the Second Framework Document**. The evaluation of the Second Framework Document can also give cause to the selection of indicators. For example, this Third Framework Document also includes a number of compliance percentages that have been specified in response to the evaluation’s conclusion that there is room for improvement in compliance levels.

It is also important to note that the indicators are of different levels, namely indicators relating to the effects of accidents (such as fatalities and injuries), indicators relating to the number of accidents (such as derailments and collisions between and with trains) and indicators relating to the precursors of potential accidents (such as defective sets of points, broken axles and SPADs).

4.2.3 Targets
Targets have been specified for the indicators. The reasons for the decision to specify rolling targets for the majority of the indicators included in the policy agenda (rather than a fixed end target for 2020 and, where relevant, interim targets) were as follows:

- A rolling target – a target that is periodically adjusted on the basis of the performance in the previous year – is compatible with the endeavours to achieve permanent improvement embodied in the viewpoint on safety. This refers to the endeavours to at least retain

---


the current level of safety, whereby due regard is given to other interests (the economy and the environment) and to cost-effectiveness (see Section 2.1).

• The evaluation of the Second Framework Document has revealed that major improvements have been made in safety during the past years and that the Netherlands has a relatively high safety score. Targets based on rolling averages are compatible with this performance since they are an expression of the endeavours to at least retain the current level of safety and to carry out a structural search for opportunities to improve safety (and thereby achieve permanent improvement). An end target is more appropriate in situations in which major safety improvements are still feasible.

• The European works with rolling averages, what are referred to as National Reference Values.

The implementation of the rolling targets uses a method which is compatible with the system adopted in the European Union. This is applicable – self-evidently – to the European indicators for which the European Union has already specified rolling targets, as well as to the European indicators for which rolling targets have yet to be specified and the supplementary, non-European indicators. More information about the European system is given in the following subsection.

4.2.4 European indicators and targets
The Common Safety Method for risk evaluation and assessment was adopted on 24 April 2009 in Commission Regulation No. 352/2009. The objective of this Common Safety Method is to maintain or to improve the level of safety on the European Union’s railways, when and where necessary and reasonably practicable. The initiator of every planned change to a railway system begins by carrying out a risk evaluation and assessment. These changes may be of a technical, operational or organisational nature. The implementation of this Directive is included in Section 8 (under safety management).

A Commission Decision adopted a Common Safety Method to be used by the European Railway Agency (ERA) for calculating and assessing the achievement of common safety targets. The method lays down how national reference values will be determined for the relevant Member State which indicate the maximum tolerable level for a railway risk category. This relates to reference values for:

• The safety of passengers
• The safety of employees
• The safety of level-crossing users
• The safety of unauthorised persons on the tracks
• The total safety on the basis of the above categories.

The national reference values are adopted at periodic intervals, whereby a four-year weighted average will initially be used (for the years 2004-2007) and a six-year weighted average (for the years 2004-2009) from 2012. The objective is to endeavour to achieve a materialisation of the risk that is equal to or lower than the long term national reference value applicable to the relevant period. In 2010 the years 2005-2008 will be tested against the four-year national reference value and in 2011 against the years 2006-2009. From 2012 five-year periods will be used. In 2012 the years 2006-2010 will be tested against the six-year national reference value and in 2013 against the years 2007-2011. New national reference values will be adopted at a later stage.
The method makes use of a number of abbreviations that are explained below:

- **FWSI** is the abbreviation of *Fatalities and Weighted Serious Injuries*. A weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.
- **NRV** is the abbreviation of *National Reference Value*. A reference value adopted by the European Union on the basis of the average number of FWSI (Fatalities and Weighted Serious Injuries) in a specific period. The NRV is often expressed per thousand million train kilometres (or passenger kilometres), an approach which simplifies comparisons between Member States with large railway networks / a large volume of railway transport and with smaller railway networks / a lower volume of railway transport.
- **EURV** is the abbreviation of *European Union Reference Value*, the weighted average for the entire EU.
- **CST** is the abbreviation of *Common Safety Target*, a target to be achieved by all Member States. 

The NRVs for the various Member States are still indicative and are not currently suitable for benchmarking since the various Member States have used different definitions in the past (during the years 2004-2007). The definitions were adopted at a European level at the end of 2009 and, consequently, it is expected that the Member States will amend their definitions and measurement methods accordingly. As a result, the comparability of the figures will be improved in the future (and any differences will not then be caused by differences in the measurement methods).

### 4.3 Activities: based on output control

Since output control is an important characteristic of the control relationship between the Ministry of Transport, Public Works and Water Management and the railway sector this Third Framework Document is also based on output control.

Where possible the objectives refer to NS Dutch Railway’s Transport Plan and ProRail’s Management Plan: for example, NS Dutch Railway’s Transport Plan is required to include a specification of a lower limit for personal security. The Third Framework Document ties in with these plans.

The results sections of this Framework Document include a specification of the relevant organisations that are to be assessed. This will ensure that all organisations are held responsible for the contribution their activities can make to the achievement of the targets. This assigns the responsibility for the achievement of the relevant target, whereby the organisations are, in principle, free to exercise their discretion in deciding which activities they will carry out to achieve the target.

Contractors fall under carriers with respect to railway transports. The contractors engaged by the client (the infrastructure manager) fulfil an important role and duty in achieving the safety of work. The infrastructure manager is assigned the relevant responsibility.

On occasion, specific measures have been formulated for some of the organisations bearing a responsibility for safety. In some instances a number of parties are responsible for a measure. These measures are accompanied by a specification of the lead party amongst the responsible parties, the party that is expected to play a directional role in the implementation of the relevant measure.

Some elements include a statement that a number of parties shall cooperate in the submission of a joint (implementation) plan.

---

36 This target has currently been set at the NRV of the Member State achieving the lowest score for the relevant indicator.
4.4 Monitoring

The progress and achievement of the targets specified in this Framework Document will be monitored and assured.

The Third Railway Safety Framework Document relates to the medium-term period from 2010 to 2020. An interim evaluation scheduled for 2015 may result in a review. Structural monitoring and assurance takes place at a number of levels. These levels are explained below.

Firstly, the responsibilities of the railway companies are assured by the legislation and regulations, for example with respect to the safety of rolling stock. The integration of safety within the railway companies is tested by the Inspectorate for Transport, Public Works and Water Management, for example during the issue of safety certificates (whereby the safety management systems, the SMSs, are tested). This is integrated in the railway legislation, the issue of concessions and the safety certificates issued to railway companies.

Secondly, in addition to the aforementioned legislation it is also important that the parties involved are assigned and assume a personal responsibility. The parties are expected to approach the safety issues for the railway sector as specified in this document with due care (‘good housekeeping’). Cooperation is required in issues on the interface between the infrastructure and rail traffic. This responsibility for cooperation is laid down in the Railway Safety Directive and the safety management systems of the infrastructure manager and railway companies.\(^8\) As stated in the government position on the final report of the

---

\(^8\) A distinction can be made between cooperation in construction projects and the everyday operation of the railway network. Large amounts of public funds are often involved in construction projects, and regulations govern the direction and implementation of these projects. Explicit agreements must be reached for the everyday operations relating to the direction role and cooperation in issues relating to both the infrastructure and railway traffic.
evaluation of railway legislation, this is given shape in the form of specific agreements and instruments, such as the Integral Safety Plan. This cooperation is of essential importance to railway safety, for example in the approach to the reduction of SPADs. This is an issue governed by self-regulation, such as the Normenkader Veilig Werken (‘Safe Work Standards’, NVW) agreed by the railway sector and the covenant to be concluded between the Central Government, carriers and shippers relating to external safety. Platforms in which representatives from various parties including the railway companies meet – such as the OVS (‘Railway Company Safety Consultative Body’) – and organisations in which the railway companies work in cooperation – such as the railAlert foundation and a sector institute that could be set up to serve as a centre of expertise – can play an important role in the monitoring of the results and the interpretation of those results for the cooperating companies.

A study is currently being made of the feasibility of integrating the OVS in a more formal organisational structure. This is in line with recent recommendations issued by the Dutch Safety Board in which the Board recommends that the government arranges for direction in the form of an adequate consultative and decision-making structure within the railway sector and specific targets for the degree of risk reduction to be achieved.\footnote{Dutch Safety Board (March 2010), “Derailment of a goods train at Amsterdam Muiderpoort, 22 November 2008, Amsterdam.”}

Thirdly, the Inspectorate for Transport, Public Works and Water Management publishes an annual trend report to obtain an insight into the progress in the targets and activities specified in the Third Framework Document. The Inspectorate for Transport, Public Works and Water Management’s report also contains an analysis of the background of the achievement of the targets. Consequently, this approach monitors the achievement of the required performance indicators and reveals whether any corrections are required. The Minister of Transport, Public Works and Water Management uses these trend reports to keep the House of Representatives of the States-General informed about progress.
Fourthly, the achievement of the targets is – when possible – integrated in the concession relationship between the Ministry of Transport, Public Works and Water Management and the holders of the main railway network transport concession and the main railway network infrastructure management concession. Output control is an important element of these control relationships. Pursuant to the Concessions Act a comparable integration is required in the relationship between the regional passenger carriers and their clients.
5 Safety of transport

5.1 Objective: Safety of transport in 2020

A permanent improvement\(^5\) has been achieved in the safety of railway transports as compared to the current level: the Netherlands ranks amongst the European top in 2020.

The safety of passengers has been further improved and is high in comparison with other European countries. The number of derailments and collisions between and with trains\(^6\) has been reduced and is low in comparison with other European countries. The consequences of accidents are controlled to an adequate extent. The railway infrastructure and the passenger, freight and other rolling stock (and the harmonisation between them) are safe and they are used in a safe manner. Tunnel safety is of an acceptable level. The railway sector is able to control the consequences of emergencies to an adequate extent. Measures have been implemented to control security risks. In addition, passengers feel safe in trains and at stations.

\(^5\) This relates to endeavours to achieve permanent improvement in a manner that ensures that safety is an element of an integral assessment that also takes due account of cost effectiveness (more details are given in Section 2).

\(^6\) This relates to collisions on level crossings.
Safety of transport issues

Eight issues have been identified for the Safety of transport theme. Results and activities have been specified for each of these issues. The issues are:

1. Safety risk to train passengers
2. Accidents involving passenger, freight and other trains
3. Railway infrastructure
4. Rolling stock
5. Railway tunnels
6. Disaster organisation and crisis control
7. Security
8. Personal security

Technical, process and conduct factors play a role in the assurances for safety with respect to these issues: for example, in addition to the technical specifications of importance to the safety of rolling stock (technical factor), the planning of maintenance (process factor) and use of the rolling stock (conduct) are also important. These three factors are, where relevant, included in the review of the issues in the following subsections.

Information about the implications of the Safety of transport objective for safety management and the safety culture is given in the subsections on safety management and the safety culture enclosed in Section 8.

The issues exhibit a certain hierarchy: for example, an increase in the safety of the infrastructure and rolling stock results in a reduction of the number of accidents, and a reduction in the number of accidents results in an increase in the safety of passengers.

5.2 Safety risk to train passengers

Insights from the evaluation of the Second Railway Safety Framework Document

The safety of passengers has increased in the past period. In the years since 1995 the number of fatalities amongst railway passengers has remained below the target specified in the Second Framework Document. The number of injured train passengers is decreasing, but is still above the target. It would appear that although NS Dutch Railways has improved the departure procedure, the ambition to reduce the number of injuries occurring when embarking/disembarking from trains has not been fulfilled. It should be noted that although the definition of ‘passenger’ used in the records of injured passengers has been tightened, the records are still unreliable: some injuries are not recorded and some incidents cannot be imputed to passenger transport (in particular, the embarking/disembarking procedure).

Results

The safety risk to train passengers has decreased further in 2020 as compared to the current situation and is low in comparison with other European countries.
Responsible parties
Carriers, infrastructure manager, Ministry of Transport, Public Works and Water Management, Inspectorate for Transport, Public Works and Water Management (IVW)

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWSI(^{15}) amongst passengers / year / thousand million passenger train kilometres</td>
<td>National Reference Value; permanent improvement Structural ranking among the EU top 5</td>
</tr>
<tr>
<td>FWSI(^{17}) amongst passengers / year / thousand million passenger kilometres</td>
<td>National Reference Value; permanent improvement Structural ranking among the EU top 4</td>
</tr>
<tr>
<td>Number of seriously-injured passengers per year</td>
<td>for the purposes of information(^{18})</td>
</tr>
<tr>
<td>Number of deaths of passengers per year</td>
<td>for the purposes of information</td>
</tr>
<tr>
<td>Number of slightly-injured passengers / year / thousand million passenger kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
</tbody>
</table>

The NRVs and the other rolling targets are determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4.

An unequivocal definition of ‘slightly-injured passenger’ required for the determination of the number of slightly-injured passengers is currently lacking. The activities include the specification of a definition and an improvement of the records of the number of injured passengers (see the Activities subsection).

Passenger risk in the EU

The latest National Reference Values for passenger fatalities adopted for the EU Member States are – for the purposes of illustration – listed below. The NRVs are calculated from the figures the Member States submitted for the years 2004-2007. It should be noted that the definitions adopted by various Member States still exhibited differences during these years and for these reason objective comparisons of the NRVs for the various Member States are not yet feasible. The European obligation to make use of the Common Safety Indicators will result in the gradual disappearance of these differences in the coming years. This will improve the feasibility of comparisons of the figures. However, and with the necessary reservations in view of the different definitions used by the different Member States, the latest rankings reveal that the Netherlands is sixth and fifth in the passenger safety rankings.

\(^{15}\) The indicators and standards adopted at a European level are shown in bold text.

\(^{16}\) FWSI is the abbreviation of Fatalities and Weighted Serious Injuries, a weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.

\(^{17}\) Ditto.

\(^{18}\) These indicators are included for the purposes of information. Although information about the number of fatalities and serious injuries among passengers is certainly of interest, the risk to passengers is already specified (and standardised) by the two FWSI indicators.

\(^{19}\) The definition of slightly-injured passengers is compatible with the European definition of ‘passenger’. Consequently, a distinction is made between ‘in the train’ and ‘when embarking/disembarking’.
<table>
<thead>
<tr>
<th>Member State</th>
<th>NRV (passenger train kilometres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>5.70</td>
</tr>
<tr>
<td>Ireland</td>
<td>6.22</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>6.22</td>
</tr>
<tr>
<td>Denmark</td>
<td>7.55</td>
</tr>
<tr>
<td>Germany</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>Netherlands</strong></td>
<td><strong>11.7</strong></td>
</tr>
<tr>
<td>Slovenia</td>
<td>11.8</td>
</tr>
<tr>
<td>Slovakia</td>
<td>17.7</td>
</tr>
<tr>
<td>France</td>
<td>21.9</td>
</tr>
<tr>
<td>Finland</td>
<td>26.8</td>
</tr>
<tr>
<td><strong>EURV</strong></td>
<td><strong>34.4</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Member State</th>
<th>NRV (passenger kilometres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>0.0557</td>
</tr>
<tr>
<td>Ireland</td>
<td>0.0623</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.0623</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.0903</td>
</tr>
<tr>
<td><strong>Netherlands</strong></td>
<td><strong>0.0941</strong></td>
</tr>
<tr>
<td>France</td>
<td>0.109</td>
</tr>
<tr>
<td>Germany</td>
<td>0.11</td>
</tr>
<tr>
<td>Slovenia</td>
<td>0.175</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>0.225</td>
</tr>
<tr>
<td>Finland</td>
<td>0.248</td>
</tr>
<tr>
<td><strong>EURV</strong></td>
<td><strong>0.288</strong></td>
</tr>
</tbody>
</table>

Source: European Railway Agency

**Activities**

The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. The specification of a shared standard definition of slightly-injured passengers. (IVW, carriers, infrastructure manager(s) and the Ministry of Transport, Public Works and Water Management)

2. The standardisation and improvement of the records of slightly-injured passengers. (Carriers, infrastructure manager(s) and IVW)

3. The – in part on the basis of the improved records – performance of an analysis of the cause of accidents occurring when embarking/disembarking from trains (other than due to accidents) and of the feasibility of reducing this risk and improving passenger safety. The passengers’ experiences will also be reviewed in the analysis. (Carriers, infrastructure manager(s), IVW and passengers)
5.3 Accidents involving passenger, freight and other trains

Insights from the evaluation of the Second Railway Safety Framework Document

No accidents on level crossings resulting in fatalities amongst passengers have occurred since 1993. The number of incidents with potentially serious consequences (derailments and collisions between and with trains\(^{60}\)) exhibits a neutral to favourable trend and is relatively low in comparison with other European countries.

Virtually the entire railway network is equipped with an automatic train protection system. A derailment that occurred in Amsterdam in 2004 has resulted in the SPAD issue being put high on the agenda. The railway sector has since drawn up a separate programme for the reduction of the number of SPADs. However, it is unlikely that the SPAD targets will be achieved by as early as 2009. A study of the approach to SPADs is being carried out at present, in part in response to the serious train accident that occurred in September 2009\(^{61}\). The results from this study could give cause to a further review of the policy.

\(^{60}\) This relates to collisions on level crossings.

\(^{61}\) Two freight trains collided near Barendrecht on 24 September 2009 after one of the trains passed a signal at danger.
Results
The number of accidents involving passenger, goods and other trains has decreased in 2020 as compared to the current situation and is low in comparison with other European countries.

Responsible parties

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of accidents / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of train collisions / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of derailments / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of collisions on level crossings / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of accidents to persons caused by rolling stock in motion / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of fires in rolling stock / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of other accidents / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of wrong-side signalling failures / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of SPADs / (million train kilometres)</td>
<td>In 2010: 50% reduction as compared to 2003 Thereafter: permanent improvement</td>
</tr>
<tr>
<td>Risk due to SPADs</td>
<td>In 2010: 75% reduction as compared to 2003 Thereafter: permanent improvement</td>
</tr>
</tbody>
</table>

The rolling targets are determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4.

Some data required for the determination of the rolling targets for the various types of accidents are currently lacking. The collection of this data is included in the list of activities (see the Activities subsection below).

The target for SPADs specified in the Second Framework Document has not been achieved to date and, consequently is retained for the time being. This target specifies a 50% reduction of the number of SPADs and a 75% reduction of the risk in 2010 as compared to 2003. Once these targets have been achieved the ‘permanent improvement’ target will be adopted.

Activities
The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

---

61 The indicators and targets adopted at a European level are shown in bold text.
1. Collection of the data required to determine the rolling targets for the various types of accidents. (IVW, infrastructure manager, carriers, contractors and the Ministry of Transport, Public Works and Water Management)

2. The sector's joint implementation of measures designed to prevent and control (new) accidents as based on the conclusions and recommendations from accident investigations carried out by the IVW and/or Dutch Safety Board and international accident investigations. (Infrastructure manager, carriers, contractors, IVW and Dutch Safety Board)

3. The performance of a best practice study into the prevention and control of various types of accident (national and international). The most promising measures will be implemented jointly by the sector. (Infrastructure manager, carriers, contractors, IVW and Dutch Safety Board)

4. Exploration of the feasibility of accelerating the issue of the results from accident investigations to the railway companies so that the companies can implement adequate measures more rapidly. (IVW, Dutch Safety Board, infrastructure manager, carriers and contractors)

5. Independent study of the approach to SPADs (already initiated). (Ministry of Transport, Public Works and Water Management, infrastructure manager, carriers, contractors and IVW)

6. Inter-ministerial study of the need to shift away from the current emphasis placed on criminal provisions in railway legislation, for example relating to train drivers and SPADs. (Minister of Transport, Public Works and Water Management)

5.4 Railway infrastructure

Insights from the evaluation of the Second Railway Safety Framework Document

The Dutch railway system is of a relatively high quality. However, during the past years a number of safety risks have materialised that have resulted in discussions about the safety of the railway infrastructure and the control of safety, for example with respect to the number of track buckles and switch points. Sufficient assurances for the control of these safety risks were not always in place. ProRail has implemented measures to resolve this situation.

The infrastructure's basic quality is laid down in Dutch technical, functionality and performance standards. Since the European standards are still under development the harmonisation with the European reference framework cannot be completed at present.

Results
An unambiguous, coherent safety framework has been implemented for the infrastructure. The harmonisation with the European requirements has been completed and any risks during the transitional period, where relevant, have been controlled to an adequate extent. Supplementary national requirements have been imposed as necessary (provided that these are not in conflict with interoperability). In practice, the safety risks relating to the infrastructure are controlled to an adequate extent. Adequate supervision results in a continual insight into the safety of the infrastructure.

Responsible parties

---

63 ProRail has chaired the pan-sector SPAD Steering Committee since 2004.
64 House of Representatives of the States-General, 2009-2010, 29,893, no. 90; House of Representatives of the States-General, 2009-2010, 29,893, no. 94.
65 This activity is included in the implementation agenda of the government position following the evaluation of the railway legislation.
Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of broken rails / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of track buckles / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
</tbody>
</table>

The rolling targets are determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4.

Some data required for the specification of the rolling targets for the various types of incidents are currently lacking. The sector’s development of this data is included under activities (see the following subsection).

Activities

The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Collection of the data required to determine the rolling targets for the various types of incidents. (IVW, infrastructure manager, carriers, contractors and the Ministry of Transport, Public Works and Water Management)
2. Implementation of a detection system in the infrastructure (and the rolling stock). ProRail is currently preparing a specific proposal for the infrastructure. The commissioning of this system is scheduled for the beginning of 2011. (Infrastructure manager, carriers and contractors)
3. Formulation of an ERTMS implementation plan. (Ministry of Transport, Public Works and Water Management, carriers and IVW)

5.5 Rolling stock

Insights from the evaluation of the Second Railway Safety Framework Document

Standards govern both the admission and maintenance of rolling stock. These will be retained. Incidents with freight trains have resulted in discussions about the maintenance of rolling stock. ProRail is currently carrying out a study of the introduction of a detection system in the infrastructure and on the rolling stock. This system will enable defects to be detected earlier and, as a result, may prevent potential incidents. The sector is also asking whether improvement ‘upstream’ should (also) be examined, for example by tightening the standards governing the rolling stock (and infrastructure) and intensifying the supervision of compliance with the standards (rather than implementing a safety system that, in their opinion, is relatively expensive). The supervisory authorities have recently reached agreement at a European level on the tightening of the supervision of the maintenance of goods wagons on the tracks. As from 2010 every company registering a wagon must state the Entity in Charge of Maintenance (ECM).

The indicators and standards adopted at a European level are shown in bold text.
Results
An unambiguous, coherent (European) safety framework has been implemented for the rolling stock. In practice, the safety risks relating to the rolling stock are controlled to an adequate extent. The passenger, freight and other rolling stock complies with the prevailing safety standards, is used in a safe manner and the parties involved (including the owner, operator and maintenance company) each assume the responsibility for safety accompanying their role. Adequate supervision results in a continual insight into the safety of the rolling stock.

Responsible parties

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of broken wheels on rolling stock in service / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of broken axles on rolling stock in service / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
</tbody>
</table>

The rolling targets are determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4.

Some data required for the specification of the rolling targets for the two types of incident are currently lacking. The sector’s development of this data is included under activities (see the following subsection).

Activities
The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Collection of the data required to determine the rolling targets for the various types of incidents. (IVW, carriers, contractors, infrastructure manager and the Ministry of Transport, Public Works and Water Management)
2. Implementation of the Integrale Veiligheidsagenda Goederenvervoer (‘Goods Transport Integral Safety Agenda’) drawn up by the freight carriers and ProRail and adopted at the beginning of 2010. The safety agenda describes an integral approach to the reduction of (recent, serious) incidents and/or the reduction of the impact of these incidents. The safety agenda is of a continual nature: points on the agenda are deleted once they have been completed and the agenda is continually supplemented with new points identified in practice. (Freight carriers and infrastructure manager)
3. Clarification of the regulations governing rolling stock admission. (Ministry of Transport, Public Works and Water Management, IVW, carriers and contractors)
4. Support for new carriers by means of the organisation of a helpdesk. (Ministry of Transport, Public Works and Water Management, IVW and carriers)

The indicators and standards adopted at a European level are shown in bold text.

This activity is included in the implementation agenda of the government position following the evaluation of the railway legislation.

Ditto.
5. Implementation of the (mandatory) development of standards in accordance with European standards for the maintenance of rolling stock and approval of maintenance organisations. (Carriers, contractors, lessors of rolling stock, maintenance companies, workshops, suppliers and IVW)

6. Implementation of the regulations the supervisory authorities have tightened at a European level relating to the registration of the Entity in Charge of Maintenance (ECM). (Carriers, contractors, lessors of rolling stock, maintenance companies, workshops, suppliers and IVW)
5.6 Railway tunnels

Insights from the evaluation of the Second Railway Safety Framework Document

The European requirements imposed on railway tunnels have been implemented in the form of national requirements. Some of the national requirements extend beyond the requirements prescribed at a European level to ensure that the required safety level is maintained in the Netherlands. The railway tunnel safety requirements are currently being implemented in the prevailing legislation and regulations.

The fire in the Schiphol railway tunnel that occurred on 11 July 2001 resulted in the implementation of a range of specific measures designed to improve the fire safety and the ability of the emergency services to carry out their work. Response scenarios have been drawn up for incidents in all tunnels. All the relevant parties were involved in the preparation of these scenarios. Tunnel fire safety is tested at regular intervals. A large-scale outdoor drill is held once every four years.

A recent incident in the Schiphol railway tunnel gave cause a study of railway safety in all Dutch railway tunnels. This study is being carried out by the Inspectorate for Transport, Public Works and Water Management and Public Order and Safety Inspectorate (IOOV). The results are expected at the end of 2010.

Results
An unambiguous, coherent safety framework has been implemented for the railway tunnels. The powers and responsibilities relating to the tunnel structure and the use of the tunnel structure have been divided in a transparent manner and over-regulations or under-regulations are not an issue. In practice, the safety risks relating to the railway tunnels, both with respect to the structure and the use of the structure, are controlled to an adequate extent. The relevant parties are prepared for emergencies in tunnels and are able to limit the consequences. Adequate supervision results in a continual insight into railway tunnel safety.

Responsible parties

Activities
The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Completion of the implementation of the railway tunnel safety requirements in the prevailing legislation and regulations. (Ministry of Transport, Public Works and Water Management, Ministry of the Interior and Kingdom Relations, IVW, safety regions, carriers, infrastructure manager and contractors)

---

19 A short-circuit released smoke in the Schippol tunnel on 2 July 2009. Questions arose about the manner in which NS Dutch Railways and ProRail dealt with the incident. The Minister of Transport, Public Works and Water Management requested the Inspectorate for Transport, Public Works and Water Management to carry out an investigation of the safety of the Schippol tunnel (and other railway tunnels). The House of Representatives of the States-General has since been informed about the procedure following the fire alarm in the Schippol tunnel on 2 July 2009 (House of Representatives of the States-General, 2009-2010, 29893, no. 101.)
2. Implementation of the recommendations from the study the IVW and the Public Order and Safety Inspectorate (of the Ministry of the Interior and Kingdom Relations) are carrying out into the safety of all (eight) Dutch railway tunnels. This study was initiated following an incident in the Schiphol railway tunnel on 2 July 2009.²⁴ (Infrastructure manager, carriers, contractors, Ministry of Transport, Public Works and Water Management, Ministry of the Interior and Kingdom Relations, IVW and safety regions)

3. Continuation and enhancement of the acquisition of practical knowledge about railway tunnel safety. (Infrastructure manager, Ministry of Transport, Public Works and Water Management, Ministry of the Interior and Kingdom Relations, IVW, safety regions, carriers and contractors)

5.7 Disaster organisation and crisis control

Insights from the evaluation of the Second Railway Safety Framework Document

The disaster organisation and crisis control have been improved in the past period. The railway sector has implemented an adequate disaster organisation. A number of safety regions are still working on the detailing of the disaster control by the emergency services in their region.

A variety of improvements have been made to the provision of information to passengers about the appropriate action to be taken in the event of an emergency. Nevertheless, a pan-sector structural improvement in the provision of information to passengers as envisaged in the Second Framework Document has not been achieved. However, NS Dutch Railways has recently devoted more attention to the improvement of the information provided in emergencies, although the results are not yet evident.

Results

The disaster organisation is (even) better equipped and ready to deal with crises. The railway parties and passengers (both in the trains and on the platforms) are better prepared with respect to the action they should take in the event of emergencies.

Responsible parties


Activities

The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Detailing and implementation of disaster control in all safety regions (detailing of the Train Incident Management plans and the preparation of a drill plan) (Safety regions, infrastructure manager, Ministry of Transport, Public Works and Water Management, IVW, Ministry of the Interior and Kingdom Relations, carriers and contractors)

2. The expansion of the crisis control knowledge acquired with the Betuweroute railway line and HSL-Zuid railway line (within the scope of the Railplan Project) within the Transport Safety Platform recently formed to make use of this knowledge in future projects. (Transport Safety Platform, infrastructure manager, Ministry of Transport, Public Works
5.8 Security

Insights from the evaluation of the Second Railway Safety Framework Document

The Second Framework Document’s security (policy) ambition has been fulfilled: the attention devoted to security and counterterrorism has increased since 2004, in part due to the terrorist attacks in Madrid and London. Tangible results have been achieved in a number of projects: for example, NS Dutch Railways and ProRail have been affiliated with the Counterterrorism Alert System since 2005. The parties in the urban/region sector are affiliated via a decentral concession. This affiliation is limited to bus/tram operations. NS Dutch Railways has shared its measures with the passenger carriers in these concession areas. A total of approximately € 6 million has been made available to ProRail in the period from 2006-2009 for the ‘Security on the Railways’ implementation programme and approximately € 3.5 million for the ‘Counterterrorism measures at Stations (ATOS)’ programme to enable ProRail to implement measures together with NS Dutch Railways. It is also important to note that the draft version of the ‘Security on the Railways’ Policy Document was completed recently. This document contains a directional framework and a broadly-supported viewpoint on the strategy to be adopted in the approach to security. The task for the coming years is to achieve the structured deployment of the agreed processes, the implementation of the security measures and the provision of assurances for the railway organisations’ approach to security.

Results

An integral control of the recognised risks in the spectrum encompassing vandalism, sabotage, crime and terrorism on the railways. Security has become an integral element of the railway companies’ normal operations. The companies’ employees exhibit an adequate security awareness.

Responsible parties


Activities

The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Implementation of the ‘Security on the Railways’ Policy Document and the integration of security in the railway companies’ operations (enclosed in the annex). During the first
The Railways: safety of transport, safety of work and safety of life | 53

In the coming five years the focus will be on:

- The structural integration of security in each party’s operations.
- The development and adoption of a shared risk appetite and security philosophy.
- The clarification of the roles and responsibilities.
- The development and monitoring of dashboard instruments for the management and control of security.
- The organisation of a pan-sector platform for the facilitation of the development of security.
- The development of an implementation plan.
- The introduction of the implementation plan.
- The development of a viewpoint on the required international and national regulations.


2. Implementation of security-awareness programmes at organisations active in the railway sector.


3. Implementation of a basic security level for the recognised risks to all assets under management. This encompasses, in addition to stations, assets such as blocks of track, tunnels and structures, the passenger carriers' assets such as trains and workshops and the goods carriers' assets such as locomotives and wagon loads, etc. (based on a shared risk analysis).

(Infrastructure manager, carriers)


5. Audit of the NS Dutch Railways and ProRail risk analyses, including recommendations, available in 2014 (Ministry of Transport, Public Works and Water Management, IVW, Ministry of the Interior and Kingdom Relations/General Intelligence and Security Service of the Netherlands)

Security on the Railways Policy Document

The Security on the Railways Policy is enclosed in Annex A to this Third Railway Safety Framework Document. This document lays down the viewpoint on the approach to the control of railway security risks as broadly supported by the railway sector. The contents of the document include a review of the relationship between the security activities that have already been implemented and new initiatives. The approach to security is based on the following principles:

- The railway network is an open system and shall remain so;
- The approach is based on an analysis of the risks and a joint assessment of the measures;
- The roles and responsibilities are clear and are being worked out in further detail.

The control of railway security is based on a qualitative approach using risk control. This risk control is focused on:

- The reduction of the probability of vandalism, sabotage and terrorism on the railways by measures including ensuring that specific elements of the railway system possess the necessary resilience;
- The reduction of the effect (the limitation of the extent and the damage);
- The promotion of the restoration of the railway system and the transport function and the limitation of the damage to the railway sector's image.

The risks are controlled using the safety methods familiar within the context of railway safety, such as safety management systems, the safety chain, risk analyses and the safety report (the Safety Case). Specific attention is devoted to possible interactions between safety and security measures.
5.9 Personal security of passengers

Insights from the evaluation of the Second Railway Safety Framework Document

Customer appreciation of personal security has increased sharply from 2002. In international benchmarks NS Dutch Railways is awarded an above-average score for customer assessment of personal security in trains and at stations. Although the general level of personal security in public transport has not deteriorated in recent years and a large number of specific measures have been implemented to increase personal security, the incidents that do occur seem more serious. This increased severity of the incidents is the main reason for the decision the Minister of the Interior and Kingdom Relations and the Minister of Transport, Public Works and Water Management took in April 2009 – after urgent consultations with the other parties – to set up a Safer Public Transport Task Force to intensify the approach to countering aggression and to fill the identified gaps. In September 2009, the Task Force presented sixteen measures designed to reduce the number of public transport safety incidents.

Results
Passengers feel safe in trains and at stations.

Responsible parties
Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer appreciation of personal security: % of passengers who award a score of 7 or more for personal security</td>
<td>To be specified by:</td>
</tr>
<tr>
<td></td>
<td>- Ministry of Transport, Public Works, and Water Management and NS Dutch Railways in the transport plan cycle;</td>
</tr>
<tr>
<td></td>
<td>- Decentral authorities and regional carriers</td>
</tr>
</tbody>
</table>

It should be noted that NS Dutch Railways and the regional carriers do not measure personal security using the same method. Consequently, their scores are not readily comparable.7

The customer appreciation of NS Dutch Railways personal security has increased steadily from 71% in 2005 to 78% in 2009. The 2010 transport plan agreed between the Ministry of Transport, Public Works, and Water Management and NS Dutch Railways specifies an ambition of 77% for the period 2011-2014.

![Customer appreciation of NS Dutch Railways personal security](image)

Source: NS Dutch Railways

Activities

The measures proposed by the Safer Public Transport Task Force are being worked out in further detail to provide for the achievement of the required results (and, consequently, the objective).

The parties involved (with the lead party in bold text) are: carriers, Ministry of Transport, Public Works and Water Management, Ministry of Justice, Ministry of the Interior and Kingdom Relations, Public Prosecutions Service, National Police Services Agency and the decentral authorities.

---

7 The regional carriers make use of the public transport customer barometer developed by the Transport Knowledge Resource Centre (KpVV). The survey for this barometer is carried out once a year. The NS Dutch Railways’ customer satisfaction survey (KTO), conversely, is a continual survey. The customer assessment of personal security in the trains and at the stations during the day and in the evenings is expressed in terms of the percentage of respondents that award a score of 7 or more for their security perception in the trains and at the stations during the day and after 17:00 in the evenings. The customer assessment is the arithmetical average of the four separate assessments after being weighted as follows:

- 0.3 * personal security in the trains during the day, before 19:00
- 0.2 * personal security in the trains during the evening, after 19:00
- 0.25 * personal security at the stations during the day, before 19:00
- 0.25 * personal security at the stations during the evening, after 19:00

The Ministry of Transport, Public Works, and Water Management and NS Dutch Railways jointly agree on a lower limit for the customer assessment of personal security. This is included the transport plan.
The safer public transport task force’s end report presents sixteen measures designed to reduce the number of safety incidents in public transport (urban and regional transport and trains). A distinction is made between preventive, preparatory and follow-up measures:

Preventive measures:
1. Integration of personal security in concessions
2. Personal security agreements between employees and employers
3. Punishment in the form of the imposition of travel bans and an expansion of the powers to impose and enforce prohibition orders
4. Enhancement of the powers of extraordinary investigating officers
5. Improvement of the uniform registration of public transport incidents
6. Improvement of the consultative structure and exchange of information between urban and regional carriers and the police
7. Standards and values for the entire public transport sector

Preparatory measures:
8. Expansion and improvement of CCTV supervision on problematical public transport routes (including a pilot trial in which CCTV images are transmitted to traffic control centres and the police)
9. More efficient and sophisticated deployment of supervisory officers in areas in which more than one carrier is active
10. Expansion of human supervision in urban and regional transport
11. Information about and the provision of support for the preparation of local safety arrangements plus consultative structure
12. Training of regional transport bus drivers in hostship and the de-escalation of aggression and violence

Follow-up measures:
13. Improvement of the recovery of loss
14. Organisation of recovery of loss shared services for employers
15. Simplification of the reporting process
16. ‘Weekend away’ pilot trial in public transport

These measures require intensive collaboration between all parties, including the police and the Public Prosecutions Service, in the preparation of a plan for public transport safety and for further agreements on the financing.
6 Safety of work

6.1 Objective: Safety of work in 2020

A permanent improvement has been achieved in the safety of work on and in the vicinity of the railways\(^7\) as compared to the current level; the Netherlands ranks amongst the European top in 2020.

The (occupational) safety of all railway employees has been permanently improved. All organisations active on and in the vicinity of the railways have integrated a safety culture and safety management in full in their operations. The employees of the organisations are highly-trained and competent. The maintenance of rolling stock, the (construction of the) infrastructure and shunting operations are all carried out in a safe way. The railway employees are and feel safe in trains and at stations. The number of personal security incidents is low.

Safety of work issues

This section reviews two main issues: Firstly, the prevention of occupational accidents involving all categories of railway employees, namely track workers, shunters, train drivers, conductors, cleaners and (repair) technicians, etc. and, secondly training and competence. This training lays the foundations for the safety awareness of railway employees and provides them the knowledge they need about the risks associated with their work.

\(^7\) This relates to endeavours to achieve permanent improvement in a manner that ensures that safety is an element of an integral assessment that also takes due account of cost effectiveness (more details are given in Section 2).
6.2 Prevention of occupational accidents

Insights from the evaluation of the Second Railway Safety Framework Document

The safety of track workers on the main railway network does not yet comply with the specified risk standard. However, the five-year average does reveal a decline in the risk. There were no fatalities amongst track workers in 2009.24

Significant measures have been implemented, such as the introduction of the Normenkader Veilig Werken ('Safe Work Standards', NVW) in 2005 and the transfer of the standards to the railAlert Foundation (a successful example of self-regulation by the sector), the more frequent performance of maintenance on taking out of service track, the improvement of the maintenance planning system and the increasing use of innovations that increase the ability to work in safety (such as the mobile workplace and video inspections, etc.).

Endeavours to improve the safety of track workers are primarily focused on the use of safety procedures. Virtually every accident reveals a failure to observe a procedure. A joint report published by the Inspectorate for Transport, Public Works and Water Management and the Labour Inspectorate revealed that the number of work stoppages on the basis of inspections has declined in recent years: track worker compliance with the safety regulations increased from 60 percent in 2007 to 71 percent in 2008. The Inspectorate for Transport, Public Works and Water Management states that although the trend is favourable, the Inspectorate is of the opinion that compliance is still structurally too low. This is in part the reason why a number of agreements have been reached via the railAlert Foundation that are focused on the promotion of a safety culture in the sector.

The study ProRail carried out into 'track worker near-misses' in 2008 also revealed that further improvements in safety are both feasible and necessary. A number of recommendations were drawn up on the basis of this study.

Although there is sufficient time to carry out this maintenance during the night, this is also the reason why railway contractors encounter increasing difficulty in finding qualified employees to carry out the work. Consequently, ProRail is holding consultations with all the parties involved on possible solutions for this problem.

The safety of shunters complied with the standard for the first time in 2008. The five-year average of the risk fell to zero in 2008, and the last fatality occurred in 2003. In 2008, the Inspectorate for Transport, Public Works and Water Management inspected a total of 349 shunting movements at nineteen railway companies: all shunting movements were carried out in accordance with the Railways Act. However, in spite of the above a relatively small group of shunters working in port and industrial areas are exposed to a relatively high risk of collisions between rolling stock and road vehicles. In 2009, the Inspectorate for Transport, Public Works and Water Management carried out an exploratory study into the risks to shunters at level crossings in port and industrial areas and recommended that these risks be assigned a high priority. The primary causes of these risks are the limitation of visibility by obstacles, buildings or rolling stock on the track, road drivers ignoring stop signs, poorly-visible rolling stock - in particular, at night - and the vulnerable position of shunters stationed at the front of the first wagon. The Inspectorate for Transport, Public Works and Water Management estimates that 30 - 50% of all injuries incurred by shunters are caused by the materialisation of these risks in port and industrial areas.

24 The figure for 2009 is a provisional, non-verified figure. The definitive figure in the Inspectorate for Transport, Public Works and Water Management's trend analysis 2009 may vary from the provisional figure.
The number of injuries amongst train drivers and (chief) conductors is considerably lower than in the period before 2000. The trend for train drivers is neutral and for chief conductors favourable. However, a train driver was killed in a collision between two freight trains near Barendrecht in September 2009. An accident of this severity had not occurred since 2004.

Results
Occupational accidents are prevented whenever possible. The railway employees are safe in trains, at stations, on platforms and at marshalling yards and emplacements. The work on and in the vicinity of the railways is carried out in safety.

Responsible parties
### Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWSI$^{15}$ amongst railway employees / year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement Structural ranking among the EU top 4</td>
</tr>
<tr>
<td>Number of track worker fatalities</td>
<td>Permanent improvement, target of zero</td>
</tr>
<tr>
<td>Number of shunter fatalities</td>
<td>Permanent improvement, target of zero</td>
</tr>
<tr>
<td>Number of collisions with track workers</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of electrocutions</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>IF-rate (# accidents with lost time &gt; 24 h / hours worked)</td>
<td>Rolling target: permanent improvement$^{26}$</td>
</tr>
</tbody>
</table>

The NRVs and the other rolling targets are determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4.

Some data required for the specification of the rolling targets for the various types of incidents are currently lacking. One of the activities relates to the sector’s development of these data, followed by the specification of the relevant target (see the Activities subsection).

### Employee risk in the EU

The latest National Reference Values for fatalities amongst employees adopted for the EU Member States are – for the purposes of illustration – listed below. The NRVs are calculated from the figures the Member States submitted for the years 2004-2007. It should be noted that the definitions adopted by various Member States still exhibited differences during these years and for these reason objective comparisons of the NRVs for the various Member States are not yet feasible. The European obligation to make use of the Common Safety Indicators will result in the gradual disappearance of these differences in the coming years. This will improve the feasibility of comparisons of the figures. However, and with the necessary reservations in view of the different definitions used by the different Member States, the latest rankings reveal that the Netherlands is fourth in the employee safety rankings.

---

$^{15}$ FWSI is the abbreviation of Fatalities and Weighted Serious Injuries, a weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.

$^{26}$ The members of the railAlert Foundation have agreed on a target of a 10% improvement per annum. Since data are available for only a limited number of years it is not currently possible to assess the feasibility of this target.
### Member State

<table>
<thead>
<tr>
<th>Member State</th>
<th>NRV (passenger train kilometres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Slovakia</td>
<td>1.50</td>
</tr>
<tr>
<td>2. Sweden</td>
<td>3.76</td>
</tr>
<tr>
<td>3. France</td>
<td>6.68</td>
</tr>
<tr>
<td>4. <strong>Netherlands</strong></td>
<td><strong>6.69</strong></td>
</tr>
<tr>
<td>5. Finland</td>
<td>8.28</td>
</tr>
<tr>
<td>6. Ireland</td>
<td>8.33</td>
</tr>
<tr>
<td>7. Spain</td>
<td>8.33</td>
</tr>
<tr>
<td>8. United Kingdom</td>
<td>8.33</td>
</tr>
<tr>
<td>9. Denmark</td>
<td>9.10</td>
</tr>
<tr>
<td>10. Bulgaria</td>
<td>11</td>
</tr>
<tr>
<td><strong>EURV</strong></td>
<td><strong>14.3</strong></td>
</tr>
</tbody>
</table>

Source: European Railway Agency

### IF rate

The IF rate (Injury Frequency rate) is an accident frequency index. The index is used to calculate accident statistics by company or sector. These statistics give an indication of the degree of safety within a sector and as compared to other sectors.

The railway infrastructure sector has agreed on the following calculation: IF rate = (Number of accidents with lost time > 24 hours * 1 million)/(all working hours paid by the organisation including hours worked by the organisation’s employees, temporary employees and an estimate of the hours worked by the employees of subcontractors). The IF rate relates to the number of accidents that result in lost time in excess of 24 hours. This category of incidents differs from the categories that must be reported to the Labour Inspectorate pursuant to the Working Conditions Act, namely incidents that result in (1) admission to hospital, (2) permanent injury or (3) death.

The members of the railAlert Foundation have agreed on a target of a 10% improvement in the IF rate per annum, a target that is applicable to both the railway infrastructure sector in its entirety and the individual companies active in the railway infrastructure sector. These companies calculate their IF rate once every six months and submit the figures to the railAlert Foundation. The Foundation publishes the six-monthly figures on its website and in its “Alert!” journal. These figures are anonymised. The figures submitted by the companies are strictly confidential and are used with due care. In addition, pursuant to a contractual obligation contractors are required to submit to ProRail figures of lost time resulting from their work.
Activities

The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Periodic evaluation of all accidents and near-misses with all parties. (All railway sector parties, under the direction of ProRail)

2. Permanent attention for continual improvements in the safety of track workers by means such as the implementation of the recommendations from ProRail’s ‘near-miss collisions with track workers’ study in 2008. This study revealed, for example, that attention needs to be devoted to unequivocal communications during the work. (Infrastructure manager (in the role as the client of the contractors), contractors and the railAlert Foundation (in the Foundation’s role in, for example, the provision of information))

3. Improvement in compliance with the Normenkader Veilig Werken (‘Safe Work Standards’, NVW). (Infrastructure manager (in the role as the client of the contractors), contractors (in part within the railAlert Foundation) and IVW)

4. Increased reduction of the risks to shunters on level crossings in port and industrial areas. (Infrastructure manager, carriers and IVW)

5. Facilitation of the relevant parties achievement of a joint solution for the reduction of risks to shunters on level crossings in port and industrial areas by clarifying, where relevant, the regulations relating to level crossings and junctions in port and industrial areas. (Ministry of Transport, Public Works and Water Management)

6. Provision of assurances for the safety of work on emplacements, shunting yards, marshalling yards and similar (for employees including maintenance staff and cleaners). (Site managers, maintenance and cleaning companies and IVW)

7. Additional attention to the supervision of working hours, in particular with respect to ‘self-employed train drivers’ and safety men. (Infrastructure manager (in the role as the client of the contractors), contractors, carriers, other railway organisations and the Labour Inspectorate)

Expansion of the IVW supervisory powers to compliance with the Working Conditions Act

As from 1 January 2010 the Inspectorate for Transport, Public Works and Water Management is empowered, alongside the Labour Inspectorate (AI), to supervise compliance with the Working Conditions Act during work on and to the railways. The Inspectorate for Transport, Public Works and Water Management focuses on the prevention of the risk of collision with track workers. The Inspectorate for Transport, Public Works and Water Management can now, in addition to the powers already granted to the Inspectorate pursuant to the Railways Act, also make use of the far-reaching powers pursuant to the Working Conditions Act, including the preparation of penalty reports and the (preventive) stoppage of work.

The Labour Inspectorate continues to be entrusted with the investigation of accidents in which the working conditions legislation plays a role and continues to deal with complaints submitted by employees and/or their representatives. The Minister of Social Affairs and Employment retains the responsibility for penalties and dealing with objection and appeals procedures. The Inspectorate for Transport, Public Works and Water Management was already jointly empowered to supervise compliance with the Working Conditions Act in the road transport, aviation transport and ship transport domains.

The implementation of these measures is a necessary but not sufficient condition for the provision of assurances for track worker safety.

An exploratory study the Inspectorate for Transport, Public Works and Water Management carried out in 2009 revealed that the risks are relatively high.
6.3 Training and competence

Insights from the evaluation of the Second Railway Safety Framework Document

Training and competence are themes of importance to the provision of assurances for employee safety. In 2007-2008, the majority of the railway companies can demonstrate that their employees with safety duties possess the required competence or medical and psychological suitability certificates. The Inspectorate for Transport, Public Works and Water Management is of the opinion that improvements are still feasible at passenger carriers (97 percent), (sub)contractors (92 percent), suppliers/providers of personnel and maintenance and service companies (93 percent).

The number of personnel supply companies that can declare their employees competent to carry out safety duties in autonomy has increased sharply in recent years. It is necessary to supervise the personnel supply companies to verify that they consistently discharge their responsibility for the competence and suitability of the train drivers and other persons with safety duties that they provide to others.

The Inspectorate for Transport, Public Works and Water Management has carried out an investigation of train drivers’ training and familiarity with the route and concluded that the quality of the practical training rather than the duration of the practical training is the determining factor in the provision of adequate training and education to new train drivers.79

Results
The railway sector’s employees are highly-trained and competent.

Responsible parties
Infrastructure manager, railAlert Foundation, contractors, carriers, training institutes (and a Railway Centre of Expertise that may be set up, see further under the Activities heading, fourth activity), Inspectorate for Transport, Public Works and Water Management (IVW) and Ministry of Transport, Public Works and Water Management.

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance percentage for the duty of administrative care: the possession of the required competence or medical and psychological suitability certificates.</td>
<td>permanent improvement80</td>
</tr>
<tr>
<td>Compliance percentage for the train drivers’ familiarity with the route</td>
<td>permanent improvement81</td>
</tr>
</tbody>
</table>

79 See letter of 27 April 2009, parliamentary paper 29893, no. 82 and general debate of 10 September 2009, parliamentary paper 29893, no 89.
80 The indicators and standards adopted at a European level are shown in bold text.
81 The compliance percentages in different years relating to different enforcement actions are not readily comparable with each other in a quantitative sense: pursuant to the principle of risk-based supervision supervisors will focus on the elements which they suspect could pose a compliance issue. For this reason the interpretation of the compliance percentages always involves a qualitative element.
82 The Inspectorate for Transport, Public Works and Water Management’s test of the compliance percentage for the train drivers’ familiarity with the route includes a check to determine whether the individual train driver has completed a programme and whether the train driver has driven on the relevant route every six months.
83 Ditto as footnote above.
Activities
The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Implementation of the Train Driver Directive adopted by the EU (2007/59/EU). The Directive contains provisions for the training of train drivers together with the requirement for the implementation of a system for the certification of trainers, training institutes and examiners. (Ministry of Transport, Public Works and Water Management and carriers)

2. Retention of the duty of administrative care for (all categories) of railway employees and supervision of the train drivers’ familiarity with the route. (IVW)

3. Modernisation and improvement of training courses. Improvement is, for example, possible by increasing the harmonisation of the theoretical and practical elements of the training and by increasing the attention given to local situations and procedures (familiarity with the route) in the training. In addition, the training programmes can, alongside the attention given to the participant’s specific profession, devote more attention to the railway sector as a whole (a basic ‘Railway’ course) and to interactions with other railway employees and the concomitant risks that may arise (to the other employees). The financing of the training system will need to be reviewed at a later date, an activity which is related to the following activity. (Training institutes)

4. Exploration of the feasibility to reach transparent assignment of tasks, such as the provision of assurances for the availability and accessibility of expertise and professionalism, the detailing of regulations, the assessment of knowledge and competences and the implementation tasks relating to the Train Driver Directive. (Carriers, Ministry of Transport, Public Works and Water Management and IVW)

5. Implementation of (central) records with information about (1) train driver licences, (2) familiarity with the route and (3) dismissals of train drivers. (Carriers)

6. Anticipation of the internationalisation of railway employees (and, for example, the prevention of safety risks that could arise as a result of language problems). (Infrastructure manager, carriers and contractors)

---

*The Directive offers substantial scope for discretion for national selections.*

*Safety risks occur precisely at the interfaces in the chain, i.e. the interfaces between railway traffic manager and train driver, between companies, between the manager and carriers, and between the sector and the authorities.*
7 Safety of life

7.1 Objective: safety of life in 2020

The safety of life around the railways has been permanently improved as compared to the current level.

People in the vicinity of the railways (including the neighbouring residents) can stay and live there in safety. People who deliberately seek risks by accessing the railways without authorisation (irrespective of whether they have the apparent intention of committing suicide) or crossing a level crossing without authorisation are discouraged and impeded in their endeavours.

Safety of life issues
Four issues have been identified for the Safety of life theme. Results and activities have been specified for each of these issues. The issues are:
1. level crossing safety
2. unauthorised persons on the tracks
3. prevention of railway suicide
4. external safety

---

This relates to endeavours to achieve permanent improvement in a manner that ensures that safety is an element of an integral assessment that also takes due account of cost effectiveness (more details are given in Section 2).
7.2 Level crossing safety

Insights from the evaluation of the Second Railway Safety Framework Document

A great improvement has been achieved in level crossing safety: the decline in the number of level crossing fatalities has continued. The number of fatalities amongst level crossing users has fluctuated around the level of 18 in recent years, considerably lower than the target of a maximum of 24 fatalities in 2010. The number of fatalities has declined by more than 70% from 1991 to 2009.

The parties involved state that this result is due to the policy they have pursued. ProRail has implemented a range of measures within the context of the Programma Verbetering Veiligheid Overwegen ('Improvement of Level Crossing Safety Programme', PVVO) that have resulted in a marked improvement in level crossing safety, such as the conversion of automatic flashing light signals (AKIs) into (mini) automatic half-level crossing barriers (AHOBs), the protection of level crossings used by large volumes of traffic and the implementation of other measures including the provision of information and enforcement.

Following a request from the House of Representatives of the States-General the use of the risk-analysis instrument in level crossing policy was intensified as from 2005 including attention to the recreational importance of level crossings at an early stage.

In addition, in the period between 2006-2009 the Minister of Transport, Public Works and Water Management made a total of approximately € 385 million available in two ‘railway bisection’ tranches for the resolution of bottlenecks caused by railways bisecting municipalities. These projects contribute to the further improvement of safety.

Results
Level crossing safety has been improved further. Where necessary, the risks caused by level crossings are reduced by adopting a customised approach.

Responsible parties
Ministry of Transport, Public Works and Water Management, infrastructure manager, Inspectorate for Transport, Public Works and Water Management (IVW), regional and local road managers (provinces, municipalities, plus-regions and water control authorities in their role as road managers), National Police Services Agency
The level crossing policy is based on the ‘no-unless’ principle that is applicable in the following situations:

- No new level crossings are constructed unless the initiator has carried out a risk analysis that demonstrates that the risks are controlled. The decision to construct new level crossings rests solely with the Minister of Transport, Public Works and Water Management once the Minister has sought advice from the IVW.

- No level crossings with a recreational function are eliminated unless analyses carried out by the railway and/or road manager demonstrate that these level crossings pose major risks to railway and road safety and the road manager has reached agreement with ProRail on alternatives (such as elevated crossings). When there are plans to close a level crossing then ProRail enters into timely consultations with recreational interest groups about the recreational importance of the relevant level crossing.

- The traffic function of existing level crossings (the use of a block of track or a public road) may not be modified unless the initiator has carried out a risk analysis which demonstrates that supplementary measures will ensure that the level crossing safety will not be impaired and, consequently, that the risks are controlled. These supplementary measures can also be implemented in the area around the level crossing.

Risk analyses provide an insight into safety risks and the effect of control measures. The results from risk analyses support the decision-making process relating to granting permission for the modification of (the use of) a level crossing. The use of the risk analysis instrument for level crossing policy will be worked out in more detail within the context of ProRail’s level crossing programme.

Pursuant to customary practice, the creator of the risk/initiator carries out a qualitative risk analysis that is assessed by the Inspectorate for Transport, Public Works and Water Management within 6 weeks of the submission of the analysis. The initiator of the project is responsible for the compensation of any reduction of safety levels, where relevant. This is governed by a proportionality principle: the cost of the measures should be in proportion to the safety improvement that can be achieved.

In relation to level crossing policy, municipalities are not only interested in safety aspect, but also in the circulation of road traffic.
Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWSI amongst railway employees / year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement</td>
</tr>
<tr>
<td>FWSI amongst level crossing users / year / (train kilometres*number of level crossings)/ track kilometres</td>
<td>The European Union has not yet adopted a National Reference for this indicator.</td>
</tr>
</tbody>
</table>

The NRVs are determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4. The EU has defined two level crossing safety NRVs. These are shown in the table above. The value of the first indicator has been calculated. The value of the second indicator has not yet been calculated. The second indicator is of importance to the benchmark for the Netherlands in view of the country’s relatively large number of level crossings. This is also the reason why this Framework Document does not currently include any benchmark figures to indicate the relative safety of level crossings. These figures will – if available – be included and explained in the annual railway safety trend reports.

The indicators and standards adopted at a European level are shown in bold text.

FWSI is the abbreviation of Fatalities and Weighted Serious Injuries, a weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.

Ditto.
Timely and close involvement of recreational interest organisations in the implementation of level crossing policy

Recreational interest organisations are intensively involved in and at a timely stage of the implementation of level crossing policy. ProRail gives notification of any intended closures as quickly as possible to the stuurgroep Infrastructurele Barrierevorming (‘Infrastructure Barrier Steering Committee’), comprised of the wandelplatform-LAW (‘Long-distance Rambling Platform Foundation’), the national cycling platform and the Royal Dutch Equestrian Federation. The Wandelplatform-LAW Foundation coordinates the joint response and submits the response to ProRail within the agreed period. ProRail and the road manager review whether the required modification will be implemented (possibly with a revised proposal). When the recreational interest groups attach a recreational importance to the level crossing and cannot concur with the proposed solution submitted by ProRail then the integral risk assessment for the planned closure – including any replacement provisions, such as a tunnel – is submitted to the Inspectorate for Transport, Public Works and Water Management for an assessment.

Activities
A plan of action is being prepared for the achievement of the required results (and, consequently, the objective). The plan of action will list measures focused on the prevention of new unsafe situations caused by and on level crossings, the conduct of road users, knowledge development, studies and tests, supervision and communication, and harmonisation with third parties. The plan of action will also contain specific measures for a customised approach to cost-effective safety improvements to specific categories of level crossings (such as public level crossings without active protection, level crossings near stations and...
level crossings in port and industrial areas). In addition, where relevant level crossing safety will be improved within the scope of current Multi-Year Programme for Infrastructure, Spatial Planning and Transport (MIRT) projects such as the NaNov project (freight transport on the Elst-Deventer-Twente route) and the high-frequency railway transports programme.

The Ministry of Transport, Public Works and Water Management will monitor ProRail’s level crossing safety efforts and results via the management plan cycle. This management plan cycle will include an annual review of the compatibility of the budget with the ambition (endeavours to achieve permanent improvements in level crossing safety).

The parties involved (with the lead party in bold text) are: infrastructure manager, road managers, Inspectorate for Transport, Public Works and Water Management (IVW), Ministry of Transport, Public Works and Water Management, interest organisations.

Increased risks caused by deliberately crossing closed level crossings

On a regular basis, ProRail is carrying out an investigation of the underlying risk factors of level crossing accidents. This has revealed that the Programma Verbetering Veiligheid Overwegen (‘Improvement of Level Crossing Safety Programme’, PVVO) has resulted in a major decline in the number of accidents caused by the unintentional crossing of level crossings. However, ProRail’s accident analyses indicate that level crossings near stations constitute a risk group: a relatively large number of accidents occur on level crossings near stations, since some road users experience time pressures and then deliberately ignore the red lights - with the concomitant risks.

7.3 Unauthorised persons on the tracks

The European definition of ‘unauthorised persons on railway premises’ is as follows: any person present on railway premises where such presence is forbidden, with the exception of level crossing users. It should be noted that persons with the apparent intention of committing suicide are also excluded.

Insights from the evaluation of the Second Railway Safety Framework Document

The number of fatalities amongst unauthorised persons accessing the railways has declined by more than 90% since 2003 and was zero in 2009. Measures have been implemented to prevent unauthorised access to tracks whenever possible, such as fencing in the track, the installation of CCTV at high-risk locations, the provision of information to risk groups and the intensification of supervision.

Results

Unauthorised persons cannot readily gain access to the tracks.

Responsible parties
Infrastructure manager, National Police Services Agency, site managers (such as emplace-ments, marshalling yards), carriers, Ministry of Transport, Public Works and Water Management, Inspectorate for Transport, Public Works and Water Management (IVW).

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>FW$^{64}$ amongst unauthorised persons on the tracks / year / thousand million train kilometres</td>
<td>National Reference Value: permanent improvement Structural ranking among the EU top 3</td>
</tr>
</tbody>
</table>

The NRV is determined at periodic intervals for the following year in accordance with the system described in subsections 4.2.3 and 4.2.4.

Number of fatalities amongst unauthorised persons

Source: IVW trend analyses.

Risk to unauthorised persons in the EU

The latest National Reference Values for fatalities amongst unauthorised persons adopted for the EU Member States are – for the purposes of illustration – listed below. The NRVs are calculated from the figures the Member States submitted for the years 2004-2007. It should be noted that the definitions adopted by various Member States still exhibited differences during these years and for these reason objective comparisons of the NRVs for the various Member States are not yet feasible. The European obligation to make use of the Common Safety Indicators will result in the gradual disappearance of these differences in the coming years. This will improve the feasibility of comparisons of the figures. However, and with the necessary reservations in view of the different definitions used by the different Member States, the latest rankings reveal that the Netherlands is first in the safety of unauthorised persons rankings.

$^{64}$The indicators and standards adopted at a European level are shown in bold text.

$^{65}$FW$^{65}$ is the abbreviation of Fatalities and Weighted Serious Injuries, a weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.
<table>
<thead>
<tr>
<th>Member State</th>
<th>EURV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Netherlands</td>
<td>28.2</td>
</tr>
<tr>
<td>2. France</td>
<td>69.7</td>
</tr>
<tr>
<td>3. Belgium</td>
<td>75.5</td>
</tr>
<tr>
<td>4. Luxembourg</td>
<td>83.7</td>
</tr>
<tr>
<td>5. Ireland</td>
<td>94.7</td>
</tr>
<tr>
<td>6. United Kingdom</td>
<td>94.7</td>
</tr>
<tr>
<td>7. Sweden</td>
<td>98.1</td>
</tr>
<tr>
<td>8. Germany</td>
<td>106</td>
</tr>
<tr>
<td>9. Austria</td>
<td>117</td>
</tr>
<tr>
<td>10. Italy</td>
<td>119</td>
</tr>
<tr>
<td>EURV</td>
<td>237</td>
</tr>
</tbody>
</table>

Source: European Railway Agency

Activities
The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Measures to impede access to the track and to emplacements, shunting yards, marshalling yards etcetera. In part within the context of the plan of approach to the prevention of railway suicides being developed by ProRail. (Infrastructure manager and site managers)
2. Prevention of unauthorised access to railway track and premises. (Infrastructure manager, National Police Services Agency, site managers and IVW)
3. Reporting the presence of unauthorised persons on the tracks (to the train services management). (Carriers)

7.4 Prevention of railway suicides

Insights from the evaluation of the Second Railway Safety Framework Document

The Ministry of Transport, Public Works and Water Management and the railway sector are contributing to the reduction of the number of suicides by endeavouring to reduce the number of railway suicides. The annual number of railway suicides has remained roughly constant over a longer period of time. The annual average is 181 in recent years. There were 197 railway suicides in 2009.

Although the number of railway suicides cannot readily be influenced and a range of measures have been implemented in an endeavour to reduce the number of railway suicides (such as measures to impede access at a number of hot spots, a pilot trial with motion sensor lighting, the formulation of media guidelines intended to limit the attention the media gives to suicides and the repair of defective fencing near psychiatric institutions), there is still room for improvement (for example, the acquisition of knowledge about the effectiveness of measures). Knowledge about the railway suicide issue has increased and continues to increase: however, at present relatively little is known about the effectiveness of measures.
Results

An adequate insight into railway suicides has been obtained and effective measures for the reduction of the number of suicides have been developed and implemented.

Responsible parties


Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of railway suicides</td>
<td>ALARP</td>
</tr>
<tr>
<td>Number of railway suicides / thousand million train kilometres</td>
<td>ALARP</td>
</tr>
</tbody>
</table>

Activities

A plan of action is being prepared for the achievement of the required results (and, consequently, the objective). The plan of action will include measures focused on the monitoring and analysis of trends, physical measures, knowledge development, supervision, dealing with incidents and communication.

The parties involved (with the lead party in bold text) are: infrastructure manager, carriers, National Police Services Agency, IVW, centres of expertise, Ministry of Health, Welfare and Sport, Ministry of Transport, Public Works and Water Management, Trimbos Institute and emergency services.

---

96 The indicators and standards adopted at a European level are shown in bold text.

97 Europe has not (yet) developed a National Reference Value for this indicator. The Minister of Health, Welfare and Sport has stated the intention of achieving a reduction of the total number of suicides of 5% per annum. Railway suicides usually account for about one-eighth of the total number of suicides.
7.5 External safety

Insights from the evaluation of the Second Railway Safety Framework Document

The objective – the continuation of the figure of zero fatalities per annum – has been achieved. During the 1999-2009 period only one incident occurred involving one slightly-injured person in the vicinity of the railways.

Developments of great importance to the safe transport of dangerous goods were the commissioning of the Betuweroute railway in June 2007, agreements with Shell and BP on the maximum possible use of this railway line for the transport of dangerous goods and the investments in the installation of the improved version of the Netherlands’ ATB automatic train protection system (ATB-Vv) for approximately 100 signals to achieve a further reduction of the risks associated with the transport of dangerous goods on railway lines in the South of the Netherlands (including the Brabant route). In addition, policy has been developed for the termination of a number of existing structural chlorine and ammonia railway transports and for the prevention of new undesirable dangerous goods flows. Pursuant to this policy the largest structural chlorine transport was terminated in 2006. The decision-making on the Basisset Spoorn (‘Basic Railway Network’) is also expected in 2010. This Basisnet Spoor imposes a limit on the risks carriers cause by the transport of dangerous goods in the built environment.

Results

Serious accidents involving transports of dangerous goods on the railways are prevented. No fatalities or injuries are caused by the release of dangerous goods.

Responsible parties

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>FWSI(^{100}) amongst ‘others (third parties)’ / year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement</td>
</tr>
<tr>
<td>Number of accidents involving at least one railway vehicle transporting dangerous goods / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of such accidents in which dangerous goods are released / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Number of fatalities per annum caused by such accidents.</td>
<td>Target of zero</td>
</tr>
</tbody>
</table>

The NRVs and the other rolling targets are determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4.

**Viareggio**

A train accident occurred in the city of Viareggio in Italy on 29 June 2009 in which a goods train derailed as it entered the station. The first of the 14 LPG tank wagons, which had derailed, was punctured by a sharp object alongside the track. The gas cloud released from the wagon was then ignited and exploded, causing many fatalities and injuries. The derailment was probably caused by a broken axle. This accident is expected to result in the tightening of the European rolling stock requirements. A European study is being carried out into the appropriate maintenance interval for rolling stock, measures to counter derailments and the prevention of the breakage of axles.

---

\(^{98}\) Standards have been defined in external safety regulations. These are not specified in further detail in this document.

\(^{99}\) The indicators and standards adopted at a European level are shown in bold text.

\(^{100}\) FWSI is the abbreviation of Fatalities and Weighted Serious Injuries, a weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.

\(^{101}\) The European definition of “others (third parties)” is: all persons not defined as "passengers", “employees including the staff of contractors”, “level crossing users” or “unauthorised persons on railway premises”. This includes the neighbouring residents and persons in the vicinity of the railways. The Netherlands has achieved a score of zero for this indicator for many years.
Accidents with dangerous goods

During the 1999-2009 period there was one incident involving one slightly-injured person in the vicinity of the railways. In 2009, there were no injuries at all in the vicinity of the railway system.

In 2007, there were no collisions between trains and no collisions with trains on level crossings. However, there were five goods train derailments, four of which involved wagons transporting dangerous goods. For as far as is known the consequential damage was slight in all five incidents. One derailment of a goods train occurred in 2008 which involved wagons transporting dangerous goods (alongside one derailment of a goods train which did not involve wagons transporting dangerous goods). This derailment did not result in injury or the release of dangerous goods.

A collision that occurred in Barendrecht in 2009 involved a train transporting dangerous goods. The driver of one of the freight trains was killed. There were no fatalities in the area. In addition, one derailment of a goods train occurred in 2009 (near Venlo) involving a transport of dangerous goods. The number of collisions and derailments fluctuates greatly from year to year: there is no indication of a trend in the number of incidents.\(^{102}\)

Activities

The ‘external safety’ issue and, consequently, the transport of dangerous goods issue exhibits a strong relationship with the safety of the infrastructure and the safety of the rolling stock. The activities relating to these issues are listed in ‘Accidents (passenger and freight trains),’ ‘Railway infrastructure,’ and ‘Rolling stock’ subsections of the ‘Safety of transport’ Section.

The specific activities that will be carried out to achieve the required results (and, consequently, the objective) with respect to external safety are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

\(^{102}\) Trend analysis 2009.
1. Entry of the Basisnetregels ('Basic Network Regulations') into force during the course of 2011. (Ministry of Transport, Public Works and Water Management)

2. Conclusion of a covenant between the Central Government and the business community (carriers and shippers who arrange for railway transports of dangerous goods), laying down that the parties shall - and the manner in which they shall - make every endeavour to compile as many ‘Hot BLEVE-free’ trains as possible. The Central Government and the business community will also endeavour to reach international agreement on the composition of Hot BLEVE-free trains. (Ministry of Transport, Public Works and Water Management, shippers and carriers)

3. The sector’s joint implementation of measures designed to prevent and control (new) accidents as based on the conclusions and recommendations from accident investigations carried out by the IVW and/or Dutch Safety Board and international accident investigations. (Infrastructure manager, carriers, contractors, Inspectorate for Transport, Public Works and Water Management and Dutch Safety Board). See also subsection 5.3.2

4. Arrangements for the transport of dangerous goods via transport axes with adequate space for the risk zone, such as the Betuweroute railway (in accordance with the Basisnet Spoor ['Basic Railway Network']). (Infrastructure manager, carriers)

5. Due regard for the risk zone, in accordance with the Basisnet Spoor ('Basic Railway Network'), with respect to spatial planning for and buildings in the vicinity of the railway. (Municipalities)

6. Specific attention to the transport of dangerous goods when detailing the safety regions’ crisis control plans (detailing of the Train Incident Management plans). (Safety regions, Netherlands Association for Fire Brigade Service & Disaster Relief)

---

103 A train is Hot BLEVE-free when the distance between a wagon with flammable gas and a wagon with highly flammable liquid is greater than 18 metres. The probability of a gas explosion – a Boiling Liquid Expanding Vapour Explosion – caused by a pool fire is then very small.
8 Overall objective

Insights from the evaluation of the Second Railway Safety Framework Document

An analysis of the achievement of the objectives laid down in the Second Railway Safety Framework Document reveals an overall favourable situation. The Dutch railways have achieved a high level of safety for many years, as is demonstrated by the Inspectorate for Transport, Public Works and Water Management’s annual railway safety trend analyses. An external study carried out in 2008 also revealed that the Netherlands achieves average or above average scores for railway safety indicators as compared to other European countries, this whilst the volume of passengers and freight carried by rail (passenger and freight tonne kilometres) has increased in recent years and the Dutch railway network is used much more intensively than the networks in other countries.

A large number of measures designed to increase and maintain high levels of safety have also been implemented during the period between 2005 and 2010. However, at the same time it is necessary to conclude that there is no such thing as absolute safety and that, consequently - and irrespective of the measures that may be implemented - it is unrealistic to expect that incidents or accidents resulting in fatalities and/or injuries will never occur. For this reason it is necessary to obtain the best possible insight into the risks and implement the appropriate measures to control those risks. The policy is focused on providing assurances for a high level of safety by endeavouring to achieve permanent improvements in railway transport safety. Consequently, all parties will need to remain vigilant.

During the period from 2005-2007 the number of parties with an access agreement increased from 22 to 30 and the annual number of train kilometres increased from 127 million to 143 million.
8.1 Overall objective: safety of transport, safety of work and safety of life in 2020

Permanent improvements in the safety of transport on the railways, safety of work on and around the railways and safety of life around the railways have been achieved as compared to the current level and Netherlands ranks amongst the European top in 2020.

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total FWSI / year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement Structural ranking among the EU top 5</td>
</tr>
</tbody>
</table>

The NRV is determined at periodic intervals in accordance with the system described in subsections 4.2.3 and 4.2.4.

Overall safety risk in the EU

The latest National Reference Values for all risk bearers (excluding railway suicides) adopted for the EU Member States are – for the purposes of illustration – listed below. The NRVs are calculated from the figures the Member States submitted for the years 2004-2007. It should be noted that the definitions adopted by various Member States still exhibited differences during these years and for these reasons objective comparisons of the NRVs for the various Member States are not yet feasible. The European obligation to make use of the Common Safety Indicators will result in the gradual disappearance of these differences in the coming years. This will improve the feasibility of comparisons of the figures. However, and with the necessary reservations in view of the different definitions used by the different Member States, the latest rankings reveal that the Netherlands is fourth in the overall safety rankings.

---

95 This relates to endeavours to achieve permanent improvement in a manner that ensures that safety is an element of an integral assessment that also takes due account of cost effectiveness (more details are given in Section 2).
96 The indicators and standards adopted at a European level are shown in bold text.
97 FWSI is the abbreviation of Fatalities and Weighted Serious Injuries, a weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.
98 This relates to: (1) passengers, (2) employees, (3) level crossing users, (4) unauthorised persons on railway premises and (5) ‘others’. Railway suicides are not included in this indicator.


<table>
<thead>
<tr>
<th>Member State</th>
<th>NRV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ireland</td>
<td>37.7</td>
</tr>
<tr>
<td>2. Luxembourg</td>
<td>49.7</td>
</tr>
<tr>
<td>3. United Kingdom</td>
<td>131</td>
</tr>
<tr>
<td>4. Netherlands</td>
<td>166</td>
</tr>
<tr>
<td>5. France</td>
<td>179</td>
</tr>
<tr>
<td>6. Sweden</td>
<td>188</td>
</tr>
<tr>
<td>7. Germany</td>
<td>206</td>
</tr>
<tr>
<td>8. Denmark</td>
<td>218</td>
</tr>
<tr>
<td>9. Italy</td>
<td>235</td>
</tr>
<tr>
<td>10. Belgium</td>
<td>273</td>
</tr>
<tr>
<td>EURV</td>
<td>401</td>
</tr>
</tbody>
</table>

Source: European Railway Agency

8.2 Integral cooperation on the interfaces between responsibilities

Results
There is appropriate cooperation on the interfaces between responsibilities, not only within the railway sector but also with the relevant parties outside the sector.

Responsible parties
All parties.

Activities
The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Improvement of the cooperation on the interfaces between responsibilities, not only within the railway sector but also with the relevant parties outside the sector, such as the emergency services. (All parties in the sector)
2. Enhancement of and links between the railway sector’s knowledge function relating to safety and the role of various relevant centres of expertise, such as the railAlert Foundation, the OVS (‘Railway Company Safety Consultative Body’) and the Transport Safety Platform. (All parties in the sector)
3. Revision of elements of the safety regulations on the basis of the evaluation of railway legislation. The specific actions are listed in Subsection 3.2. (Ministry of Transport, Public Works and Water Management)
4. Further development of risk-based supervision. (IVW)
8.3 Innovation

**Insights from the evaluation of the Second Railway Safety Framework Document**

Numerous technological developments and innovations result in increased safety, such as mobile workplaces developed and commissioned for rail maintenance. Systems have also been developed for video inspections of the track (inspections of the track using a train equipped with video cameras). Innovations are resulting in continual improvements in the collision safety of new trains and an Online Systeem Vervoer Gevaarlijke Stoffen (‘Online registration system for the Transport of Dangerous Goods’, OVGS) contains information about the transport of dangerous goods that enables the emergency services to work faster and more effectively in response to a disaster. In addition, an improved version of the Netherlands’ ATB automatic train protection system (ATB-Vv) is being introduced (operational in the majority of trains and in more than 1100 signs at the end of 2009) and ERTMS is being installed on a number of track sections. The new public transport smart card can result in a further improvement of personal security in the trains and at the stations. These and other innovations have contributed to an improvement in safety levels.

**Results**
The sector’s innovative capacity is encouraged. Innovations that are tested, developed further and rolled out in the sector contribute to the safety of rail transport and the safety of railway employees.

**Responsible parties**
All parties.

**Activities**
Work is carried out on the development, promotion and implementation of innovations to achieve the required results (and, consequently, the objective).
The parties involved (with the lead parties in bold text) are: carriers, infrastructure manager, contractors and Inspectorate for Transport, Public Works and Water Management (IVW).
8.4 Safety management

**Insights from the evaluation of the Second Railway Safety Framework Document**

ProRail achieved a great deal of development in the company’s safety management system (SMS) during the period from 2006 to 2008. The Inspectorate for Transport, Public Works and Water Management assessed the system in 2008 and concluded that the SMS complies with the requirements laid down in the European Safety Directive.

Other parties (including the Ministry of Transport, Public Works and Water Management) have also introduced an SMS, even though this was not a statutory requirement. This is applicable to parties including railway contractors, maintenance workshops, inspection bodies and institutes, and subcontractors.

**Results**

Continual focus on (new) safety risks and the control of those risks. All organisations carrying out work on and around the railways have implemented a safety management system (SMS). A structural examination of any safety risks (a risk analysis) is carried out prior to every material modification or modernisation of the railway system - such as the construction of new elements of the railway infrastructure, the introduction of new train schedules, the commissioning of new rolling stock or the amendment of procedures - and any risks that are identified are controlled.

**Responsible parties**
All parties.

**Activities**

The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Supervision of the railway parties' SMSs (statutory duty). (IVW)
2. Full integration of safety management in each party's organisation (in accordance with the statutory regulations). The objectives and activities laid down in the Third Framework Document are incorporated in this safety management. (All parties in the sector)
3. Participation in the European exploration of the feasibility of expanding the scope of the statutory requirement to implement an SMS to include other organisations such as trainers, examination institutes and workshops. (Ministry of Transport, Public Works and Water Management and Inspectorate for Transport, Public Works and Water Management)
4. Learning from incidents and investigations carried out by the Inspectorate for Transport, Public Works and Water Management, Labour Inspectorate, Dutch Safety Board and other agencies. (All parties in the sector)
5. Implementation of European regulations including Regulation 352/2009 of 24 April 2009 (adoption of a common safety method on risk evaluation and assessment). (All parties in the sector)
8.5 Safety culture

Insights from the evaluation of the Second Railway Safety Framework Document

The sector’s safety culture has been enhanced, as is apparent from the railway organisations’ inclusion of this issue on their agendas and from investigations carried out by the Inspectorate for Transport, Public Works and Water Management and Dutch Safety Board which reveal that safety systems are receiving increased attention. However, in some instances an organisation’s safety culture could receive even more attention. No measurement instrument for the quantification of the corporate safety culture within the railway sector is currently available.

Results
The sector demonstrates a safety culture. The railway employees exhibit a high degree of safety awareness. Unsafe working conditions are not tolerated.

Responsible parties
All parties.

Indicators and targets

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance percentage with the safety regulations (NVW) amongst track workers</td>
<td>permanent improvement[^10]</td>
</tr>
<tr>
<td>Compliance percentage with the safety regulations amongst shunters</td>
<td>permanent improvement[^11]</td>
</tr>
</tbody>
</table>

The decision to incorporate specific indicators for shunters and track workers was taken in response to the evaluation of the Second Railway Safety Framework Document that concluded that the safety of these groups of employees is an issue requiring attention (see also Subsection 6.2).

Activities
The activities that are being carried out to achieve the required results (and, consequently, the objective) are summarised below. The parties involved are enclosed between brackets and the lead party or parties are in bold text.

1. Operationalisation of compliance percentage indicators. (IVW)
2. Further enhancement and integration of the safety culture in the party’s organisation on the basis of best practices. (All parties in the sector)
3. Development of a measurement instrument for the quantification of corporate safety culture within the railway sector (All parties in the sector)

[^10]: The indicators and standards adopted at a European level are shown in bold text.
[^11]: The compliance percentages in different years relating to different enforcement actions are not readily comparable with each other in a quantitative sense: pursuant to the principle of risk-based supervision supervisors will focus on the elements which they suspect could pose a compliance issue. For this reason the interpretation of the compliance percentages always involves a qualitative element.
[^12]: Ditto.
The previous sections formulated the railway safety objectives for the 2010-2020 period. A number of activities were included (non-exhaustively). The budgetary consequences of the objectives and activities incorporated in this document will, to the extent that they are not included in the national budget or the Infrastructure Fund, be included in the budgets of the parties involved in line with the responsibilities of those parties.

Article 13 of the budget for the Infrastructure Fund gives account for the railway products, a product article which is related to the policy objectives laid down in policy articles 32.02 (reduction of the number of traffic fatalities on the railways), 32.03 (improvement of public transport personal security), 33.01 (improvement of external safety), 33.04 (protection from wilful disruption), 34.03 (railway network) and 34.04 (decentral/regional transport network).

The national funds currently made available to achieve the objects are included in the Infrastructure Fund’s 2010 budget.

A plan of approach has been (or is being) prepared for the following spearheads:

**SPAD target**
The serious train accident that occurred in September 2009 gave cause to an independent investigation of the approach to the reduction of the number of SPADs. The results from this independent investigation will be used to determine whether and, if so, how many extra signs will be equipped with the improved version of the Netherlands’ ATB automatic train protection system (ATB-Vv). In addition, a review will be made of the additional measurements that are advisable for the improvement of train driver alertness/vigilance. The efficiency gains that have been achieved by ProRail will be allocated to the funding of the costs incurred, where relevant, in equipping signs with ATB-Vv.112

---

112 House of Representatives of the States-General, 2009-2010, parliamentary paper 29984, no. 207.
**Level crossings**

Level crossing safety has improved greatly during the past ten years. ProRail is drawing up a plan of approach for the further improvement of level crossing safety. It is, for the time being, assumed that the funds now budgeted will be sufficient for the achievement of the objective. The Infrastructure Fund’s 2010 budget includes, in addition to the regular management and maintenance budget, the following budget items relating to the long-term Programma Verbetering Veiligheid Overwegen (‘Improvement of Level Crossing Safety Programme’, PVVO) (conversion of automatic flashing light signals (AKI) plan and safety bottlenecks):

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion of automatic flashing light signals (AKI) plan and safety bottlenecks</td>
<td>€ 38 mill.</td>
<td>€ 30 mill.</td>
<td>€ 10 mill.</td>
<td>€ 10 mill.</td>
</tr>
</tbody>
</table>

The application of most of these funds has already been adopted. This management plan cycle will include an annual review of the compatibility of the budget with the ambitions. Funds for the improvement of level crossing safety have also been allocated within the scope of specific projects such as the High Frequency Railway Transport Programme and Railway Bisection projects.

**Suicide prevention**

The number of attempted railway suicides with fatal consequences has remained roughly constant over the past years. The Minister of Health, Welfare and Sport has prepared a policy agenda for the prevention of suicides designed to reduce the number of suicides in the Netherlands. The railway sector welcomes an opportunity to make a contribution to this objective by implementing measures to reduce the number of railway suicides. These measures relate to an intensification of existing measures such as the installation of fencing and removal of vegetation at hotspots, as well as the broader application of successful innovative measures such as the installation of cameras and motion sensor lighting at platforms and level crossings, and communication pillars on platforms. Cooperation with mental healthcare organisations in the vicinity of hotspots, centres of expertise and carriers is necessary to guarantee the effective implementation of these measures. ProRail is preparing a plan of approach. The costs incurred in the implementation of the plan will be funded by means of a reprioritisation of ProRail’s programme budget.

Future decision-making within the context of the Brede Heroverwegingen (the general review of the Netherlands’ national budget designed to cut back government spending) may exert an influence on the policy reviewed in this document.
Annex A:

Security on the Railways

A1 Introduction
A1.1 Reason for, objective and scope of this document
A1.2 Background and approach
A1.3 The contents of the Security on the Railways Document

A2 Railway security policy
A2.1 Viewpoint on security policy
A2.2 Overall safety is safety AND security
A2.3 Objective of the railway security policy
A2.4 Principles and preconditions

A3 The international perspective
A3.1 International comparative study
A3.2 International security perspective

A4 Roles and responsibilities
A4.1 The authorities
A4.2 The railway sector
A4.3 Administrative legal instruments
A4.4 Method used to assure the security of the railway sector

A5 Implementation on the basis of risk control
A5.1 Qualitative approach
A5.2 Risk analyses as an instrument
A5.3 Relationship with other programmes
A5.4 Infrastructure Manager and carriers
A5.5 Freight transport by railway and regional railway transport

A6 Finance
The Railways: safety of transport, safety of work and safety of life
Security incidents on the railways are an everyday occurrence, incidents including unauthorised persons on the tracks, graffiti, wanton destruction, and third-party disruptions (vandalism). The railways can be confronted with both small-scale and large-scale incidents. Unfortunately, terrorist attacks on metros, stations and trains, such as in Madrid on 11 March 2004, London on 7 July 2005, and Moscow on 29 March 2010, have once again made clear that the railways - together with their passengers and employees - can be a vulnerable potential target for terrorist attacks.

This document reviews the manner in which the control of these risks needs to be given shape. The work on this document was initiated as a result of the ambition to draw up a specification of the approach to railway counterterrorism measures. It gradually became clear that it would be advisable to expand the document to a review of the entire spectrum, namely from vandalism to terrorism.

A1.1 Reason for, objective and scope of this document

The objective of this Security on the Railways Document is to offer the railway sector a directional framework for the control of railway security risks. Within this context ‘railway sector’ refers to the Infrastructure manager of the railways and the railway carriers\footnote{For the purposes of clarity this document refers to ‘railway carriers’. The railway legislation and European directives usually refer to railway carriers as ‘railway undertakings’} of passengers and freight.

This document also includes a clarification of the roles, responsibilities and powers of the parties involved in the approach to railway security.

The Security on the Railways Document does not contain new policy: the document is focused on the specification of a risk approach adopted in practice some time ago and to elevate the
approach to the standard (in the control relationship between the Ministry of Transport, Public Works and Water Management, ProRail and NS Dutch Railways). However, the safety domain is emphatically expanded to include the security issue, and for this reason the security issue has been incorporated as a new element of the Third Railway Safety Framework Document.

Scope
The policy is focused on (railway transport on) the main railway lines designated as by Royal Decree, namely the railway lines with an infrastructure that is managed and maintained on the request of the Minister of Transport, Public Works and Water Management. The operation of these railway lines can be carried out on the request of the Minister (for example, by means of the concession granted to NS Dutch Railways), on the request of a decentral authority (decentralised passenger transport) or as a result of a private initiative (freight transport). Consequently, the precondition is ministerial responsibility for and influence on the management and maintenance of the infrastructure and, as a result, the safety of the relevant railway lines. With this precondition the scope of the document is compatible with that of the Third Railway Safety Framework Document.

This document is also compatible with the prevailing administrative legal framework, the associated instruments laid down in railway legislation and the existing control and supervisory relationships between the Ministry of Transport, Public Works and Water Management, ProRail and NS Dutch Railways.

A1.2 Background and approach

The authorities, including the Ministry of Transport, Public Works and Water Management and other parties including the railway sector, have already carried out a wide range of activities and implemented suitable measures to improve railway security: for example, in 2005 railway scenarios were drawn up in cooperation with the railway sector and existing measures ranging from pro-action to follow-up measures in the safety chain were reviewed in relation to other sectors and measures. NS Dutch Railways and ProRail linked up with the Counterterrorism Alert System (ATb) of the National Coordinator for Counterterrorism.

In 2007, the Ministry of Transport, Public Works and Water Management requested a study of the railway security methods adopted by a number of other Member States. This also extended to a comparison of other Ministry of Transport, Public Works and Water Management sectors such as the aviation and ocean shipping sectors. The results, conclusions and recommendations from this study were used during the preparation of this Security on the Railways Document.
Representatives from ProRail, NS Dutch Railways and the Ministry of Transport, Public Works and Water Management discussed the advisable approach to the control of railway security risks. They came to the conclusion that the main issues to be addressed are control using a risk-oriented approach, the creation of the necessary conditions in the legislation and regulations, where relevant, the financing, and a clear distribution of the roles. The Ministry of Transport, Public Works and Water Management requested ProRail to organise pan-sector consultations on the contents of the draft Security on the Railways Document. These consultations took place in mid 2009. Virtually all railway carriers submitted a response to the document: the essence of the approach reviewed in the draft document received a favourable response.

This document contains the ministerial, interministerial and railway sector viewpoint on the control of railway security risks, focused on passengers, goods, employees and the railway infrastructure such as stations, emplacements and marshalling yards. This document, in view of the nature of the issue, does not contain specifications or information about the planning of specific measures: the document focuses on a description of the process and the division of roles in the approach.

A1.3 The contents of the Security on the Railways Document

This document contains a viewpoint on the approach to railway security and the process for the achievement of an adequate level of protection for the railways. This first Section, the introduction, is followed by a Section on the policy viewpoint on the approach to railway security, including the definitions of safety and security and their mutual relationship. Section Two also explains the objective of and reasons for a broader interpretation of the meaning of ‘railway security’, i.e. counterterrorism measures
supplemented measures designed to counter railway vandalism and crime and promote personal security on and in the region of the railways. In addition, this Section reviews important principles of and preconditions attached to the railway security policy.

Section Three reviews international initiatives and outlines the approach to railway security in other EU Member States.

Section Four discusses how the control of railway security works in practice within the relationship between the Ministry of Transport, Public Works and Water Management – the Ministry’s Directorate-General for Mobility (DGMo) – the other ministries and the railway sector. This Section also reviews the roles and responsibilities, the administrative legal instruments that can be deployed in the approach to railway security and examines a number of programmes already in progress to give a further explanation of the approach to security. These include the Protection of the Vital Infrastructure project, the National Safety Strategy and the Counterterrorism Alert System. The Section concludes with an explanation of the manner in which the approach to security can be integrated in the railway sector and the issues that will receive the main attention during the coming five years.

Section Five discusses the implementation, which employs a qualitative approach based on risk analyses. This Section also examines issues that can be regarded as elements of ‘good housekeeping’ and the duty of care borne by NS Dutch Railways and ProRail pursuant to their concessions. This is based on the measures focused on the provision of assurance for the basic security of the normal operations but also - within the context of the necessary preparations and crisis control - the formulation of appropriate disaster plans and scenarios and their maintenance in an up-to-date condition.

Section Six contains the financial provisions.
A2 Railway security policy

A2.1 Viewpoint on safety policy

The Ministry of Transport, Public Works and Water Management has developed a viewpoint on safety\textsuperscript{114} that serves as the leitmotif for the development of security policy for the road, water, aviation and railway sectors. This viewpoint is based on the following four core elements:

1. endeavouring to achieve permanent security improvements, whereby interim targets and standards such as milestones can be set;
2. making the measures and the associated costs transparent and submitting them as choices to politicians;
3. preparing for unavoidable risks (there is no such thing as absolute security);
4. implementing or making arrangements for the implementation of security management and a security culture within organisations and maintaining the safety management system/safety culture.

The endeavours to achieve permanent improvement are based on the structural reduction of the probability of fatalities, injuries and damage. Even when the relevant targets have been achieved it is certainly necessary to continue to implement measures that are beneficial to overall safety provided that they are desirable, feasible and economical (‘from good to better’). This is also referred to as the ‘As Low As Reasonably Practicable’ principle (ALARP).

The second core element of the viewpoint provides the method used to work with a number of scenarios in which an increasing ambition level is related to costs, results and feasibility. This ensures that the choices available to politicians and society are clear.

\textsuperscript{114} Safety policy assessment, CVS programme directorate, Ministry of Transport, Public Works and Water Management, June 2002
In combination, the first two elements of the viewpoint on overall safety result in endeavours to achieve permanent improvement in a manner in which overall safety is part of an integral assessment on the basis of cost effectiveness.

Risks are unavoidable: the recognition and acceptance of this fact is the third element of the viewpoint on overall safety, which results in the insight that overall safety extends beyond solely the implementation of preventive measures: the recognition of the effects and consequences of disasters and crises and the control of dealing with them is of equal importance.

The fourth core element is the implementation of overall safety management as an important condition to be met for the achievement of permanent improvement and the control of overall safety issues in a structural, preventive manner.

The above elements have already been implemented for the safety policy and, on the preparation of this document, are also applicable to the detailing of railway security policy. However, it should be noted that it is often impossible to provide quantitative substantiation for security requirements – with interim targets and milestones – since these are largely qualitative.

**A2.2 Overall safety is safety AND security**

This document makes use of the following definitions:

- **Safety**: the endeavour to avoid undesirable incidents such as disasters, system or process errors and human failure whenever possible.
- **Security**: measures to counter wilful disruption. Wilful disruption can be caused by deliberate human action of gradations ranging from minor disruptions such as causing hindrance and vandalism to major disruptions such as criminal acts, sabotage and terrorism.
- **Overall safety**: the totality of all safety and security efforts designed to provide reasonable protection to systems, processes, persons or objects from (the threat of) accidents, impairment or damage.

"Traditional" railway safety focuses on the internal safety of the actual railway system, such as the safety of the railway system for passengers, railway employees, level crossing users and the external safety of persons in the vicinity of the railways with respect to the transport of dangerous goods. This is always referred to as ‘safety’.

The railway transport safety policy was formulated in the Safety on the railways Second Railway Safety Framework Document that was discussed during the consultations between the Minister of Transport, Public Works and Water Management and the House of Representatives of the States-General in January 2005. An evaluation of the Second Framework was carried out on the request of the Ministry of Transport, Public Works and Water Management in 2009. The results from this evaluation were used during the formulation of the Safety of transports, Safety of work and

---

115 The definitions are derived from the Bescherming vitale infrastructuur (‘Protection of the Critical Infrastructure’) report (House of Representatives of the States-General, 2005-2006, 26643, no 75) and adapted for this document.

During the past years politicians and society have increasingly placed the emphasis on the security perception of passengers and employees (personal security) and the protection of passengers and the railway system from wilful human actions such as vandalism, sabotage and terrorism. This is referred to as ‘security’.

A2.3 Objective of the railway security policy

The Ministry of Transport, Public Works and Water Management has formulated the following objective for the railway security policy:

**Objective of the railway security policy:** the implementation of socially acceptable measures at socially acceptable costs in an endeavour to provide sustainable protection to the railway transport of passengers and goods against the risk and consequences of the impairment or disruption of the railway system caused by wilful human action such as vandalism, crime or terrorism.

This formulation of the objective implies that the railway security policy does not focus solely on counterterrorism measures but also extends to the approach to personal security and railway vandalism. The railway sector is an advocate of this broader interpretation of security since this promotes synergy between the various measures that ultimately results in the optimisation of the measures, their effectiveness and the costs. ProRail has adopted the following internal definition of security:
“Security is comprised of the entirety of measures and provisions designed to protect the operations from recognised threats caused by intentional or wilful human behaviour that can impair the condition, nature or functionality”.

In other words: security extends beyond solely terrorism and sabotage. This broader interpretation of security can enhance the cohesion between the measures. Counterterrorism measures can be built on measures implemented lower in the threat spectrum. Security organised in appropriate manner is comprised of a pyramid of measures in which the counterterrorism measures at the top are supported by underlying measures to prevent vandalism, crime and sabotage. Moreover, the probability that security measures will be accepted and can be implemented is increased when they are not based solely on an abstract terrorist threat but are also effective against more everyday forms of impairment or disruption, for example to railway vandalism, arson, copper thefts or objects placed on the track.

Mutual influence (interaction) between safety and security

The above indicates that safety and security measures can influence each other. Since this influence can be either favourable or unfavourable an integral approach to safety and security is required at an operational level. The railway sector, in particular ProRail and NS Dutch Railways, has the greatest experience with this integral approach and for this reason the railway sector plays an active role in overall security policy based on the contribution of its knowledge and practical experience. This results in an proactive approach. The Ministry of Transport, Public Works and Water Management and the railway sector are alert to the emergence of new overall safety risks caused by the implementation of protection measures or their selection of measures, for example by means of:

- the structural analysis of potential risks and the appropriate measures to control those risks;
- the prior structural assessment of the potential effect of security measures on safety;
- the retrospective evaluation of the effects of security measures on safety to provide for any corrections to the measures that may be required\(^\text{117}\).

A2.4 Principles and preconditions

An international exploratory study\(^\text{118}\) revealed a number of principles for the Ministry of Transport, Public Works and Water Management’s security policy. This study recommends that measures to limit vulnerability should be implemented at a system level and with

---

\(^{117}\) Derived from the recommendations in the Onderzoek naar de effecten van beveiliging op veiligheid (‘Investigation of the effects of security measures on safety’) report (QST Safe skies, 2005).

\(^{118}\) The Ministry of Transport, Public Works and Water Management began an exploratory study of critical infrastructure security practice in a number of countries in 2005. This relates to a benchmark study of the approaches, criteria and priorities. Work visits were made in 2005 and at the beginning of 2006 to Spain, the USA, Canada, the UK, Germany and, to a more limited extent, France. Information was also collected from these countries. In addition, the similarities and differences between the security approaches adopted by the USA, a number of EU Member States and the Netherlands were discussed during an international symposium the Ministry of Transport, Public Works and Water Management organised in 2006.
a focus on the vital elements (the heart and brains) of the system. The protection measures should be incorporated in the operations (basic measures and alerting measures).

This principle can be interpreted for the railway system in terms of the control of risks to passengers, railway goods transports and railway employees by the limitation of the feasibility of an infringement, the minimisation of the effects of an infringement and the promotion of the rapid restoration of the system.

Security should be integrated in the day-to-day management of structures, objects and infrastructure systems. "Keeping the eyes open" is a crucial factor in effective security, which is followed by the step to security management: security is incorporated as a normal element of an integral risk management system, including the formulation of targets, risk analyses and assessment frameworks for (security) measures.

The railway sector bears the primary responsibility for the implementation of operational security measures.

In view of the above intensive cooperation in the design of railway security is absolutely essential. A distinction can be made between a basic overall safety level and additional measures in the event of more serious threat levels, whereby it should be noted that the railway sector is dependent on the threat level information issued by the National Coordinator for Counterterrorism. The National Coordinator for Counterterrorism combines the threat information from the various intelligence services (such as the General Intelligence and Security Service of the Netherlands), determines the overall threat level and communicates the threat level to - in this instance - the railway sector. This information can be used to prepare scenario analyses appropriate to the situation. These analyses are also taken into account in the risk-analysis phase.

The railway system is an open system. The authorities and the railway sector wish to retain this open nature, whereby they accept that an open railway system is an intrinsically vulnerable system.

This is a major difference from the aviation and maritime sectors (ocean shipping), both of which are closed systems since access to the two infrastructures is limited and access of persons to the systems is regulated (for example, by means of security checks).

There is no such thing as absolute security - and it is important to be aware of this. However, it is possible to review which instruments could be used to achieve a socially acceptable (residual) risk level. A distinction can be made between these residual risks: residual risks of railway vandalism are of a different order of magnitude from residual risks relating to counterterrorism measures for the railways.

The following definitions are applicable to the approach to railway security:

- security risks: risks relating to the disruption of the operations (breaking and entering, theft, vandalism, graffiti, sabotage, terrorism);
- incident scenarios: the manner in which a security risk can materialise (breaking and entering: forcing windows/doors, breaking glass);
- risk control: the implementation of measures or provisions to control the relevant risk;
- threat: the potential materialisation of a recognised or unrecognised security risk made known by the receipt of specific information.

Each security risk is assessed at periodic intervals (whether the risk exists and whether the risk is acceptable). Terrorism is a security risk. Incident scenarios related, for example, to bomb attacks on trains or at stations. Risk control measures as implemented within the railway sector focus on the limitation of consequential damage: the probability of these
risks is small, but the effects can be enormous. When a specific threat becomes apparent the National Coordinator for Counterterrorism can alert the railway sector and the sector can then implement additional - temporary - measures. Threats exist for a specific period of time.

The measures implemented to protect passengers, employees, freight transport, the infrastructure and buildings are of a focused nature and are based on risk analyses. The railway sector bears the operational responsibility for the implementation of security measures. The risks are controlled using the methods familiar within the context of railway safety, such as safety management systems, the safety chain, risk analyses and the safety report (the safety case). Specific attention is devoted to possible interactions between safety and security measures.

One of the principles of the approach is the endeavour to achieve permanent improvement. This, pursuant to the viewpoint on safety reviewed in Subsection 2.1, is carried out in a manner such that security is part of an integral assessment that also takes due account of cost effectiveness. Security can grow to maturity via the following development phases:

### Development phases of security awareness in the railway sector

The development stage to be reached depends in part on the risk profile and, consequently, a complete focus on the integration of overall safety is not always required.
A3 The international perspective

A3.1 International comparative study

In 2007, the Ministry of Transport, Public Works and Water Management requested a study of the approach to railway security methods adopted by a number of EU Member States. This study also examined the applicability of quantitative security standards to the railways and to other Ministry of Transport, Public Works and Water Management policy areas such as the aviation and ocean shipping sectors. The findings from the study were as follows:

- all benchmark Member States have adopted a qualitative approach in which they select the most effective measures on the basis of a risk analysis of the vulnerability of the objects, the cost of the measures and the impact on performance;
- a number of Member States are working on the development of a more quantitative approach;
- two Member States have introduced legislation stipulating that the owner of the object is responsible for security. The authorities provide support for exercising this responsibility by drawing up guidelines for the control of security. Compliance with these guidelines is not mandatory since the authorities do not bear the responsibility for the security of these objects;
- the authorities in all benchmark Member States carry out audits to test the implemented measures in practice: the authorities play a coordinating role, draw up guidelines and conduct audits, whilst the railway companies bear the responsibility for the implementation and financing the measures;
- there are differences in emphasis between the measures: one Member State may focus more on the intelligence services and influencing conduct while another Member State may focus on technology and seeking synergy with the counter-vandalism approach;
- all benchmark Member States have assigned the railway companies the responsibility for financing the measures. Part of the cost of the measures is passed on to the passengers;
- the benefits from the security measures as viewed at system level primarily relate to the reduction of damage and, consequently, fewer disruptions and an improved performance of the railway system.
The current qualitative approach adopted by ProRail and NS Dutch Railways is comparable with those in the benchmark Member States.

Many of the measures implemented in the aviation and ocean shipping sectors were initiated as a result of international regulations and the companies’ self-regulation arising from commercial interests. The authorities’ role is to supervise compliance with the regulations. The international regulations governing the ocean shipping sector have been implemented in the national legislation in the form of the Port Security Act. The Ministry of Transport, Public Works and Water Management develops and coordinates the security policy for the ocean shipping sector via the Unit Freight Task Force.

### A3.2 International security perspective

“...The protection of the critical infrastructure is assigned priority at both a European and global level. Infrastructures designated as critical often extend beyond national borders: for example, the supply of oil and gas to a number of countries is dependent on a cross-border pipeline networks that begin in the Netherlands whilst the control of pandemics is complicated by intensive international passenger traffic. Within this context the most important organisations for the Netherlands are the European Union (EU), International Energy Agency (IEA) and NATO. Each of these organisations pursues an individual policy and has implemented its specific measures. The development and capacity-building activities being carried out, for example, by NATO and the EU need to enhance rather than duplicate each other. In addition, a number of primarily international industries and companies have been working on for many years on far-reaching protective and precautionary measures designed to ensure the continuity of the operations. Examples of these industries include the aviation sector, energy sector and financial institutions. The measures of some sectors have been initiated by the United Nations.

The Netherlands endorses the importance of a European approach to the protection of the critical infrastructure since transport and, for example, energy infrastructures are largely of an international nature.”

The EU’s work programme does not currently include security policy relating specifically to the railways. However, the European Commission has drawn up a directive for the implementation of measures for the protection of the critical infrastructure from terrorism, the European Programme Critical Infrastructure Protection (EPCIP). The principles include respect for the principle of subsidiarity and the programme’s focus on the protection of critical infrastructure with a cross-border impact. The Member States must designate this infrastructure. The Netherlands has not to date recognised any (railway) infrastructure that complies with the criterion of disruption in more than two Member States due to the failure of the infrastructure.

The EU has adopted the Railways Safety Directive for railway safety and included a specific article in a regulation:

---

119 From the Bescherming vitale infrastructuur ('Protection of the Critical Infrastructure') report, Ministry of the Interior and Kingdom Relations, 2005


Article 26 Personal security of passengers
In agreement with public authorities, railway undertakings, infrastructure managers and station managers shall take adequate measures in their respective fields of responsibility and adapt them to the level of security defined by the public authorities to ensure passengers’ personal security in railway stations and on trains and to manage risks. They shall cooperate and exchange information on best practices concerning the prevention of acts, which are likely to deteriorate the level of security.

Societies are interwoven to an extent such that it is impossible for the Dutch to focus on national security, protection of the critical infrastructure and crisis control solely in the Netherlands. The EU advocates the enhancement of cooperation within the EU in the fields of prevention, preparation and the response to disasters and emergencies. The Netherlands shall support this development by means including sharing the country’s approach to security, the National Risk Assessment approach. The Netherlands will promote the European Union’s adoption of the risk-based approach.
In addition, during the coming period the Government shall continue to work on the implementation of the European Directive for the European Programme Critical Infrastructure Protection (EPCIP) and the actions in the CBRN (Chemical, Biological, Radiological and Nuclear) action plan.

A variety of European railway organisations cooperate in the field of security: special working parties formed within these railway organisations devote particular attention to security. Examples of these railway organisations include the EIM (European Rail Infrastructure Managers), CER (Community of European Railway and Infrastructure Companies), COLPOFER (Collaboration des services de police ferroviaire et de sécurité) and UIC (Union International de Chemin de Fers).

These organisations harmonise their activities. The objectives include the development of a joint approach, the exchange of knowledge, recommended practices and experience, the exchange of operational safety and security information, the determination of needs for innovation and research and the monitoring and influencing of European regulations.

Operational agreements are also reached within the context of major public events. COLPOFER also has good contacts with the EU, Railpol (the international network of police organisations from the EU Member States), the EIM Security Group (the organisation of European infrastructure managers) and, self-evidently, the UIC.
A4 Roles and responsibilities

A4.1 The authorities

A number of organisations are involved in the control of security, each on the basis of their individual responsibility or specific expertise. Many measures also require intensive cooperation between the various organisations: the parties are often dependent on each other and, consequently, on cooperation.

The division of roles of relevance to the railway sector is reviewed below.
Reduction of the threat
The Ministry of the Interior and Kingdom Relations and the Ministry of Justice are assigned the responsibility and powers for countering radicalisation, (international) cooperation in the field of the intelligence and security services and law enforcement.

Reduction of vulnerability (probability and effect)
The Ministry of Transport, Public Works, and Water Management and the railway sector are responsible for the control of the risks to the railway system that could result in the impairment of the system, the preparations for the potential consequences and dealing with those consequences (crisis control).

> The activities and measures are jointly focused on the reduction of the probability and effect of security incident risks.

Ministry of Justice
The Ministry of Justice is responsible for legal order and law enforcement in the field of security. The Minister of Justice is also assigned the role of coordinating Minister in counter-terrorism activities and, on the basis of the Minister’s cross-ministerial powers, is authorised to implement measures in the fields of other Ministers in times of acute terrorist threats.

Ministry of the Interior and Kingdom Relations
The Ministry of the Interior and Kingdom Relations is responsible for public order and overall safety. The Minister of the Interior and Kingdom Relations’ duties also include acting as the coordinating Minister for national security, crisis control at a national level - in part on the basis of the deployment of the National Crisis Centre (NCC) - and for the national policy with respect to the emergency services: the fire brigade service, ambulance service (the GHOR, Medical Assistance in Accidents and Disasters) and the National Police Services Agency. The Railway Police Service is a division of the National Police Services Agency. The Railway Police Service is entrusted with the first-line policing of all trains and platforms and, in consultation with the regional police forces, is also responsible for the first-line policing of five major railway stations in the Netherlands, namely Amsterdam Centraal, Den Haag Centraal, Rotterdam Centraal, Utrecht Centraal and Schiphol. The Railway Police Service is also responsible for orderly and safe railway transport of large numbers of persons to concerts, football matches and other events. In addition, the Railway Police Service is responsible for dealing with and investigating railway accidents. The railway sector cooperates with the Railway Police Service in restoring normal train services as soon as possible after disasters once the emergency services have completed their work and the necessary investigations have been completed. The Railway Police Service also provides information about the risks associated with the tracks and the railways to schoolchildren.

The Ministry of the Interior and Kingdom Relations also directs the Protection of the Critical Infrastructure project. The Ministry of the Interior and Kingdom Relations’ organisation includes the General Intelligence and Security Service of the Netherlands (AIVD), a service which carries out its duties pursuant to the Intelligence and Security Services Act that came into force in 2002. The AIVD is assigned a duty for the promotion of the security of elements of the government and business community that are of critical importance. This duty is of relevance to the railway sector. The AIVD possesses specific expertise about methods for risk analyses and threat scenarios.

---

121 Besluit van 14 december 2005, houdende tijdelijke herindeling van ministeriele taken in geval van een terroristische dreiging met een urgent karakter (‘Decree of 14 December 2005 on the temporary redistribution of ministerial duties in the event of an urgent terrorist threat’) (Bulletin of Acts, Orders and Decrees 2005, 662)
National Safety Strategy

The government has adopted the Strategie Nationale Veiligheid (‘National Safety Strategy’) to make the best possible preparations for threats. Pursuant to this strategy an efficient and coherent method for the provision of assurances for national security was introduced several years ago. Within this strategy the authorities, business community (including the critical sectors) centres of expertise, intelligence services and the public are cooperating to a continually increasing extent on:

- The recognition of major threats confronting Dutch society (National Risk Assessment, NRB).
- The assessment and enhancement of the capacities required to withstand these threats (Capacity analysis).
- The preparations for the control of a potential crisis in the event of the materialisation of the threat (Crisis control and self-sufficiency).
- The organisation of joint exercises to test the performance of the approach to these threats and a crisis in practice.

The Protection of the Critical Infrastructure (abbreviated to ‘Critical’) programme is an important sub-programme within the National Safety Strategy. The programme entails the designation of critical services, products and processes, clarification of responsibilities, organisation and maintenance of active networks and the implementation of joint preparations for a potential failure of the infrastructure.

Transport is a necessary condition for the economy since people travel to and from centres of economic activity and the supply of raw materials and distribution of finished products constitutes the blood circulation of society. The lengthy failure of (important elements of) this transport function would result in large-scale economic disruption and social disorder.

In general, transport is not regarded as vulnerable: in view of the existence of dense networks and different modalities close to each other a disruption of the overall functionality of the network is not readily conceivable. The disruption of a number of links in the networks would initially result in a great deal of hindrance. However, alternatives would rapidly become available for specific transport flows required for critical functions.

Nevertheless, within the context of Critical Infrastructure Protection four specific elements of the transport system require particular attention, namely the Schiphol and Rotterdam mainports, specific structures in the main road network and main waterway network and, in conclusion, structures in the railway system.

In 2005, the conditions attached to the definition of a specific sector as ‘critical’ were laid down in the Bescherming Vitale Infrastructuur (‘Protection of the Critical Infrastructure’ (Critical)) project carried out under the direction of the Ministry of the Interior and Kingdom Relations. An infrastructure is regarded as critical when at least one of the following criteria is met:

- the disruption or failure of a critical sector, service or product results in economic or social disruption on a national or international scale;
- the disruption or failure results, either directly or indirectly, in a large number of victims;
- the disruption is lengthy, the restoration takes a relatively long period of time and no realistic alternatives are available during the restoration period.

---

122 House of Representatives of the States-General, 2009-2010, 30821, no. 10 (annex, analysis of the protection of the critical infrastructure, pages 39-43)
The railway system has been included as a subsector within the transport sector for reasons including the demonstration of the vulnerability of the railways in the Madrid attacks of 11 March 2004. Further analyses carried out by the Ministry of Transport, Public Works and Water Management and the railway sector resulted in the following findings:

- the railway system is not, from the perspective of the transport function, regarded as critical infrastructure: the failure of the railway system does not result in economic or social disruption on a national scale, the failure of the transport function does not result in a large number of victims and alternatives are available in the event of a long-term disruption of the system;
- however, the railway system has a relatively large share in the accessibility of specific locations;
- the system is of the nature of a vulnerable, open infrastructure. Consequently, the system possesses an intrinsically low level of (physical) protection from wilful damage and terrorism;
- a number of structures are critical since large numbers of persons gather at them and, consequently, they exhibit the potential for large numbers of victims (soft targets).

The Bescherming vitale infrastructuur (‘Progress report on the Protection of the Critical Infrastructure’), published in 2007\(^ {123}\), revealed that during the period of a number of years all the relevant parties have assumed their responsibility. The critical sectors are aware that they bear the responsibility for the continued performance of their sector.

The Safety Regions Act\(^ {124}\) regulates the formation of 25 safety regions. Pursuant to the Act each safety region’s municipalities, police, fire brigade and ambulance services work together, in particular, in crisis and disaster control. This increases their administrative and operational efficiency. The Act also regulates the organisation of the fire brigade service, medical relief service and the organisation of disaster and crisis control. Further quality requirements will be specified in separate decisions. The board of each safety region is comprised of the mayors of the municipalities in the relevant region. The municipalities provide the majority of the funds required by each region. The chair of each safety region is the mayor who is the manager of the regional police force in that region. In the event of a local disaster within the territory of one municipality then the mayor of that municipality retains the responsibility for the approach to the disaster: however, in the event of a disaster or crisis involving more than one municipality then the chair of the safety region assumes the supreme command of the emergency services and is authorised to take the final decision in the event of problems in the regional decision-making.

The safety regions also take the responsibility for the preparations for the potential failure of critical infrastructure.

Self-evidently, structural attention to the critical sectors and the implementation of the necessary measures does not guarantee the absence of failures of a critical product, service or process. For this reason, during the past few years attention has also been devoted to making the best possible preparations for potential failure. These preparations have been made in cooperation between the critical sectors, safety regions, regional police and the national crisis operation.

The formation of the safety regions has made a positive contribution to communication: the critical sectors now have a specific interlocutor. This contribution will increase further as the safety regions continue their development into fully-fledged safety and security partners, whereby sharing information between the critical sectors, safety regions and regional police forces will be of essential importance.

\(^ {123}\) House of Representatives of the States-General, 2007-2008, 29668, no. 18
\(^ {124}\) Bulletin of Acts, Orders and Decrees 2010, 145
Recent threat analyses have resulted in the reduction of the general threat level - the general terrorist threat to the Netherlands as specified in the Terrorist Threat Assessment Netherlands (DTN) is reduced from substantial to limited. The limited threat level is not the lowest level and certainly does not imply that the possibility of an attack can be precluded. The limited threat level indicates that the probability of a terrorist attack is relatively low at the moment. The threat level was adjusted after a careful assessment of the threat information that is currently available.

The DTN is a global analysis of the national and international threat against the Netherlands and its interests abroad. This system therefore presents the (potential) terrorist threat to the Netherlands as a whole, whereby all information on the chances of an attack is taken into consideration, and therefore also the international context and initial phases of terrorism: radicalisation and recruitment. It is not so much the ultimate classification of the threat (the threat level), but rather the underlying periodical picture of the developments relevant to the threat, that constitute the basis for Dutch counterterrorism policy.

Lowering the threat level to limited does not imply that policy development will cease or that legislative processes are stopped. Each DTN is in principle a registration of a particular moment in time. This means that trends can become visible in several consecutive DTNs. The Netherlands’ counterterrorism policy is focused on timely identification, prevention and repression. This policy is therefore an underlying factor of the lowering of the threat level to limited. Moreover, it is not known how long this level can be maintained. Developments can occur at an extremely fast pace, and vigilance remains necessary. For example, the level was lowered from substantial to limited in March 2007, but was raised again to substantial in March 2008 as a result of an increase of the international component of the threat. For reason vigilance remains necessary at a limited threat level. The National Coordinator for Counterterrorism and his partners are and shall remain vigilant.

It should be noted that a reduction of the threat level does not have any direct consequences for specific security measures. These measures are determined on the basis of the Counterterrorism Alert System and the Surveillance and Security System.

The above excerpt is a summary of the Terrorist Threat Assessment Netherlands (DTN) of November 2009\(^\text{125}\). The National Coordinator for Counterterrorism (NCTb) determines and adopts the DTN once every three months. The objective of this assessment is to inform politicians and the administration – and, an indirect sense, society – about potential terrorist threats to the Netherlands.

The National Coordinator for Counterterrorism has adopted the following definition of terrorism\(^\text{126}\):

Terrorism is defined as threatening, making preparations for or perpetrating, for ideological reasons, acts of serious violence directed at people or other acts intended to cause property damage that could spark social disruption, for the purpose of bringing about social change, creating a climate of fear among the general public, or influencing political decision-making.

A number of organisations (such as the General Intelligence and Security Service of the Netherlands, Military Intelligence and Security Service, police and the National Coordinator for Counterterrorism) collect information about and carry out analyses of terrorism and terrorist threats. The National Coordinator for Counterterrorism integrates these threat analyses and

\(^{125}\) House of Representatives of the States-General, 2009-2010, 29754, no. 172

\(^{126}\) House of Representatives of the States-General, 2009-2010, 29754, no. 172
prepares for decision-making in various areas ranging from the protection of persons to the timely warning of business sectors and the development of new policy. This process results in a variety of products that each have a specific application:

- the Terrorist Threat Assessment Netherlands (DTN);
- the Counterterrorism Alert System (ATb) that serves as the basis for the implementation of security measures in critical government and business sectors;
- the Surveillance and Protection System focused on an individual structure, service or person.

The National Coordinator for Counterterrorism is responsible for the policy development, the analysis of intelligence and information and the direction of the implementation of counterterrorism security measures. The National Coordinator for Counterterrorism reports to the Minister of Justice and the Minister of the Interior and Kingdom Relations.

The relationship between the threat systems is shown in the following table:

<table>
<thead>
<tr>
<th>Terrorist Threat Assessment Netherlands (DTN)</th>
<th>Counterterrorism Alert System</th>
<th>Surveillance and Protection System</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>To provide an overall analysis of the national and international terrorist threat to the Netherlands. The focus is placed on phenomena and developments.</td>
<td>To provide an insight into the threat to a (critical) business sector. Intended to provide for the ability to implement measures focused on a specific sector in response to an increased threat.</td>
</tr>
</tbody>
</table>
| **Threat levels** | • Minimal  
• Limited  
• Substantial  
• Critical | • Basic  
• Low threat  
• Moderate threat  
• High threat | Sliding scale: combination of the probability and severity of the threat |
| **Threat applicable to** | The Netherlands in its entirety. | Affiliated business sectors. | Persons, structures and services. |
| **Measures** | The DTN is intended for the formulation of counterterrorism policy. | The sector and the local and/or national authorities implement measures that depend on the threat level. | The local and/or national authorities implement measures that depend on the threat level. |

The National Coordinator for Counterterrorism is responsible for the management, operation and maintenance of the Counterterrorism Alert System (ATb). The objective of the Counterterrorism Alert System, which is primarily focused on the public services and business sectors, is to provide for the rapid and uniform implementation of temporary measures in response to a terrorist threat. The Minister of Justice, in close consultation with the Minister of the Interior and Kingdom Relations, decides on the activation of the Counterterrorism Alert System in the event of a terrorist threat.

The Counterterrorism Alert System is intended to enable the affiliated business sectors to temporarily increase their ability to withstand terrorism in response to a specific threat. Consequently, the Counterterrorism Alert System is not an instrument designed to achieve a structural improvement in the (basic) level of protection: this responsibility is borne by the relevant
sector, together with the relevant ministry. It should be noted that the Counterterrorism Alert System is primarily applicable to highly specific situations since the alerts are often issued on the basis of general information that gives cause to increased vigilance for a number of structures. The Surveillance and Protection System is activated in the event of information about specific threats.

The following sectors are affiliated: the airports, seaports, oil industry and chemical industry, and the drinking water, electricity, gas, nuclear, railway, urban and regional transport, telecommunication, public events, hotel and flood defence sectors.

Sectors are affiliated on the basis of the extent to which they are regarded as critical from a financial and economical perspective and the extent to which they could form an appealing target for terrorists, as well as the extent to which simple means could be used to cause large numbers of human fatalities and the question as to whether the target could possess a major symbolic significance for western society.

The authorities and the sector reach advance agreement on the measures to be implemented for each threat level. A package of measures is specified for each threat level.

The Minister of Justice is the coordinating Minister in counterterrorism activities: consequently the Minister, in close consultation with the Minister of the Interior and Kingdom Relations, decides on the activation of the Counterterrorism Alert System in the event of a terrorist threat.

In principle, two parallel processes are used in the event of escalation or de-escalation. The National Coordinator for Counterterrorism notifies the police forces and, in parallel, notifies the National Crisis Centre (NCC). The NCC in turn gives notification in two directions: the business sectors are notified via the Departmental Coordination Centres (DCCs) and the administrative hierarchy (the Queen’s Commissioners and mayors) are notified. This structure is customary in crisis control practice.

---

110 From: National Coordinator for Counterterrorism publication, January 2006 (7 vragen over het Alerteringssysteem Terrorismebestrijding (7 questions about the Counterterrorism Alert System))

111 Handreiking terrorismebestrijding NCTb (“Counterterrorism guidelines, National Coordinator for Counterterrorism”)

112 Figure and text from: Alerteringssysteem Terrorismebestrijding. Achtergrondinformatie (“Counterterrorism Alert System. Background information”) (National Coordinator for Counterterrorism, 2005)
The system is activated by means of agreements between the Minister of Justice, the Minister of the Interior and Kingdom Relations and the affiliated business sectors.

The Counterterrorism Alert System is emphatically not intended for the general public: it is not a means of informing the public. Experience acquired with the British, Belgian, Spanish and US systems, in particular, has revealed that a system of codes is not the most appropriate means of communication with the general public. In addition, experience has revealed that the public above all wishes to receive information about serious terrorist threats in plain language: they also wish to know whether the government has the situation under control and whether they will be affected. Consequently, public information needs to focus on these issues. Communications will be necessary on escalating or de-escalating the system, where relevant with the business sector concerned. A press release or a press conference will then be the most logical choice.

ProRail and NS Dutch Railways are the railway sector parties affiliated with the Counterterrorism Alert System. Specific procedures for the Counterterrorism Alert System have been incorporated in Train Incident Management and harmonised with the other emergency services, such as the fire brigade service, police and Medical Assistance in Accidents and Disasters (GHOR). A number of transport companies within the urban and regional transport sector are affiliated with the system. They have harmonised their packages of measures.

Knowledge networks
The National Advisory Centre for the Critical Infrastructure (NAVI) was formed in 2007 to promote cooperation in security. The NAVI supports the business community by providing advice about security issues and serves as a meeting point for security partners. During a period of two years the NAVI contributed to security awareness: for example, the NAVI carried out a number of risks analyses including an analysis of the security of pipelines and the consequences of an ICT failure. The National Infrastructure against Cyber Crime (NICC) also offers a meeting point to public and private partners for the more specific area of cyber crime. Cyber crime has become an important issue in the years since 2005. This issue will require more attention in the future. The NAVI was closed down on 1 March 2010. GOVCERT.NL and the National Centre Cyber Crime Information (IKC) element of the NICC programme will continue in their current form and shall continue their activities without change. The excellent cooperation between the IKC and GOVCERT.NL will be continued: more specifically, for example, GOVCERT.NL – in analogy with the General Intelligence and Security Service of the Netherlands and the National Police Services Agency – will continue to contribute to the IKC.

Ministry of Transport, Public Works and Water Management
The Ministry of Transport, Public Works and Water Management is responsible for the railway security policy and for the relevant legislation and regulations. The companies in the railway sector are responsible for the safe and secure day-to-day operation of railway transport within the framework and preconditions laid down by the Ministry of Transport, Public Works and Water Management. The Ministry of Transport, Public Works and Water Management’s role is to promote, monitor and supervise the railway sector’s efforts to control the risks. The Ministry of Transport, Public Works and Water Management is also

---

GOVCERT.NL supports government organisations with their ICT and information security measures by providing services such as prevention, alerts, advice, exchanging knowledge and monitoring. GOVCERT.NL is also engaged in the prevention of and response to ICT security incidents on a 24/7 basis. All government organisations can make use of this service.
responsible for the coordination, via the Ministry’s Departmental Coordination Centre (DCC), relating to crisis situations in the Ministry of Transport, Public Works and Water Management’s policy fields. The DCC also serves as the contact point for the National Crisis Centre, National Coordinator for Counterterrorism and the other ministries. The National Coordinator for Counterterrorism gives the (railway) sector notification of decision-making on potential threats and alerts via the DCC.

The Road and Rail Transport section of the Inspectorate for Transport, Public Works and Water Management (IVW) supervises the railway sector’s implementation of the legislation and regulations and, in a broader sense, railway safety and security on behalf of the Minister. Although the IVW has not currently been assigned any statutory railway security duties the Inspectorate does carry out inspections focused on themes such as railway vandalism. The IVW has been assigned a statutory goods transport security duty pursuant to the European treaty on dangerous goods transports.

A4.2 The railway sector

The railways legislation that came into force on 1 January 2005 assigns the outline responsibilities, duties and powers relating to the safe operation of the entire system to those bearing the primary administrative responsibility, namely the government, the supervisory agencies, the manager of the infrastructure and the railway carriers. The legislation assigns the responsibility for the day-to-day implementation of railway safety to the railway parties by means including the incorporation of the duty of care in the concessions and the obligation to implement a safety management system (SMS). This does not (currently) extend to security.

The current institutional arrangement of the railways is characterised by:

A public-law relationship between the Ministry of Transport, Public Works and Water Management and ProRail BV with respect to the management of the main railway infrastructure. ProRail BV has been granted a management concession pursuant to the Railways Act until 2015. ProRail receives an annual subsidy from the State for the performance of its work. The management concession the Minister of Transport, Public Works and Water Management has granted to ProRail assigns the company the duty of providing for the management and maintenance of the railway infrastructure, safe planning, the distribution of the capacity and the coordination involved in dealing with disasters. Safety is an element of the duty of care assigned to ProRail in the management concession.

A public-law relationship between the Ministry of Transport, Public Works and Water Management and NV NS Dutch Railways with respect to passenger transport services on the main railway network. NS Dutch Railways has been granted a transport concession for transport on the main railway network pursuant to the Passenger Transport Act, 2000, until 2015. The transport concession the Minister of Transport, Public Works and Water Management has granted to NS Dutch Railways assigns the company the duty of providing for the transport of passengers on the main railway network. Safety is an element of the duty of care assigned to NS Dutch Railways in the transport concession.
A public-law decentral concession: NS Dutch Railways trains do not travel on all Dutch railways. The responsibility for the operation of a number of regional train services has been decentralised to the provinces and framework act regions (Passenger Transport Act, 2000). The provinces have granted concessions (by tendering) for passenger transports on some routes to parties other than NS Dutch Railways.

Pursuant to the European regulations freight carriers have free access to the railway network (91/440/EG).

ProRail, on behalf of the authorities, provides for the construction, maintenance and management of the Dutch railway network, including all the accompanying facilities such as stations, tunnels, level crossings, overhead power lines, signs and sets of points. ProRail also distributes the capacity of the railway network, arranges for the railway traffic control, provides information about railway traffic and coordinates the work involved in dealing with disasters.

ProRail is responsible for the safe serviceability, optimum availability and reliability of the railways. ProRail is also responsible for the rectification of malfunctions and the restoration of the infrastructure after disasters. This work, in addition to the maintenance of the tracks, is carried out by approved railway contractors engaged by ProRail.

ProRail coordinates the work of the Train Incident Management organisation that comes into action in the event of (serious) disruptions on or around the railways. ProRail informs carriers and third parties (including the media) about the current train services condition and also provides this information (on the request of the passenger carriers) to passengers at the stations via the public announcement system, train arrival and departure signs, information screens and teletext (NOS-Teletekst, pages 751-754).

Some 38 railway carriers use the Dutch railway network, of which about 14 are freight carriers and about 12 are passenger carriers. The remaining carriers are maintenance carriers.

The relationship between ProRail and the carriers is of a private-law nature and is laid down in private-law framework and access agreements. The responsibilities of ProRail’s Train Incident Management organisation include the provision of information about railway disasters and/or accidents. ProRail’s response to significant accidents or fire on the railways involving severe material damage, fatalities or a major obstruction to services includes warning the relevant regional emergency services. The emergency services, such as the fire brigade services, police and Medical Assistance in Accidents and Disasters (GHOR) have harmonised their response.

The Ministry of Transport, Public Works and Water Management’s Departmental Coordination Centre (DCC) informs the Ministry’s Communication Directorate, the IVW and the crisis coordinator of the Directorate-General of Mobility. When the available information gives due cause to do so the Ministry of Transport, Public Works and Water Management’s Departmental Coordination Centre escalates the provision of information to include the Minister, State Secretary and Secretary-General. The Ministry of Transport, Public Works and Water Management’s Departmental Coordination Centre also informs the Ministry of the Interior and Kingdom Relations’ National Crisis Centre that can also decide to inform the administrative hierarchy (the relevant mayor).

Railways Act, articles 56 through 66
When an accident involves dangerous goods and there is a leakage of these dangerous goods then the Ministry of Transport, Public Works and Water Management’s Departmental Coordination Centre also informs the Ministry of Housing, Spatial Planning and the Environment’s Departmental Coordination Centre. When an accident involves (a large number of) injuries then the Ministry of Transport, Public Works and Water Management’s Departmental Coordination Centre also informs the Ministry of Health, Welfare and Sport’s Departmental Coordination Centre.

The Inspectorate for Transport, Public Works and Water Management reports the accident to the Dutch Safety Board.

**A4.3 Administrative legal instruments**

Transport sectors such as the aviation and ocean shipping sector are governed both by international regulations and international treaties that lay down the security approach and commercial interests: for example, the interpretation of international standards is incorporated in the *Port Security Act*. The activities carried out by the railway sector are based on the agreements with the Ministry of Transport, Public Works, and Water Management, Ministry of the Interior and Kingdom Relations and Ministry of Justice. It should be noted that this is applicable to all activities carried out by all sectors within the scope of the Counterterrorism Alert System and the ‘Critical’ project.

Crisis control and, in particular, the powers relating to the stoppage of railway traffic and/or the issue of directions by the manager (ProRail) are founded on the following legal basis:
• Besluit Spoornverkeer (‘Decision on rules for the safe and undisturbed use of the main rail network’) (article 22 and 23). This lays down the framework for ProRail’s operations with respect to the railway carriers.

• In exceptional circumstances (for example, flooding): the Transport Emergency Act (Article 13, N.B.: after the issuance of a Royal Decree) on the recommendation of the Prime Minister.

The supervisors of compliance with the Railways Act and Passenger Transport Act are designated pursuant to Article 69 of the Railways Act and Article 87 of the Passenger Transport Act, 2000. The supervisors of the railways are designated in the Besluit aanwijzing toezichthouders spoorwegen (‘Decision on the designation of railway supervisors’) (hereinafter referred to as the decision on supervision). The decision on supervision designates the Director General of Mobility (DG-Mo) as the supervisor of compliance with the transport and management concessions granted by the Minister of Transport, Public Works and Water Management with respect to issues other than railway safety. The supervision decision has designated the Inspectorate for Transport, Public Works and Water Management as the supervisor of railway safety.

The Ministry of Transport, Public Works and Water Management determines the framework within which the parties operate and supervises compliance with the framework.

137 Besluit van 3 december 2004, houdende regels met betrekking tot het veilig en ongestoord gebruik van hoofdspoorwegen (Besluit spoornverkeer) (‘Decree of 3 December 2004 on rules for the safe and undisturbed use of the main rail network (Rail traffic Decree)’)

138 Besluit aanwijzing toezichthouders spoorwegen (Ministerial Order on the designation of railway supervisors), Netherlands Government Gazette, 15 April 2005. What is referred to as ‘horizontal supervision’ (advisory powers) is also conducted by organisations including the consumer organisations that are members of the Landelijk Overleg Consumentenbelangen Openbaar Vervoer (‘National public transport consultation platform’ LOCOV) pursuant to Article 27 of the Passenger Transport Act, 2000.
Consequently, the duties of the Ministry of Transport, Public Works and Water Management are as follows:

- The determination of the performance the railway system is to deliver to society by the specification of the policy objectives and approval of the management plan and transport plan;
- The formulation of the legislation and regulations governing the sector’s operations;
- The issue of the necessary permits and dispensations pursuant to the legislation and regulations;
- The supervision of compliance with the legislation, regulations and concessions;
- The provision of a budget for the maintenance and/or transport.

A4.4 Method used to assure the security of the railway sector

Security is a relatively new policy and working field: none of the EU member states have yet drawn up a pan-sector, structural approach to the control of railway security risks. The aviation and shipping sectors’ approaches have been found to be inapplicable to the railway sector. This document takes the first step towards a specification of the approach to the security of the Dutch railways, an approach that will need to be elaborated and detailed in the coming years. During the coming five years the focus will be placed on:

- The structural integration of security in each party’s operations.
- The development and adoption of a shared risk appetite and security philosophy.
- The clarification of the roles and responsibilities.
- The development and monitoring of dashboard instruments for the management and control of the security issue.
- The organisation of a pan-sector platform for the facilitation of the development of security.
- The development of an implementation plan.
- The introduction of the implementation plan.
- The development of a viewpoint on the required international and national regulations.

The achievement of the above is in part dependent on the available finances.

The railway carriers are taking part in this work on a voluntary basis. ProRail is regarded as the party in the railway sector that will need to take the initiative: the Ministry of Transport, Public Works and Water Management has requested ProRail to assume the initiator role on the basis if the concession relationship.

The consultations on the contents of this document held with the railway sector revealed a clear preference for a process-based approach. The railway sector attaches importance to the document’s explicit confirmation that the implementation of the consequences of its contents can be carried out solely on an incremental basis and by means of a growth model method. This will do justice to the complexity of the issue and the non-mandatory nature of the measures. The method could be as follows:

---

151 House of Representatives of the States-General, 2006-2007, 29984, no. 90
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1.1</strong></td>
<td>ProRail specifies an internal risk appetite (required degree of risk control)</td>
</tr>
<tr>
<td><strong>Step 1.2</strong></td>
<td>A joint risk appetite is specified in consultation with the sector (lead group or the entire sector)</td>
</tr>
<tr>
<td><strong>Step 1.3</strong></td>
<td>Definition of the joint approach</td>
</tr>
<tr>
<td><strong>Step 2.1</strong></td>
<td>Specification of the roles and harmonisation of the content of the duties</td>
</tr>
<tr>
<td><strong>Step 2.2</strong></td>
<td>Explicit indication of the costs</td>
</tr>
<tr>
<td><strong>Step 2.3</strong></td>
<td>Optional: conclusion of a covenant with all parties to provide assurances for railway security</td>
</tr>
<tr>
<td><strong>Step 3.1</strong></td>
<td>Development of a joint approach</td>
</tr>
</tbody>
</table>
| **Step 3.2** | Seek the affiliation of the other parties in the railway sector, depending on the selection made in Step 1.2  
Draw up implementation plan and form security platform (knowledge network) |
| **Step 3.3** | Arrange for the structural provision of information on incidents and measures |
A5 Implementation on the basis of risk control

A5.1 Qualitative approach

The policy for the control of security is based on a qualitative approach. The arguments for a qualitative approach are as follows. Security is always based on a potential threat, a threat that can vary greatly in terms of place, time and nature. Consequently, standards would not be universally applicable to security threats: for this reason, controlling security risks is an ongoing process that is subject to change. The control measures are in part related and tailored to up-to-date threat analyses carried out at periodic intervals and incidents that have taken place. A threat analysis can also give cause to a review of a past risk analysis.

The measures need to be based on the risk profile and the specific conditions and will often need to be customised: for example, the measures could relate to physical access control, influencing conduct and intensifying supervision. This distinguishes the approach to security from the approach to safety, since quantitative targets can be specified for the approach to safety (such as the targets for level crossing safety and the safety of track workers).

No security risks relating to terrorist attacks on the railways have materialised other than the train hijackings at De Punt and Wijster in the nineteen-seventies. The Ministry of Transport, Public Works and Water Management arranged for a comparative study of the approach to railway security methods adopted by a number of EU Member States. This revealed that other countries also regard a qualitative approach to the control of security based on risk analyses as best practice. The railway sector’s approach to security is largely dependent on threat information from other services, such as the intelligence and investigation services. For this reason customisation is required.

The above leads to the conclusion that the endeavours to achieve permanent security improvements should employ a qualitative approach based on (demonstrable) risk control. This risk control is focused on:

- the reduction of the probability of vandalism, sabotage and terrorism on the railways by measures including assurances that specific elements of the railway system possess the...
necessary resilience;
- the reduction of the effect (the limitation of the extent and the damage);
- the promotion of the restoration of the railway system and the transport function and the limitation of the damage to the railway sector’s image.

The policy is based on the provision of the instruments to the railway sector that it requires to demonstrate that security is assured in a manner that can reasonably be expected from the sector.

One of the core elements of the approach to railway safety is the endeavour to achieve permanent improvement based on a qualitative approach. The Ministry of Transport, Public Works and Water Management specifies a standard process (structural assurances are to be provided) but does not prescribe the operational measures (how the assurances are provided).

The overall safety chain

The model of the safety chain classifies the various levels of the measures to be implemented:
1. **Pro-action**: the elimination of structural causes of threats to security and the prevention of their materialisation. Pro-action in the earliest phase of the planning process can be of assistance in the recognition and prevention of hazards (for example, by including safety regulations in a schedule of requirements and by providing safety recommendations during spatial and infrastructural planning);

2. **Prevention**: the elimination of the immediate causes of threats to security and the minimisation of the consequences of the materialisation of threats to security;

3. **Preparation**: plans to be implemented in the event that threats to security materialise, such as the formulation of a contingency plan to control any disaster that occurs. This link in the security chain also extends to issues such as courses, training and drills, the presence of the appropriate equipment, the formulation of procedures and preparations for the provision of information;

4. **Repression**: the limitation and control of any threats to security that materialise and the provision of first aid in emergencies;

5. **Follow-up**: everything required to return to the normal situation and conditions as soon as possible after the incident. This also extends to taking care of those involved in the incident (including the employees) and the preparation of a report and evaluation of the incident.

---

**A5.2 Risk analyses as an instrument**

Risk analyses are used as an instrument. These analyses enable the railway sector to demonstrate to the authorities (Ministry of Transport, Public Works and Water Management) that the risks are controlled to an adequate extent. One method that can be used to carry out risk analyses is as follows:

1. identify the assets and the security risks;
2. draw up threat scenarios (what could happen if? And: what, on the basis of empirical scenarios, is probable at the moment?);
3. use the above to draw up a risk profile;
4. make an inventory of the current control measures;
5. analyse whether the current measures are adequate;
6. determine the residual risks;
7. carry out a cost-benefit analysis;
8. select a solution and evaluate its effectiveness after a period of time.

Measures can be prioritised on the basis of the extent of the risks and the (financial) feasibility of covering the risks. This also provides for decision-making based on a number of scenarios in which increasing levels of ambition are linked to the costs, benefits and feasibility. This ensures that the choices available to achieve security and, in a broader sense, overall safety are transparent and provides an insight into the degree of acceptance of risks or residual risks.
A5.3 Relationship with other programmes

This document explained earlier that the railway sector has already implemented a large number of activities and measures. The content of the document continues on the activities and measures that have already been implemented and places them in the perspective of the division of roles between policy, implementation and supervision.

The railway sector’s activities can be classified into three categories, namely good housekeeping, the Counterterrorism Alert System and the control of an adequate level of protection of the railway system. Good housekeeping is an element of orderly operations and is incorporated in the duty of care assigned to the manager and carrier. The Counterterrorism Alert System is focused on the temporary increase of the level of protection.

The Ministry of Transport, Public Works and Water Management’s policy is based on the provision of a framework to the railway sector that enables the sector to adopt a structural approach to security. This can be viewed from the perspective of the structural improvement of the level of protection and of the resilience of the railway system.

“Good housekeeping.”

This is based on the measures focused on the provision of assurance for the basic security of the normal operations the formulation of appropriate disaster plans and scenarios and their maintenance in an up-to-date condition. Pursuant to the railway legislation and regulations all railway carriers (including the contractors that operate railway transports required for maintenance work on the tracks) and ProRail are under the obligation to implement a safety management system (SMS).

The railway sector’s traditional approach to good housekeeping has focused on the implementation of reactive measures in their operations. The railway sector has a high restorative capacity. The sector has acquired a great deal of experience with operational disruptions and the development of solution approaches. The practice of good housekeeping is incorporated in the regular operations and is derived from the duty of care as formulated in the concessions granted to ProRail and NS Dutch Railways.

In principle, the railway sector bears the responsibility for the preparation of inventories of the risks and the control of those risks. It is essential that attention to security issues is an integral element of safety management, for example with respect to risk assessments relating to passengers, employees, rolling stock, the infrastructure, traffic management, shunting yards and marshalling yards. In the longer term security needs to be an integral element of corporate policy.
A5.4 Infrastructure Manager and carriers

The relationship between the Infrastructure manager and carriers is determinative in the current institutional arrangement of the railway sector: the Infrastructure manager and carriers jointly provide for railway transports. Each of the parties involved has a specific role to play and possesses the requisite expertise. The interaction between the segregated duties in combination with the directional role of the authorities results in the provision of an appropriate railway product.

The division of roles in the approach to railway security between the Ministry of Transport, Public Works, and Water Management and ProRail and NS Dutch Railways is enhanced and clarified by the Infrastructure management plan and transport plan programmes.

ProRail and NS Dutch Railways compile packages of measures on the basis of their (joint) risk analyses. This enables them to demonstrate to the Ministry of Transport, Public Works, and Water Management how they control their risks, which risks they control and the costs incurred in the control. This qualitative approach provides for an assessment on the basis of the (life cycle) costs and effectiveness of the measures and of their political and social acceptance. This procedure integrates the security approach in the mutual relationship and is compatible with the output-control philosophy. Joint risk analyses of the security issue carried out, in principle once every four years, serve as a process indicator.

This procedure incorporates the security measures implemented by ProRail and NS Dutch Railways in the annual Infrastructure management plan and transport plan cycle. In view of the confidential nature of these measures the security section can be submitted separately to the Ministry of Transport, Public Works, and Water Management for assessment.

Since ProRail takes the lead in ensuring that the risk analysis encompasses all interfaces between Infrastructure management and transport ProRail also takes the lead in ensuring that railway carriers other than NS Dutch Railways are also involved in the security approach, for example with respect to the national rollout of the alert system.

The Ministry of Transport, Public Works, and Water Management forms a multidisciplinary audit team to assess the risk analyses carried out by NS Dutch Railways and ProRail and submit any recommendations that may be appropriate to the Ministry (expert judgement). The Ministry discusses the implementation of these recommendations with NS Dutch Railways and ProRail.
This audit team is comprised of at least representatives from the Ministry’s Inspectorate for Transport, Public Works and Water Management and Departmental Coordination Centre and the Ministry of the Interior and Kingdom Relations/General Intelligence and Security Service of the Netherlands. The method is shown in the following flowchart:

**Activities**

2010: Review available of the Critical analysis of the railways.

2014: Audit available of the NS Dutch Railways and ProRail risks analyses, with recommendations.
A5.5 Goods transport by railway and regional railway transport

Although this document places the emphasis on the relationship between the Ministry of Transport, Public Works and Water Management as the issuer of the concessions and ProRail and NS Dutch Railways as the concession holders the document also intends to promote the railway security approach to the decentral authorities, regional passenger carriers and goods carriers. The approach and instruments described in this document can also offer a practical framework to the decentral authorities in their role as the issuer of concessions and the other railway carriers of passengers and goods.

ProRail also involves the freight carriers and passenger carriers other than NS Dutch Railways in the detailing in accordance with Subsection 4.4. This is applicable to both the structural approach and to the Counterterrorism Alert System, whereby ProRail takes the lead by involving rail carriers in addition to NS Dutch Railways.

Security of the transport of dangerous goods

A report on the protection of the critical infrastructure\(^{140}\) stated that specific security regulations governing railway transports of dangerous goods came into force in the RID (Règlement concernant le transport international ferroviaire des marchandises dangereuses)\(^{141}\) in 2005, and that these have since been implemented in the national regulations.

---

\(^{140}\) House of Representatives of the States-General, 2004-2005, 26643, no. 75

\(^{141}\) See section 1.10 of the RID, www.ivw.nl

The report also states that the security measures for shunting yards will be improved. Risk analyses will serve as the input for this improvement:

- The Ministry of Transport, Public Works and Water Management has, in cooperation with the NAVI and on the basis of expert sessions, carried out an inventory of the security risks to the transport of dangerous goods by road, water and rail. This revealed that road transport is the most vulnerable modality. Risk-controlled supervision will be used to detail the inspection programmes. These programmes will assign priority to the implementation of and compliance with security plans and to compliance assistance.
- In addition, in 2008 ProRail carried out a study of security scenarios for emplacements governed by the ‘Aanvullende voorschriften Risico-Inventarisatie en -Evaluatie ter voorkoming en beperking van zware ongevallen met gevaarlijke stoffen’ (‘Supplementary regulations for risk inventories and evaluations for the prevention and limitation of serious accidents with dangerous goods’, ARIE) so that an appropriate protection level and package of measures could be determined for these emplacements. Where necessary, supplementary measures will be implemented within the scope of the Port Security Act. An implementation plan is being prepared. The implementation of the measures proposed in the plan depends on the financing that is available.

In 2008, the European Commission requested an evaluation of the efficiency and implementation of the security regulations governing the transport of dangerous goods. The Commission has now discussed the results and recommendations with the EU Member States. The current regulations governing national transports of dangerous goods are, in general, deemed to be adequate. It is expected that some elements of the regulations will be rendered more stringent.

**Urban and regional transport**

The decentral authorities issue the concessions for urban and regional transport and, together with the concession holder, are responsible for the transport. New legislation being prepared for the local railways will include provisions governing security. The urban and regional transport sector is affiliated with the Counterterrorism Alert System on a voluntary basis.
The annual subsidy decision for ProRail makes a total of €6 million available for
the Programma security op het spoor (‘Security on the Railways programme’) during
the years from 2006 to 2009. This programme will arm ProRail against the potential threat
of a terrorist attack by implementing supplementary measures such as the performance of
risk analyses, completion of the affiliation with the Counterterrorism Alert System (ATb) and
the formulation of control measures designed to increase the basic security level in alert
situations. The programme has been drawn up in consultation with the National
Coordinator for Counterterrorism. The relevant ministries and experts have tested the plans
for the performance of risk analyses and formulation of measures: ProRail has also
harmonised these with other European infrastructure managers, in close collaboration
with NS Dutch Railways.

The Ministry of Transport, Public Works and Water Management has also made an amount
of €3.5 million available from the FES funds to ProRail for the implementation of the Anti
Terrorisme maatregelen Op Stations (‘Counterterrorism measures at Stations’) (ATOS) programme, a
programme implemented by ProRail in cooperation with NS Dutch Railways.

The National Coordinator for Counterterrorism has, on behalf of the Ministry of Justice,
Ministry of the Interior and Kingdom Relations and Ministry of Transport, Public Works,
and Water Management, made a subsidy of more than €25 million available for the
Cameratoezicht in het openbaar vervoer (‘CCTV in public transport’, CTOV) programme. The
objective of this programme is to increase personal security in public transport by imple-
menting measures at seven railway stations entailing the intensification of cooperation in
CCTV supervision. The public-law and private-law parties participating in the projects at
these locations are the relevant municipalities, regional police forces, the National Police
Services Agency (Railway Police Service), ProRail, NS Dutch Railways and the urban and
regional transport companies.
NS Dutch Railways takes the responsibility for security and reports on security in the annual transport plan. The Ministry of Transport, Public Works, and Water Management has requested ProRail, within the regular management plan cycle, to provide an insight into the interpretation of the security approach referred to in this document in the form of a (confidential) subsection of the Infrastructure management plan.
Annex B: Quantified targets of the Third Railway Safety Framework Document
A list of all indicators cited in the Third Framework Document is enclosed below. Targets have been specified for the indicators. A distinction can be made between indicators adopted at a European level and at a national level. Targets have been defined at a European level for a number of European indicators, the National Reference Values. The European indicators and targets included in the list are printed in bold text.

The list makes use of a number of terms and abbreviations. These are explained below.

- **FWSI** is the abbreviation of Fatalities and Weighted Serious Injuries. A weighted average. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.
- **NRV** is the abbreviation of National Reference Value. A reference value adopted by the European Union on the basis of the average number of FWSI (Fatalities and Weighted Serious Injuries) in a specific period. The NRV is often expressed per thousand million train kilometres (or passenger kilometres), an approach which simplifies comparisons between Member States with large railway networks / a large volume of railway transport and with smaller railway networks / a lower volume of railway transport). This document has adopted the National Reference Values for the Netherlands.
- **Rolling target.** The Netherlands has specified a number of indicators for which no National Reference Values - rolling targets - have been specified at European level. These rolling targets are specified using the European method used for the specification of the National Reference Values.
- **Permanent improvement** is stated for targets when the Netherlands intends to achieve sustainable improvements (with due regard for the cost-effectiveness of the measures).

An explanation of the selection of the indicators and the targets is given in subsections 4.2.3 and 4.2.4.
### Safe transport (Section 5)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety risk to train passengers</td>
<td>FWSI amongst passengers / year / thousand million passenger train kilometres</td>
<td>National Reference Value; permanent improvement Structural ranking among the EU top 5</td>
</tr>
<tr>
<td></td>
<td>FWSI amongst passengers / year / thousand million passenger kilometres</td>
<td>National Reference Value; permanent improvement Structural ranking among the EU top 4</td>
</tr>
<tr>
<td></td>
<td>Number of seriously-injured passengers per year</td>
<td>for the purposes of information</td>
</tr>
<tr>
<td></td>
<td>Number of deaths of passengers per year</td>
<td>for the purposes of information</td>
</tr>
<tr>
<td>Accidents involving passenger, goods and other trains</td>
<td>Number of slightly-injured passengers / year / thousand million passenger kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Total number of accidents / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of train collisions / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of derailments / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of collisions on level crossings / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of accidents to persons caused by rolling stock in motion / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of fires in rolling stock / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of other accidents / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of wrong-side signalling failures / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of SPADs (/ million train kilometres)</td>
<td>In 2010: 50% reduction as compared to 2003 Thereafter: permanent improvement</td>
</tr>
<tr>
<td>Railway infrastructure</td>
<td>Number of broken rails / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of track buckles / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Rolling stock</td>
<td>Number of broken wheels on rolling stock in service / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of broken axles on rolling stock in service / million train kilometres</td>
<td>Rolling target: permanent improvement</td>
</tr>
<tr>
<td>Railway tunnels</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Disaster organisation and crisis control</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Security</td>
<td>audit</td>
<td>2014</td>
</tr>
<tr>
<td>Personal security of passengers</td>
<td>Customer appreciation of personal security: % of passengers who award a score of 7 or more for personal security</td>
<td>To be specified by: • Ministry of Transport, Public Works, and Water Management and NS Dutch Railways in the transport plan cycle; • Decentral authorities and regional carriers</td>
</tr>
</tbody>
</table>
### Safe work (Section 6)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention of occupational accidents</td>
<td>FWI amongst railway employees / year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement; structural ranking among the EU top 4</td>
</tr>
<tr>
<td></td>
<td>Number of track worker fatalities</td>
<td>Permanent improvement, target of zero</td>
</tr>
<tr>
<td></td>
<td>Number of shunter fatalities</td>
<td>Permanent improvement, target of zero</td>
</tr>
<tr>
<td></td>
<td>Number of collisions with track workers</td>
<td>Rolling target; permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of electrocutions</td>
<td>Rolling target; permanent improvement</td>
</tr>
<tr>
<td></td>
<td>IF-rate (# accidents with lost time &gt; 24 h / hours worked). An explanation is given in the box of subsection 6.2.</td>
<td>Rolling target; permanent improvement</td>
</tr>
<tr>
<td>Training and competence</td>
<td>Compliance percentage for the duty of the required competence or medical and psychological suitability certificates.</td>
<td>Permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Compliance percentage for the train drivers' familiarity with the route</td>
<td>Permanent improvement</td>
</tr>
</tbody>
</table>

### Safe life (Section 7)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level crossing safety</td>
<td>FWI amongst level crossing users / year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement</td>
</tr>
<tr>
<td></td>
<td>FWI amongst level crossing users / year / ((train kilometres*number of level crossings)/ track kilometres)</td>
<td>The European Union has not yet adopted a National Reference for this indicator.</td>
</tr>
<tr>
<td>Unauthorized persons on the tracks</td>
<td>FWI amongst unauthorised persons on the tracks / year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement; structural ranking among the EU top 3</td>
</tr>
<tr>
<td>Railway suicides</td>
<td>Number of railway suicides</td>
<td>ALARP</td>
</tr>
<tr>
<td></td>
<td>Number of railway suicides / thousand million train kilometres</td>
<td>ALARP</td>
</tr>
<tr>
<td>External safety (transport of dangerous goods)</td>
<td>FWI amongst 'others (third parties)'/year / thousand million train kilometres</td>
<td>National Reference Value; permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of accidents involving at least one railway vehicle transporting dangerous goods / million train kilometres</td>
<td>Rolling target; permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of such accidents in which dangerous goods are released / million train kilometres</td>
<td>Rolling target; permanent improvement</td>
</tr>
<tr>
<td></td>
<td>Number of fatalities per annum caused by such accidents.</td>
<td>Target of zero</td>
</tr>
</tbody>
</table>
## Pan-theme issues (Section 8)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Total FWSI / year / thousand million train kilometres(^{152})</td>
<td>National Reference Value; permanent improvement Structural ranking among the EU top 5</td>
</tr>
<tr>
<td>Integral cooperation on the interfaces between responsibilities</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Innovation</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Safety management</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Safety culture</td>
<td>Compliance percentage with the safety regulations (NVW) amongst track workers</td>
<td>permanent improvement(^{153})</td>
</tr>
<tr>
<td></td>
<td>Compliance percentage with the safety regulations amongst shunters</td>
<td>permanent improvement(^{154})</td>
</tr>
</tbody>
</table>

\(^{152}\) The indicators and standards adopted at a European level are shown in bold text.

\(^{143}\) These indicators are included for the purposes of information. Although information about the number of fatalities and serious injuries among passengers is certainly of interest, the risk to passengers is already specified (and standardised) by the two FWSI indicators.

\(^{144}\) A distinction is made between two categories of slightly-injured passengers: ‘in the train’ and ‘when embarking/disembarking’.

\(^{145}\) The target for SPADs specified in the Second Framework Document has not been achieved to date and, consequently is retained for the time being. This target specifies a 50% reduction of the number of SPADs and a 75% reduction of the risk in 2010 as compared to 2003. Once these targets have been achieved the ‘permanent improvement’ target will be adopted.

\(^{146}\) Ditto.

\(^{147}\) The members of the railAlert Foundation have agreed on a target of a 10% improvement per annum.

\(^{148}\) The compliance percentages in different years relating to different enforcement actions are not readily comparable with each other in a quantitative sense: pursuant to the principle of risk-based supervision supervisors will focus on the elements which they suspect could pose a compliance issue. For this reason the interpretation of the compliance percentages always involves a qualitative element.

\(^{149}\) The Inspectorate for Transport, Public Works and Water Management’s test of the compliance percentage for the train drivers’ familiarity with the route includes a check to determine whether the individual train driver has completed a programme and whether the train driver has driven on the relevant route every six months.

\(^{150}\) Ditto as footnote above.

\(^{151}\) The European definition of “others (third parties)” is: all persons not defined as “passengers”, “employees including the staff of contractors”, “level crossing users” or “unauthorised persons on railway premises”. This includes the neighbouring residents and persons in the vicinity of the railways. The Netherlands has achieved a score of zero for this indicator for many years. It has been decided to define the Netherlands’ NRV as the average of the NRVs of Belgium and Germany.

\(^{152}\) This relates to: (1) passengers, (2) employees, (3) level crossing users, (4) unauthorised persons on railway premises and (5) ‘others’. Railway suicides are not included in this indicator.

\(^{153}\) The compliance percentages in different years relating to different enforcement actions are not readily comparable with each other in a quantitative sense: pursuant to the principle of risk-based supervision supervisors will focus on the elements which they suspect could pose a compliance issue. For this reason the interpretation of the compliance percentages always involves a qualitative element.

\(^{154}\) Ditto.
Annex C:
Glossary
Glossary

**Accident involving the transport of dangerous goods**
*European definition:* accident or incident that is subject to reporting in accordance with RID\(^{95}\)/ADR section 1.8.5.

**Accidents to persons caused by rolling stock in motion**
*European definition:* accidents to one or more persons who are either hit by a railway vehicle or by an object attached to, or that has become detached from, the vehicle. Persons who fall from railway vehicles are included, as well as persons who fall or are hit by loose objects when travelling on board of the vehicles.

**AHOB**
Automatic half-level crossing barriers.

**AI**
Labour Inspectorate. The enforcement and implementing organisation of the Ministry of Social Affairs and Employment (SZW).

**AKI**
Automatic flashing light signals, level crossing type.

**ALARP**
The ALARP principle: As Low As Reasonably Practicable. When the costs are socially acceptable a pan-State assessment is made of the cost and the expected safety benefits and effects.

**ATb**
Counterterrorism Alert System.

**ATB**
Automatic train protection system.

**ATB-Vv**
Automatic train protection system – improved version.

**BLEVE**
Boiling Liquid Expanding Vapour Explosion. A BLEVE is the combustion of a pool of flammable liquid followed by a vapour explosion.

**Branch railway lines**
A railway line providing access to one or more junction railway lines in a port or industrial area.

**Broken rails**
*European definition:* Any rail which is separated in two or more pieces, or any rail from which a piece of metal becomes detached, causing a gap of more than 50 mm in length and

---

Broken wheels and broken axles

*European definition:* A break affecting the essential parts of the wheel or the axle and creating a risk of accident (derailment or collision).

BZK

Ministry of the Interior and Kingdom Relations.

CIRES

Coördinatie Implementatie Regeling Evaluatie Spoorwetgeving ('Coordination of the Implementation of Regulations relating to the Evaluation of Railways Legislation').

Collision of trains, including collisions with obstacles within the clearance gauge

*European definition:* A front to front, front to end or a side collision between a part of a train and a part of another train, or with:

- shunting rolling stock;
- objects fixed or temporarily present on or near the track (except at level crossings if lost by a crossing vehicle or user).

CSI

Common Safety Indicators.

CSM

Common Safety Methods.

CST

Common Safety Target, a target to be achieved by all Member States. This target has to date been set at the NRV of the Member State achieving the lowest score for the relevant indicator.

Dangerous goods

*European definition:* Substances and articles the carriage of which is prohibited by RID, or authorised only under the conditions prescribed therein.

Deaths (killed person)

*European definition:* Any person killed immediately or dying within 30 days as a result of an accident, excluding suicides.

Employees (staff of contractors and self-employed contractors are included)

*European definition:* any person whose employment is in connection with a railway and is at work at the time of the accident. It includes the crew of the train and persons handling rolling stock and infrastructure installations.

Fires in rolling stock

*European definition:* Fires and explosions that occur in railway vehicles (including their load) when they are running between the departure station and the destination, including when stopped at the departure station, the destination or intermediate stops, as well as during re-marshalling operations.

External safety

Focused on the control of risks to the surroundings caused by:

- The use, storage and production of dangerous goods;
- The transport of dangerous goods (pipelines, waterways, roads, railways);
- The use of airports.

FWSI

Fatalities and Weighted Serious Injuries. The weighted average of the number of deaths and serious injuries. The weighted average is determined by considering 1 serious injury statistically equivalent to 0.1 fatalities.

GHOR

Medical Assistance in Accidents and Disasters.

Hot BLEVE-free

A train is Hot BLEVE-free when the distance between a wagon with flammable gas and a wagon with highly flammable liquid is greater than 18 metres. The probability of a pool fire in combination with a gas explosion – a Boiling Liquid Expanding Vapour Explosion – is then very small.

Injuries (seriously-injured person)

*European definition:* any person injured who was hospitalised for more than 24 hours as a result of an accident, excluding attempted suicides.

Internal safety

The control of the risks to persons who are engaged in activities with accompanied by a higher or lower risk, including the safety of (railway) passengers.
Level crossing accidents

*European definition:* Accidents 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/user.

Level crossing users

Or: ‘User of a level crossing’. *European definition:* All persons using a level crossing to cross the railway line by any mean of transport or by foot.

Main railway infrastructure

The infrastructure managed by the holder of the management concession. This infrastructure is designated by Royal Decree.

Others (third parties)

*European definition:* all persons not defined as “passengers”, “employees including the staff of contractors”, “level crossing users” or “unauthorised persons on railway premises”.

Passenger

*European definition:* Any person, excluding members of the train crew, who makes a trip by rail. For accident statistics, passengers trying to embark/disembark onto/from a moving train are included.

Passenger kilometre

Unit for the transport of one passenger over a distance of one kilometre on the railway.

Passenger train kilometre

Unit for the movement of a passenger train over a distance of one kilometre.

Safety (overall)

The totality of all safety and security efforts designed to provide reasonable protection to systems, processes, persons or objects from (the threat of) accidents, impairment or damage.

Security

Measures to counter wilful disruption. Wilful disruption can be caused by deliberate human action of gradations ranging from minor disruptions such as causing hindrance and vandalism to major disruptions such as criminal acts, sabotage and terrorism.

Other types of accidents

*European definition:* All accidents other than those already mentioned (train collisions, train derailments, accidents at level crossing, to persons caused by rolling stock in motion and fires in rolling stock).

This definition is derived from the Bescherming vitale infrastructuur (‘Protection of the Critical Infrastructure’) report, House of Representatives of the States-General, 2005-2006, 26643, no 75.

Ditto
Signal Passed at Danger (SPAD)

*European definition:* Any occasion when any part of a train proceeds beyond its authorised movement. Unauthorised movement means to pass:
- a trackside colour light signal or semaphore at danger, order to STOP, where an Automatic Train Control System (ATCS) or ATP system is not operational;
- the end of a safety related movement authority provided in an ATCS or ATP system;
- a point communicated by verbal or written authorisation laid down in regulations;
- stop boards (buffer stops are not included) or hand signals.

Cases in which vehicles without any traction unit attached or a train that is unattended run away past a signal at danger are not included. Cases in which, for any reason, the signal is not turned to danger in time to allow the driver to stop the train before the signal are not included.

National Safety Authorities may report separately on the four indexes and shall report at least an aggregate indicator containing data on all four items.

SMS

The safety management system is the means of ensuring that safety is a high-grade, self-explanatory and integral element of the mentality, decisions and actions of the management and employees of the relevant organisation and of the (safety) interfaces between organisations.

Suicidal persons

Persons with the apparent intention of committing suicide on or by the railway transport system.

System responsibility

The organisation and performance of the system as such (and the responsibility for the creation of the requisite conditions), the determination and specification of the regulations, division of responsibilities and the organisation of supervision. Consequently, the Minister of Transport, Public Works and Water Management is responsible for the formulation of policy, the performance of the statutory framework, the initiation of new legislation and regulations and the institution, organisation and performance of the supervision of railway safety.

SZW

Ministry of Social Affairs and Employment.

Terrorism

Terrorism is defined as threatening, making preparations for or perpetrating, for ideological reasons, acts of serious violence directed at people or other acts intended to cause property damage that could spark social disruption, for the purpose of bringing about social change, creating a climate of fear among the general public, or influencing political decision-making.

Track buckles

*European definition:* Faults related to the continuum and the geometry of track, requiring track obstruction or immediate reduction of permitted speed to maintain safety.

Train derailment

*European definition:* any case in which at least one wheel of a train leaves the rails.

Train kilometre

Unit for the movement of a train over a distance of one kilometre.

TSI

Technical Specifications Interoperability.

Unauthorised persons on railway premises

*European definition:* any person present on railway premises where such presence is forbidden, with the exception of level crossing users.

VROM

Ministry of Housing, Spatial Planning and the Environment.

VWS

Ministry of Health, Welfare and Sport.

Wrong side signalling failure

*European definition:* Failure of a signalling system (either to infrastructure or to rolling stock), resulting in signalling information less restrictive than that demanded.

---

158 House of Representatives of the States-General, 2009-2010, 29754, no. 172.
Colophon

Photography
Image archives of the Ministry of Transport, Public Works and Water Management, Robert M. Berger and Tineke Dijkstra (cover)

Design
2D3D

Translation
Concorde

Published by the

Ministry of Transport, Public Works and Water Management

PO Box 20901 | 2500 EX The Hague, The Netherlands
www.rijksoverheid.nl

June 2010