

3rd European Tunnel Safety Officers Forum

26 – 28 March 2014 Luxembourg



The World Road Association and its Road Tunnels Operations Technical Committee



www.piarc.org

Ignacio del Rey (Chairman)
Marc Tesson (French speaking secretary)

World Road Association & TC 3.3

Main products



World Road Association & TC 3.3

Main products



World Road Association (PIARC)

- Non-political, not-for-profit organisation established in 1909.
- Holds Consultative Status within the United Nations Economic and Social Council since 1970.



Objectives

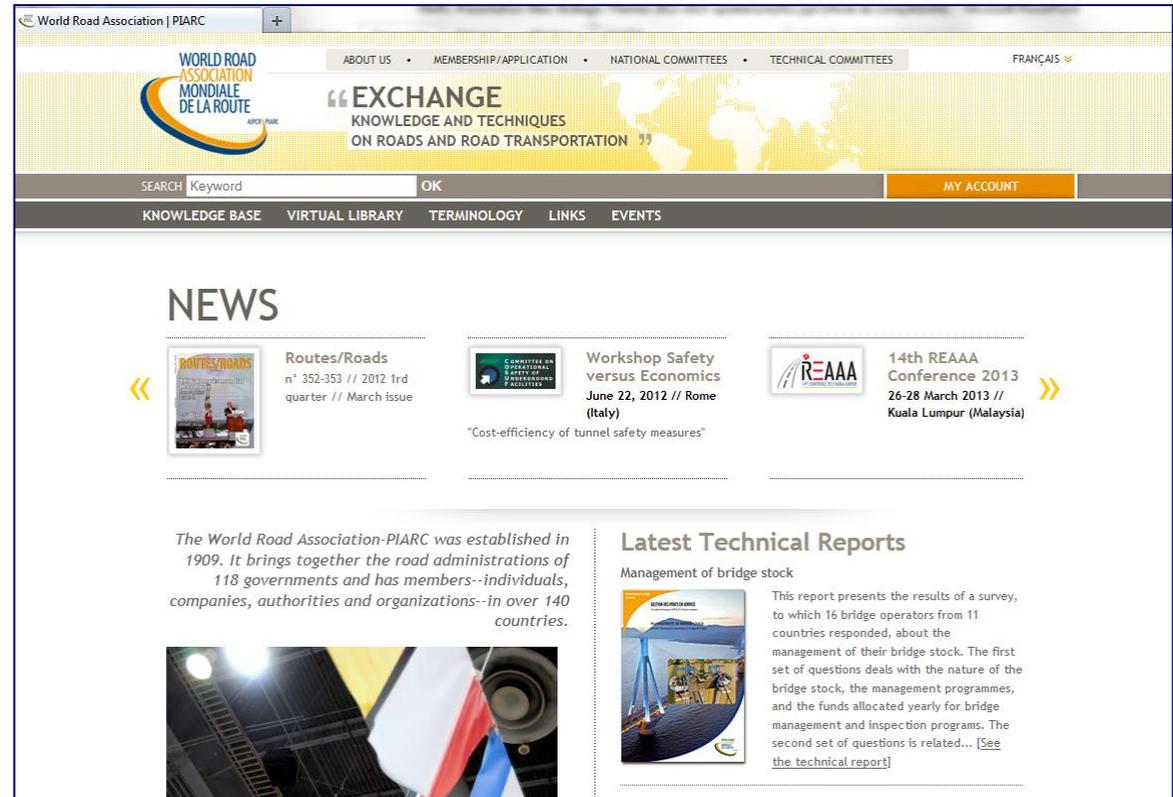
- Organise international forums
- Disseminate best practices
- Promote efficient tools for decision making
- Special emphasis for Developing Countries and Countries with Economies in Transition



Members

- National Governments
- Regional Authorities
- Collective Members
- Individual Members





The screenshot shows the homepage of the World Road Association (PIARC) website. The header includes the organization's logo and name in both English and French, along with navigation links for 'ABOUT US', 'MEMBERSHIP/APPLICATION', 'NATIONAL COMMITTEES', and 'TECHNICAL COMMITTEES'. A search bar is present with the text 'Keyword' and an 'OK' button. Below the header, there are navigation tabs for 'KNOWLEDGE BASE', 'VIRTUAL LIBRARY', 'TERMINOLOGY', 'LINKS', and 'EVENTS'. The main content area features a 'NEWS' section with three items: 'Routes/Roads' (n° 352-353 // 2012 1st quarter // March issue), 'Workshop Safety versus Economics' (June 22, 2012 // Rome (Italy)), and '14th REAAA Conference 2013' (26-28 March 2013 // Kuala Lumpur (Malaysia)). Below the news section, there is a paragraph about the association's history: 'The World Road Association-PIARC was established in 1909. It brings together the road administrations of 118 governments and has members--individuals, companies, authorities and organizations--in over 140 countries.' To the right, there is a 'Latest Technical Reports' section titled 'Management of bridge stock' with a brief description and a link to 'See the technical report'. A small image of a bridge is also visible in the bottom right of the screenshot.

Services available:

- Knowledge Base
- Virtual Library
- Terminology
- Detailed information on the Association and its activities



Strategic Plan 2012-2015 : Strategic Themes

- Strategic Theme 1: Management and Performance
 - Strategic Theme 2: Access and Mobility
 - Strategic Theme 3 : Safety (TC 3.3 Road tunnels operations)
 - Strategic Theme 4 : Infrastructure
-
- 18 Technical Committees and 2 Task Forces regrouped in one of these 4 Strategic Themes.

 - Committee on Terminology.



Origins of the Committee

The technical committee in charge of road tunnels within PIARC was created in 1957 to deal with the aspects:

- ✓ Equipment
- ✓ Geometry
- ✓ Environment
- ✓ Exploitation
- ✓ Safety



Members of the committee

- President + 3 secretaries
- 55 Members designated by the PIARC First delegate of their countries (coming from 33 countries)
- 16 Corresponding Members designated by the PIARC First delegate of their countries (coming from 15 countries)
- 12 Associate Members designated by PIARC general secretariat and the TC3.3
- 109 WGs Associate Members designated by the C4 committee

More than 180 experts!!!



Working groups for the cycle 2012-2015

- WG1 : Sustainable road tunnel operations
- WG2 : Road tunnel safety
- WG3 : Human behavior
- WG4 : Fire Safety
- WG5 : Complex underground road tunnels
- WG6 : Knowledge management



WG outputs (typically technical reports)



Operating mode of the committee

- The Committee sets up working groups and validates their products



World Road Association & TC 3.3

Main products



Technical reports. Cycle 2008-2011

- **Best practice for road tunnel Emergency exercises**
- **Recommendations on management of maintenance and technical inspection of road tunnels**
- Life cycle aspects of electrical road tunnel equipment
- Risk evaluation : Current practice for risk evaluation for road tunnels
- Assessing and improving safety in existing road tunnels
- Recommendations regarding road tunnel drivers' training and information
- Road tunnels: Vehicle emissions and air demand for ventilation
- Design fire characteristics for road tunnels
- Recommendations for strategic tunnel safety management



Technical reports. Cycle 2008-2011

- Best practice for road tunnel Emergency exercises

EU Dir. 2004/54/EC

TSOs tasks and functions:

- **art.6 - 2.a** “Ensure the coordination with emergency services and take part in the preparation of operational schemes”
- **art.6 - 2.d** “Verify that operational staff and emergency services are trained and he/she shall take part in the organisation of exercises held at regular intervals”



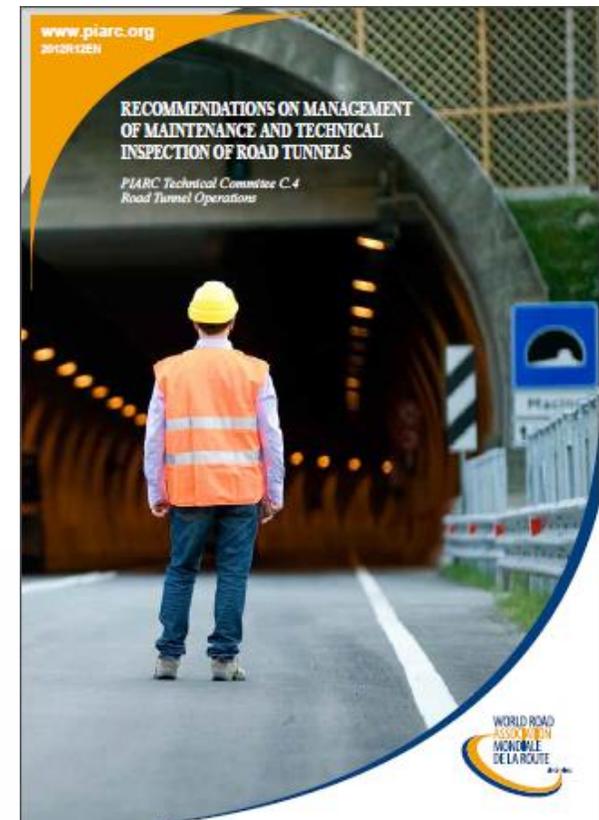
Technical reports. Cycle 2008-2011

- Recommendations on management of maintenance and technical inspection of road tunnels

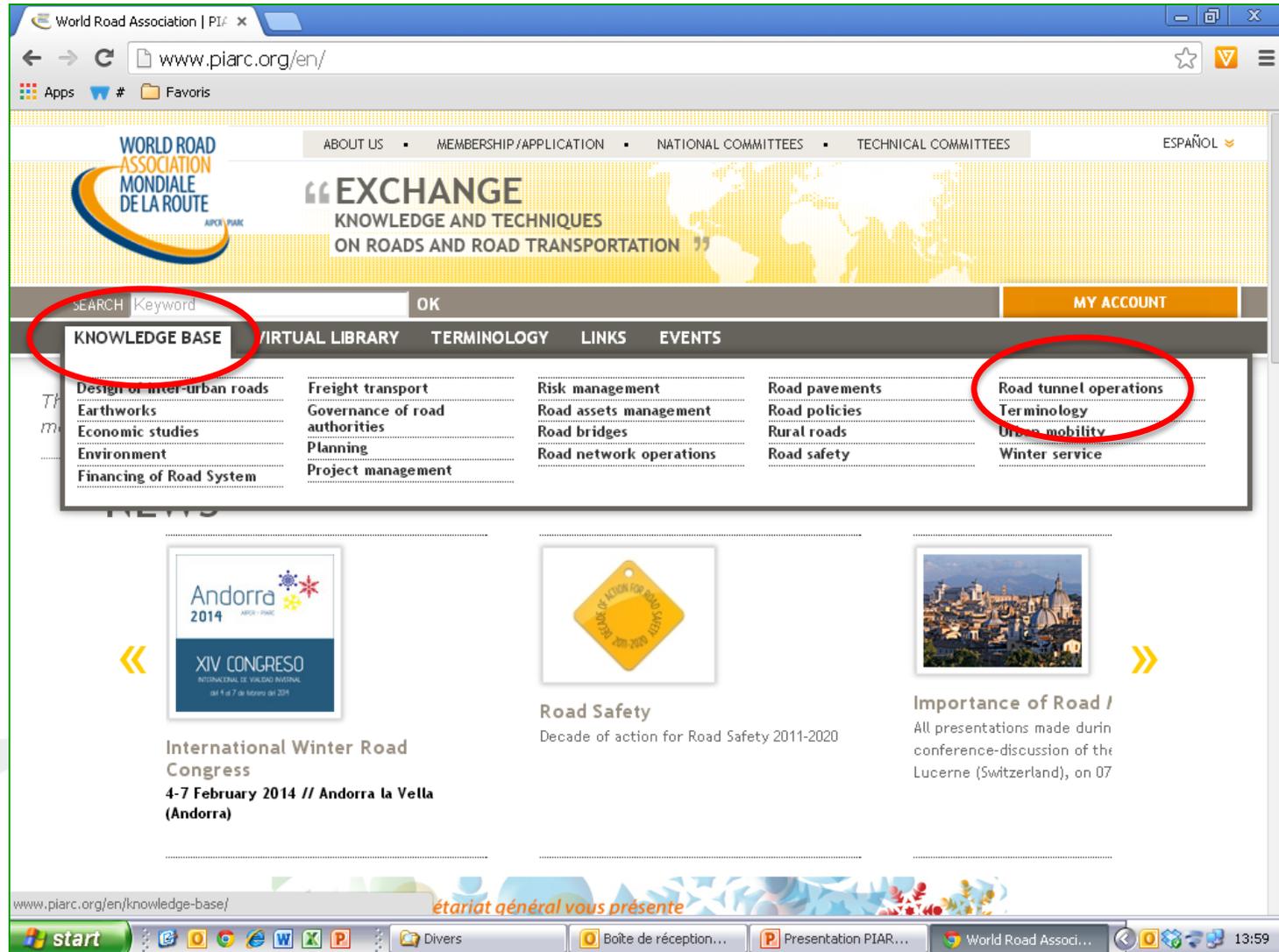
EU Dir. 2004/54/EC

TSO tasks and functions:

- **art.6 - 2.f** “Verify that the tunnel structure and equipment are maintained and repaired”



Where to find the Road Tunnels Operations Manual ?



The screenshot shows the World Road Association website interface. At the top, there is a navigation menu with links for 'ABOUT US', 'MEMBERSHIP/APPLICATION', 'NATIONAL COMMITTEES', and 'TECHNICAL COMMITTEES'. Below this is a banner for 'EXCHANGE KNOWLEDGE AND TECHNIQUES ON ROADS AND ROAD TRANSPORTATION'. A search bar is present with the text 'SEARCH Keyword' and an 'OK' button. A 'MY ACCOUNT' button is also visible. The main navigation menu includes 'KNOWLEDGE BASE', 'VIRTUAL LIBRARY', 'TERMINOLOGY', 'LINKS', and 'EVENTS'. The 'KNOWLEDGE BASE' menu is expanded, showing a grid of categories. The 'Road tunnel operations' category is circled in red. Other categories include 'Design of inter-urban roads', 'Earthworks', 'Economic studies', 'Environment', 'Financing of Road System', 'Freight transport', 'Governance of road authorities', 'Planning', 'Project management', 'Risk management', 'Road assets management', 'Road bridges', 'Road network operations', 'Road pavements', 'Road policies', 'Rural roads', 'Road safety', 'Road tunnel operations', 'Terminology', 'Urban mobility', and 'Winter service'. Below the menu, there are three featured articles: 'International Winter Road Congress' (Andorra 2014), 'Road Safety' (Decade of action for Road Safety 2011-2020), and 'Importance of Road / All presentations made during conference-discussion of the Lucerne (Switzerland), on 07'. The footer contains the website URL 'www.piarc.org/en/knowledge-base/' and the text 'étariat général vous présente'.



Choice of the language and main menu

Term to search in the Manual ▶ OK

Send us your comments !

Home page : Warning to the readers

Preface

Introduction

1. Strategic issues

2. Safety

3. Human factors

4. Operation and maintenance

5. Environmental issues

6. Geometry

7. Structural facilities

8. Equipment and systems

9. Tunnel response to fire

Glossary

Home page

Home page : Warning to the readers

- ▶ [1. How to use the Manual ?](#)
- ▶ [2. Copyright](#)
- ▶ [3. Disclaimer](#)
- ▶ [4. Last updates of the EN version](#)
- ▶ [Printing](#)

1. How to use the Manual ?

This Manual is available in English and in French, that are the only official versions, and also in other languages (today in Chinese, Czech, Japanese, Korean and Spanish). To go to one of these languages, you just need to click on the flag or the name of this language on the right top of the screen.

The Manual is divided in 3 parts :

- Home page (Warning to the readers), Preface and Introduction pages;
- 9 technical chapters;
- Glossary (Excel file with all the terms and definitions of the PIARC Road Tunnel Operations specific dictionary in all the available languages of this dictionary).



Home page : Warning to the readers

Preface

Introduction

1. Strategic issues

2. Safety

- ▶ 2.1. General principles
- ▶ **2.2. Integrated approach**
- ▶ 2.3. Experience from past incidents
- ▶ 2.4. Risk assessment
- ▶ 2.5. Principles and tools for fire safety
- ▶ 2.6. Dangerous goods
- ▶ 2.7. Safety procedures
- ▶ 2.8. Improving safety in existing tunnels

3. Human factors

4. Operation and maintenance

5. Environmental issues

6. Geometry

7. Structural facilities

8. Equipment and systems

[Home page](#) » [2. Safety](#) » 2.2. Integrated approach

2.2. Safety elements and integrated approach

▶ [Printing](#)

Safety is not the simple adoption of all possible safety measures but is the consequence of a balance between the forecast risk factors and the safety measures.

With the establishment and development of international regulations, recommendations and guidelines, there is a need for a framework within which all aspects of tunnel safety are taken into account. Such a framework may contain the following principal elements:

- Safety level criteria (regulations & recommendations)
- Infrastructure and operational measures
- Socio-economic and cost-benefit criteria
- Safety assessment techniques (safety analysis and evaluation)
- Road tunnel usage
- Stage of tunnel life (planning, design, construction, commissioning, operation, refurbishment, upgrade)
- Operating experience
- Tunnel system condition

These safety elements are described in the [Chapter 5 "Elements in an integrated approach" of report 2007R07.](#)



PIARC recommendation regarding the approach to take into account Directive 2008/96/CE in the context of road tunnels

EU Dir. 2004/54/EC

TSOs tasks and functions:

- **art.6 - 2.c** “Take part in the definition of safety schemes and the specification of the structure, equipment and operation in respect of both new tunnels and modification of existing tunnels”
- **art.6 - 2.e** “Give advice on the commissioning of the structure, equipment and operation of tunnels



Starting point

- Initiative: secretary of the Italian Association of Road Safety Professionals
- Petition: on behalf of different experts and bodies at the European level
- Request: harmonization of the 2 Directives
 - 2008/96/EC - road safety
 - 2004/54/EC - road tunnels safety
- 2 restricted workshops February & May 2013
- (European Social and Economic Committee)
- PIARC TC 3.3 invited



Summary of the PIARC position

- Production of a **recommendation** that does not lead to modifying the directives or their annexes (it perfectly fulfils the target objectives)
- Objective: to encourage tunnel managers to **consider more specifically the aspects linked to road safety** in the context of the procedures currently in effect for road tunnels



PIARC recommendation

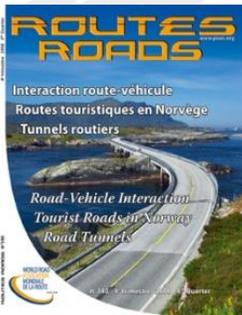
- Principles set out in Directive 2008/96 should be preserved and carefully adapted to the specific context of road tunnels,
- PIARC invites EU members states to be vigilant concerning the questions linked to road infrastructure safety management in the context of road tunnels,
- EU members states should encourage tunnel managers to specifically consider the aspects linked to road safety in the framework of the procedures applied for road tunnels (Directive 2004/54/EC)



PIARC recommendation

- **Safety documentation:** EU members states should recommend that the **road tunnel safety expert** mentioned in Directive 2004/54/EC should **ask, at the design and commissioning stage, for the opinion of an auditor holding a certificate of competence as mentioned in Article 9.3 of Directive 2008/96/EC,**
- **Periodic inspections:** EU members states should recommend that the inspection entity who carries out the periodic inspections according to Article 12 of Directive 2004/54/EC **should ask for the opinion of a competent entity** as defined at point 2 of Article 2 of Directive 2008/96/EC.

www.piarc.org





Thank you for your attention !

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