

## Executive Summary

The 6<sup>th</sup> meeting of the PIARC Technical Committee E.3 (Disaster Management) was held in Hanoi, Vietnam, from the Monday 05<sup>th</sup> November to Friday 9<sup>th</sup> November 2018. The meeting was a combined workshop with Technical Committee TC A.1 Risk Management and was attended by delegates from Japan, Australia, Greece, Belgium, Czech Republic, Germany, Austria, Denmark and Slovenia.

On the third and fourth days, the Committee delegates were joined by Indonesian Delegates from REAAA and Vietnamese representatives for an international seminar on Lessons Learned from Disaster Management where countries shared their approaches to managing and preventing disasters.

The fifth and final day included a field trip to Lach Huyen Port Infrastructure Construction Project to inspect a major toll road (10.2km) and viaduct (5.44km) leading to the Lach Huyen Deep Sea Port.

The agenda for the TC E.3 meeting was to:

- Finalise development of the Disaster Management Manual Technical Reports
- Finalise development of the online version of the Disaster Management Manual
- Finalise the Committee report for translation into English, French and Spanish
- Report on collaboration with Roads Engineering Association of Asia and Australasia and Transport Research Board
- Review the next PIARC Draft Strategic Plan, noting priorities for future research
- Finalise reviews of conference paper abstracts submitted for the 2019 Abu Dhabi World Road Congress
- Planning for the next meeting in San Diego

The next meeting of the committee is planned to be held in San Diego, USA on 07-10 May 2019.

## Background

The goal of TC E.3 is to maintain and disseminate information related to a road administration's response strategies for natural disasters. The committee has shared interests with and works closely with TC A.1 Risk Management and TC E.3 Climate Change.

The key outputs of the committee are to report on case studies and recommendations, update the Disaster Management Manual, and prepare the manual to be published as an online manual.

## Program Status

The committee is working on the following points:

- Collecting and assessing case studies
- Updating the Disaster Management Manual (including preparing it for on line publication)
- Finalising the committee report, quality check and translation

## Meeting Outputs

### ***Development of the Disaster Management Manual***

- The former Risk Management Manual is being developed into a Risk and Disaster Management manual and will be published as an online manual with search engines
- The Risk and Disaster Management manual consists of the main body describing the concepts followed by a toolbox of case studies to assist road administrators
- Topics in the main body include good practice guidelines and supporting case studies for:
  - Outcomes of the International Survey relating to disaster management methodologies and practices
  - Gathering and sharing information during a disaster using traditional media and social media
  - Monitoring, detecting and assessing infrastructure vulnerability to disasters
  - Education of road users (traffic safety and behavior) in disasters
  - Coordination and Cooperation between national and international agencies
  - Emergency operations and Short-term recovery
  - Continuity of operations within the Road Administration
  - Technology Transfer relating to disaster management

### ***Development of the online version of the Disaster Management Manual***

- Content aligned to PIARC template and other PIARC manuals
- Online manual will incorporate previous work and reports from the Risk Management TC

### ***Finalise the Committee report***

- A schedule was developed outlining the key actions and contributions needed to finalise the Committee's report for translation into English, French and Spanish

### ***Collaboration with other agencies***

- PIARC and the Transport Research Board (TRB) agreed to hold an international workshop to coincide with the next meeting of TC E.3 in San Diego, USA on 07-10 May 2019
- PIARC and the Roads Engineering Association of Asia and Australasia (REAAA) have agreed to collaborate on research into pavement technology, infrastructure resilience and road safety. To date, only two REAAA countries (Australia and Japan) have responded to the call to work on the resilience project
- A large contingent of Indonesian REAAA Delegates attended the Hanoi International Seminar and contributed several presentations

### ***DRAFT PIARC Strategic Plan***

The draft PIARC Strategic Plan nominates a Technical Committee for Emergency Road Management under the Strategic Theme #1 (Planning, Management and Finance). It is expected that this TC will continue and advance the work of TC E.3.

## Seminar Summary

On the third and fourth days, the Committee delegates were joined by Indonesian Delegates from REAAA and Vietnamese representatives from the Directorate of Roads Vietnam (DRVN) for an international seminar on Lessons Learned from Disaster Management where countries shared their approaches to managing and preventing disasters.

The seminar was sponsored by the World Bank and was opened by Mr Nguyen Ngoc Dong (Vice Minister, Ministry of Transport, Vietnam), who outlined the challenges faced by developing economies to manage and plan for natural disasters.

The topics covered included:

- Infrastructure Resilience – why do we need it; how do we measure it? - Japan
- Application of Risk Management to Road Projects – Denmark
- Cataloguing and organising project risk – Slovenia
- Application of Risk Assessment to Road Route selection – Indonesia
- Impacts of maintenance on road resilience – Vietnam
- Unpredicted infrastructure failure – Japan
- Protecting roads from disasters – Vietnam
- Minimising storm impacts through consideration of vegetation planting – Austria
- Incorporating disaster management into highway planning – Indonesia
- Use of Expanded Polystyrene for emergency road repairs – Japan
- Designing and implementing effective tunnel drills – Australia
- Enterprise risk management – Greece
- Case study – application of risk management to the Java Toll Road – Indonesia
- Landslide and slope maintenance – Vietnam
- Addressing Climate /Disaster Risks of the Transport Network in Vietnam – World Bank
- Climate Resilient World Bank Road Projects - World Bank
- Infrastructure prioritization incorporating resilience as a criterion - Japan
- Managing Flooding Disasters - Australia
- Prefabricated temporary bridges – Czech Republic
- Recovering Roads and Bridges post disaster - Indonesia

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