

Executive Summary

The kick-off meetings for the 2020-2023 cycle for all Technical Committees of the World Road Association (PIARC) were held in Paris, France in January and February 2020. Louis Bettini (Main Roads Western Australia) and Stuart Woods (NZ Transport Agency) attended meetings as part of Strategic Theme 1: Road Administration from the 5th to 7th February; specifically participating in meetings of Technical Committee (TC) 1.4: Climate Change and Resilience of Road Networks. Caroline Evans (Arcadis Australia Pacific) is the appointed Chair for Technical Committee 1.4, Louis Bettini (Main Roads Western Australia) is the appointed Technical Committee - English Secretary, and Stuart Woods (NZ Transport Agency) is the Working Group 2 Co-Leader.

In this cycle the Climate Change and Resilience of Road Networks TC will be addressing two issues:

- 1.4.1 Uniform and holistic methodological approaches to Climate Change and other hazards resilience
- 1.4.2 Update of the PIARC Climate Change Adaptation Framework

The main activities of the kick-off meeting were to:

- Participate in a plenary session led by Patrick Mallejacq (PIARC Secretary General) and Claude Van Rooten (PIARC President)
- Provide presentations on the activities and production of past PIARC work cycles
- Discuss the objectives, outputs, work methods, and organization of the Work Programme as dictated by the 2020-2023 Strategic Plan
- Establish Working Groups and assign individual members to Working Groups for each of the issues listed above
- Appoint webmaster and all contact positions
- Undertake preliminary planning for subsequent meetings and Seminars

The next TC 1.4 meeting is yet to be determined, and a shortlist of possible host countries is being developed.

Background

The World Road Association (PIARC) was established in 1909 as a non-profit association to promote global cooperation on road and road transport related issues. A Strategic Plan is prepared every four years, with the activities in the plan to be delivered by a series of committees comprised of representatives from member countries. The new 2020-2023 plan is categorised into four Strategic Themes:

1. Road Administration
2. Mobility
3. Safety and Sustainability
4. Resilient Infrastructure

Works in the Road Administration Strategic Theme over the 2020-2023 period are undertaken by five Technical Committees and two Task Forces:

- TC 1.1 – Performance of Transport Administrations
- TC 1.2 – Planning Road Infrastructure and Transport to Economic and Social Development
- TC 1.3 – Finance and Procurement
- TC 1.4 – Climate Change and Resilience of Road Networks

- TC 1.5 – Disaster Management
- TF 1.1 – Well-Prepared Projects
- TF 1.2 – HDM-4

In previous cycles, the T.C. E.1 – Adaptation Strategies / Resiliency was part of Strategic Theme E: Climate Change, Environment and Disasters, however within this cycle, Technical Committee 1.4 has been placed within Strategic Theme 1 Road Administration.

Caroline Evans (Arcadis Australia Pacific) is the Chair on TC1.4, Louis Bettini, Main Roads Western Australia) is the Australian member and English-speaking Secretary and Lucinda Hoffman (TMR Queensland) is the corresponding member. Stuart Woods, New Zealand Transport Authority is also a member on the Technical Committee and is the Working Group 2 Co-Leader.

Work Programme

TC 1.4 is focussed on expanding the collective knowledge for climate change adaptation and resilience to include impacts of climate change and other hazards. It extends from the products developed in the previous cycle and aims to disseminate best-practice knowledge in climate change and resilience. There are many linkages of the work Programme to other TCs which provides opportunities for collaboration throughout the cycle. The outputs and their expected deadlines for each of the issues in TC 1.4 are described in the Strategic Plan and summarised below:

Strategies/Objectives	Outputs	Expected Deadlines
1.4.1 Uniform and holistic methodological approaches to Climate Change and other hazards resilience		
<ul style="list-style-type: none"> • Identification of hazards and environmental threats within the context of road infrastructure resilience (in consultation with other relevant TC's). • Approaches to: <ul style="list-style-type: none"> ○ Risk management within the context of resilience ○ Decision-making and uncertainties/deep uncertainties ○ Emergency management with the context of resilience ○ Resilience management and resilience engineering • Economic, social and environmental aspects of resilience management <ul style="list-style-type: none"> ○ Identification of the socio-economic impacts of hazards on roads ○ Identification of decision areas that need enhanced socio-economic information, and on the key users of such information. ○ Impact and socio-economic evaluation of measures to increase resilience on the availability of road transport infrastructure, and the cost effectiveness of different adaptation strategies • Define criteria to implementation of resilience into asset management practice (in consultation with other relevant TC's e.g. TC 3.3 Asset Management) • Encourage coordination with other TCs and TFs, such as T.C.1.5 – Disaster Management, T.C.2.4 – Road Network Operation/ITS, T.C.3.2 – Winter Service, T.C.3.3 – Asset Management, T.C.3.4 – Environmental Sustainability in Road Infrastructure and Transport, T.F.3.1 – Road Infrastructure and Transport Security, T.C.4.1 – Pavements, T.C.4.2 – Bridges, T.C.4.3 – Earthworks, T.C.4.4 – Tunnels and T.F.4.1 – Road Design Standards. 	<p>Collection of Case Studies</p>	<p>December 2021</p>
	<p>Full report based on case studies</p>	<p>December 2022</p>

Strategies/Objectives	Outputs	Expected Deadlines
Issue: 1.4.2. Update of the PIARC International Climate Change Adaptation Framework for Road Infrastructure		
<ul style="list-style-type: none"> • Update of the PIARC Climate Change Adaptation Framework based in the work carried out on the other ToR of this T.C.: <ul style="list-style-type: none"> ○ Setting a strict separation of processes and methodologies. ○ Split the framework into two separate parts: <ul style="list-style-type: none"> ▪ Part 1: Processes and their descriptions. ▪ Part 2: Overview of possible methodologies for risk assessment and risk management, their data requirements and application limits. This is based on the work carried out by TC E.1 (2016-2019), and on case studies of holistic resilience approaches to be collected through a survey/questionnaire performed together with WG1. • Consideration of new and innovative methodological approaches, in particular criticality assessment, adaptation pathways and evaluation of the overall economic, social and environmental value of adaptation measures. • Introduce the concept of holistic resilience in the Framework, where suitable. 	<p>Roundtable with participation of all relevant TCs and TFs</p> <p>Update Climate Change Adaptation Framework for Roads</p>	<p>February 2022</p> <p>December 2022</p>

TC 1.4 has formed two Working Groups and an internal Case Study Task Force to address each of the two issues. Members expressed preferences for which of the Working Groups they wanted to contribute to. Louis is in Working Group 1 which aims to explore the effectiveness of holistic methodological approaches to climate change and other hazards within the context of resilient road networks. Stuart Woods is the Working Group 2 Co-Leader, which aims to provide an update of the International Climate Change Adaptation Framework for Road Infrastructure, developed in previous PIARC cycles.

The tasks of Working Group 1 and 2 will be underpinned by a case study approach and supported by alternative ways of presenting results where possible. This involves coordination of outputs with the Case Study Task Force, designed to assist the Working Groups in identifying all relevant literature sources from countries worldwide. This Task Force will draw on case studies already collected in the previous cycle by Technical Committee E.1: Adaptation Strategies and Resilience as well as further case studies identified through a survey this cycle.

Much of the discussion in the meeting on the issues/work groups was related the clarification of some of the details of the work as described by the Strategic Plan.

Meeting Outputs

As the initial meeting, one of the first outputs of the meeting was to assign roles within the Committee. The roles of the Chair and language Secretaries were determined by PIARC General Secretariat prior to the meeting as follows:

- Chair – Caroline Evans (Australia)
- English Secretary – Louis Bettini (Australia)
- French Secretary – Fabian Palhol (France)
- Spanish Secretary – Juan Fernando Mendoza (Mexico)

The leaders and co-leaders for Working Group 1 and 2 were assigned as follows:

- Working Group 1 Leader – Marie Colin (France)
- Working Group 1 Co-Leader – Thomas Bles (Netherlands)
- Working Group 2 Leader – Gordana Petkovic (Norway)
- Working Group 2 Co- Leader – Stuart Woods (New Zealand)
- Case Study Task Force Leader – Beata Krieger (Germany)

The roles of contact members were allocated at the meeting and included:

- Webmaster– Louis Bettini (Australia)
- Terminology correspondent– Frederic Depaepe (France)
- Communications correspondent – Juliet Mian, United Kingdom
- Corresponding members coordinator – Juan Fernando Mendoza (Mexico)
- Partnerships coordinator – Yinghao Miao (China)
- PIARC Winter Congress contributor - Luc-Alexandre Chayer (Canada)

The meeting also initiated the arrangement of subsequent meetings over the cycle. Meeting 3 will be held May 2021 in Berlin, Germany including a workshop with the Federal Ministry of Transport and Digital Infrastructure (BMVI). TC1.4 will participate in Calgary Winter Congress and hold a parallel TC Meeting in February 2022. The World Road Congress will take place in Prague, in the Northern Autumn of 2023.

A number of other meetings were discussed, locations proposed, but not confirmed. Provisional details of all meetings across the cycle are detailed on the table below including two seminars proposed in low and middle-income countries (as defined by the World Bank) in Uganda, Africa and Malaysia, in collaboration with Technical Committee 1.5 Disaster Management, and REAAA and in conjunction with the Malaysian Road Congress.

October 2020	TBA (USA)
May 2021	Berlin, Germany (Workshop with the BMVI Experts Network)
November 2021	Uganda, Africa (Seminar)
February 2022	Winter Congress, Calgary (Roundtable Workshop)
November 2022	Malaysia (Seminar with TC 1.5)
April 2023	Mexico City
October 2023	World Road Congress, Prague, Czech Republic

Emerging Issues

This initial meeting was primarily focussed on administrative tasks, and beyond these no new issues emerged.

International Seminars

Two international seminar locations were proposed. These are currently being confirmed with PIARC General Secretariat and include:

- Uganda, Africa
- Malaysia, in joint collaboration with Technical Committee 1.5 and REAAA in conjunction with the Malaysian Road Congress

Learnings and Dissemination

Participation in the Technical Committee meetings has provided an opportunity to share learnings from Australia and New Zealand. This involves the dissemination of key projects in Australia and New Zealand designed to transfer state-of-the-art practice globally.

The outputs of the WG1 and WG2 reports will assist in informing Austroads members to analyse road networks and to consider all hazard impacts and economic, social and environmental aspects of resilience management.

The work Programme for this Committee parallels efforts within Australia and New Zealand and in particular by Main Roads Western Australia and the NZ Transport Agency, both seeking to develop internal processes and tools for resilience. The Technical Committee will also follow up with TMR Queensland and ARRB on their NACOE research project Climate Change Adaptation Framework for Road Infrastructure.

At the Kick-off meeting, there was a desire to consider communication options to make the content more accessible to users of the information including surveying users of the report for their views and needs. There were also suggestions for different formats of information including interactive maps and videos case studies, which will be further investigated throughout the cycle.

Conclusions and Future Meetings

The Kick-off meetings set the platform for the delivery of the Work Programme. Australia and New Zealand is well positioned to contribute and learn from the Work Programme with the issues being highly relevant to an Australasian road and transport agency context. There was a good mix between continuing and new members of the TC 1.4 which resulted in the meeting having high levels of contributions from all participants and will hold the Group in good stead for the work cycle.

Louis Bettini (English speaking Secretary)

Principal Advisor Sustainability
Main Roads

Caroline Evans (Chair of TC 1.4)

Principal Economist
Arcadis Australia Pacific

Stuart Woods (Co-Leader Working Group 2)

Lead Advisor – Resilience
New Zealand Transport Authority

February 2020