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WORLD ROAD ASSOCIATION

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Development of an International Climate Change Adaptation Framework for Road Infrastructure

CALL FOR PROPOSALS

Deadline: June 30th, 2014

1 PURPOSE AND STRATEGIC SIGNIFICANCE

1.1 Introduction

The World Road Association (PIARC) has established a small Special Projects fund to enable it to respond outside the usual four year Technical Committee cycle to emerging issues and priorities identified by its members. This paper is a Call for Proposals for the “Development of an International Climate Change Adaptation Framework for road infrastructure”

1.2 Purpose

The purpose of this proposed project is to assist transport decision-makers in developing appropriate climate change adaptation responses for their road transportation infrastructure.

Many countries face common problems related to the effects of climate change on transportation. Some of these countries have pursued adaptation strategies, but separately and often without the benefit of lessons learned from other countries.¹ Other countries do not have the resources to develop adequate strategies or to identify practical responses, and so their transportation infrastructure remains vulnerable to increased damage from climate change impacts.

A framework based on collective experience of countries in addressing the impacts of climate change on road transport infrastructure and network operation would be helpful to all countries. Recent examples of extreme weather events—Typhoon Haiyan in the Philippines, bush fires in Australia this past summer, Hurricane Sandy in the United States (2012), heavy rain-induced flooding in the United Kingdom (2012), and flooding of the Rhine (2011) due to more rapid snow melt—underscore the need for such a framework.

To be most useful, the framework would lay out a process to identify transportation assets that might be vulnerable to climate change impacts, evaluate the level of risk, and provide guidance on when to make an adaptive response. The framework would identify the key issues to be considered at each step of the process, and would point to resources and examples that could help to conduct or guide the analysis. It should be applicable to a wide range of circumstances. Its purpose would be to guide the decision-making process for road assets owners or managers with respect to climate change adaptation, rather than determining specific outcomes.

¹ Discussions of many of these impacts and strategies can be found in PIARC Technical Committee reports located at <http://www.piarc.org/en/publications/technical-reports/?catalog-topic=20> under the domain “Environment.” See, for example, *Dealing with the Effects of Climate Change on Road Pavements*, Technical Committee D.2 Road Pavements, 2012 (PIARC Ref. 2012R06EN); *Risks Associated with Natural Disasters, Climate Change, Man-made Disasters, and Security Threats*, Technical Committee C.3 Managing Operational Risk in Road Operations, 2013 (PIARC Ref. 2013R12EN); *Adaptation to Climate Change for Bridges*, Technical Committee D.3 Road bridges, 2011 (PIARC Ref. 2011R08EN); *Anticipating the Impact of Climate Change on Road Earthworks*, Technical Committee 4.5 Earthworks, Drainage, Subgrade, 2008 (PIARC Ref. 2008R12EN).

2 METHODOLOGY AND APPROACH

2.1 General

This Call for Proposals requests the development of a proposal for a framework to address climate change adaptation that will set out a process for practical use by road assets owners and managers. The purpose of this framework is to provide guidance for users to apply in addressing the impacts of climate change on road assets and identifying and incorporating adaptation strategies into decision-making processes in practice. The framework should be applicable for all countries whatever their status of development is; it is expected to be flexible enough to apply at both the national and local level. This framework will be specific to climate change adaptation for road transportation and transport infrastructure.

2.2 Approach

Proposals in response to this Call should include a description of the approach to be taken to develop the framework. The proposal should answer the following questions about the tenderer's approach:

1. How will the study be conducted to develop the framework? (For example, by undertaking a literature review, conducting interviews, reviewing best practices, drawing on case studies, or other methods.)
2. What will be the key documents or principal sources of evidence to be considered? Please identify other reports, frameworks, experts, etc. that will be consulted to provide evidence to form the foundation for the framework.²
3. How will the needs of the potential users be considered in developing the framework? Please explain how you would identify information or resource gaps and analytical problems that would need to be addressed in the framework.

2.3 Key areas

Please describe the key areas for consideration in the framework:

1. What climate impacts would be addressed in the framework? Please describe the types of impacts from climate change that would be addressed by the framework.
2. What would be the major steps in the process for addressing adaptation? Please provide an outline of the key elements of the process.

² By way of example, some countries have developed their own frameworks or tools to incorporate climate change adaptation into their decision-making procedures. Some are specific to transportation; others apply more broadly. For example, the United Kingdom Climate Impact Program, based in the University of Oxford, has developed a risk-based *Adaptation Wizard* (<http://www.ukcip.org.uk/wizard/>) to help assess vulnerability to climate change. Australia and Ireland have both published national climate change adaptation frameworks (http://www.climatechange.gov.au/sites/climatechange/files/documents/03_2013/nccaf.pdf; <http://www.environ.ie/en/Publications/Environment/ClimateChange/FileDownload.32076.en.pdf>) designed to reduce risk and realize opportunities from climate change. The United States has developed a *Climate Change and Extreme Weather Vulnerability Assessment Framework* focused on highways and transportation systems (http://www.fhwa.dot.gov/environment/climate_change/adaptation/resources_and_publications/vulnerability_assessment_framework/index.cfm). New Zealand's National Institute of Water and Atmosphere Research has created *A Toolbox-Based Decision Framework for Climate Change Adaptation* (http://www.niwa.co.nz/sites/default/files/toolbox_decision_framework_for_climate_change_adaptation.pdf). These and other national decision-making tools could be resources for this project.

3 FINAL DELIVERABLES

The final deliverables will comprise:

1. A report presenting the **framework** for addressing the impacts of climate change on road infrastructure. The framework should set out a process to guide decision making with respect to climate change adaptation. The framework should establish a logical approach to assessing the vulnerability of transportation systems and infrastructure to climate change impacts. For example, it might include steps that would enable a decision-maker to:
 - a. identify the types of climate effects that will likely affect its system;
 - b. identify and prioritize the transportation assets that might be vulnerable;
 - c. assess the form and level of vulnerability;
 - d. evaluate the magnitude and likelihood of the risk.

The framework should include a narrative explanation of each phase of the process. It should also refer to resources that could assist a transportation agency to implement the framework. Resources might include suggestions on appropriate data bases, models, or analytical tools that could be used to conduct the analysis. They could also include examples or case studies that illustrate the steps in the process. Because each area and transportation system will have its own unique priorities, the framework should assist in the process of identifying options and making decisions, not dictate any particular outcome. In addition, the framework should be flexible enough to apply both at a large and a small scale, and both nationally and locally.

2. An executive **report** that will describe the rationale behind the framework, explain the methodology for your work, summarize the critical research, and explain how and by whom the framework will be used and how countries, including developing countries, could benefit from the use of such a framework. ..
3. A **description of a tool or tools** that could be developed to implement the framework (e.g., an interactive flow chart, a handbook, a web-based tool, etc.). This would outline or describe a practical instrument that could be readily used by a wide range of countries and agencies to implement the process outlined in the framework.
4. An accompanying illustrated **presentation** for distribution and use in webinars and/or international conferences such as TRB 2015, and the World Road Congress (November 2015) in South Korea.

The final products will be submitted in electronic form in English.

4 KEY DATES

The proposal should also include a proposed draft of a work schedule. The schedule should identify dates or time frames for accomplishing major milestones in the project. The work schedule will include a date or time frame for an interim product or products that allows adequate time for review and feedback prior to the final deliverable. The schedule should also include a proposed schedule for periodic conference calls to report on progress. The schedule must be completed and all final products delivered within six months of the commencement of the project.

5 PROPOSED BUDGET

Please provide a general budget for the project. The funding requested from PIARC should not exceed 25,000 Euros, though the total budget may be higher (using complementary funding or contributed services or resources). The budget should include a general itemization of the costs of the major work elements of the project.

6 PROPOSED EXPERTS

The proposal should also include a description of the relevant expertise that qualifies the tenderer to undertake the project. Specifically:

1. Please describe any past or current work projects that relate to the subject of this proposal.
2. Please also identify the person or persons who will be working on this project, describing their roles and estimated contribution to the project, and providing information on their backgrounds, experience and expertise.

7 PROJECT OVERSIGHT

The project will be overseen by a Project Evaluation and Steering committee to select the preferred supplier and assist in the development of the project. These experts will be drawn from PIARC membership, and will include representatives from Technical Committee 1.3 and the PIARC Executive Committee.

The Project Evaluation and Steering Committee will assess tenders and select the preferred supplier on the basis of its assessment of:

- how well tenders address the project objectives and deliverables;
- the value for money offered by the tenderer, including additional contributions leveraged by the project; and
- the capacity of the tenderer to deliver the specified outputs.

The Project Evaluation and Steering Committee will oversee progress of the Project, including participating in periodic calls and reviewing interim and final products. The Project Evaluation and Steering Committee will also provide any relevant information from the PIARC work to the selected tenderer (e.g., information obtained from surveys) for use in the project. In addition to review and oversight by the Project Steering Committee, input may also be sought from the other members of Technical Committee 1.3, and from members of any other relevant PIARC Technical Committees.

8 PROPOSAL SUBMISSION

Proposals should include the elements identified in this Call for Proposals. Specifically, they should include:

1. An outline of the Approach to be used for the project, including responses to the questions in Section 3.2;
2. An identification of the key issues to be considered, including the information requested in Section 3.3;
3. A work schedule, as described in Section 5.
4. A budget, as described in Section 6.
5. A list of proposed experts, as described in Section 7.

Proposals should be submitted electronically in English to the World Road Association General Secretariat at:

info@piarc.org

no later than:

June 30th, 2014

For any questions, please send E-mail to info@piarc.org