

REQUEST FOR EXPRESSIONS OF INTEREST CONSULTING SERVICES

Selection RG-T3026-P003

Selection Method: - Simplified competitive selection

Country: *Argentina-*

Sector: *The Infrastructure and Energy Sector*

Funding – *TC ATN/KR-16649-RG*

Project #: *RG-T3026*

TC name: *Study for Tunnel Operation and Risk Management*

Description of Services: The main objective of this project is to support LAC countries with operational and technical knowledge on Tunnel Operation & Risk Management during operational stage of long Tunnel projects. In addition, this study will include the information that all technical staff and policy makers should consider before the final setting of the technical design and financial structure of the projects.

Link to TC document: <https://www.iadb.org/en/project/rg-t3026>

The Inter-American Development Bank (IDB) is executing the above-mentioned operation. For this operation, the IDB intends to contract consulting services described in this Request for Expressions of Interest. Expressions of interest must be delivered using the IDB Portal for Bank Executed Operations (<http://beo-procurement.iadb.org/home>) by: **09/06/2019, 5:00 P.M.** (Washington D.C. Time).

The consulting services (“the Services”) include perform case studies and recommendations on Operation and Risk Management from experiences of **Europe**. The case studies will analyze the experience on mega tunnel operations of the following **three European long road tunnels: Laerdal (24km, in Norway), St. Gotthard (16km, in Switzerland) and Arlberg (13km, in Austria)**. The main goal of this project is to get information and experiences from each case and recommendations on future tunnel projects in LAC. This project includes four components: (i) General information including technical feature of the tunnel and procurement information that will be referred to future tunnel projects in LAC; (ii) Facilities for risk management such as escape gate, ventilation, fire extinguish systems and organizational structure for operation and maintenance including staff, facilities and budget; (iii) Roles and responsibilities of each agency among operation agency, police, fire fighter, hospital in case of emergency; and (iv) Recommendation on Risk Management for Agua Negra Tunnel. The whole duration of this project will be 8 months.

Eligible consulting firms will be selected in accordance with the procedures set out in the Inter-American Development Bank: [Policy for the Selection and Contracting of Consulting firms for Bank-executed Operational Work](#) - GN-2765-1. All eligible consulting firms, as defined in the Policy may express an interest. If the Consulting Firm is presented in a Consortium, it will designate one of them as a representative, and the latter will be responsible for the communications, the registration in the portal and for submitting the corresponding documents.

The IDB now invites eligible consulting firms to indicate their interest in providing the services described below in the draft summary of the intended Terms of Reference for the assignment. Interested consulting firms must provide information establishing that they are qualified to perform the Services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among

staff, etc.). Eligible consulting firms may associate in a form of a Joint Venture or a sub-consultancy agreement to enhance their qualifications. Such association or Joint Venture shall appoint one of the firms as the representative.

Interested eligible consulting firms may obtain further information during office hours, 09:00 AM to 05:00 PM, (Washington D.C. Time) by sending an email to: Carolina Benitez - cbenitez@IADB.ORG y Martin Sosa-msosa@iadb.org

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TERMS OF REFERENCE

CASE STUDY FROM EUROPE ON OPERATION AND RISK MANAGEMENT (RG-T3026)

I. BACKGROUND

Transportation is one of the essential pillars for economic development of every country in the region. Currently, megaprojects are one of the main strategic areas in TSP together with ITS, Urban transport, Road safety and Logistics. There are mainly two types of projects in megaprojects: Mega Bridge projects and Mega Tunnel projects.

Latin-American (LA) countries have numerous mountain chains. This orography constrains transport among countries in the region. As an example, just between Chile and Argentina there are 26 level crossings through the Andes. This slows down the transport and impedes permanent communication between countries. As a result, production rates for LA countries decrease, which has a direct effect on poverty levels.

Mega tunnels have been an effective solution for this kind of context in which orography limit transport services and compromises the quality of infrastructure. These conditions have pushed Latin America to develop a strong interest in mega tunnels to be built in the coming years: some countries in the region have already started to define this approach to solve infrastructure problems (e.g. Agua Negra Tunnel). So, this TC pursues to prepare and support coming Megaprojects in the region such as “Agua Negra International Project” (RG-L1074).

There are many essential factors in Megaprojects including cost overrun, future traffic volume, public benefit, etc. There have been many studies performed and currently performing to control the cost overrun, forecast traffic volume more accurately, calculate the benefit without missing, etc. However, additionally, there are some other operational and risk management factors that we must consider during the post preparation and construction stage. These factors need actual experience not only on routine operation but also on disaster management, which is sometimes not prepared in depth.

II. OBJECTIVE

2.1 The main objective of this project is to support LAC countries with operational and technical knowledge on Tunnel Operation & Risk Management during operational stage of long Tunnel projects. In addition, this study will include the information that all technical staff and policy makers should consider before the final setting of the technical design and financial structure of the projects.

III. SCOPE AND ACTIVITIES

3.1 This project will perform case studies and recommendations on Operation and Risk Management from experiences of **Europe**. The case studies will analyze the experience on mega tunnel operations of the following **three European long road tunnels: Laerdal (24km, in Norway), St. Gotthard (16km, in Switzerland) and Arlberg (13km, in Austria)**. The main goal of this project is to get information and experiences from each case and recommendations on future tunnel projects in LAC. This project includes four components: (i) General information including technical feature of the tunnel and procurement information that will be referred to future tunnel projects in LAC; (ii) Facilities for risk management such as escape gate, ventilation, fire extinguish systems and organizational structure for operation and maintenance including staff, facilities and budget; (iii) Roles and responsibilities of each agency among

operation agency, police, fire fighter, hospital in case of emergency; and (iv) Recommendation on Risk Management for Agua Negra Tunnel. The details are as follows:

- (i) General information of the tunnel and procurement information as below, but not limited to;
 - a. Summary of Tunnel: length, cost of all the studies that were completed, construction period, construction method, time frame (during the whole project cycle), evolution of the cost during the project cycle (feasibility, bidding, final); cross section of tunnel, design specifications (structural/material), design specifications related to safety (for collision prevention and traffic safety such as optimal lighting, signs, striping), composition of lanes, features including vertical and horizontal slope, pavement method, clearance, traffic volume forecast and real-time traffic volume by type of vehicle.
 - b. Procurement: Procurement procedure and duration, Evaluation method, Special conditions on Cost overrun and Construction delay, Contract Specifications, including reference and description of PPP laws and regulations that bounded the contract (if it was a PPP project).
 - c. Regulation and Standards: Refer to the regulation and laws that structured the contract (DB, DBO, PPP, or concession), and the design, construction and safety standards required by the country and/or state in which the project took place.
 - d. Emergency Management System: Indicators and procedures used for emergency and risk management during construction.
 - e. Specific geological constraints: Geological map of the tunnel, additional data obtained during construction, unforeseen situation, specific problems.
- (ii) Technical feature of facilities for routine operation & risk management, and organizational structure for operation and maintenance as below, but not limited to;
 - a. Facilities for routine operation & risk Management
 - Facility lists: workers path, escape gate(path), ventilation, fire extinguish, communication (among operators but also with users/drivers), imagery sensing, video surveillance, LED signals, snow melting system before & after tunnel, traffic control facility, traffic control room, and other information needs for operation & risk management
 - Features: installation space, capacity or specification, size, software and hardware technologies used in the operation (ITS technologies, temperature scanners, etc.) and control room visualization, toll payment systems, and other information needs for operation & risk management
 - b. Emergency Management System: indicators and procedures used for emergency and risk management during operation. Include considerations for the transport of dangerous goods, and power considered for the worst case fire scenario during design and construction phase (in MW).
 - c. Procedures
 - Manual of procedure for operations, maintenance, inspection and evaluation (detailed description of automated and manual processes and the criteria used for the distinction of the methods used for these)
 - d. Organizational structure for operation & maintenance
 - Organizational structure chart, number of staffs, role of each staff,
 - Facility list for Operation and Maintenance such as vehicles
 - Annual budget for Operation and Maintenance
 - e. Performance criteria of operation & maintenance
 - Performance criteria of routine maintenance including pavement, light, ventilation, signs, etc.
 - Tunnel availability during the year except emergency
 - f. Regulation and Standards: refer to the regulation and laws that structured the contract (DB, DBO, PPP, or concession), and traffic, traffic safety and tunnel operation standards required by the country and/or state in which the project took place.

- (iii) Roles and responsibilities of agencies in case of emergency
 - Roles and responsibilities of each agency in case of emergency among operation agency, police, fire fighter, hospital, etc.
 - Emergency procedures in cases such of traffic accident and/or fire accidents, etc.
- (iv) Recommendation on below components for Agua Negra Tunnel.
 - On Facilities for Risk Management
 - On Organizational structure for Operation & Maintenance
 - On Role & Responsibility of each agency in case of Emergency
 - Highlight the possible structure that could be establish for a bi-national operation of the tunnel that is managed by both countries

3.2 Before the case study of the 3 tunnels stated above, the consulting firm should analyze with a similar level of detail, at least 5 mega road tunnels in Europe (and a maximum of 10), with a minimum length of 5 km each, through both literature review and direct contact with the professionals who have been or are currently involved in the design and operation of the tunnels.

3.3 The consulting firm will make a presentation on the final report at IDB headquarters in USA and EBITAN in Chile and Argentina.

3.4 To undertake the activities described above, the consulting firm will interact continuously with the project team at the Bank, and with government officials who may be engaged in this project, participating in monthly meetings through video – conference, rendering advance reports for each of the tunnels studied.

3.5 These interactions will allow the project team to evaluate the advance rate on each of the selected Tunnels, thus being able to approve the draft report once 50% of the work is completed.

3.6 No support or information will be provided by the bank in relation to the acquisition of data for the reports on the evaluated tunnels, which will be entirely responsibility of the consultant firm.

IV. DURATION

4.1 The whole duration of this project will be 8 months.

V. DELIVERABLES AND PAYMENTS

5.1 The deliverables expected from the consultancy are summarized below:

Deliverable	Description
Working plan and methodological approach	3.1 & 3.2
Preliminary report (50% progress achieved)	3.1, 3.2 & 3.5
Final report	3.1
Presentation at IDB Headquarters and EBITAN	3.4

5.2 The content of each of the products will include at least (but will not be limited to) the following items:

- Working plan and methodological approach:
 - Planning and distribution of activities for the full duration of the project.

- Distribution of each of the tasks among the project team.
- Full description of the activities foreseen during the investigation campaign.
- Prevision of meetings with the control team (BID & government)
- Preliminary report (50% progress achieved):
 - Complete study of at least 1 of the main tunnels described in point 3.1
 - Complete studies on at least 3 of the tunnels listed in the offer as a response to point 3.2
 - The full extent of these studies must contain at least points (i), (ii) and (iii) of the items described in point 3.1
 - The items listed in part (iv) of point 3.1 will also be developed, but can be rendered as a part of the final report, once all tunnels have been studied.
- Final report (100% progress achieved):
 - Complete study of all the main tunnels described in point 3.1
 - Complete studies of all the tunnels listed in the offer as a response to point 3.2
 - The full extent of these studies must contain at least points (i), (ii), (iii) and (iv) of the items described in point 3.1
 - PPT file for the presentation at IDB Headquarters and EBITAN.

5.3 The Consultant will be remunerated according to the following schedule of product deliveries.

- 30% at the delivery of a working plan and methodological approach
- 40% at the delivery of the draft report
- 30% at the approval of the final report

5.4 All reports must be rendered in both English and Spanish.

VII. COORDINATION

6.1 This consultancy will be coordinated and supervised by the team leader, Leano, Juan Manuel (INE/TSP), of the operation RG-T3026.