



Risk management in the Lusoponte concession—a case study of the two bridges in Lisbon, Portugal

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Received 5 October 2002; received in revised form 23 January 2003; accepted 28 January 2003

Abstract

The case study of Lusoponte illustrates the concession awarded by the Portuguese Government to finance, design, build and operate two bridges over the Tagus in Lisbon, Portugal. It includes an overview of the project's background and an analysis of the main risk categories stating both the actual risks encountered and the mitigation measures adopted. Throughout the project a great attention was given to whole life cycle costs, and gains in efficiency and cost control. Among the lessons that can be learned from both the public and private sector is that a complete risk management analysis must include not only the technical factors but also a realistic assessment of environmental and social risks. These were the risks that were somewhat overseen and that caused the main problems to the project's development.

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Keywords: Managing projects; Risk management; Whole life cycle cost

1. Introduction

The case study of Lusoponte illustrates the concession awarded by the Portuguese Government to finance, design, build and operate two bridges over the Tagus river in Lisbon, Portugal.

Throughout the project it is noticeable a great focus on control of whole life cycle costs, gains in efficiency and the provision of a better service. Among the lessons that can be learned by both the public and private sector is that a complete risk management analysis must include not only the technical factors but also a realistic assessment of environmental and social risks. In this project these risks were somewhat overseen and caused the biggest problems to the project's development.

This case study has been structured into three Parts. Part I describes the project and its background. Part II presents the case study of Lusoponte emphasizing the

risk management process with the analysis of the main risk categories stating both the actual risks encountered and the mitigation measures adopted. Part III concludes with recommendations to the public and private sector that were drawn from the analysis of the case study.

2. Case study—the Lusoponte concession

In 1991, only the “25 de Abril” road bridge connected Lisbon (Fig. 1), in the Tagus's north bank, to the south bank—the nearest bridge over the Tagus was in Vila Franca de Xira (some 40 km upstream). A second crossing was a vitally needed infrastructure to solve the serious traffic congestion on the “25 de Abril” Bridge, and to develop the Tagus south bank by relieving the urban pressure in Lisbon and also installing new industrial projects.

In January 1991 [1], the Portuguese Government created GATTEL (Gabinete da Travessia do Tejo em Lisboa), a governmental agency under the Ministry of Public Works (MOPTC), with links to the Ministry of Environment and the Ministry of Planning. GATTEL was in charge of coordinating and controlling the procedures

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Fig. 1. Location of the bridges across the Tagus in Lisbon.

required to promote the construction and operation of the “Vasco da Gama” bridge as a private concession.

The Concession Agreement [2–4], awarded the design, construction and financing of the “Vasco da Gama” Bridge, plus the operation and maintenance of both this new bridge and the existing bridge to Lusoponte a consortium of Portuguese, French and British companies. The original shareholders were:

- Kvaerner Construction International Ltd (formerly Trafalgar House Construction Special Projects).
- Campenon Bernard SGE of France and part of Vinci Construction, part of the Vinci Group.

and six Portuguese construction contractors:

- BPC—Bento Pedroso Construções SA, part of the Odebrecht Organisation, the fifth largest Brazilian private group.
- Mota & Companhia SA—the main activities are building of motorways, highways, airports, dams and dredging works.
- Somague—Sociedade de Construções SA, one of the leading companies in Portugal undertaking public infrastructure projects.
- Teixeira Duarte—Engenharia & Construções SA, has been engaged in large scale public infrastructure for over 70 years.
- Sociedade de Construções H Hagen SA.
- Edifer—Construções Pires Coelho & Fernandes SA, has been engaged in large public infrastructure projects for over 26 years.

In 1999, Kvaerner, sold its shares in Lusoponte to Macquarie Infrastructure Group (MIG), which is managed by Macquarie Bank, and is one of the world’s largest owners of toll roads. In July 2000 [5], the shareholding structure was as follows:

Macquarie Infrastructure Ltd (UK)	23.80%
Campenon Bernard SGE (Vinci Group, France)	22.00%
Bento Pedroso Construções SA (Odebrecht, Brazil)	14.84%
Mota & Companhia (Portugal)	13.83%
Somague—Engenharia SA (Portugal)	13.83%
Teixeira Duarte Engenharia & Construções AS (Portugal)	7.50%
Sociedade de Construções H. Hagen SA (Vinci Group, France)	2.80%
Kvaerner Construction Ltd (UK)	1.00%
Edifer Construções Pires Coelho & Fernandes AS (Portugal)	0.40%

The contract structure [6] is indicated in Fig. 2.

The concession was originally to expire at the earliest on 24 March 2028 or at a total cumulative traffic flow of 2250 million vehicles. It included the exclusivity of operation of all road crossings across the Tagus (excluding boat, rail or air crossings) for a 40-km radius (i.e. downstream from Vila Franca de Xira). Nevertheless with the project’s development problems arose and to settle all disputes and claims a Global Settlement Agreement (GSA) was signed on 3 July 2000. The GSA extends the concession until 24 March 2030, irrespective of the number of car crossings. It includes the additional obligation for Lusoponte to undertake pre-feasibility studies for a third bridge over the Tagus.

The financing was made through a nonrecourse project finance scheme in which lenders look solely to the cash flows of the project to repay debt service and the assets of the property for security. The private sector undertakes the entire project, operates it commercially and at the end of the concession period transfers it back to the government. The shareholders take the risks but receive a return on their investment and dividends during the period of the concession.

The project’s initial cost was €850 million, plus €120 million refinancing in July 2000. Of the total cost of the project, about €645 million are for construction. The remainder is for maintenance costs of both bridges, payment of expropriated land, re-housing, and environmental projects.

The “Vasco da Gama” Bridge is financed from the following sources:

- European Union Cohesion Fund: €320 million (35.0%), non-reimbursable.

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