



## Foreword

This book is an outcome of the research project “**ECOBRI**DGE – *Demonstration of **ECO**-nomical **BRIDGE** solutions based on innovative composite dowels and integrated abutments* – RFCS – CT 2010-00024”, which has been co-funded by the Research Fund for Coal and Steel (R.F.C.S.) of the European Community.

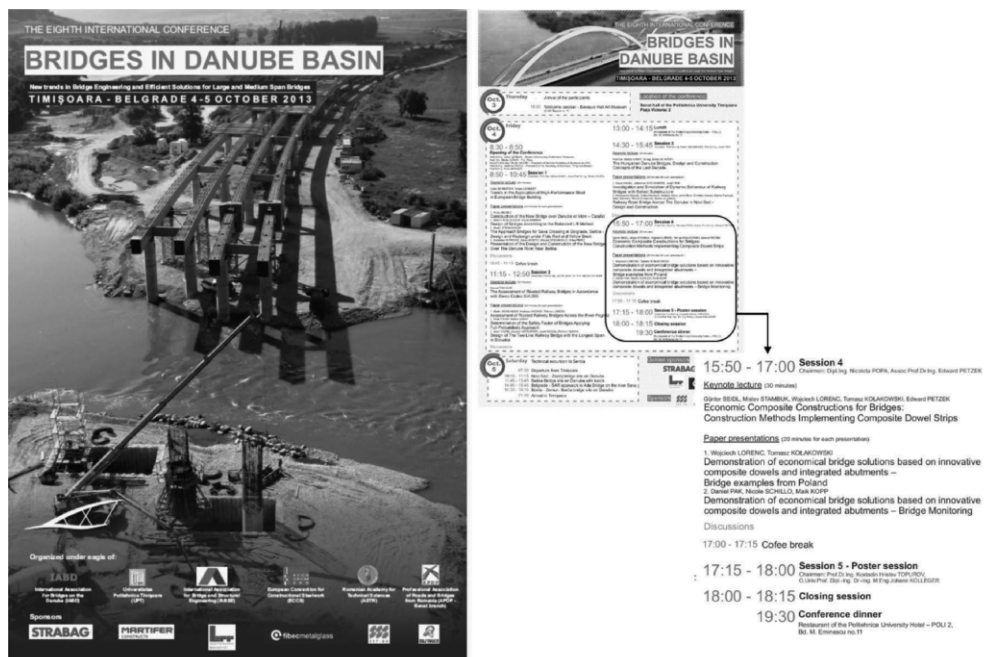
The design and construction of sustainable and durable bridges with low maintenance costs is one of the European Road and Railway Administration tasks. The structures must be safe, economical and with good serviceability issues. All these needs can be found in integral abutment bridges. This solution, by eliminating the bearing and expansion joints, leads to low production and maintenance costs. Integral bridges have a good earthquake resistance. Nevertheless, the design and construction of these structures include a series of specific aspects.

The knowledge gained within the RFCS research projects, INTAB and PRECOBEAM, has enabled us to elaborate cost effective, environmental friendly and sustainable bridge structures. The main objective of the present project entitled “EcoBridge” was the construction of three composite bridges with integral abutments and innovative form of shear transmission – composite dowels. The project focuses on cost efficient, competitive composite bridges with special regard to environmental friendly and sustainable design. The targeted countries are: Germany, Romania and Poland. The bridges were instrumented with a variety of strain gauges, displacement sensors and thermocouples to monitor and help in the assessment of structural behaviour, for future application of integral abutment bridges and/or composite dowels. The consortium members (involving three universities, three design offices, three steel contractors and one steel manufacturer) have long track record and extensive experience in this field. Additionally, the exchange of technical experience from the partners from different parts of Europe contributes to a transfer of information from the different construction fields with different demands.

The main topics of the book are the following: design of integral bridges, innovative composite dowels for the shear transmission, construction of bridges, structural analysis of bridges and monitoring. The book joins the technical experience and the contributions of the involved research partners. The technical content of all the papers is present-day in the field of the design, construction and monitoring of innovative composite bridges. The efficient de-

sign and construction improve and consolidate the market position of steel construction and steel producing industry. In addition, the advanced forms of construction are contributing to savings in material and energy consumption for the structure during production and maintenance. All time savings in construction and maintenance result in large benefits for the bridge owners but also for the community as less disturbance of the traffic will occur.

In the frame of the “Eight Danube Bridges Conference” held in Timișoara on the 4<sup>th</sup> and 5<sup>th</sup> of October 2013, a special workshop dedicated to the EcoBridge research project was organised (Fig. 1).

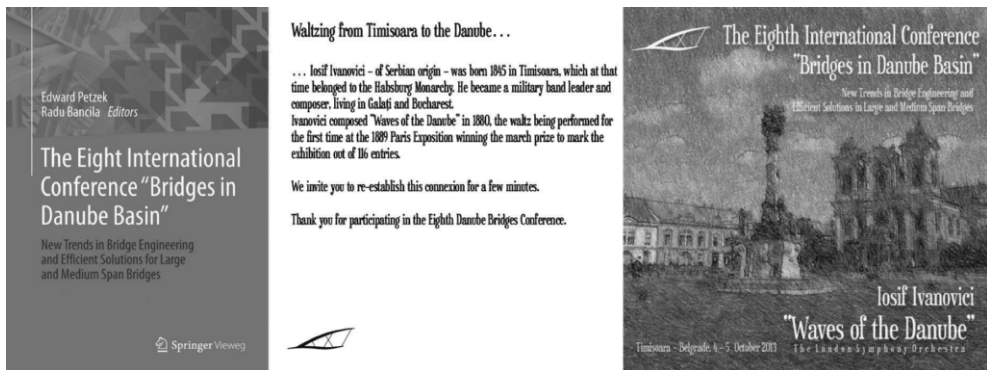


invited speakers and selected papers were presented. On October 4<sup>th</sup> a special meeting dedicated to the European ECOBRIDGE project was organized. A technical site visit in Serbia (Novisad, Belgrade, Zemun) on October 5<sup>th</sup> presenting some new bridges across the Danube, took place.

The general aim of the Conference was the overall exchange of knowledge and experience between different institutions, owners, contractors, bridge designers and constructors as well as scientific experts. The conference intends also to promote advances in bridge engineering and understanding between the countries along the Danube, but also between other European countries.

The Conference was under the aegis of important scientific organizations: International Association for Bridges on the Danube (IABD), International Association for Bridge and Structural Engineering (IABSE), European Convention for Constructional Steelwork, Universitatea "Politehnica" Timișoara and the Romanian Academy for Technical Sciences (ASTR).

The proceedings of the Conference were published in the Springer – Vieweg Verlag; the volume comprises 42 papers on 544 pages. The attendance was very good (over 90 persons).



**Figure 2:** The proceedings of the conference

On the laudable initiative of Prof. Miklos Ivanyi the proceedings of all the Danube Bridges Conferences were recorded on a special CD. It is important to mention that on the CD there is also a reproduction of the last version of the Danube Bridges Catalogue (Edition 1997 Regensburg).



**Figure 3:** Danube Bridges Conferences Proceedings (1992 – 2010) and the Danube Bridges Catalogue

The next Danube Bridges Conference will be organized by Slovakia in 2016.

Finally, we want to express our gratitude to:

- the Research Fund for Coal and Steel (RFCS) of the European Community;
- our collaborators – project partners, which contributed to the present publication;
- to the non-profit association SALVPOD, who co-financed – together with RFCS this book.

*In memoriam*

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Timișoara, February 2014

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## Acknowledgement for publication



**Research Fund  
for Coal & Steel**

This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

ECOBRIIDGE – ECONomical BRIDGE solutions based on  
innovative composite dowels and integrated abutments  
Grant Agreement Number: RFSP-CT-2010-00024

Economical Bridge Solutions based on innovative  
composite dowels and integrated abutments

Ecobridge

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2015, X, 169 p. 120 illus., Hardcover

ISBN: 978-3-658-06416-7