



INNOVATION IN BUILDING ENGINEERING

EDITED BY

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Preface

The EU enlargement on May 1st, 2004 by inclusion of other European countries, Poland and the Czech Republic among them, was just a crowning act of the political changes and adaptation processes that have been progressing for more than two decades. It was a very important turning point for the new Member States and has had a great impact on the life of their citizens, predominantly in Central and Eastern Europe. Although the practical effects could already have been observed, the introduction and realization of the union regulations and free-market rules in the new Member States is in fact a long-time process which is still taking place. In the sector of building engineering – which is of concern herein – new stimuli have appeared that result in a lot of changes, mainly in its economic and technical aspects.

These new stimulating circumstances might have been expected to be particularly advantageous to the development of the bordering regions in the triangle of the Czech Republic, Germany, and Poland, owing to the easy mutual influence and direct contact between people and companies. However, the resulting changes have turned out more complex and convoluted. Having been on the peripheries of the financial and decision-making centres, these border regions have proved to be less attractive to new investors than expected, and this is to a large degree due to their incompatible road and industrial infrastructure. Many initiatives have been undertaken to activate and support an equalise rapid economic growth of the bordering regions. The project *Three Countries Innovation Push – 3 CIP* within the INTERREG IIIC Eastern Zone Initiative promotes a transborder co-operation of the German Federal States: Saxony and Brandenburg, the Czech Districts: Karlovy Vary, Ústí, and Liberec, and the Polish Provinces: Dolnośląskie, Lubuskie, and Wielkopolskie. More about the 3-CIP Project can be found on the website <http://www.3-cip.com>.

This book is an outgrowth of the conference *Innovation in Building Engineering* which was organised within the 3-CIP Project and held at the University of Zielona Góra in Zielona Góra on February 25th, 2005. It has a special character by reflecting the wide range of different aspects and conditions of the building engineering in the triangle of the border regions of that time. Over a hundred participants from academia and industry of the bordering regions took part in the conference. All the included papers are based on the presentations which were delivered at the conference.

The spectrum of the subjects discussed in the book includes: structural modelling and management of bridges (J. Bień); a general heuristic approach to revitalisation of urban areas (T. Biliński); highlights of the reconstruction of the Dresden Frauenkirche (P. Bloi); the concept and advantages of the passive house (D. Brandt); conditions and priorities of the development of competitiveness and innovation of Lubuskie Province (D. Fic); a range of application of steel-soil bridges (L. Janusz and B. Bednarek); a computer expert system for building project planning and management (C. Jarsky); the recent achievements in construction of buildings made of concrete with goal-oriented properties (J. Jasiczak); the application of innovative products of the Kronopol System in construction engineering (P. Jurkiewicz); the recent conditions, actions, and future trends in building enterprises (particularly in Germany) due to the recent global changes and competition rules on the market (A. Proporowitz); the origins and aims of the Institute of New Industrial Culture INIK (L. Scharnholz); the administration of the EU assistance funds in Lubuskie Province (B. Ślusarz and A. Mirosławski), the project TREE – Transport Research Equipment in Europe (A. Wysokowski and A. Adesiyun).

Herein we wish to express our deep hope that the conference and this publication will contribute to strengthening of the platform for the mutual co-operation of science and the building industry in the bordering regions.

We would like to sincerely thank the authors for preparing the papers, and all the members of the programme and organizing committees for help and encouragement during the preparation of the conference. Finally we want to acknowledge the financial support of the conference by the European Union under the *Three Countries Innovation Push* – 3 CIP Project.

Mieczysław Kuczma and Józef Korbicz
University of Zielona Góra

About the 3-CIP Project

The conference *Innovation in Building Engineering* here in Zielona Góra is the third Core Branch Conference of the 3-CIP project. Your attendance expresses your great interest on one hand and high expectations on the other hand towards the 3-CIP Project.

Border regions are often disadvantaged regions. In consequence of outskirts in national structure they have to struggle with location's set backs. Huge distances to economic centres, poor infrastructures and transport connections cause that border regions are less attractive for potential investors. They endanger themselves to be demoted to regions with transit function. Language barriers and different administration structures accrue in addition.

The boarder triangle Germany – the Czech Republic – Poland is not an exception from that. Fare from it! The unemployment rate and purchasing power speak for itself. Communal financial distress and decreasing investments cause that EU promotion resources aren't used completely.

But with the enlargement of the EU area there are new chances for joint development. A lot of contacts and co-operation between German, Czech and Polish partners are developed and are being developed very well. A good foundation for the new Europeans challenges in the conflict between globalisation and regionalisation emerges from there. There is yet another advantage: We can build on a historically grown economic area, which had been only once separated by the Second World War and which we now recollect.

One of the strengths of this joint economic area, which is being without customs duties since May of 1th, are the nine core branches the project partners will concentrate on. Branches where businesses stand in competition are developed, fierce competition and also fear. But we gain from our experience that healthy, innovative economic development includes both aspects: competition and co-operation. In other words: strategic cross-national alliances. Border regions are becoming co-operation regions.

The 3-CIP project wants to contribute.

I admit: The crisis of the German building industry doesn't form any good background for a conference in the field of building engineering. But it has been a right decision of the Marshal Office of the Lubuskie Province and of the University of Zielona Góra, especially Mr. Prof. Mieczysław Kuczma, to focus on "Innovation in Building Engineering". Therefore scientific and technical presentations of small and medium-sized enterprises take centre stage of the conference. A better getting to know each other, cross-border co-operation, innovative technology and product development, opening up of new markets, also into niches – these are only some of the indicators of today's conference.

Über das 3-CIP Projekt

Die Konferenz *Innovation in Building Engineering* hier in Zielona Góra ist die dritte Branchenkonferenz im Rahmen des Projektes 3-CIP. Ihre Teilnahme zeigt einerseits das große unternehmerische Interesse und bringt zum anderen die große Erwartungshaltung an 3-CIP zum Ausdruck.

Grenzregionen sind oft benachteiligte Regionen. Bedingt durch ihre Randlage im nationalen Gefüge haben sie mit Standortnachteilen zu kämpfen. Große Entfernungen zu den Wirtschaftszentren, schlechte Infrastrukturen und Verkehrsverbindungen führen dazu, dass Randregionen weniger attraktiv für potenzielle Investoren sind. Sie laufen Gefahr, zu Regionen mit Transitfunktion degradiert zu werden. Hinzu kommen Sprachbarrieren und unterschiedliche Verwaltungsstrukturen. Die Region im Dreiländereck Deutschland/Tschechien/Polen macht da keine Ausnahme. Im Gegenteil: Die Quoten der Arbeitslosigkeit und der Kaufkraft sprechen für sich. Kommunale Finanznot und Investitionsrückgang führen dazu, dass EU-Fördermöglichkeiten nicht ausgenutzt werden können.

Aber: Mit der Erweiterung der EU ergeben sich auch neue Chancen für eine gemeinsame Entwicklung. Viele Kontakte und Kooperationen zwischen deutschen, tschechischen und polnischen Partnern entstehen täglich neu und entwickeln sich gut. Ein stabiles Fundament für die neuen europäischen Herausforderungen im Spannungsfeld von Globalisierung und Regionalisierung, von Branche und Region. Ein weiterer Vorteil: Wir können auf einen historisch gewachsenen Kultur- und Wirtschaftsraum aufbauen, den erst der zweite Weltkrieg geteilt hat und auf den wir uns neu besinnen.

Zu den Stärken dieses gemeinsamen Wirtschaftsraumes, seit dem 1. Mai 2004 ohne Zollgrenzen, gehören auch die neun Kernbranchen, auf die sich die Projektpartner konzentrieren. Das sind Branchen, in denen sich Konkurrenz zwischen den Unternehmen entwickelt, harte Konkurrenz und auch Ängste. Wir wissen aber aus Erfahrung, dass gesunde, innovative Wirtschaftsentwicklung beides einschließt: Wettbewerb und Kooperation, oder anders formuliert: strategische länderübergreifende Allianzen. Grenzregionen werden zu Kooperationsräumen. Dazu möchte das Projekt 3-CIP einen Beitrag leisten.

Zugegeben: Die anhaltend krisenhafte Entwicklung der Baubranche, zumindest in Deutschland, bildet keine gute Kulisse für eine Baukonferenz. Aber es war eine richtige Entscheidung des Marschallamtes und der Universität Zielona Góra, insbesondere von Herrn Prof. Mieczysław Kuczma, den Focus auf Innovation in Building Engineering zu richten. Folgerichtig stehen wissenschaftliche und technische Praxisthemen zur Stärkung kleiner und mittlerer Unternehmen und damit unserer Regionen im Mittelpunkt der Beiträge. Besseres gegenseitiges Kennenlernen, grenzüberschreitende Kooperationen, innovative Technologie- und Produktentwicklungen, Erschließung neuer Märkte, auch in Nischen – das sind nur einige Indikatoren unserer heutigen Konferenz.

Gerhard Kirkamm, Project co-ordinator

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