

## **Urban Engineering and Regional Development Department**

### **Technical University of Civil Engineering Bucharest**

Urban Engineering and Regional Development (IUDR) is a rather new department within the Technical University of Civil Engineering of Bucharest (UTCB). It was founded in 1994, based on a specific request of, what was called at that time, the Public Local Administration Department of the Romanian Government. IUDR is organized as part of the main faculty of the university, namely the Faculty of Civil Engineering. As a consequence the urban engineers that are graduating UTCB are basically civil engineers. Additionally, they have specific knowledge related to environmental issues and to infrastructure works, roads, water supply, sewing, and so on.

The main research topics of IUDR can be grouped into three main categories:

1. Urban and regional studies
2. Urban and regional data management systems
3. Education and human resources

The research activities were undertaken mainly within research projects funded by national or international programmes. Usually there were complex projects covering at least one of the three categories mentioned above. The main research projects the members of IUDR were involved in are:

- Urban climate study of Bucharest, Romania, Joint Research project no. IZERZO\_142160, under Romanian-Swiss Research Programme 2011-2016 (2013-2016)
- Risk map for earthquake and flooding of the Ialomita county, Ialomita county contract no. 238/2006 (2006 – present)
- UrSEnE – Urban Strategy for Energy Efficiency, EU - Urbact II programme (2009-2010)
- Waste Management. A diagnosis analysis of the evolution of waste coming from constructions and demolitions in urban area in context of Romania's post-accession to the European Union, financed by the Ministry of Education and Research (2007-2010)
- GISHIDRO – Integrated GIS platform for analysis, design, simulation and optimization of water supply networks, Ministry of Research and Education, Contract No. 63 CEEEX-II / 2006 (2006-2008)
- INFRACDUTCB - Development of the scientific research infrastructure of the urban engineering laboratory and metallic structures laboratory, project financed by the Ministry of Education and Research under grant no. 269/2006 (2006-2010)
- SICUAT - National program for implementation of a GIS based infrastructure for urban and regional planning and for urban cadastre, AMTRANS national research project no. 8A01/2004 (2004-2006)
- Digital-SEE, e-content contract EDC-4221 Digital-SEE 29140 (2005)
- Using GIS technology and mathematical methods (Electre method – decision-making under certainty) as support of the regional development policies agreed by the European Union. Case study in the South-West Development Region OLTENIA – ROT financed by the Ministry of Education and Research (2004-2006)
- INFODUNAREA – Creation of the Romanian spatial database for the stimulation of the regional development and transnational cooperation in the Main-Rhine-Danube basin, AMTRANS national research project no. 2A01/2002. (2002-2004)
- Human resources development in civil engineering, urban and regional planning, Social and economic cohesion PHARE 2000 project no. RO – 007.02 (2002-2003)

- EVRISE – The use of spatial techniques for seismic risk assessment in Romania. Pilot study for Bucharest, AEROSPATIAL national research project no. 11025/2001 (2001-2004)
- GISEE - GIS Technology and Market in South East Europe, contract IST-2001-37994 by the 5th framework programme of the European Commission (2001-2003)
- RISK-UE: An advanced approach to earthquake risk scenarios with application to different European towns, 5th Framework Programme - EESD, EVK4-2000-0014 (2000-2003)
- Land information system for increasing the efficiency of the public administrations activities, AMTRANS national research project no. 2A02/2002. (2002-2004)
- RURBAN – Optimizing Resource Allocation for RURal and urBAN Infrastructure Works via Spatial Database Technology, AMTRANS national research project no. 1A04/2001 (2001-2003)
- General Master Plans for Letca Noua, Daia and Bulbucata administrative territories within Giurgiu county (1999-2004)

### **1. Urban and regional studies**

Since its foundation the research activity of the department was focused on urban and regional studies. This is a very complex task and IUDR tried to cope with the major challenges of the urban and regional planning in Romania. Thus, the following research topics were approached:

- urban planning,
- regional planning,
- urban housing,
- waste management,
- disaster management,
- energy efficiency,
- historic monuments,
- utility networks.

Besides the projects which dealt with these topics, the following research papers described the results obtained: Aldea et al. (2007), Aldea et al. (2008), Anton et al. (2004), Arion et al. (2003), Iacoboaia (2004a, 2004b, 2004c, 2004d, 2006, 2009a, 2009b), Iacoboaia et al. (2008), Iacoboaia et al. (2011), Iacoboaia et al. (2004), Iacoboaia et al. (2010), Iacoboaia et al. (2009), Ilinoiu (2005b), Luca (2003, 2009a, 2009b), Luca et al. (2004), Nichersu (2011), Nuta (2005), Petrescu (2004a, 2006, 2007), Petrescu et al. (2006), Petrescu et al. (2002), Petrescu et al. (2005), Petrescu et al. (2009), Petrescu et al. (2002), Sercaianu (2010, 2011).

### **2. Urban and regional data management systems**

Due to the inherent interdisciplinary nature of urban engineering and regional development research area a lot of effort and interest was allocated to the data management issues. In this respect, GIS, remote sensing and spatial database technology played an important role taking into account the required interoperability between different components of the systems and/or processes under study. The research activities related to urban and regional data management were reflected in many papers authored by IUDR members, as follows: Aldea et al. (2007), Aldea et al. (2008), Anton et al. (2004), Arion et al. (2003), Iacoboaia et al. (2011), Ilinoiu (2005a), Ilinoiu (2005b), Luca et al. (2004), Petrescu (2002, 2003, 2004a, 2006, 2007), Petrescu et al. (2006), Petrescu et al. (2002), Petrescu et al. (2003), Petrescu et al. (2005), Petrescu et al. (2009), Petrescu et al. (2002), Sercaianu (2010, 2011).

### **3. Education and human resources**

Education and human resources represent one of the constant points of interest of IUDR. That is due to the fact that higher education for urban engineering and regional development is a rather new topic on the scene of higher academic education in Romania and, at the same time, we have to take

into account the increasing need of competent urban engineers for the complex infrastructure projects that are currently implemented all over the country. That is why several research papers are dedicated to current issues related to urban engineering and regional development education: Luca et al. (2005), Luca et al. (2011), Petrescu (2003, 2004b), Petrescu et al. (2004).

### **Selection of literature of Urban Engineering and Regional Development Department (IUDR).**

(IUDR authors are cited in **bold** characters)

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