



## ABSTRACTS

### 14. George Laurentiu Merciu, Ioan Ianos, Vlad Paunescu, Cristina Merciu: **USING GIS TO MAPPING THE ACCESSIBILITY FOR AN EARTHQUAKE EMERGENCY SITUATION. CASE STUDY: HISTORIC URBAN CENTRE OF BUCHAREST**

*Accidentally or not, many areas of high seismic risk overlap intensely populated and urbanized areas. Planning for post-disaster accessibility is essential in providing emergency and other services to protect life and property in the impacted areas in the aftermath of such events. In general, natural disaster management includes actions that are particularly important for communities vulnerable to such events, which lead to the development of impact scenarios before the natural hazards occur. Careful planning is especially critical in congested historic districts where narrow streets and at-risk structures are more common or prevail. Bucharest is a city with such an older historic core of buildings and narrower streets. Furthermore, Bucharest ranks only behind Istanbul among large European cities in terms of seismic risk. Our study shows that a special attention should be paid to accessibility in the historic centers of large cities. Starting from the idea that the historic centers of cities are characterized by a very intense pedestrian traffic and that in these areas, the old buildings are extremely attractive, but also very dangerous, determining the accessibility in terms of emergency situations will facilitate the quick intervention in areas with injured people, casualties or earthquake-related phenomena (fires, gas accumulations, local flooding).*

*The main objective of the study is to integrate the geospatial data in thematic mapping products and to use GIS techniques in order to provide solutions for seismic risk management within Bucharest. The authors have used several data (building under seismic risk, number of hospitals and fire stations) in order to highlight the realistic dimension of the impact that a potential earthquake could have in the historical center of Bucharest municipality. To represent the accessibility patterns (before and after the earthquake), it was necessary to digitize all elements of transport infrastructure, constructions, green spaces, alleys, sidewalks, property limits.*

*For the location of the buildings were used cadastral plans scale 1: 500, IGFCOT, 1: 2000 IGFCOT (1974-1975), old maps of Bucharest, offered by the Topographic Military Direction, orthophotomap (2014) taken from the National Agency for Cadastre and Real Estate Advertising. Also, the authors have overlapped the accessibility patterns on the numerical model of the land, resulting the absence of the barrier from the point of view of the relief, due to the fact that the Bucharest municipality is located in a plain area.*

*The finding is that accessibility will be substantially compromised by anticipated building collapse. Therefore policy makers and planners need to more fully understand and appreciate the serious implications of this compromised accessibility in planning for emergency services and disaster recovery activities.*

#### Organisers



Technical University of Civil Engineering Bucharest  
**Faculty of Geodesy**



#### Partners



**Universitatea de Arhitectură și Urbanism "Ion Mincu"**

