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Census-based social vulnerability assessment for Bucharest

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Abstract

Bucharest is one of the most exposed capital cities to the risk of earthquakes. Memories about the massive damages which occurred during the past century and of the seismic activity in nearby Vrancea region justify vulnerability re research with focus on the city. However, due to the visible destructions of the 1977 earthquake, the focus was mainly laid on the already built environment and less on the social and economic vulnerability of the city. This is the reason why we are striving to explore areas at risk and their spatial association by applying a social vulnerability index at the 2011 census. Throughout this analysis we shall be commenting upon the results and feedback from the census induced issues that hinder a clear identification of vulnerable areas.

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Keywords: social vulnerability; Bucharest; census; administrative controversy

1. Introduction

There is much national and local discussion around the Bucharest vulnerability to hazards and especially to seismic risk. The fear of a major earthquake remains vivid, and the effects of the 1977 earthquake are reminded through mass-media channels every year. However, the administration perspective in relation to social aspects of vulnerability does not seem to have changed much. While the focus is on physical mitigation, social vulnerability dimensions cannot be addressed in a dynamical context, lacking comparability and consistency of census data. Starting with 1992, the tracts were heavily modified with each census and the methodology of collecting data changed, or at least they are not available to researchers but only meant for internal administrative use. There is no surprise to this situation, given Bucharest heavily politicized environment. Therefore, the support of academia in

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understanding and mitigating social vulnerable areas of Bucharest remains hindered. Nevertheless, social vulnerability in Bucharest can be explored, but only statically, as a social vulnerability condition at a given time.

Studying social vulnerability is vital [1], as it helps stakeholders understand and prepare for a disaster. It is the complex understanding of social and economic factors that can help stakeholders adopt policies and interventions plans and adapt them to the interest of all parties involved. Several authors [2, 3] showed that assessment of social vulnerability helps in decision-making, while academic scrutiny improves policy and practice decisions [4]. But when data that are being fed into the model lack support from the administration, there is a high chance of impairing disaster risk mitigations efforts. Such situations happen when institutions are highly politicized, even though the official narratives would seem to suggest the contrary. It is in fact a reinterpretation of the communist discourse, when plans had to be accomplished to serve greater goals. The same situation appears to have happened with the 2011 census in Bucharest. Various experiences about the census reported in the media, different issues that emerged regarding its management and the crippled data offered by the National Institute of Statistics (National Institute of Statistics) points to similar circumstances. These range from poor GIS development of census tracts and fear to provide detailed information, up to situations in which the field operators were young people, hastily hired, and clearly having no basic understanding of conducting an interview and writing down the answers.

Alongside these issues, conflicting views about exploring vulnerability have emerged on the international research stage, with resilience at the forefront. Therefore, the efforts of different disciplines to find ways of reducing risk to natural hazards have intertwined. While there are different approaches on how to study social vulnerability or resilience and what frameworks are best suitable, recent inquires [5, 6] have suggested the two are congruent, only the trend has diverged the focus. Under these circumstances, we adopt the traditional approach developed by geographers to scrutinize social vulnerability, by employing what is now a fifteen years old methodology – SoVI.

Considering the above mentioned context, this paper aims to explore the social vulnerability underlined by census data in Bucharest (2011). The paper addresses social vulnerability as a context-dependent issue and uses the framework developed by Cutter et al. [7] and continues the analysis of social vulnerability as developed by Armaș and Gavriș [8]. We constructed a census based social vulnerability index for Bucharest, assessed the results and commented upon their spatial association, refining the analysis with a discussion about the impediment created by institutions when efforts are made to understand social vulnerability in Bucharest.

2. Vulnerability concept

Conceptual notions are essential in sustaining the development and application of scientific methodology [9]. It is more than obvious when we research vulnerability with very different approaches. From social sciences to geosciences, even from theorists to practitioners, the communication among these channels parties could be improved. At the same time, approaching natural hazards sociologically, by simply considering them as destructive agents [10], will not showcase the human-environment relationship as focus is only laid on the social aspects brought about by disasters. Given that disasters happen in a broader social context, the results of one study tend to be limited to that particular context in which the research was carried out. In recent decades, sociologists and environmental anthropologists have made substantial attempts to unify both the naturalistic and the social approaches [11, 12, 13, 14]. Such attempts can be found in the methodology of ecological environments such as the Hierarchical Patch Dynamics type [15] and in the study of coupled social ecological hot-spots [16].

In the risk society context, as introduced by Ulrich Beck in 1986 [17], where risks are seen as global phenomena caused by modernization, vulnerability is more difficult to define and measure [18]. In his book ‘At Risk’ (1994), the geographer Blaikie [19] also starts from a unidirectional approach of the social aspect and shows that social vulnerability is the main cause of disasters. Blaikie emphasizes a sociological approach to disasters, one of hazard + vulnerability = disaster type. The economic and political factors that contribute to vulnerability and risk are intractable and these issues can shake the politically ruling power. Therefore, the ruling bodies will focus on the physical or engineering aspects of a hazard, avoiding the ‘explosive’ problems such as social vulnerability. The authors propose a framework for risk analysis – ‘Disaster Pressure and Release Model’ (PAR), based on the general equation: Risk = Hazard x Vulnerability. In this context, vulnerability develops on three progressive levels: the root causes, dynamic pressures and unsafe conditions.

A wide accepted definition is that of Bohle [20] who identifies an external vulnerability (exposure) and an internal one (the ability to cope). Exposure refers mainly to the structural dimension of vulnerability and risk while