

VULNERABILITY ASSESSMENT AND LOCATION OF POTENTIAL EMERGENCY SHELTERS

Zhila POOYAN

Assistant Professor, IIEES, Tehran, Iran

zhpooyan@iiees.ac.ir

Mohammad Reza GHAYAMGHAMIAN

Associate Professor, IIEES, Tehran, Iran

mrgh@iiees.ac.ir

Keywords: Emergency Shelters, Potential Damages, Vulnerability, Capacity

This paper is based on a study on assessing structural and human damages in Region one of Tehran city, Iran to locate potential emergency shelters. Considering frequent natural and human-made hazards in cities, and the importance of proper response following such events, finding potential damages and identifying capacities and constraints are essential in improving urban resiliency based on indigenous sources (Coburn et al., 2002). The main theme of this paper is “to propose suitable locations for establishing emergency shelters through determining structural and human damages, considering Sphere (The Sphere Project, 2011) as an international standard and also previous experiences in Iran such as Bam earthquake in 2003”.

Tehran city has had significant growth in recent decades and considering its seismicity, planning post-quake phases is urgent. Region one of Tehran Municipality is one of the main tourist centers in Tehran with residential and summer residences and also one of the most favorable regions in Tehran city due to its natural, climatic, and economic situation and its cultural, social, and historical background (Region 1, Tehran). Considering construction trend in this region due to its social and economic situation, it is expected that population growth rate increase rapidly. Along with population growth, more commercial and economic activities would develop and consequently potential conditions that affect emergency response in terms of accessible spaces and emergency settlement at local level will emerge.

The paper includes introducing case study region and structural and population (Figure 1) database created by GIS at block level. Then structural and human damages for all structural types and population, based on earthquake scenarios in study region are estimated.

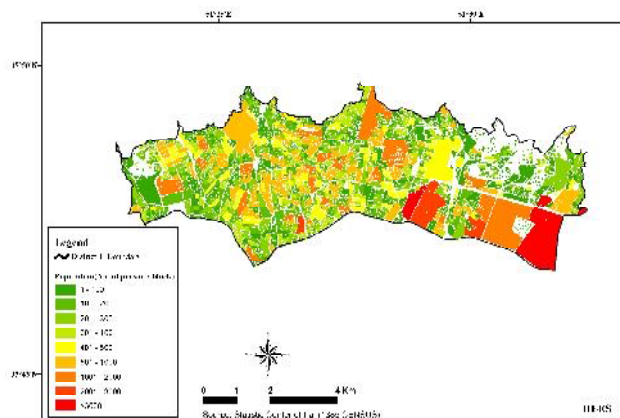


Figure 1. Population distribution in Region one of Tehran Municipality

According to land-use information (Figure 2) in study region, suitable locations for emergency shelters are identified and these locations are prioritized based on area, infrastructural facilities, accessibility and secondary hazards, upon which eligible locations for establishing emergency shelters are selected. Selecting locations should be in a way that include whole region to prevent relocations to outside.

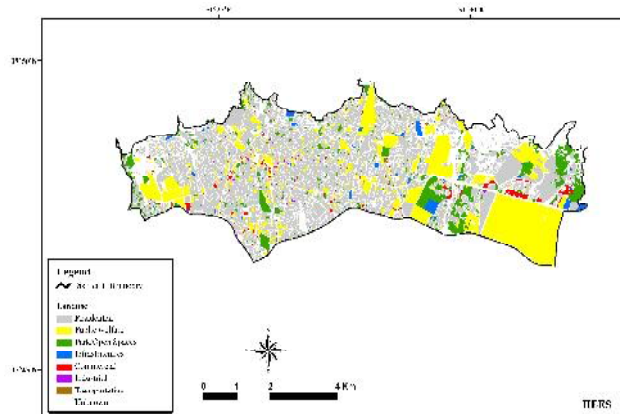


Figure 2. Land-use map of Region one of Tehran Municipality

Finally some proposals to improve existing conditions toward capacity building and strengthening weaknesses are presented. The proposals include matters such as building documentation in case of special buildings, spatial adjustments in some areas, preparing vulnerable subpopulation, recovery focus inclusion in city plan at area level and optimizing roads network. These proposals could be applied in similar hazards and other cities and countries and also are helpful for planners and policy makers.

The paper is useful for learning how to prepare confronting potential earthquakes, their consequences and responding to them at area level considering vulnerabilities and capacities. Also how emergency shelters could be located inside affected areas and preventing from relocation.

REFERENCES

Coburn AW and Spence R (2002) *Earthquake Protection*, John Wiley & Sons Inc.

Japan International Cooperation Agency (JICA) (2000) The study on seismic microzoning of the greater Tehran area in the Islamic Republic of Iran, Tehran Disaster Management Organization, Internal Report, SSF JR 00-186

The Sphere Project (2011) Humanitarian Charter and Minimum Standards in Disaster Response <http://www.region1.tehran.ir>

