**Fire Risk Assessment on the Land Use Zoning in Korea**

Gyuhan BAE\*, Hwanhee YOO\*\*

\*A master course , BK21+, Gyeongsang National University, Korea

\*\*Professor , BK21+, Gyeongsang National University, Korea

E-mail: [baegoooo@gmail.com](mailto:baegoooo@gmail.com) , [hhyoo@gnu.ac.kr](mailto:hhyoo@gnu.ac.kr)

**KEY WORDS:** National Fire Data System, Fire Risk Assessment, GIS, Social Networking Services

**ABSTRACTS:** Since various facilities are concentrated in urban areas in a complicated way, urban cities are vulnerable to all sorts of disasters. In particular, recently, fire accidents have frequently occurred causing casualties and property loss. Therefore, careless handling of hazardous materials which are the factors of fire occurrence, deteriorated facilities, and vulnerable escape routes are pointed out as problems. To systematically manage fire occurrence in urban areas, the National Fire Data System(www.nfds.go.kr), in which statistical data in association with fire are established, has been operated since 2007. This study makes use of the statistical data of fire occurrence of the last seven years(2007-2013), established in this system. There are absolute evaluation and relative evaluation in the analytical techniques of fire risk assessment. The assessment criteria, presented by the Society of Fire Protection Engineers(SFPE) are used for the absolute evaluation, while risk assessment is made by grading risks into five stages through conducing a comparative analysis of buildings according to the land uses based on fire risk frequency and the extent of damage in the relative evaluation. In terms of the urban management planning, the fire frequency of buildings is closely related to the land use zoning. Therefore, in this study, a cluster analysis through GIS is conducted to examining the relation between fire occurrence and urban structure in urban areas. In addition, it analyzes the correlation between fire occurrence and the psychological change of citizens through conducting a trend analysis of big data which occur in Social Networking Services(SNS) such as Twitter and Facebook. Thus, it intends to utilize the analysis results with a view to coming up with countermeasures which can reduce the damage by fire in urban areas through a comprehensive analysis on fire risk in land using and the trends of citizens' psychological change.