

Technology development to improve urban resilience in declining areas

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Abstract

The safety in cities is under threat from natural disasters such as earthquake, storms, typhoons, floods, and heat wave as well as social disasters such as fire, explosion, collapse, and terror attacks. As a result, much attention has been paid to urban regeneration to overcome the acceleration of urbanization, damage due to climate change caused by industry change, population decrease, and declining regions due to physical environment aging in residential areas.

Urban regeneration is a project to promote declining regions socioeconomically, physically, and environmentally by utilizing regional resources, introducing new functions, and strengthening regional competence. The urban regeneration project in Korea is a policy project supervised by the Ministry of Land, Infrastructure, and Transport. It started from Urban Regeneration R&D1.0 “Urban Regeneration Project Division” in 2006, which constructed a policy foundation, and Urban Regeneration R&D 2.0 “Urban Regeneration Demonstration Project Division” established the Special Act of Urban Regeneration and executed its demonstration. Currently as of 2019, Urban Regeneration R&D 3.0 is under way to develop technologies to improve resilience in declining regions. Thus, this presentation aims to introduce the promotion strategies of Urban Regeneration R&D 3.0 “Technical Development to Analyze the Risk of Urban Space in Declining Regions and Improve Urban Resilience”.

In Urban Regeneration R&D, it is necessary to minimize damage from disasters and calamities and introduce the resilience concept, and adoption of small-scale appropriate technologies in declining regions, and regional fusion studies from community viewpoints are needed. To do this, it is necessary to develop a technology that analyzes and evaluates a level of urban resilience before and after technical application in urban regeneration regions. In addition, applicable physical solutions by disaster type such as collapse, explosion, heavy rain, flooding, heat wave, or heavy snow, technologies to ensure evacuation space and path, and criteria of space design that strengthens urban resilience are developed. The developed technologies analyze custom-tailored solutions based on urban environment and circumstances in declining regions, disaster type and scale. This is to diagnose solutions and provide technical services in accordance with the regional characteristics using the data curating technique by making databases of urban resilience application technologies.

This project is focused on a measure to improve urban resilience. It aims to support problem solving such as vulnerable residential environment and poor infrastructure in declining regions due to disasters occurred in Korea by providing measures of response/mitigation, improvement/reduction, and securing/strengthening flexibly in consideration of understanding on disasters and urban characteristics.

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Keywords: *Urban Resilience, Urban Regeneration, Declining Area*

Biography

Minhee Je received a M.S. (2009) in Urban Planning from Hanyang University, Korea. She is involved in several research projects related to urban climate change and urban regeneration. She works at the Smart Cities Research Center of KICT (Korea Institute of Civil engineering and building Technology) as a research specialist.