



The Effect of the Releasing Greenbelt on Urban Growth in Seoul Metropolitan Area

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The issue of releasing the Development Restriction Zones, which is called by “Green Belt”, in Korean society is controversial. Green Belt is a protected area designated around the city to restrict urban development in order to prevent urban sprawl and ensure a healthy living environment for citizens by conserving the natural environment surrounding cities. However, there are many opinions on the removal of the Green Belt due to recent problems such as restrictions on property rights of residents living in the Green Belt zone. But the releasing of the Green Belt is likely to damage not only the environmentally valuable land inside the Green Belt but also the land outside the Green Belt due to excessive urban expansion. This is because it has previously restricted construction in Green Belt areas and helped prevent urban areas to spread outside.

In this study, the SLEUTH urban expansion model was used to examine how urban expansion would occur if the Green Belt was released. We also looked at how much of the environmentally valuable land will be damaged by the expansion of cities.

The SLEUTH model is a type of urban expansion model that is derived from the preceding letters of input data “Slope, Landuse, Excluded, Urban, Transport and Hillshade”. This model is based on the Cellular Automata model and is not only a simple urban expansion, but also a policy-driven one due to the presence of the "Excluded" layer.

Three major methods have been used to identify how environmentally valuable areas have been damaged. First, the changes in land cover were analyzed. It was analyzed whether natural areas, such as forests and grasslands, have been converted to artificial areas such as cities whether the Green Belt area is released or not. Second, an altitude and slope analysis was performed. High altitudes or steep slopes are areas that need to be protected environmentally, and where is expected to cause serious damage to urban residents. Third, it is a way to utilize the environmental map provided by the Korean government. The Korean government is developing a map that evaluates environmental values such as the Ecological and Natural Map and the Environmental Conservation Value Assessment Map.