

Climate Change Vulnerability Assessment for the Industry Sector, Korea

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Recently, many countries all over the world have been suffered from disaster caused by climate change. Especially in developed countries, the disaster is concentrated in the industry sector. Therefore USA and other countries in EU have reflected the vulnerability of industry sector for the climate change in policy. Korea also have developed the vulnerability assessment system for the industry sector from 2012, and established adaptation policy for the climate change.

In our research, vulnerability of industry sector is assessed at multi-scale; hole area of south korea, industrial park level, corporation level. According the spatial scale, subject, criteria, and the result of vulnerability assessment could be differed. And each results could be reflected in appropriate hierarchy adaptation policy.

In largest scale, we analysed industrial vulnerable areas for the climate change using spatial autocorrelation analysis in whole south of Korea. Industry sector have responsibility for mitigating green house gas not yet released, and should adapt to the climate change caused by greenhouse gas already released. So, we integrated the hot spot areas sensitive to mitigation option with hot spot areas hardly adapt to climate change because of vulnerable infrastructure. Hot spot areas through the spatial autocorrelation analysis mean the spatial pattern of areas interacted each other.

In level of industrial park, for the each 7 climate exposure(intense heat, intense cold, heavy snowfall, heavy rain, strong wind, drought, sea level rise), vulnerability of 40 industry parks was assessed at present, 2020, 2050. We applied the vulnerability assessment method proposed by IPCC, and considered climate exposure based on RCP scenario, sensitivity and adaptation of each industrial parks. The results indicates the vulnerable industrial parks that should be considered by priority in decision making of adaptation policy.

In level of corporation(placed in industrial park), we integrated the infrastructure

vulnerability of industrial park into vulnerability of corporation based on the vulnerability assessment method proposed by IPCC. Because the logistics system of corporation depend on the infrastructure of industrial parks. As mentioned above, these results from multi-scale could be useful to synthesize the impact of climate change on the industry sector, Korea.

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