

Climate Change Impact Assessment Considering Uncertainties and Integrated Modeling: Recent Research Progress in Republic of Korea

Dong Kun Lee*, Sunyong Sung*, Hui Chul Jung**

*Seoul National University; **Korea Environment Institute

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Recently, climate change research projects in South Korea are focused on minimizing the uncertainties of impact assessments and integrated assessment on the impact and vulnerability. Because considering uncertainties has benefits on the optimizing political decision based on the economic optimization. Climate change impact and vulnerability integrated assessment model has significance on the assessment of cross-sectoral interactions that has been taken granted even interaction among multi sectoral could lead important changes on the assessment of impact and vulnerability of climate change.

To reduce uncertainties of climate change impact assessment, we considered three major uncertainties in climate change studies. First of all, we used multi climate change scenarios and ensemble model result to decrease the uncertainties of climate change scenario. Secondly, ensemble model applied to consider different mechanisms on the modeling that could bring about the uncertainties from impact assessment. Lastly, the uncertainties from economic assessment modeling of climate change impact assessed with meta-analysis.

For integrated impact and vulnerability model, to achieve environmental goal in the perspective of Korean government. For example, Korean government set the national goal to increase conservation area up to 17% of territory by 2035. We designed decision model that can account multi-criteria such as species distribution, productivity of crop, forest distribution and landslide probability to enlarge conservation area. We proposed land use based model to accumulate diverse sectors in environmental planning because land is the only limited source for the all sectors in decision process.

Uncertainties of climate change modeling and integration of multi-sectoral impact and vulnerability are key sectors that could synthesize the potential impact and vulnerability of climate change assessment. Therefore, further discussion on both research topic will be necessary to maximize the output of climate change related studies.

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