

Disaster Risk Evaluation Considering Climate Change for Land Use Planning

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Abstract

Recently, global climate change is causing various natural disaster. Land use plan is fundamental plan to realize a resilient city. The purpose of the study is to develop the disaster risk evaluation method for land use planning. Target area is Tokushima Urban Area (TUA). Viewpoints of the evaluation method are followings. (1) we evaluated the disaster risk to integrate three hazards, these are Tsunami, flooding and land slide, (2) the reconstruction period from three disasters was used as the index of risk, and (3) we used only the open data.

We evaluated the disaster risk for the present and future TUA. As the present disaster risk, we used the level 1 Tsunami inundation potential, the flooding potential area of 30 to 150 year rain data, and the yellow zone about land slide. As the future disaster risk, we used the level 2 Tsunami inundation potential, the flooding potential area of 1000 year rain data, and the yellow and red zone about land slide. The evaluation values of disaster risk is calculated by the number of population, the ratio of wooden houses, the probability of disaster, the ratio of disaster area, and the time period of reconstruction. The spatial unit of the evaluation is 500 meters mesh. We calculated the values for each hazard, each age, and then we calculated the total of these values.

From the results of the evaluation, we shown the central area of Tokushima city has high disaster risk area. The area is designated as an urbanization promotion area. Therefore, in the future, the area needs to reinforce the infrastructures and buildings.