

The plan and evaluation of planned degeneration scenarios for suburban city areas with declining populations

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1. Foreword

Taking into account the predicted population decrease in local cities and rigorous fiscal and environmental restrictions in the future, the introduction of “systematic shrinkage of urban areas” seems inevitable in restructuring urban areas, as well as realizing a “compact city type urban structure”. Thus the Urban Planning Department has been deliberating expected urban features, enforcement requirements, effective steps to carryout and so forth, when implementing such measures. Based on deliberations from the year 2011 for examples of relocations of the residents, and the examination of its implementation scenarios in the year 2012, we have conducted a quantitative evaluation study focused mainly on expenses of the model urban area.

2. Configured conditions of the model study

The target district was set as a model urban area with an area of 1.7ha, 100 lots (74 households/136 inhabitants)

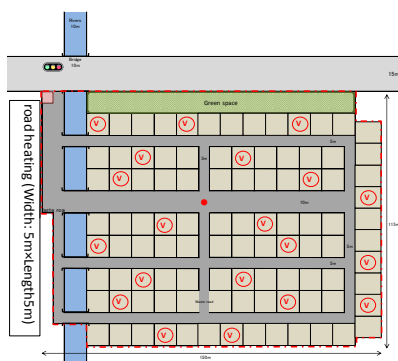


Figure 1: Overview of the model urban area

as shown in Figure 1. Using actual urban neighborhoods as references, population was also set according to age hierarchies.

The following scenario was established, forecasting the population changes of 25 years based on cohorts. (1) Scenario 1: Regardless of the population decline, the operation and maintenance of the infrastructure will be conducted in the same manner in the future. (2) Scenario 2: The infrastructure will be reduced according to the population decline in five years time. (3) Scenario 3-1: A planned degeneration scenario that promotes the move of inhabitants out of the district (with assisted expenses), to be withdrawn within 10 years (40 replacement housings will be built). (4) Scenario 3-2: A planned degeneration scenario that will transfer all households 15 years later, with 20 replacement housings to be built.

The administrative costs set for the target calculation were: (1) regular costs required for the standard operation and maintenance of facilities such as district

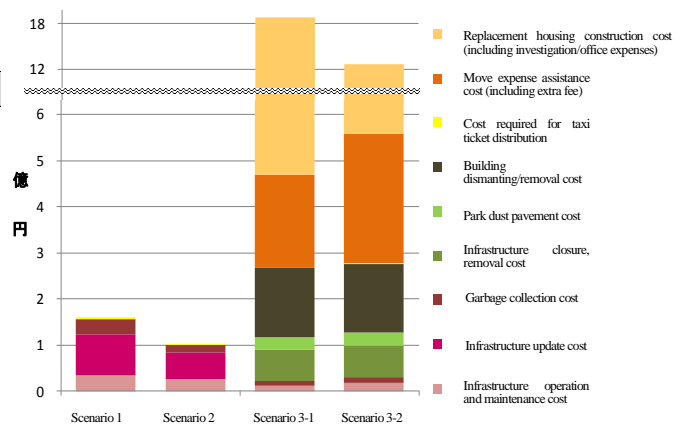


Figure 2: Comparison of accumulated costs up to 20 years later

infrastructures and subsequent updates after their service life has expired, and human public services, (2) costs that will arise in the case of guided degenerations, whereby residents are moved and facilities like infrastructures are gradually abolished/prepared, as well as required public service fees etc. Calculations were derived through the unit expenditure method approach, while referencing the values of surveys etc. calculating the average values of many cities. Renewal expenses were calculated by adding up the annual fees divided by the service years and the cost of removing the infrastructure and stopping the pipeline was set at half price of the renewal expense.

4. Calculated results and summary

A comparison of the calculated results of accumulated costs over 20 years is shown in Figure 2. While costs for the planned degeneration case greatly exceeded the others, the following examinations are required to raise the feasibility of the costs. (1) Substitute measures such as utilizing unoccupied housing, as the construction fees for the replacement housing is considerably large. (2) Expenses pertaining to the maintenance of the ruins and the shut down/removal costs of the infrastructure may be covered through the long-term use of solar generation etc. on the vacant lots. (3) Costs for assisting the movement of residents could be balanced by expense reductions in a wide area of administrative services, as well as higher measure effects by activating the city centers etc.

Needless to say, total considerations must be given to factors outside of costs, including the willingness of the residents and improving their quality of life.

(Reference)

1) NILIM report 2013 "Research on How the Systematic Shrinking of Urban Areas in Depopulating Cities should be "

<http://www.nilim.go.jp/english/annual/annual2013/44.pdf>

2) NILIM report 2014 "Configuration of Draft Scenario for Systematic Urban Shrinkage of Urban Areas in Depopulating Cities "

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