

1기 신도시 재건축 단지의 공공성 제고를 위한 정책방향 연구

Reconstruction Site Analysis and Policy to Enhance the Publicity for the 1st Phase New Town

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SUMMARY

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This study was planned as a proactive response to the redevelopment and reconstruction policies of the aging planned cities that the government is pursuing before the full implementation. In other words, it is necessary to minimize the impact of the problems expected after high-density development through extreme floor area ratio increases. This requires social discussions between the public and stakeholders before the creation of vast built environments through basic research and simulations.

To achieve this, the first part of the study examined the conceptualization of publicness to enhance the public nature of the redevelopment of the aging planned cities, the current situation and discussions related to it, changes in conditions during the redevelopment process, and related issues. In this study, the concept of 'publicness,' discussed in various previous studies and literature related to this study, was divided into quantitative and qualitative indicators. Quantitative indicators, such as area, ratio, and distance from public facilities, can be expressed numerically, but elements of publicness inherent in the site remain the same before and after redevelopment due to the characteristics of redevelopment development. Therefore, to minimize the impact of these quantitative indicators, the open space area was set as a significant element for

evaluating the site's publicness quantitatively, and the remaining quantitative factors were used as the main items for mass alternatives and guideline utilization. Qualitative indicators, interpreted based on users' subjective opinions and statistical analyses, were excluded from the analysis as they went beyond the scope of this study. Thus, the analysis in terms of publicness focused solely on calculating the open space area within the site and comparing it using the land cover index based on it.

Next, the study reviewed the current situation related to the first-generation planned cities and issues related to redevelopment. The increase in floor area ratio is considered to have been achieved through social consensus over a certain period, rather than being pursued unilaterally by the current government. This indicates that the developmental pressure agreed upon by society regarding the negative impact of a 500% floor area ratio on the city has already exceeded the limit. Consequently, despite the existence of opposition opinions, such high-density redevelopment is likely to proceed, indicating that it might be seen as merely a matter of time.

As for international cases related to this study, Japan's Tamatown and the UK's Milton Keynes, which were developed around the same time as the first-generation planned cities, were analyzed, along with domestic cases such as Gwacheon, Gangnam, and Banpo redevelopment districts. The results from abroad show a focus on redevelopment from a regeneration perspective, emphasizing the maintenance of existing housing. Due to differences in development approaches and preferences for low-rise residential areas, drastic increases in floor area ratio were not possible. Additionally, the size, design, and other aspects of open spaces and public facilities were confirmed through consultations with the public before redevelopment. In contrast, domestic cases summarized as follows exhibit a few common characteristics. Firstly, incentives for easing floor area ratio must be provided as a means to secure publicness. Secondly, the results of securing publicness through incentives vary according to the interests of each district. For example, public walkways, green spaces, rental housing, etc., are notable. Thirdly, increasing profitability by removing existing green spaces and open spaces is a common trend. Fourthly, new community facilities are built to be more closed and operated more restrictively than before.

In the middle part of the research, assuming the relaxation conditions of the redevelopment regulations under the special law, an analysis of the possibility of redevelopment and the evaluation of publicness within the site's open space were conducted for Bundang. To achieve this, GIS analysis of the overall status of Bundang

New Town was conducted based on building register data, real estate information, and portal information. Specifically, after grasping the land area, building area, building coverage ratio, gross floor area, and floor area ratio of all residential complexes, assuming an increase in floor area ratio to 500%, the available gross floor area and number of floors for future development were calculated. The results summarized that some sections of Bundang, such as Yangji Village, and Areum Village, could get the most significant increase in floor area ratio. Concerning the number of floors available for development, sections like Maehwa Village, Jangantown low-rise apartment complex, Hansol Village, Cheongsol Village, Hayan Village, and Mujigae Village showed the highest potential. As for open spaces, an analysis using the land cover index for each site was conducted. The results indicated that residential areas and commercial / cultural / public areas, including first-class general residential areas and quasi-residential areas, showed an increasing concentration when they included commercial areas. Also, open space land cover index tended to increase in areas developed later in the southern and eastern parts of Bundang. Especially, districts near commercial areas showed about 50% lower indices compared to outer districts. These results are highly related to building coverage area and imply that areas with high building coverage ratio and low-rise, low-density complexes tend to show lower indices. This suggests that if density significantly increases after redevelopment, there is a possibility of increasing the open space available on the ground, albeit at the expense of the existing open space.

Finally, in the latter part of the study, assuming an increase in floor area ratio, design alternatives for representative types of redevelopment sites were proposed and the implications and issues were summarized. The target sites were set as 'Transit-oriented,' 'General,' and 'Low-rise, Low-density' among the three most common types of residential areas in the first-generation planned cities, and simulations focusing on floor area ratio and mass alternatives were conducted on Sounae-dong Yangji Village Phase 1 and 2, Jeongja-dong Hansol Village Phase 5 and 6, and Gumi-dong Hayan Village Grand Ville.

Firstly, assuming 500% for each target site, when attempting to arrange as many masses as possible within the current regulations, it was found that it was impossible to maintain a human interval of 0.3. Even assuming 0.8 under the current regulations and incentives, it was impossible to achieve 0.5. Therefore, such floor area ratio is considered practically unachievable. When simulating tower-type and slab-type structures, it was found that significant problems could arise in terms of blocking sunlight and views in

large spaces, as well as the relationship between public spaces inside and outside the complex. However, if the human interval is fixed at 0.8 and the maximum possible arrangement is attempted, the transit-oriented type can achieve a density increase up to 400%, and the general type can achieve up to 450%. Assuming relaxation to 0.5 through current special provisions, the transit-oriented type could reach 450%, and the slab-type could reach 490%. However, for the low-rise, low-density type, which originally had a floor area ratio of 89%, it was found that doubling the density to 500% was unrealistic. The results also indicated that the open space land cover index significantly decreased as density increased. This implies that high-density floor area ratio, based on high profitability, might require giving up existing open spaces, and this burden could be transferred to the public sector.

Finally, considering the maximum achievable floor area ratio and number of floors for each type, it was assumed that these sites were redeveloped. Various architectural layouts were proposed as an alternative. To secure limited ground-level open space and public spaces at different levels, these were included in the overall density. Assuming a human interval of 0.8, the transit-oriented type could achieve a floor area ratio of about 450%, with an average of approximately 25 floors. Combining tower and slab types and utilizing various levels above ground could be an alternative for space utilization. The general type could achieve 470%, requiring approximately 48 floors to maintain a human interval of 0.8. However, the low-rise, low-density type, with an original floor area ratio of 89%, could achieve a maximum of 200% when assuming 0.5 for the human interval. Still, even this scenario didn't exceed 350% when applying the realistic 0.8 human interval. Additionally, the open space land cover index significantly decreased as density increased. This implies that high-density floor area ratios, based on high profitability, might require sacrificing existing open spaces. The burden of this sacrifice could be shifted to public domains.

In summary, the study explores the complexities of redevelopment in aging planned cities, particularly focusing on publicness and open spaces. It emphasizes the need for extensive social discussions and careful consideration of various factors such as floor area ratio, human intervals, and public spaces to ensure sustainable urban development.

Keywords :

1st Phse New Town, Publicness, Open Space, Design Alternatives, Aging Planned City