Urban Regeneration Strategies for Declining Areas: Utilization of Empty and Deserted Houses in Gwangju Dong-gu

Hwanseok Jeong¹, Youngbeop Jeong² and Uoosang Yoo*³

¹ Student, School of Architecture, Chonnam National University, Republic of Korea
² Student, School of Architecture, Chonnam National University, Republic of Korea
³ Professor, School of Architecture, Chonnam National University, Republic of Korea

Abstract
This study aims to present a strategy for urban regeneration utilizing deserted houses by analyzing the regional characteristics of Dong-gu, Gwangju where empty or deserted houses are densely located. Characteristics of deserted houses in Gyerim 2-dong and Seonam-dong, the selected case areas, were identified by physical, social and urban aspects, a model that was also used in previous studies on urban regeneration utilizing deserted houses. Based on this classification, concrete strategies for utilizing empty or deserted houses corresponding to the case area were suggested. Gyerim 2-dong's strategy for utilizing empty or deserted houses was focused on residents while Seonam-dong's strategy was focused on external users. A limitation of the present study is that it only includes the region of Dong-gu, Gwangju. In-depth studies on how to utilize empty or deserted houses in various areas are required in the future.

Keywords: urban regeneration; empty and deserted house; Gwangju;

1. Introduction
Dong-gu, Gwangju’s original downtown area has declined for various reasons such as population movement following the relocation of public institutions, and the development of a new downtown area in another location. The result was an influx of empty or deserted houses, accelerating the decline of the original downtown. The present study will propose urban regeneration strategies for utilizing empty or deserted houses as social resources. The research method is to investigate the area where homes were deserted, analyze the characteristics of the empty houses, and present urban regeneration strategies to utilize the houses in a way that fits into the community. The scope of the study is areas where empty or deserted houses are densely located in Dong-gu. The type, area, degree of deterioration, and number of floors in the homes were investigated from a physical aspect; internal and external users, local communities, and economic levels were examined from a social aspect; and street systems, use districts/areas, and connectivity with neighboring city infrastructures were analyzed from an urban aspect. In addition, previous similar studies using the above three aspects were referenced.

* Contact Author: Uoosang Yoo.
Professor, School of Architecture,
Chonnam National University, Republic of Korea
e-mail: usyoo@chonnam.ac.kr

2. Analysis of present situation

In the present study, empty or deserted houses are regarded as a phenomenon that occurs when urban decline results in a lack of investment in the physical environment of the city.11 When restored, empty or deserted houses can potentially contribute to socio-economic ripple effects associated with urban regeneration.12 The survey extracted data based on empty or deserted houses in Gwangju, and added understanding of the present situation through field surveys. In addition to being the least populated area in Gwangju[Fig.1.], Dung-gu has the highest ratio of old buildings[Fig.2.], and the highest rate of increase in empty houses since 2000[Fig.3.].13 A review of the present situation in Gwangju shows that empty or deserted houses are most densely located in the old downtown area[Fig.4.].

Fig.1. Population change
Fig.2. Old building ratio(over 30year)
Fig.3. Vacancy rate of Dong-gu

Case study sites were selected area where is empty or deserted houses close together. Gyerim 2-dong and Seonam-dong in Dong-gu were selected to conduct this study. Surrounding the selected case areas is original downtown Gwangju, where the city’s fortress existed in the past and the location that would later become the center of economic, cultural, and social life in Gwangju. Nearby urban infrastructures include Pureungil Park that was made utilizing an abandoned railway site, Gwangju Follies, and National Asian Culture Center (ACC)[Fig.5]. As the city has expanded, major business facilities and population left, leading to the period of decline.

Fig.4. Location of empty and deserted houses

Most of the empty or deserted houses in the two areas were built around the early 1970s, and aging was severe. According to the results of the field survey, empty or deserted houses were mainly located on dead end roads next to alleyways. Poor access to the buildings contributed to the homes remaining unoccupied.

13 Gwangju Vacancy Information. [online] www.gwangju.go.kr
after original owners were deceased or moved away.

In the case of Gyerim 2-dong, which is District 1[Fig.6.], a total of 12 empty or deserted houses exist. Most of the homes are detached with a mean total ground area of 82.29 m². According to the results of a field survey, the structure of the buildings comprised reinforced concrete, wood, brick, and block. Among them, empty or deserted houses made of block sustained the most damage. Due to neglect, the windows and doors of most of the homes needed to be repaired or replaced. Furthermore, District 1 has internal roads, which enable vehicle traffic and parking on the road. As for surrounding city infrastructure, there are many schools in the vicinity and the Pureungil Park exists right next to the district.

In the case of Seonam-dong, which is District 2[Fig.7.], there are a total of 11 empty or deserted houses with a mean total ground area of 104.06 m². Though this is a central commercial area, most of the empty or deserted houses are detached, and vehicle traffic is not permitted due to exclusive pedestrian roads in the area. There are various infrastructures adjacent to the homes such as the printing street, the commercial area surrounding the site of the former city hall, ACC, and Gwangju River. In particular, the plot areas of empty or deserted houses (c) and (g) are shown to be 390.9 m² and 334.82 m², respectively; two times larger than the other plots. When compared to the smallest plot area of 29.7 m², it is clear that the plot areas are quite diverse.

Table 1. Comparison of Case Study Districts

<table>
<thead>
<tr>
<th>Physical aspect</th>
<th>District1</th>
<th>District2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of building</td>
<td>Detached house</td>
<td>Detached house(7), etc(4)</td>
</tr>
<tr>
<td>Degree of deterioration</td>
<td>Moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Plot area</td>
<td>93 m² ~ 182 m²</td>
<td>30 m² ~ 391 m²</td>
</tr>
<tr>
<td>Building area</td>
<td>33.2 m² ~ 110.7 m²</td>
<td>16.52 m² ~ 104.7 m²</td>
</tr>
<tr>
<td>Mean total ground area</td>
<td>82.29 m²</td>
<td>104.06 m²</td>
</tr>
<tr>
<td>Average of floor area ratio</td>
<td>55.59%</td>
<td>77.46%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social aspect</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population type</td>
<td>Resident</td>
<td>Floating population</td>
</tr>
<tr>
<td>External user</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Economic level</td>
<td>The lowest</td>
<td>Low</td>
</tr>
<tr>
<td>Community</td>
<td>O</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Urban aspect</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive pedestrian road</td>
<td>x</td>
<td>0</td>
</tr>
<tr>
<td>Road width</td>
<td>6 m (max)</td>
<td>4 m (max)</td>
</tr>
<tr>
<td>Use district / area</td>
<td>Residential area</td>
<td>Commercial area</td>
</tr>
<tr>
<td>Surrounding city infrastructure</td>
<td>Pureungil park</td>
<td>ACC, Gwangju River, Yangrim-dong</td>
</tr>
</tbody>
</table>

In addition, the two districts differ in population type. District 1 is a residential area with a population higher than that of commercial District 2. On the other hand, the density of the floating population in District 2 is higher than that of District 1. Incomes in the two districts also differ. Whereas the population of the lowest income group is large in the case of District 1, the population of the low income group is large in the case of
According to results of the investigation regarding physical and social aspects, the two areas show the greatest differences in use districts, neighboring city infrastructures, types of population, income levels, and street systems [Table 1].

3. Previous studies on urban regeneration utilizing empty or deserted houses

Table 2 displays contents of previous studies on urban regeneration strategies using empty or deserted houses. Previous studies have suggested diverse approaches for use of empty and deserted houses in terms of both software and hardware.

Table 2. Studies on urban regeneration utilizing empty or deserted houses

<table>
<thead>
<tr>
<th>Code</th>
<th>Researcher</th>
<th>Content of study</th>
</tr>
</thead>
</table>
| A    | Han et al. (2015) | - Economic: tourist accommodations, culture and art residence  
- Social: housing cooperative, rental house  
- Environmental: low income group rental house,return to the farm and rural residential facilities, green area, open space |
| B    | An & Park (2013) | - Commercial: pop-up shop, pop-up restaurant  
- Cultural and artistic: street festival, temporary exhibition hall, pop-up theater, design gallery  
- Community: community garden, community food project, urban problem discussion place  
- Alternative residence: squatter |
| C    | Lee (2015) | - Living contact type: lighting or sculptures below bridges and overpasses, and between buildings  
- Closed space regeneration type: creation spaces utilizing the buildings in the period of industrialization, public spaces, or empty shopping districts  
- City marketing type: abolishing the city image i.e. Gamcheon Culture Village  
- Other: design on construction site fence screens, retaining walls |
| D    | Lee (2014) | - Cultural exchange through art projects, urban regeneration and sustainability, creation of spontaneous regional culture  
- Importance and necessity of complexion, complex cultural spaces in unused spaces, operation structure  
- Provision of creation space, art production through exchanges, regional residents' enjoyment of arts, diversification of distribution and reproduction structure  
- Regional culture and community, construction of multi-cultural community, securing regional urban competitiveness |
| E    | Park & Nam (2014) | - Farm village: return to farm and rural households and my home project, empty house bank  
- Downtown: public rental house, purchased rental housing system for low-income groups |
| F    | Ha (2013) | - House repair  
- Demolition and common vegetable garden  
- Joint development |
| G    | Kim & Nam (2016) | - Large city (large scale): medical facility, library, welfare facility  
- Small and medium sized city (small scale): guest house, culture & art village, youth start-up center, resident education center |
| H    | Kim (2016) | - Private area: shell type design (hostel village, multi-household house, etc.)  
- Private/public area: pocket type design (creative activity, cultural spaces, etc.)  
- Public area: pop-up type design (culture & art spaces, etc.) |
| I    | Nam (2014) | - Design system for remodeling constructing type: house for sale support, cheap simple reform, community support  
- Information system for flow and matching construction type: migration life support organization  
- Regional network for continuous utilization construction type: induce outsider visits, cooperation system with local university  
- Resident-led village linking type: matching between empty houses and potential occupants (empty house bank) |
| J    | Nemoto (2013) | - Empty house remodeling (mover), work in residence programs (attract companies), job seeker support training |

4. Application of previous studies

GIS-DB, [online] www.biz-gis.com

4 UIA 2017 Seoul World Architects Congress
Strategies of previous studies utilizing empty or deserted houses were analyzed in the same physical, social, and urban aspects used earlier [Table 1]. Through the analysis, the extent to which prior studies considered individual detail factors can be understood. The grade was divided low, average, high according to the degree of consideration. Based on contents of the analysis, strategies that can be utilized for empty or deserted houses in case areas of the present study could be found [Table 3].

Table 3. Analysis of previous studies

<table>
<thead>
<tr>
<th>Type of empty or deserted houses</th>
<th>Consider physical aspect</th>
<th>Consider social aspect</th>
<th>Consider urban aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>●</td>
<td>○</td>
<td>●</td>
</tr>
<tr>
<td>2.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>3.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>5.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>6.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>7.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>8.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>9.</td>
<td>●</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Legend: low ○, average ◎, high ●

Strategies that could be applied to the case areas were extracted from the approaches used in individual previous studies. The extracted contents were divided into software and hardware aspects and matched with regional characteristics suitable for the case areas [Fig. 8]. In District 1, strategies reflected characteristics of the highly populated residential area adjacent to Pureungil Park and educational facilities, and were related to the area and residents. Application strategies for empty or deserted houses are green areas and open spaces for residential environment improvement, utilization as common vegetable gardens, rental housing in linkage with local universities, and culture and arts residences.

![Fig. 8. Application of strategies in case study areas](image)

In the case of District 2, the main characteristics are that it is a commercial area with a large floating population and diverse nearby infrastructures. Content deriving from the strategy of utilizing empty or deserted houses for regeneration were creative spaces for art exhibition, pop-up shops and theaters linked to commercial facilities, and accommodations for external users. For both areas, the subject of operation and utilization of empty bank programs was a consideration. It could be seen that although strategies for utilizing empty or deserted houses may vary case by case, basic programs and the importance of the subject of Consider physical aspect: Consider social aspect: Consider urban aspect:
operation are the same.

5. Conclusion

The present study began with the purpose of presenting potential urban regeneration strategies utilizing empty or deserted houses that have contributed to the decline of downtown Gwangju. Dong-gu, a declining area dense with deserted houses, and the original downtown area of Gwangju were compared and analyzed. The study showed that whereas District 1 was constructed into a static form, District 2 was constructed into a dynamic form. Previous studies based on physical, social, and urban aspects were referenced to extract strategies that could be applied to the utilization of empty or deserted houses based on systems of software and hardware. The extracted strategies were presented as possible approaches corresponding to the characteristics of this case study. Results provided insight into the importance of bottom up urban regeneration strategies based on the needs of regional residents and the characteristics of the area. However, since the present study presented strategies to utilize empty or deserted houses only in Gwangju, the results of the present study cannot be accurately applied to other areas. Therefore, in depth studies on the utilization of empty or deserted houses in various cities should be conducted hereafter.

References