Study on the Neighborhood Characteristics of High-Density Hillside Areas through Common Space

-A Case Study on an On-the-Spot Improvement Program District of the Housing Environment Amelioration Program in Busan, Korea-

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Abstract

This study examined remaining and changing characteristics of the residential use of the common space and the neighborhood relationship before and after the program in one district in Busan, Korea where an on-the-spot improvement of the housing environment amelioration program in hillside high-density areas was carried out. The results of this research were as follows.

Currently many residents (61 people, 90.2%) are using the common space with less frequency. Before the program, many residents (35 people, 48.6%) used it every day, but after the program, most residents (43 people, 59.7%) use it two or three times a month, indicating a tendency towards decreased participation. Residents who have lived in the area more than 20 years use the common space less frequently because the use itself has changed. A well, which was the main common space in the district before the program and which was used by many residents, was removed due to the repair of roads for the program. Also, six common spaces were used before and after the program that were influenced very much by the program and went through changes such as increased size (three places), renovation (one place), relocation (one place) and dispersion (one place). Regular cleanup tended to be carried out collectively by members of the Housewives' Club and the Elders' Club. These groups were newly organized after the program.

Keywords: hillside high density areas; housing environment amelioration program; common space; neighborhood; Busan

1. Introduction

In Korea, there have been various ongoing housing "environment improvement programs" in high-density hillside areas, following the passing of the Urban and Living Environment Improvement Act, which was introduced to enhance the living environment. There are three repair methods in the housing environment improvement program: 1) An Apartment Housing Construction Program: All houses in hillside areas are demolished, and new high-rise concentrated housing is built so that not only the existing inhabitants, but also new ones can move in (Fig.1.). 2) An On-the-Spot Improvement Program: Construction costs are paid through low-interest loans, and the inhabitants pay to improve the housing while the program takes care of repairing roads and public facilities (Fig.2.). 3) A Demolition and Relocation Program: The enforcing agent provides the relocation site.

The on-the-spot improvement program (from here on referred to as "the program") is the easiest method of the three to preserve neighborhood relationships because the nature of the program means there is little necessity to relocate residents.

However, not enough attention has been placed on the neighborhood relationships that have been maintained and inherited over a long period of time in the region. Through repairing roads and public facilities, these relationships have enhanced the living environment, compared to the pre-program period. Due to the changes in the living environment, however, the neighborhood relationships of the regional residents worsened after the program, and this had a large impact on the regional characteristics and living environment.

There are still districts where interdependent relationships remain, and these neighborhood relationships are displayed in various outdoor spaces, both public and private. Furthermore, it is known that interdependent relationships are connected to regional communities and that new neighborhoods will have difficulties in forming interdependent relationships. Therefore, there needs to be a new method of operating the program without destroying neighborhood
relationships. This study intends to examine development methods which can change the living environment. To achieve this change, common space (space in the high-density hillside area which regional residents can freely use, regardless of its public or private nature, and where residential and regional community activities are also held) must first be defined as the operational foothold for residential and regional community activities, which causes the changes in the neighborhood relationships through the program. The purposes of the present study are as follows: 1) To investigate the remaining and changing characteristics of the residential use of common space. 2) To examine the neighborhood relationship system before and after the program. 3) To explore reparation methods for that space in the program.

Previous studies have been done on the relationship between open space and the neighborhood in the on-the-spot improvement program of the housing environment amelioration program. They include the following three: Lee, Y. (1999) proposed securing open space by harmonization of the housing (site). Heo, H. (2001) proposed that public institutions should purchase deteriorated houses and demolish them to provide residents with open space. Kim, C. (1993) also mentioned the degeneration of neighborhood relationships when assessing the satisfaction level of the living environment after the program is carried out. However, the relationship between common space, where outdoor activities and regional community activities are carried out, and the neighborhood created in that common space has not been studied sufficiently, despite it being a very important research theme. In this study, therefore, the use conditions of the common space and the changes in the neighborhood relationships before and after the program will be examined in order to acquire useful methods for repairing the negative effects of common space in the program.

2. Outlines of the Subject District and Research Methods

Sujeong-3dong district of Donggu in Busan was selected as the subject. In this location, the on-the-spot improvement method of housing environment amelioration was carried out (Fig.3.). Eighteen districts in Donggu were selected as subjects for the housing environment improvement program, and from these, 16 districts instigated the on-the-spot improvement method, one used the apartment housing construction method, and the other used a combination of the two. The most commonly used on-the-spot improvement method is still in progress, or even in the planning stage, in most of the 16 districts. The subject district, however, was the only one where the program was finished, so the characteristics of the neighborhood relationship system before and after the program could be researched (Table 1.).

In order to repair the infrastructures of the program, three city plans for the repair of roads and public facilities were established under the following conditions (Table 2.): 1) Normal roads that are shorter than 2~3m according to repair standards, and actual roads and connections from pedestrian roads to public facilities and housing. 2) Regional roads of less than 4m according to repair standards that reduce the circling radius so that pedestrian safety is increased. 3) Access roads shorter than 6m according to repair standards, which connect the four directions of the district, north, south, east and west, thereby offering solidarity to the neighborhood living environment and
public facilities. There are various common spaces on and near the roads repaired according to the standards of the program.

Resident interviews were carried out to discover the characteristics of the neighborhood relationship in the common spaces before and after the program. The survey was done in the Sujeong-3dong district of Donggu in Busan, from September 1st to the 10th 2006. Each of the 131 households were visited, one household counting as one vote. The subjects were one adult over the age of 20 per household who agreed to be interviewed, and the questionnaire included 1) the use status of the common space before and after the program, 2) the perimeters and depths of neighborhood relationships, and 3) whether the subjects participated in community activities or not, and the level of participation.

Regarding the perimeters and the friendliness of the relationships, residents responded to: 1) the perimeter the subject felt was classified as 'neighboring' on a digital map, 2) the location of the neighborhood association, and 3) the locations of households with which the subject had neighborhood relationships. Survey hours were from 9AM to 6PM, and the households that were unoccupied during those hours were surveyed on the weekends during those same hours. To even-out the survey duration, all households were limited to one hour of surveying. Of 131 households, 33 were unavailable, 17 refused to answer, and 81 agreed to do the survey, a total response rate of 62%.

3. Characteristics of the Survey Subjects

The characteristics of the survey subjects are displayed in Figs.4~8. There were more females (52, 64%) than males (29, 36%). Regarding age, 31% (25) were in their 50s, making up the largest portion, and those in their 60s were next with 23.4% (19). Regarding duration of residence, the longest was over 30 years (35, 43.2%), then 25 to 30 years (14, 17.3%), followed by 20 to 25 years (11, 13.6%), meaning the majority of the residents had been living there for more than 20 years. Most of the residents had also lived in the area before the program (72, 88.9%). As for family size, 50.6% of the families (41) had four members, and 46.9% were composed of couples and children. Most of the households (75, 93%) were also individual (stand-alone) houses.

4. Use Status of the Common Space Before and After the Program

Seventy-two residents who had lived in the area since before the program began were asked to name one common space that they most used before and after the program. If two different spaces were mentioned, the residents were asked about the use status of the two spaces. The following paragraph will outline the use status of the most used space before and after the start of the program. The survey asked whether the residents used the common space or not, and, if they did, how often and when they used it. Finally the survey revealed how many people used the common space and the characteristics of the residents who used it.

Currently 65 residents (90.2%) use the common space while seven residents (9.8%) do not use it. From this we conclude that most of residents use the common space (Fig.9.). As to when they used the common space, 53 residents (81.5%) used it both before and after the initiation of the program, 13 residents (12.3%) started using it after the program began, and four residents (6.2%) used it before the program but have not used since the program's inception (Fig.10.).
Before the program, 35 residents (48.6%) used the common space every day, making up the largest portion. However, after the program the daily users decreased and the majority of residents, 43 people (59.7%) now use it two or three times a week (Fig.11). This indicates a change of frequency in use of the common space before and after the program. With regard to use time, there was no change before or after the program, and most people use it for more than one hour (20 people before the program and 20 people after the program) (Fig.12.).

As to the frequency of men using the common space, daily users were the most frequent group (12 people) before the program. However, after the program began, the most frequent use was two or three times a week (14 people) (Fig.13.). In the case of women, most (20 people) used it every day before the program, but after the program, most (27 people) used it twice or three times a week (Fig.14.).

A decrease in the use of the common space was revealed amongst residents who have lived in the area for more than 20 years. Most residents who had lived there more than 20 years were elderly and since the method of using the common space changed after the program began compared with before, they (seven people) continued their neighborhood relationships in the houses of their neighbors rather than by using the common space. In addition, many of the residents who lived nearby and with whom they had social relationships had died so they had fewer friends with whom to converse. This decrease in the number within their social circle caused them to use the common space less (nine people).

The common space is used by many residents but its frequency of use, regardless of gender, has decreased since the inception of the program. It was also revealed that the duration use remained constant; over 60 minutes both before and after the program.

5. Neighborhood Relationships in the Common Space before and after the Program

This chapter will examine characteristics such as the perimeter of neighborhood relationships, changes in neighborhood relationships in the common space before and after the program, and the degree of friendship of neighbors. It will then organize the number of households who have neighborhood relationships according to their depth, and organize and clarify the characteristics of neighborhood relationships according to individuals, using information acquired by interviewing the residents.

5.1 Perimeters of the Neighborhood Relationship

The neighborhood relationship was classified according to the perimeters of the relationships and the location of the neighborhood association. There are six types (A–F) of perimeter (Table 3.).

| Type  | Image | Characteristic | Count |
|-------|-------|----------------|-------|
| Type-A | ![Image] | Not consistent with the range of the smallest unit of a neighborhood association | Before:11 After:16 |
| Type-B | ![Image] | Same area as the range of the smallest unit of a neighborhood association | Before:18 After:19 |
| Type-C | ![Image] | A little wider area than the range of the smallest unit of a neighborhood association | Before:23 After:12 |
| Type-D | ![Image] | Smaller perimeter than the perimeter of the neighborhood association | Before:9 After:20 |
| Type-E | ![Image] | Whole district complex | Before:10 After:3 |
| Type-F | ![Image] | No recognizable neighborhood range | Before:1 After:2 |

The range of the smallest unit of the neighborhood association
- The range the participant recognizes as his/her neighborhood
- House
- The subject district

Fig.13. Use frequency of the common space (man’s)

Fig.14. Use frequency of the common space (women’s)
5.2 Changes in Neighborhood Relationships in the Common Space

The changes in neighborhood relationships in the common space before and after the program were researched and analyzed as follows. 1) We asked about the one common place that the residents currently use most frequently. If two different spaces were...
frequented both before and after the program, the residents were asked for the location of those common spaces. 2) The frequency of use in 14 common spaces extracted from one was calculated (Table 4.) (Fig.15.). 3) Based on perimeter types of the neighborhood relationships in 5.1, the most frequently-appearing perimeter type of the neighborhood relationship in each common space was selected. 4) From the relationship between the perimeter and the locations of the common space in the type identified in 3), the characteristics of changes in neighborhood relationships in the common space before and after are revealed (Table 5.).

When looking at the relations between the perimeter of the neighborhood relationships and the location of the common space, it was revealed that the six common spaces used before and after the program were influenced by "increased size of the common space", "renovation of the common space", "dispersion of the common space" and "relocation of the common space".

There were three common spaces (Nos.1, 3 and 4) that had "increased size". Since houses were set back from the street due to road repairs for the program, the size of No. 1 common space increased after the program, and it can be seen that there has been a change in the perimeters of the neighborhood relationship from Type-F to Type D. In common space No. 3, there was no change in the types of perimeter before and after the program although the size of the common space increased due to the road repairs and house remodeling for the program. In common space No. 4, the number of users increased after the program. Houses were demolished due to the road repairs for the program. In their place, multi-family housing was built. Thus the type of perimeter has changed from Type-A to Type-B.

In the case of the "renovation of the common space", it can be seen that one common place (No. 2) was renovated to a gazebo during the program and many residents use it. In the case of "dispersion of the common space", the perimeter of one place (No. 5) narrowed after the program. Especially due to the road repairs for the program, the common spaces located in the left and right sides of residential areas before the program were dispersed after the program around the residential areas. In the case of the "relocation of the common space", one place (No. 6) had no changes in the types of the perimeters of the neighborhood relationship. However, one common space that was located inside the house before the program was relocated to the outside of the house as a result of individual house rebuilding.

The types of common spaces for No. 7 and No. 8 were A in the perimeter of neighborhood relationships. In the case of No. 9, the type of common space is F, where there is no recognition of a neighborhood relationship and where two common spaces are located. Five common spaces (Nos. 10, 11, 12, 13 and 14) were used before the program but disappeared because of repairs to the roads and other changes necessary to implement the program. With regard to common space No.11 where there was a well but this disappeared due to the road repairs for the program.

Table 6. Examples of the depth of neighborhood relationship

| 37 year old woman | 63 year old man | 57 year old man |
|-------------------|----------------|----------------|
| Period of residence: 21years | Period of residence: 35years | Period of residence: 24years |
| Before (B type) | Before (A type) | Before (D type) |
| High: 2, Medium: 8, Low: 14 (Total: 24) | High: 3, Medium: 5, Low: 14 (Total: 22) | High: 4, Medium: 14, Low: 32 (Total: 50) |
| After (C type) | After (A type) | After (D type) |
| High: 1, Medium: 10, Low: 26 (Total: 37) | High: 2, Medium: 4, Low: 17 (Total: 23) | High: 2, Medium: 8, Low: 10 (Total: 12) |

* The range the participant recognizes as his/her neighborhood
* The range of the smallest unit of the neighborhood association
* The intimacy of neighborhood relationship
  - High
  - Medium
  - Low
  - House

Table 6. Examples of the depth of neighborhood relationship
The residents wanted to replace it with a gazebo on the same spot. The gazebo was built with the government's permission.

The following is the relation between the perimeter of neighborhood relationship and the location of the common space. Before the program, many residents used common spaces centering around one common space, but that space disappeared under the program. In addition, due to the road repairs for the program, it was discovered that various changes have occurred, including increased size, renovation, dispersion, relocation and disappearance of common space.

5.3 The intimacy of the Neighborhood Relationship

In order to investigate the characteristics of the intimacy of neighbor relations, this study maps out the spatial range that can be recognized as a neighborhood, the smallest unit of a neighborhood association, and the location of households associated with neighborhood relationships according to the degree of intimacy (Table 6.).

6. Community Activity in the Common Space before and after the Program

In order to examine any changes in community activities such as meetings of the neighborhood association and regular cleanups before and after the program, we needed to look at how much the 72 residents who had lived in the area since before the program started are participating in these activities. The characteristics of the influence that the program made on community activity will be discussed.

6.1 Regular Cleanup

With regard to the status of participation in regular cleanups, the residents (35 out of 72) who participated before the program did not take part in the program (Fig.16.). With regard to the activity contents and organizational changes during regular cleanup, it was discovered from an interview with three heads of a neighborhood association that most residents cleaned the common space that they used voluntarily, but the cleanup of the whole district was done regularly more than once a month by members of the Housewives' Club (12~16 members) or the Elder's Club (12~14 members) (Fig.17.).

6.2 Meeting of Neighborhood Associations

With regard to participation in meetings of neighborhood associations, most residents (66 out of 72) participated in the meeting before and after the program. In addition, new young residents from outside the district moved into the multi-family housing, which was built after the road repairs and removal of housing for the program. Also, the membership of the associations is increasing and the organization is changing (Fig.18.) (Fig.19.). The monthly meeting of neighborhood associations was held at location No. 11 (the well) before the program. After this location was removed due to the road repairs, the meeting was held in two places, No. 2 and No. 5.

In reviewing the changes of community activity in the common space before and after the program, it can be seen that participation in the cleanup and the number of members participating has decreased since the program began. This phenomenon is due to the involvement of the newly organized Housewives' Club and Elders' Club, which, since the program, have taken over the work, decreasing the need for participation of individual residents. The fact that most residents participated in the meetings of neighborhood associations held in the common space before and after the program indicates that the meetings play an important role as a forum to maintain communication and pass on association matters among neighbors.

7. Conclusions

This study examined remaining and changing characteristics of the residential use of the common space and the neighborhood relationship before and after the program in one district in Busan, Korea where an on-the-spot improvement of the housing environment amelioration program in hillside high-density areas was carried out. The results of this research were as follows.

1) Currently many residents (61 people, 90.2%) are using the common space with less frequency. Before the program, many residents (35 people, 48.6%) used it every day, but after the program, most residents (43 people, 59.7%) use it two or three times a month, indicating a tendency towards decreased participation. Residents who have lived in the area more than 20 years use the common space less frequently because the use itself has changed.

2) The types of perimeter with an extended neighborhood relationship (Type-C and Type-E) are decreasing in numbers, but the type with a narrow relationship (Type-D) is increasing.

3) A well, which was the main common space in the district before the program and which was used by many residents, was removed due to the repair of roads for the program. Also, six common spaces were used
before and after the program that were influenced very much by the program and went through changes such as increased size (three places), renovation (one place), relocation (one place) and dispersion (one place).

4) Regular cleanup tended to be carried out collectively by members of the Housewives' Club and the Elders' Club. These groups were newly organized after the program.

More people have been participating in the meetings of the neighborhood association since the end of the program. Many residents participated in the meetings held in the common space before and after the program, contributing to the formation and inheritance of the neighborhood association among the residents. As mentioned above, it was discovered that in the program of this specific district, when repairing the public infrastructure was prioritized, it had a big impact on the use status of the common space and neighborhood relations. It is especially evident that, due to the fact that most residents participate in the meetings of the neighborhood association held in the common space, the common space plays an important role in nurturing interdependent relationships.

In the future, in conducting on-the-spot improvement programs in housing environment amelioration in hillside high-density areas, it will be necessary to review the use status of the common space and the neighborhood relationships when repairing the common space, and to have a plan that considers how to maintain and develop the neighborhood relationships.

Notes

1. It is intended to systematically repair where functional recuperation is necessary or the living environment is poor, and to set provisions for efficiently improving deteriorated buildings; by doing so, the urban environment is enhanced and the quality of the housing environment is heightened.

2. It is a city plan project of the temporary management law concerning the housing environment amelioration program for low-income residents. The purpose of the project is to improve residential environments in slum areas. For example, it is planned to build houses, to improve building conditions, to arrange public facilities, to develop income sources, etc. At first, 13 districts were selected considering the neighborhoods in Busan in 1990. In 2001, 110 districts are under reconstruction through the on-the-spot improvement program, 13 districts with the apartments housing construction program, while seven districts are under both programs.

3. Demolition and relocation program is applicable to the following situations, under the circumstances to which the resident agrees:
   1) Areas where the contact rate of the house (where the house is adjacent to the road by more than 4m) is lower than 50%.
   2) Areas where more than half of the area is composed of lots smaller than 20m².
   3) Areas where the on-the-spot improvement program or apartment housing construction program are not deemed effective.

4. Reference 2 and 3.
5. Reference 4.
6. Reference 5.
7. Reference 6.
8. Reference 2 and 3.
9. Reference 6.
10. Reference 7.
11. Reference 1.
12. An administrative district in Korea consists of Do, City (Special City, Wide City, and City), Kun, Eup, Myun, Dong and Ri according to population size. Dong is the minimal administrative district of the City and Ku. Busan (Wide City) consists of 14 Ku, 1 Kun, 218 Dong, 3 Eup, and 3 Myun.
13. A 1:1,000 scale digital map of 2005 was used.
14. Before the program, many residents gathered around the well and used it for multi-purposes such as doing housework or often holding small fetus. After the program, cooking is not prohibited in the common space, thus the usage has changed.

15. It was discovered from an interview with three heads of a neighborhood association.
16. The increased size of the common space was reconfirmed after comparing the map of the subject district based on the interview contents of the residents.
17. An increasing number of people have used the gazebo since it was built during the program.
18. Gazebo (Jeong-ja): Jeong, the first Chinese character means "a house built in a place with beautiful scenery for entertainment. Jeong-ja, Korean gazebo, has a combined function of viewing beautiful scenery and of resting, playing and partying in general. However, the gazebo in this subject district is a facility that is built for the residents according to their wishes when carrying out the housing environment amelioration program after the district office gave permission and ordered it to be built under the enforcement of the program.
19. The meeting of the Neighborhood Association: The legal foundation of the monthly meeting and the organizing of the neighborhood association of housewives or householders that make up an association, the last unit of administrative unit, is in the regulation of establishment of si-gun-dong-ban administrative units, instituted by legislation of the provincial law. This meeting began in 1976 as an organized monthly meeting like today. The current meeting is composition of 25 households on average nationwide. In rural areas one association is composed of a unit of a natural village and in urban areas of 20 to 30 households considering the neighborhood. The social function of this meeting is (1) to develop mutual friendship and help each other, (2) to pursue the development of a local community voluntarily, (3) to foster autonomy and practice and educate democracy, (4) to promote and educate about government policy, (5) to ascertain the condition of streets and residents' needs and convey them to the government administration and (6) to prevent crimes and search for and guide criminals who are threatening public security. In the researched district, there are currently four neighborhood associations.

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