

A Planning Direction for the Re-development of Deteriorated Residential Areas in Korea

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Abstract

Ultimately, in addition to socio-economic transformation according to a low-rise residential policies paradigm, an overall comprehensive physical improvement is essential. Hence, this research discussed the status of residential environment renewal amid discharged public bodies and community organizations in housing re-development districts, as well as the challenges and characteristics, in order to propose a modular system for future improvement.

From Seoul's 15 designated areas for residential environment improvement projects and residential renewal districts, reformation districts with the most potential are narrowed to ten (1 to 10) residential areas that have the most need for improvement. From this field, Case number ⑦ Bon-Dong (number 434-3) and ⑧ SangDo-3-Dong (number 286) were targeted as ideal representatives based on their conditions.

Keywords: low-rise residential; residential environment improvement program; renewal; regeneration; modular housing

1. Introduction

The maintenance of existing residential houses, particularly in low-rise residential areas, can be demonstrated through the examples of dense dwellings, such as single-detached houses, townhouses, and multi-family houses. In a general remodeling situation, restoring and improving an immediate deteriorated environment revitalizes the quality of low-rise residential units; thus, the plan to reconstruct apartments has been widely accepted.

However, the existing residential housing maintenance plan is creating numerous problems, which can be attributed to the following factors: obsolescence of urban tissues, housing type uniformity, urban landscape damage and uniformity, rapidly increasing rent in housing marketing, a low resettlement rate, breakdown of the existing community, the feasibility of high-density housing, and real estate market recession consequent to the decreasing profitability of the renewal system.

Consequently, the maintenance plan for low-rise residential housing must be investigated, as the community debate on the revitalization of comprehensive housing re-development districts is currently brewing. Therefore, this study aims to propose future directions for improving and identifying potential sites for the residential environment

improvement project from those released as public bodies in housing re-development districts.

2. Predicaments Arising from the Implementation of the Residential Environment Improvement Program and the Housing Re-development District

2.1 Needs of Residential Environment Renewal Projects and the Situation

In Europe, government-led policies and planning approaches have been established to sustainably maintain and develop the deteriorated environments of low-rise urban residential areas.

For example, in France, Renewal Projects are actively carried out through the 'National urban renewal program (Programme national de rénovation urbaine, PNRU)' and 'National Program for Neighborhood Regeneration in Degraded Areas (Programme national de requalification des quartiers anciens dégradés, PNRQAD)' under the 'Law on solidarity and urban renewal (Loi relative à la solidarité et au renouvellement urbain, SRU)'.

In Germany, with Neighborhoods Management (Quarter Management, QM), various efforts on improving the quality of life have been made under the motto of "Let more people live in a less dry (cement) Environment."

In Japan, because of the problems caused by aged buildings, renewal and proper management of the existing housing stock has become a major issue. The Ministry of land's Urban Improvement Projects which improves the quality of residential life and renewal of old residences, are becoming diversified because of the increase in deteriorated mansions and empty housing stock due to population decline, safety issues of old

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wooden houses and seismic equipment and the aging of the baby boom generation before and after 1948.

2.2 Designation of Residential Environment Renewal Project in South Korea

Enacted in 2002, the Urban and Residential Environment Improvement Law terminated urban development business, which dedicated its mass supply to retirement homes in order to enhance systematic administration after 1970.

The activities of the residential environment improvement project - improvement of housing areas, housing re-development, and housing reconstruction - resulted in a more comprehensive urban environmental improvement project. The improvement law for housing renewal was extended in order to include the improvement of squatter settlements in neutral and aging residential housing areas.

Currently, the residential re-development project comprises three stages. The three stages of the project were implemented in 2014, focusing on excluded areas due to budget limitations and collapsed areas consequent to accelerated decay during the first and second stages. Such areas centralize dilapidated residential areas to create projects that can potentially reduce civic and public space by expanding public infrastructure to provide an effective community environment.

However, the impracticality and unfeasibility of the plan implies that despite being designated as districts needing residential environment revitalization, these areas have been neglected over a long period of time and moreover, treated as a cavity in the surroundings.

According to the re-analyzed data (Table 2.) from the 'Ministry of Land, Infrastructure and Transport and Statistics', Seoul's residential environment improvement project has progressed flawlessly since 2008, particularly without any new designations.

Ironically, only one project has been fully completed after the results from 2011. Furthermore, 31 businesses remain in 2013, 23 of which are projects that have

Table 1. Residential Environment Improvement Projects

Project	Definition
Improvement of Housing area	Regeneration infrastructures, where the residences of urban low-income-residents are living, are severely weakening; also, enforcement on deteriorated squatter houses that are excessively dense is developed amongst residential environmental areas.
Housing redevelopment	To improve the residential environment for regeneration infrastructures that are declining as well as to renew deteriorated squatter houses.
Housing reconstruction	To improve the residential environment for deteriorated squatter houses that are in an adequate regeneration infrastructure condition.
Urban Environmental Improvement Project	To recover urban functions by effective land use throughout urban and suburban areas involving commercial and industrial sections; or to improve the urban environment where commercial activation is necessary.

Reference: [Urban and Residential Environment Improvement Law] - Article 2 Part 2 in table format)

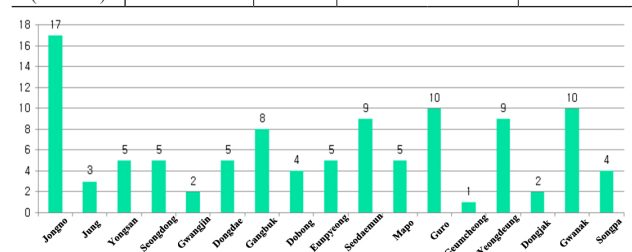
Table 2. Status of Residential Environment Renewal Projects

Type Division (Seoul)		'06	'08	'10	'12	'13
Area Designation	Number of Areas	106	104	104	104	104
	Number of Housing	37.8	37	37	37	-
Project Designation	Number of Areas	68	58	58	32	31
	Number of Housing	27.4	21	18	10.8	-
Project Completion	Number of Areas	36	46	54	72	73
	Number of Housing	10.2	16	19	26.2	-

Reference: Reanalysis based on databases of the Ministry of Land, Infrastructure and Transport's trials of residential environment renewal projects

Table 3. Number of Renewal Projects

Type Division	Masterplan Planned Area (Discharged Area)	Residential Environment Improvement Area		
		Sub total	Processing More than 15 years Less than 15 years	Completed Project
Area Zone	19	104	23 8	73
Area Dimension (1000m ²)	182	1,850	403 209	1,238



Reference: The first 2013 Interior Seminar "How will Small Sized Rental Housing be Supplied?", 26th of November 2013, DongJaku Council Urban Development, refer to HaeSeok Lee's competent presentation)

been prolonged beyond 15 years (refer to Table 3.). Consequently, of the 123 areas designated for projects under the Urban and Residential Environment Improvement Law, 50 re-development projects were hindered, including 19 off-areas and 31 uncompleted projects, thus indicating a 40% effectiveness ratio.

2.3 Limitations of Designating the Residential Environment Improvement Program

Maintenance of areas, as part of the residential environment improvement program, and designation of housing re-development districts increased the speculation of property marketing of land areas, which impeded the project. Despite being propagated as housing re-development districts, in some cases, the promotion committee and community took a long time or failed to implement such activities. This, in conjunction with the doubtful project feasibility, resulted in poor processes in certain areas. Additional limitations to designating areas for the residential environmental improvement program can be seen in Table 4. Ultimately, to improve such circumstances, districts should be designated for renewal.

Table 4. Delimitation of Designating Housing Redevelopment District

Problems	Details
Designation of Redevelopment District	Frequent conflicts generated from resident privacy and government between residents. Complications arising from speculation against the real estate market, exploiting it as a means of multiplying property.
Settings of Indicators	Methodology of relevant law for maintenance area is not established. (A need to create a systematic process for establishment of index is evident.)
Tenant Protection	There are no compensation provisions for new tenants. Elimination of new tenants from the main participant is required.
Deregulation of Construction	Causes created from schemes of development gains being oriented toward various exemption regulations of building codes (coverage ratio, FAR, storey limitation etc). Overload of urban infrastructure is placing weight on daily inconvenience, raising the urban emptiness phenomenon from property
Prolongment of Project	Lengthening the decision-making period is demanded to conclude the project scheme for the undeveloped business target area.
Project Review	The price of Land has steadily risen, causing information disclosure to deepen through the organization of the local government. Thus, a review of the project was demanded.
Propulsion System	Low standard of living with low-income and inexperience for business heightens the dependence on homebuilders; however, effective improvement is not able to proceed. Problems are created from the redevelopment formula, which deals with compensation, demolition costs, damaged sense of place, and incongruity of the surrounding terrain.

2.4 Discharged Areas in Program

Development of single, small-scale housing has been enhanced as a result of Seoul's remodeling and maintenance development models. According to the 2011 "5th re-development project progress report," 31 areas were selected as designated areas from 314 re-development districts. This relocation of districts into discharged areas continues.

Table 5. Status of Discharged Areas of Housing Redevelopment District

Notice Date	2011. 09.01	2012. 11.22	2013. 01.31	2013. 04.18	2013. 06.20	2013. 08.01	2013. 09.05	2013. 11.21
Notice Number	2011 -251	2012 -313	2013 -26	2013 -117	2013 -193	2013 -253	2013 -288	2013 -382
1	3	3	-	1	2	4	3	-
2	15	-	-	-	-	-	-	-
3	13	5	17	5	-	1	7	1
4	-	2	1	1	-	1	1	-

1. Housing redevelopment district
2. Residential environment improvement program and housing redevelopment district
3. Housing reconstruction district
4. Maintenance Area

Reference: Seoul Times Article No. 3065(2011.9.1.) ~ No. 3218(2014.2.20.)

The newly designated re-development districts have obstructed the system itself in the long term, and residential areas are to be administrated as a comprehensive management plan. An optimistic focus is to be active in the restricted areas as well as in the areas needing substantial maintenance in order to

minimize the possible side effects that can arise during the designation of re-development districts.

Therefore, development approaches for large-scale discharged areas, such as apartments, are abandoned. In addition, a plan for reactivation is needed for a development approach for single or small-sized housing in order to ensure a diverse maintenance model. In addition, citizens must approve of an effective re-development approach in order to resolve conflict as well as mitigate residential instability with regard to housing in the re-development district.

Table 6. Residential Environment Renewal amid Discharged Areas in Housing Redevelopment District

Maintenance Type	No.	Area Size (ha)	FAR (%)	Stories
Redevelopment	01	0.7	190	12th
	02	0.6	210	-
	03	0.5	210	-
	04	0.7	210	-
	05	0.8	210	-
	06	0.7	300	-
	07	1.1	210	-
	08	0.3	190	12th
	09	0.4	190	12th
	10	0.6	210	-
Rehabilitation	11	0.5	170	7th
	12	3.7	170	3th / etc
	13	1.0	170	3th / etc
	14	0.9	170	7th
	15	0.9	190	12th

2.5 Seoul's Predicaments with Regard to Implementation

After 2011, 15 areas in Seoul have been designated as remodeling-type housing re-development districts. These areas can be categorized into different types of renewal approaches: 10 are earmarked as re-development regions and 5 as rehabilitation regions.

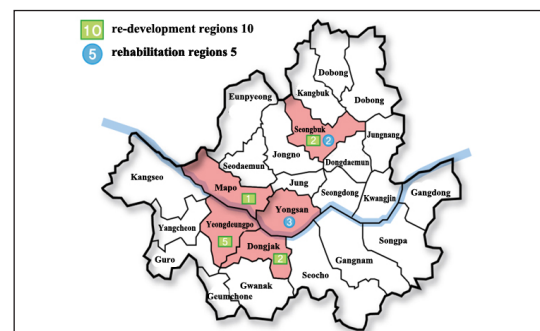


Image 1. Residential Environment Renewal amid Discharged Areas in the Housing Redevelopment District of Seoul

(Reference: UFEC wenzin Oncity, 25. April 2011)

Seoul's minor zonings, including single, small-scale development areas, constitute a land area of less than 10,000 m² (1 ha). This is a challenge, as Seoul's major zones are densely populated. These zones include YeongDeungPo-gu, SeongBuk-gu, YongSan-gu, DongJak-gu, and MaPo-gu. Prerequisite data for the upcoming status update of the 2013 designated

residential environment renewal areas is detailed in Table 6. These areas were discharged from the renewal district during its initial phase, which complicated community costs and also put demands on formerly promoted projects, thereby upsetting the newly formed programs. Further, accommodating either all or partial land and architectural elements, a curtilage was formed after restoration within the maintenance of the developing area. The initial development approach for this type of joint dwelling was to construct multi-family housing supplied by the landowner. However, this action was objected to and faced numerous difficulties in comparison with the more promising restoration development. Furthermore, designated residential environment renewal communes — urban structures in small, densely populated areas — also face difficulties. This method is stimulating new projects with regard to discharged areas. In addition, even when new practices stimulate re-development, conflict between landowners complicates construction. Among such controversy, the most substantial issue is delayed action, which affects residents.

However, projects in which intermediate stage procedures have been implemented are said to be public body actions. Essentially, 12 projects have already modified their development project type, for example, as urban development, private residential, or urban park projects, thus creating confusion when reallocating re-development renewal districts.

3. Necessity of Reformation Regarding Designated Areas of Residential Environment Improvement Areas

3.1 Selected Target Areas and Destinations

From Seoul's 15 designated areas for residential environment improvement projects and residential renewal districts, reformation districts with the most potential are narrowed to the ten (1 to 10) residential areas that have the most need for improvement.

Then, the range of regions was limited to second- and third-stage residential areas (1, 7, 8, 9, and 10) urgently needing maintenance and improvement, which are not categorized as sub-industry or semi-residential districts. From this field, case number ⑦ Bon-Dong (number 434-3) and ⑧ SangDo-3-Dong (number 286) were targeted as ideal representatives based on their conditions. These districts comprise deteriorated low-rise residential housing: a second-stage residential area (below 12 stories) and third-stage residential area, respectively (⑦ Bon-Dong and ⑧ SangDo-3-Dong). The first stage of the residential environment improvement project has come to a standstill.

3.2 Status of 'the Residential Environment Improvement Program' in the Targeted Area

Autonomous districts became practical development agencies and enforced residential environment improvement by expropriating land. On June 25, 2004, the two areas in DongJak-gu were designated as re-development districts for the residential environment improvement program.

However, as the neighboring region was being re-developed at the time, the two projects were combined. This complicated the implementation of the residential environment renewal project in the targeted areas. In addition, DongJak-gu had a higher number of re-developed areas than did other areas. For example, SinDaeBang-Dong and HeukSeok-Dong were each benefactors of a residential environment improvement project in 1973, which was completed in 1993. Meanwhile, there were no plans to select the targeted area until 2004. Consequently, it was difficult to obtain approval for the proposal. In 2010, the targeted areas established a basic plan for the adjustment of the urban and housing environment in order to designate areas for scheduled maintenance in 2011. However, small-scale self-development programs are still a challenge that the targeted areas cannot address, which confirms its restrictions.

Table 8. Status of Discharged Areas in Housing Redevelopment District of DongJak-gu in Seoul, South Korea

⑦ DongJak-gu Bon-dong 434-3	
   	<ul style="list-style-type: none"> · Project: Bon-dong Residential Environment Renewal Project District · Project Stage: Stage 1 · Site: DongJak-gu Bon-dong, No. 434-4 community · Area Dimension: 1.1ha (10,336m²) /· FAR: 210% · Coverage Ratio: 50% · Zoning Status: Third case general residential area · 2010 urban residential environment maintenance plan, notice 2004.6.25 · 2011.9.1. maintenance area discharged (Type: Redevelopment)
⑧ DongJak-gu SangDo-3-dong 286	
   	<ul style="list-style-type: none"> · Project: SangDo-dong Bon-dong Residential Environment Renewal Project District · Project Stage: Stage 1 · Site: DongJak-gu SangDo-3-dong 286, No. 301 community · Area Dimension: 0.3ha (2,953m²) · FAR: 190% /· Coverage Ratio: 50% · Zoning Status: Second case general residential area · 2010 urban residential environment maintenance plan, notice 2004.6.25 · 2011.9.1. maintenance area discharged (Type: Redevelopment)

Reference: Analysis of August 2013 Field Survey and 1st 2013 Seminar "How will Small Sized Rental Housing be Supplied?", 26th of November 2013, DongJak-gu Council Urban Development, refer to HaeSeok Lee's competent presentation/Indivis

3.3 Characteristics of Targeted Areas

A re-development–reconstruction development assessment indicates that the two-targeted areas do not have the capacity to implement activities. Small-

Table 7. Status of Residential Environment Renewal amid Discharged Areas in the Housing Redevelopment District of Seoul

1	신공덕동 5번지 일대			2	양평동3가 78-3일대			3	당산동5가 75일대		
	Second case general residential area Hills, deteriorated low-rise residential				Semi-Industrial area Flat land, deteriorated industrial complex				Semi-Industrial area Flat land, high-rise residential		
4	당산동 4가 1-145일대			5	당산동4가 1-61일대			6	영등포동8가 46일대		
	Semi-Industrial area Flat land, high-rise residential				Semi-Industrial area Flat land, high-rise residential				Semi-Residential area Flat land, low-rise residential		
7	본동 434-3번지 일대			8	상도3동 286번지 일대			9	경동동 559-46번지 일대		
	Third case general residential area Flat land, deteriorated low-rise residential				Second case general residential area Hills, low-rise residential				Second case general residential area Hills, deteriorated low-rise residential		
10	동소문동3가 60번지 일대			11	원효로4가 135번지 일대			12	용산동2가 1번지 일대		
	Third case general residential area Flat land, low-rise residential				Second case general residential area Flat land, deteriorated low-rise residential				First case general residential area Flat land, low-rise residential		
13	용산동2가 5번지 일대			14	성북동 109-13번지 일대			15	동소문동1가 97-1번지 일대		
	First case general residential area Flat land, low-rise residential				Second case general residential area Hills, low-rise residential				Second case general residential area Hills, low-rise residential		

Reference: Based on investigation analysis of observation of the target areas from Table 5 and status analysis through inquiries to its relevant council <http://map.naver.com/> and <https://www.google.co.kr/maps/preview>

scale development systems are characterized by insufficient infrastructure maintenance and facilities. Thus, planning a land-use scheme does not make much sense. Despite SangDo-3-Dong's site area, measuring approximately 3,000 m², the number of households totals 86. Therefore, it is difficult to get residents to agree to a project promoting the area's selection as a housing re-development district for the residential environmental renewal project. Moreover, excess development of the surroundings is damaging the environmental quality of housing, forcing residents to avoid structural improvement. On the other hand, a positive view of reformation toward multi-family housing is steadily increasing.

Essentially, the first stage of the residential environment renewal is the source of a prolonged project. The two areas should focus on the fact that SangDo-3-Dong is sloped, whereas Bon-Dong has a low-level foundation. This is important because small-scale dwellings experience challenges when the given site foundation peaks from a firm horizontal alignment (pertaining to architectural orthopedics). Undoubtedly, challenges for implementing the plan intensify when the site has a hilled topography.

In January 2013, the Minister of Land, Transport, and Maritime Affairs (MLTM) standardized Bon-Dong's targeted households to 172 and SangDo-3-dong's households to 86. Adjusted to roadside

Table 9. Age Group and Population Ratio of Target Areas

Type Division	Unit	Total Population	Age Group						
			10 and below	10s	20s	30s	40s	50s	60 and over
⑥ Bon-dong	Total	409(100)	34(8)	37(9)	65(16)	76(19)	63(15)	63(15)	71(17)
	Male	204(100)	17(8)	20(10)	35(17)	39(19)	33(16)	29(14)	31(15)
	Female	205(100)	17(8)	17(8)	30(15)	37(18)	30(15)	34(17)	40(20)
⑦ SangDo-3-dong	Total	210(100)	16(8)	21(10)	32(15)	41(20)	32(15)	30(14)	38(18)
	Male	103(100)	8(8)	11(11)	16(16)	21(20)	16(16)	14(14)	17(17)
	Female	107(100)	8(7)	10(9)	16(15)	20(19)	16(15)	16(15)	21(20)

Reference: Evaluation of age group population ratio commercial analysis of: The Small Enterprise Development Agency. (Feb. 2013 source)

Table 10. Household and Population of DongJak-Gu

Administration Area	Household	Population	Household Population
NoRyangJin-1-dong	14,383	34,417	2.39
NoRyangJin2dong	7,584	15,728	2.07
DeBangdong	15,650	40,415	2.58
SaDang1dong	11,094	23,395	2.10
SaDang2dong	12,115	29,509	2.43
SaDang3dong	10,404	26,139	2.51
SaDang4dong	6,357	15,195	2.39
SaDang5dong	6,303	15,443	2.45
SangDo1dong	18,588	45,491	2.44
SangDo2dong	11,037	25,893	2.34
SangDo3dong	10,064	24,719	2.45
SangDo4dong	11,952	29,757	2.48
SinDaeBang1dong	10,073	26,146	2.59
SinDaeBang2dong	8,390	21,161	2.52
HeukSukdong	15,299	35,083	2.29

Reference: Reanalysis of The Small Enterprise Development Agency Datum.

alignment, SangDo-3-Dong comprises residential buildings, whereas Bon-Dong's re-development involves neighboring facilities (e.g., stores) and partly includes multi-family housing, which mostly includes single house dwellings. The population household ratio in these target areas, with reference to Table 10., is 2.37 (409/172) for Bon-Dong and 2.44 (210/86) for SangDo-3-Dong. When compared to Table 11., an average value of the local area can be studied. Both Bon-Dong and SangDo-3-Dong have the highest population of those in their thirties and females in their sixties or older. Overall, the population density of Bon-Dong and SangDo-3-Dong is greater than the national population density, especially Seoul's population density. Specifically, the population density in SangDo-3-Dong is 3.10 times that of Seoul, which is 1.80 higher than the density of DongJak-gu. Despite the high population density, most residents are asking for an alternative to the residential environmental renewal development, as their houses are dated and aged.

4. Planning for Reproduction of Aged Residences

A plan for the analyzed target destination must consider the appropriate sites for small-scale set-housing block units on either sloped or flat topography. To satisfy the resettlement of existing residents and households, the plan should construct neighborhood commercial facilities on the lower levels as well as residential rental housing on the upper levels. Consequently, one benefit

could be an affordable rental housing development appropriate for residents' incomes. As such, long-term procedures for the renewal of old residences can be mapped by concurrently arranging economical rental housing and utilizing a modular system.

First, an appropriate module for target areas should be calculated. To do so, a Unit Module is selected according to residential type, thus providing various types of units. South Korea is already producing effective housing "shells" from containers, such as the Yeongdeungpo jjokbanchon modular housing and Cheongdam-Dong MUTO. Therefore, considering only the underlying principles of unit divisions, diverse materials for housing shells and residential types can be arranged.



Image 2. Yeongdeungpo Jjokbanchon Container Housing and Cheongdam-Dong MUTO (photo by the Author, 2013)

Second, the unit division determines the form of the residential building palette. Depending on the characteristics of the plan, a modular system (Formation of Prefab) can be applied in conjunction with the

existing reinforced concrete elements. When adopting residential building forms, the layout of permanent and flexible spaces can be differentiated according to the vertical and service circulation. Recently in the United Kingdom, the Netherlands and Germany as well as in Japan, China, Australia and New Zealand etc, various directions of Modular Housing have been suggested such as the appearance of lots of cases and foundation of associations etc.

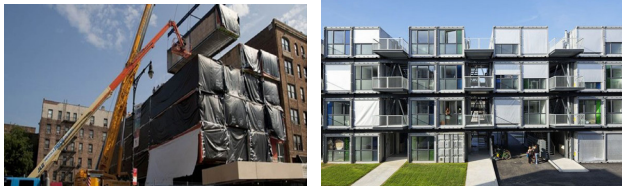


Image 3. Modular residential Building in upper Manhattan and Hostel Students from Container in Le Havre, France
(Photo by Buck Ennis, 2012 / Photo by the Author, 2013)

Third, a plan to organize a community facility, hence, internal facilities under the legal system section (institutional) within the building block site plan, should be undertaken. Community facilities are often lacking in rental housing. However, the condition of outdoor rest spaces, sports recreation facilities, and car parks must at least be restored to a minimum standard.

Fourth, estate development system packages can be studied. These can be categorized as multi-residential housing (townhouses), and further as courtyard- (block type), straight, and parallel (urban townhouse type). Various models can be suggested corresponding to the number of stories, module units, and a combination of these. (Yoo, 2010) In addition, there are general characteristics to consider.

Table 11. Categorized as Multi-Residential Housing

Division		Institutional basis	Characteristic
A Stand-alone Type		Multifamily Duplex house	Existing re-development method
B Court yard type	Stand-alone	More than 660m ²	Placed on maintaining the courtyard form
	Block type	Less than 660m ²	
		More than 660m ²	Structure of the core-type or corridor planning
C Linear Type	Back trowelling	Less than 660m ²	Similar types of low-rise public housing
		More than 660m ²	
D Parallel type	Back trowelling	More than 660m ²	Individual parcels compartment
	Combination	More than 660m ²	

Reference: Haeyon, Y. (2010) *A Planning Study of Small-Unit Low-Rise Residential Block for the Urban Regeneration*, Seoul National University (doctorate thesis), Seoul, p182

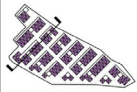
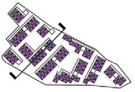
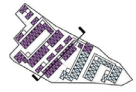
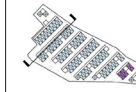
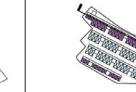
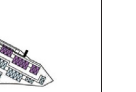
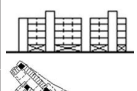
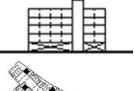
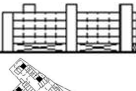
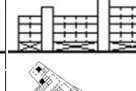
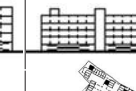
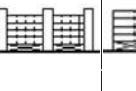






5. Conclusion

To consolidate the social, economic, cultural, and physical contexts of South Korea's 2013 low-rise residential housing units, the "Urban Renewal Activation and Special Law Support" was enacted in order to regenerate neighborhood renewal. With the support of the Ministry of Land, Infrastructure and Transport and LH Construction, policy-based housing welfare is provided through the integration of happy house, nest housing, and mortgage policy. In addition, physical improvement is dually sought from such policy infrastructure. For example, Seoul's SH Construction proposed developing an affordable rental residential institution for tertiary students called "Urban Resident Housing" and "Human Town," which were followed by "Housing of Hope."

Table 12. Example : CASE 7 (DongJak-gu Bon-dong) _ Floor Area Ratio 200%

Division		A (Stand-alone)	B (Courtyard Type)		C (Linear Type)	D (Parallel Type)	
		Basic Type	B1 (Stand-alone Type)	B2 (Block Type)	Back trowelling type	D1 (Back trowelling Type)	D2 (Combination Type)
Stories	F	5F	5F	4-5F	5F	4-5F	4-5F
Building Area	m ²	5,963	5340.8	6,233.87	5,918.4	6,071.92	6,475.04
Building Coverage Ratio	%	49.45	44.29	51.70	49.08	50.36	53.70
Total Floor Area	m ²	23,852	21,363.2	23,980.76	23,673.6	24,107.68	24,098.56
Floor Area Ratio	%	197.82	177.18	198.89	196.34	199.94	199.87
Parking (total)	vehicles	369	329	336	335	362	403
household/parking	vehicle	0.63	0.57	0.57	0.70	0.64	0.76
Unit – House-holds	4m×4m	100	103	0	44	167	12
	8m×4m	468	484	476	520	297	132
	8m×8m	0	0	0	0	48	12
	8m×12m	0	0	0	0	16	12
	Total number	584	568	587	476	564	528
Master plan (includes parking)							
Site section							
Parking and 1st Floor Plan							

Table 13. Example : CASE 8 (DongJag-gu SangDo-3-dong) _ Floor Area Ratio 200%

Division		A (Stand-alone)	B (Courtyard Type)		C (Linear Type)	D (Parallel Type)	
		Basic Type	B1 (Stand-alone Type)	B2 (Block Type)	Back trowelling type	D1 (Back trowelling Type)	D2 (Combination Type)
Stories	F	5F	5F	4-5F	4-5F	4-5F	5F
Building Area	m ²	2,368	2,357.2	2,650.35	2,638.4	2,788	2,417.82
Building Coverage Ratio	%	48.52	48.30	54.31	54.06	57.13	49.54
Total Floor Area	m ²	9,472	9,428.8	9,714	9,718.4	9,660	9,671.28
Floor Area Ratio	%	194.09	193.21	199.05	199.14	197.95	198.18
Parking (total)	vehicles	137	158	161	157	152	157
household/parking	vehicle	0.59	0.71	0.68	0.61	0.65	0.93
Unit _ House-holds	4m×4m	32	8	18	37	56	12
	8m×4m	200	212	216	219	177	132
	8m×8m	0	0	0	0	0	12
	8m×12m	0	0	0	0	0	12
	Total number	232	220	234	256	233	168
Master plan (includes parking)							
Site section							
Parking and 1st Floor Plan							

Ultimately, in addition to the socio-economic transformation according to a low-rise residential policies paradigm, an overall comprehensive physical improvement is essential. Such a tendency is also seen in developed countries, not only in Korea. To conclude, this research discussed the status of residential environment renewal amid discharged public bodies and community organizations in housing re-development districts, as well as the challenges and characteristics, in order to propose a modular system for future improvement. In the future, a fundamental necessity to solidify and specify a planning process must be emphasized, rather than a simple follow-up study.

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