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Emerging Problems of Housing Land Development in Tokyo Metropolitan Area

- Based on Comparative Analysis between Japan and South Korea -

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1.Comparison of Basic Data between Korea and Japan: Population, Land Use and Housing

In discussions about poor housing conditions and the extremely high price of land in Japan, it is often said that "This is because we are in an Asian city," although most of us are not always clearly conscious of the definition of "Asia." Undoubtedly, there are some characteristics common to Japan and Korea in terms of housing situation and land development.

For example, both Japan and Korea possess large North South extension and are surrounded by bodies of water. In contrast to China that has an extremely large land area, we attempt to compare some common physical aspects of human habitation between Japan and Korea.

Both Japan and Korea have less habitable land as mountainous areas account for approximately 70% of their total land areas.

Figures 1 and 2 show characteristics common to the two nations: high population density and less habitable land.

The figures show that Asian countries including Malaysia and Indonesia have much higher percentages of non-habitable land in relation to their total land areas and higher population densities than western countries such as the US, UK and France. Japan and Korea, in particular, have higher population densities than the countries compared.

Table 1 shows changes in the percentage of urban population from 1950 to 2030. Next to Singapore, Korea is expected to have the second highest percentage of urban population by 2030. Indonesia, the Philippines and Korea are predicted to

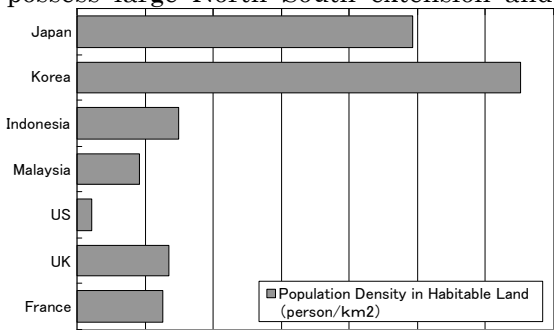


Fig.2 Population Density in Habitable Land of Selected Countries

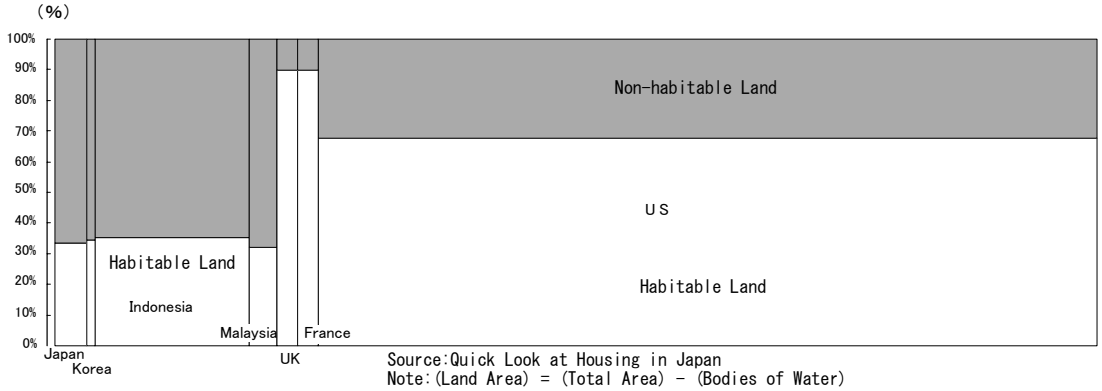


Fig.1 Comparison of Habitable Areas among Selected Countries 1994

show rapid urbanization from 1970 to 2030. Thus, it can be said that Korea is more similar to Singapore than to Japan. In particular, the increase in percentage from 1970 to 1995 is 40.6%, which is not seen in the other countries. In the same period, the Philippines showed an increase that is half that of Korea.

Figure 3 shows the population histograms in 2000 and 2050 of Japan (top) and Korea (bottom). There are two big waves of birth, the so-called "baby boom" in Japan. The number of Japanese ages 50 and 25 peaked in 2000. The former is called "primary baby boom" and latter, "secondary baby boom." In contrast, there is only one wave of birth in Korea from which we predict a marked generation change in 2050: a decrease in the number of people ages 20 to 40 and an increase in the number of elderly ages 60 to 80 or above, the extent of both of which is much greater than that in Japan. This means that the change in housing demand will be much greater in Korea than in Japan. In particular, young householders ages 25 to 40, having an infant or one or two children, will be living in tenements, rented houses or other types of rented houses, and their number is expected to decrease rapidly in the next thirty years.

Figure 4 shows urbanization change in Tokyo and Seoul on the same scale. The years differ for the two countries. In Japan, urbanized areas from 1960 to 1985 are classified as DIDs (densely inhabited districts) as defined by the Ministry of Public Management, Home Affairs, Posts and Telecommunications. According to the definition, there are more than 40 persons living in one DID per hectare.

In other years in Japan (1910, 1929 and 1952), the urbanized areas were drawn based on maps of the Geographical Survey Institute (on a scale of 1 to 25,000). The maps merely indicate the areas in which buildings were constructed.

On the other hand, in the case of Seoul, there is no definition of urbanized areas in

Table1 Percentage of Urban Population:1950～2030

Country	1950	1970	1995	2030
Singapore	100.0	100.0	100.0	100.0
Korea	**21.4**	**40.7**	**81.3**	**93.6**
UK	84.2	88.5	89.2	92.4
Germany	71.9	79.6	86.5	91.7
Australia	75.1	85.2	84.7	88.5
Japan	50.3	71.2	78.1	85.3
US	64.2	73.6	76.2	84.5
Canada	60.8	75.7	76.7	83.5
France	56.2	71.0	74.7	83.2
Italy	54.3	64.3	66.6	76.2
Philippine	27.1	33.0	54.0	73.8
Indonesia	12.4	17.1	35.4	61.0
Pakistan	17.5	24.9	34.3	55.9
China	12.5	17.4	30.2	55.2
India	17.3	19.8	26.8	45.8
SriLanka	14.4	21.9	22.1	41.9
Bangladesh	4.3	7.6	18.3	40.6
Thailand	10.5	13.3	20.0	39.1

*sorted by the rate in 2030

Source: National Institute of Population & Social Security Research

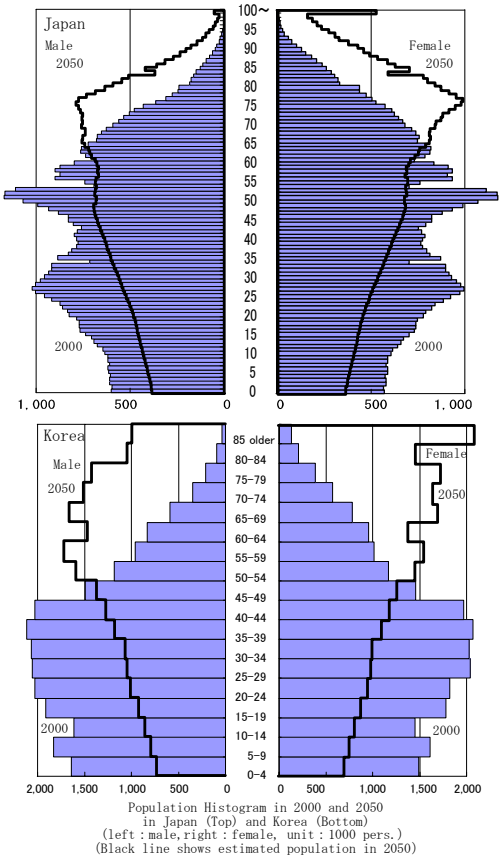


Fig.3 Population Histograms
in 2000 and 2050 (Japan and Korea)

the reference (1). If the areas were drawn as those in which buildings were constructed in the same way as that in the earlier years in Japan, the **figure 4** of Seoul would likely be smaller than that of Tokyo because it is not based on population factor. This must be taken into consideration when the two times series maps are compared.

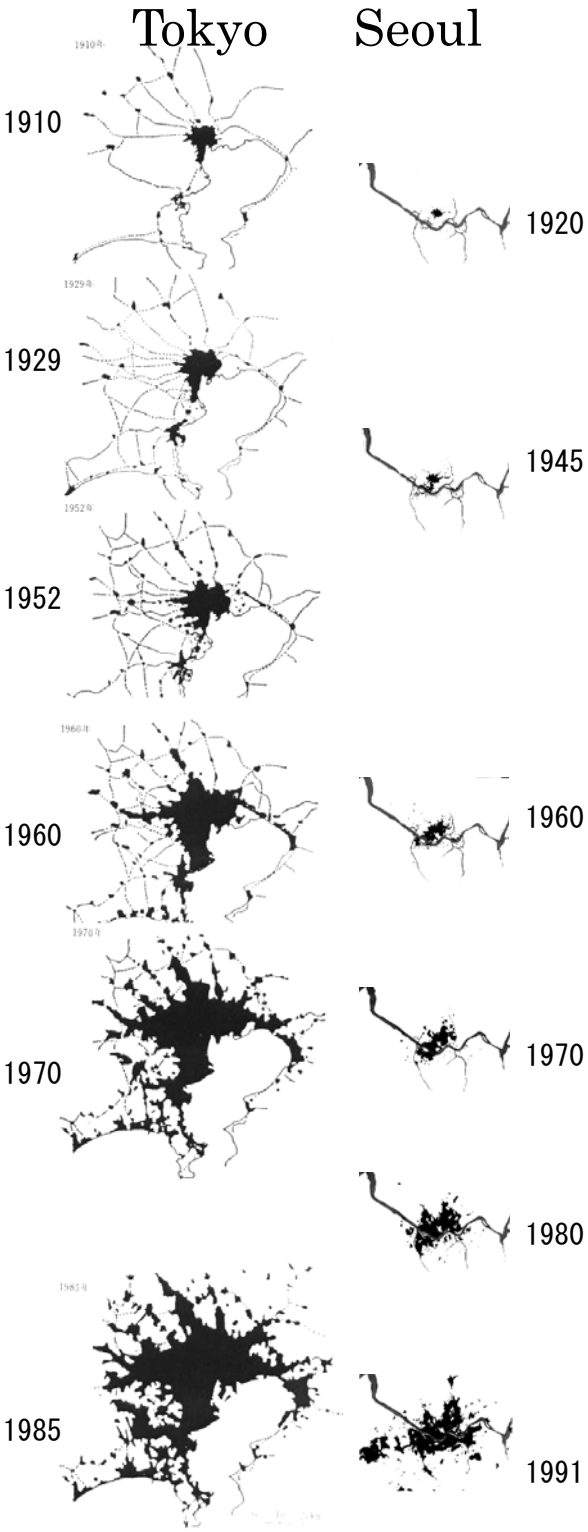
In Chiba, Kanagawa and Saitama Prefectures and the Tokyo Metropolis including western Tokyo, the total population amounts to 31 million. In Seoul, the total population amounts to 10 million. Thus, as far as population is concerned, the scale of Seoul is one-third that of Tokyo.

In Tokyo, there is a huge plain called "Kanto Heiya" that has enabled the development of housing land endlessly along so many railways. It can be said that the population density in Seoul is slightly higher than that in Tokyo because the percentage of total urbanized area in Seoul shown in **Figure 4** seems to be less than one-third of that in Tokyo. The ratio of urbanized areas in Seoul to that in Tokyo is much smaller than one-third. It may be one-fifth or one-sixth, although this is not an exact analysis.

Therefore, we can easily understand the high percentage of urban population and rapid urbanization in Korea, as shown in **Table 1**. Most of the areas in Tokyo may be more densely inhabited if we choose the living conditions of Seoul, namely, the construction of many high-rise apartments exceeding 15 floors.

Haga (1990) analyzed the differences in land use among mega cities in Japan and Korea and reached the following conclusions. His findings are of interest to us in order to know the basic differences among human settlements.

(1) Characteristic common to Japan and Korea: a large number of people settle down in narrow habitable land
(2) Urbanization level in total land area



Source:City Planning Institute of Japan Edit.(1992):Tokyo Daitoshi-ken, Shokoku-sha & Jinai KIM Edit.(1991):Seoul, With All Her Beaties, Seoul Forum Inc.

Fig.4 Comparison of Urbanization Change between Tokyo and Seoul

(not only in major cities) is almost the same.

(3) Urban concentration in a major city, namely, Seoul in Korea, is more eminent than in Tokyo Japan.

(4) Population decrease is greater in rural areas of Korea than in those of Japan.

(5) The total population of several big cities in Korea is larger than that of the same number of cities in Japan.

(6) Local cities in Japan have a larger population than those in Korea.

2. Comparison of Housing Situation

When discussing about housing types in Japan, the basic categories of housing tenure and building type must be taken into consideration. Tenure consists of "owned" and "rented." Building type consists of "detached," "terrace (or tenement in some cases)" and "collective," etc. Fortunately, Japan and Korea have the same kind of housing type; thus, we can compare them in relation to the housing situation.

Table 2 shows the percentage of housing units by tenure in Japan and Korea. The percentage of owned tenure is approximately 40% in both countries. Categories other than owned tenure are grouped into rented tenure; thus, the percentage of housing units is 40% for owned tenure and 60% for rented tenure. This characteristic is common to the two countries.

Figure 5 shows building types in Tokyo and Seoul as housing stock. Whereas "row house" in Seoul is defined by the number of floors, there is no such definition in Japan. Therefore, it is slightly difficult to compare the building types. Nevertheless, the number of detached houses is available for

Table 2 Housing Units by Tenures in Tokyo and Seoul

Japan *1 Tenures	Tokyo Metropolis 1998		Korea*2 Tenures	City of Seoul 1995	
Owned	1,782,500	*43.3%*	Owned	1,178,893	*39.7%*
Privately Rented	1,723,400	*41.9%*	Tenement	1,300,169	*43.8%*
Public Rented (Public Housing)	227,200	*5.5%*	Monthly Rent with Deposit	401,735	*13.5%*
Public Rented (Corporation Housing)	183,000	*4.4%*	Monthly Rent without Deposit	42,987	*1.4%*
Issued houses	197,500	*4.8%*	Freehold	42,010	*1.4%*
Total	4,113,600	*100.0%*	Total	2,965,794	*100.0%*

*1 MPMHAPT(1998): Housing and Land Survey
*2 City of Seoul (2000): The Seoul Statistical Yearbook

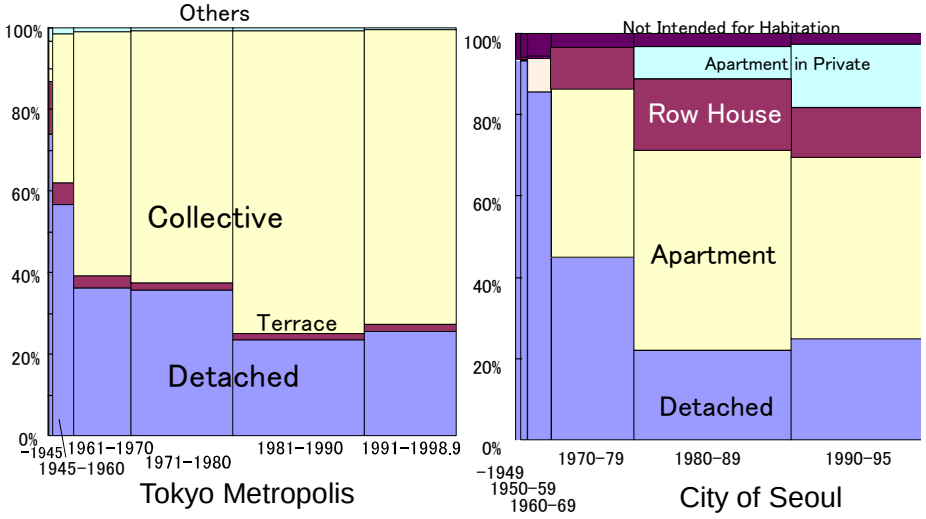


Fig.5 Percentage of Housing Units by Year of Construction and by Building Type in Tokyo and Seoul (Stock)

comparison between the two major cities.

When discussing the number of housing units by year of construction in the two major cities, it can be said that comparative analysis is possible.

In Korea, more than 90% of the housing units were built after 1950, that is, after the Korean War. In Seoul, more housing units were built after 1980 than in Tokyo. After 1980, approximately 70% of the housing units were built in Seoul; in contrast, only 60% or less of the housing units were built in Tokyo. It can be said that houses in the major city of Korea are more newly built than those in Tokyo, probably because of differences in the industrialization period and in the start of reconstruction after the war.

In the 1980s, the major trend in building houses in Seoul was changed from detached houses to apartments. After 1980, the number of detached houses was decreased whereas the number of apartments that exceeded 15 floors was rapidly increased. The percentage of detached houses was lower in Seoul than in Tokyo in this period, even though most houses built in the 1960s in Seoul were detached houses. There seemed to be a big change in housing policy after 1970, and particularly after 1980.

Figure 6 shows differences in the percentage of housing units among five countries. Black bars show the number of housing units built before 1960. Compared to western countries, both Japan and Korea have a small number of old houses. Thus, they are considered to be younger and newer cities than the older cities in western countries.

Figure 7 shows changes in the number of houses built in the last two decades in Korea and Japan. In Japan, there are 1,200 to 1,600 thousand housing units built annually over the last two decades. The average is likely to be 1,400 thousand units; to be exact, it is 1,378. In Korea, 200 to 600 thousand units are built annually. The average is approximately 400 thousand units; to be exact, it is 422.

According to census data, the number of families in Japan is 47 million in 2000. In Korea, there are 13 million families in 1995. The number of annually constructed housing units per one thousand families is 29 (units/1000 families) for Japan and 32 for Korea. Therefore, it can be said that the number of housing provisions is almost the same for the two countries.

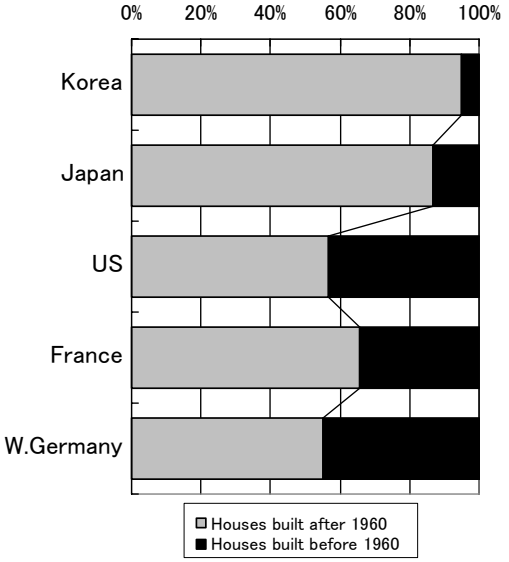


Fig.6 Percentage of Housing Units
in Five Countries by Year of Construction (Stock)

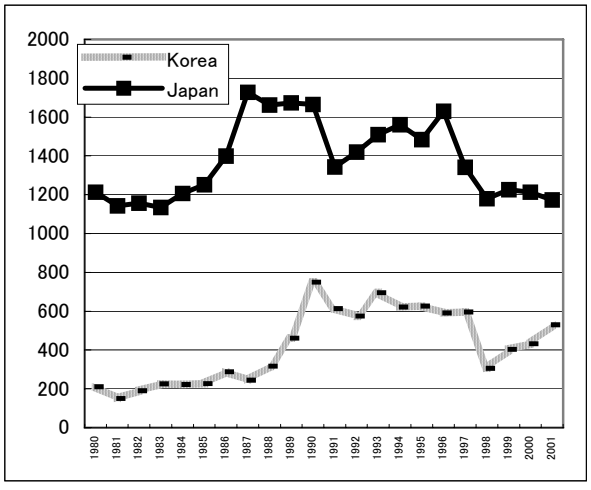


Fig.7 Change of Housing Units
by Year of Construction in Japan and Korea (Flow)

Changes in housing flow in Korea are delayed by several years compared to those in Japan. For example, a clear increase of housing provision can be seen in Japan from 1986. On the other hand, the same trend can be seen in Korea from 1989. The decrease that started in 1996 in Japan corresponds to that in 1997 in Korea. This may be because of the economic trend

We summarize the above-mentioned analyses as follows.

(1) The percentage of owned houses in Tokyo and Seoul is approximately 40%.
(2) The focus of house building in Seoul has changed from detached houses to apartments after 1970.
(3) The housing stock in both cities seems to be quite newer than that in western countries.
(4) The change in housing flow in Korea is delayed by several years compared to that in Japan. The number of annually built houses per one thousand families is almost the same for the two countries.

3. Housing Land Development Type in Japan

We define some types of residential districts or housing land development using names based on the history of the city or names of administrative projects implemented in urban areas. Although the following categories are not always rational and exclusively defined, they may help us in discussing the differences in housing land development type in Japan.

(1) City Planning Area: Urbanization Promotion Area (市街化区域)
(2) City Planning Area: Urbanization Coordination Area (市街化調整区域)
(3) Land Readjustment (区画整理)
(4) Development Permission (開発許可)
(5) Development Permission according to Old Housing Land Development Law (旧宅造)
(6) Land Improvement Project(土地改良)
(7) Arable Land Readjustment (旧耕地整理)
(8) Existing Housing Land (旧既存宅地)
(9) Sprawling Area (乱開発地区)
(10) Mini Development (小規模開発)
(11) Historical Central District (歴史的都心地区)
(12) Farm Village (旧集落)
(13) Miscellaneous (その他)

Figure 8 shows changes in the areas of land readjustment (LR) projects by region in urbanization promotion areas, which were implemented as city planning projects

Table 3 Percentage of Non-built-up Land Area in LR Districts by Metropolitan Areas (1962-1984) in Japan

	Total LR Area (NET for Housing Land :ha)	Non-built-up Housing Land Area(NET:ha)	Percentage of Non-builtup Area (%)
Tokyo	19,374	5,833	30.1
Chubu	9,550	3,079	32.2
Kinki	6,834	1,907	27.9
Others	39,402	11,373	28.9
Total	75,159	22,191	29.5

Source:Ministry of Construction (1990): Tochi Kukaku Seirijigyo Shiko Chiku Takuchi Riyo Sokushin ni Kansuru Chousa
Tokyo: Tokyo Metropolis, Kanagawa, Chiba, Saitama and Ibaraki
Chubu: Aichi and Mie
Kinki: Osaka, Kyoto, Nara and Hyougo

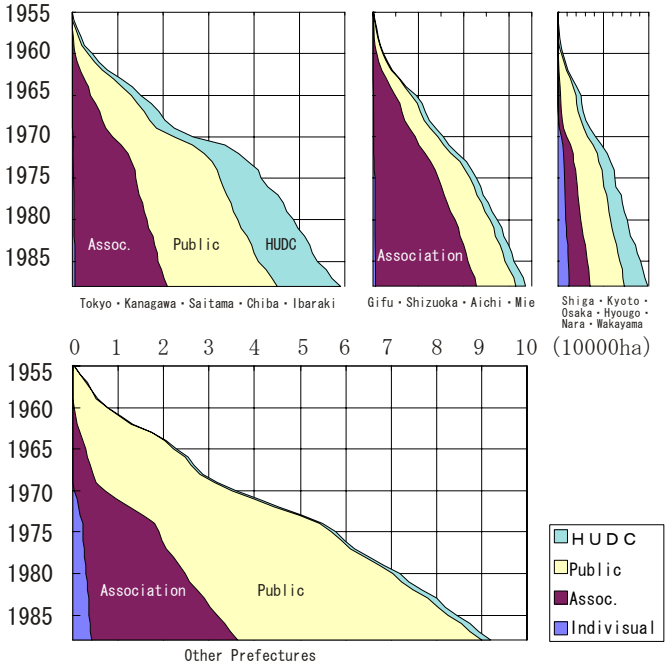


Fig.8 Change in Area of LR (Land Readjustment) Projects by Implementing Body (stock)

from 1955 to 1987. It can be said that from 1970 to 1975, housing land provision was promoted by LR projects. HUDC (Housing and Urban Development Corporation) actively implemented many LR projects in the Tokyo metropolitan area (top left) after 1970. In the Chubu region, which consists of Aichi, Mie, Gifu and Shizuoka Prefectures, LR projects were most actively implemented by landowners' association.

Unlike the Chubu region, in local prefectures other than the metropolitan areas, many LR projects were implemented by the public sector such as prefectural governments and other cities, towns and villages.

We can see how intensively those projects have been implemented in the last three decades. Twenty-five percent of Urban Promotion Areas are being developed by LR projects at present.

Table 3 shows total land area of LR projects by metropolitan area, and areas of vacant land within the LR-implemented districts. The percentage of vacant land areas on which no houses were built in relation to the total project site is approximately 30% in the regions investigated.

We find that many lots for land development are not always built up by LR projects.

4. Emerging Problems?

Small land area, high population density, new urban housing stock, rapid development after World War Ⅱ, endless urbanization…

Considering the "era of population decrease" in Japan in the future, there are several problems that need to be solved by and paradigm change required of city planning .

In some housing land development projects, residents are burdened with the tasks of maintaining their environment, such as cutting weeds that grow rapidly on vacant lands in LR project districts, holding community meetings with a small number of residents, repairing cracks on roads, and preventing crimes, etc.

How we can decrease the number of maintenance tasks of the residents in such districts?

I am confident that the revelation of vacant land for housing development has exposed to problems to be faced by city planning in the future era of population decrease. We have just started to seek the solution to those problems.

Picture Typical Spatial Structure of LR District

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