

# **Urban Development in a Society with Decreasing Population**

**Masahiko NATORI**

**Nomura Research Institute**

# Urban Development in a Society with Decreasing Population

Masahiko NATORI

- I Japan's Actual Status of Cities Contradicts Political Intention
- II Cities are Expected to Act as Growth Engines
- III Advantages of Compact Cities
- IV Concerns over the Current Status of Cities
- V Toward Formation of Cities/Areas Contributing to the Strengthening of Competitiveness

In a society with a decreasing population, cities as the bases of populated areas face at least two political issues: one is the fulfillment of the role as the bases of clusters that act as growth engines, and the other is compaction. As homes to a wide variety of functions, cities are expected to facilitate the clustering of functions and increase density.

Actually, when the relationships between sizes of cities and office location percentages are seen, upper-level industrial and city functions that drive economy such as head offices and regional headquarters are concentrated in cities where the economies of scale and the economies of scope occur. In addition, there is a tendency of increased productivity in cities with high-density urban areas (the economies of density).

Nevertheless, contrary to such expectation, the sizes of the densely inhabited districts (DIDs) that indicate the actual scope of cities have ceased to grow and densities have remained unchanged. In smaller cities, there are areas where both DID population and DID population density have been decreasing and non-urban areas are increasing. From a microscopic viewpoint, urban sprawl in a worm-eaten manner has been accelerating, causing problems such as a decline in the efficiency of infrastructure such as roads and water supply and sewer facilities and difficulties in preserving good quality agricultural land.

Under these circumstances, the Agricultural Land Law was amended with the aim of shifting the focus from ownership to use of agricultural land. In addition, work is under way to amend the Urban Planning Law. These moves must be effectively utilized to appropriately address the above-mentioned problems and to promote the urban development that will contribute to achieving Japan's sustainable growth and strengthening its competitiveness. For these purposes, efforts should be made to promote the following: (1) forming strategic core cities, (2) reorganizing cities/areas with focus on "city," "peripheral areas" and "networks" and (3) reviewing regulations on land use in pursuit of compactness.

# I Japan's Actual Status of Cities Contradicts Political Intention

Increased attention is being given to cities as the main arenas of economic activities. According to OECD Regions at a Glance published by the Organization for Economic Cooperation and Development (OECD), population is unevenly distributed among regions within countries. On average, approximately 40 percent of the national population and GDP (gross domestic product) in OECD member countries is concentrated in only 10 percent of regions (cities). The OECD report, *Competitive Cities in the Global Economy*, published in November 2006, indicates that most OECD metro-regions have a higher per capita GDP and a higher labor productivity level than their national averages. As such, attention must be paid to cities that function as growth engines in order for a country to facilitate economic growth and for companies to consider the deployment of offices.

Japan, which is projected to enter an era of a declining population, must address at least two political issues to develop cities that will serve as bases for a wide variety of activities. One is the formation of clusters that function as growth engines. The other is the development of compact cities (in this paper, the development of compact cities is defined as achieving integrated urban structures by increasing the population density of cities with a central area serving as the core)<sup>1</sup>. In cities where a wide variety of functions are gathered and growth engines are run to generate competitiveness, the clustering of innovative activities should be facilitated and the population must be increased.

Nevertheless, contrary to these goals, when we look at the trends in densely inhabited districts (DIDs)<sup>2</sup> that indicate the actual areas of cities in Japan, we find that there has been no increase in urban size and that population densities remain unchanged. In addition, with the progress of motorization, urban sprawl is found here and there in large city regions as well as in smaller city regions, in which urban areas exist in agricultural land as well as in forests in a worm-eaten manner. This actual situation contradicts political intention.

In this paper, the situations surrounding cities are verified and consideration is given to appropriate policies for cities to adopt.

## II Cities are Expected to Act as Growth Engines

### 1 Cities as Growth Engines

Cities are increasingly expected to play an important role in strengthening competitiveness in the global

economy. As noted in Chapter I, increased expectations are being given to cities as so-called growth engines that bolster national and regional economies and that serve as locations for industrial clusters.

For example, the National Spatial Strategies that were determined at the Cabinet meeting in July 2008 set out the following plans towards building new growth strategies to deal with a declining population.

- Considering national land from the viewpoint of areas in Japan including Tokyo and areas in the world including East Asia, it is necessary to make full use of existing cities and industrial clusters, strengthen them as engines that drive economic growth, improve the quality of national land infrastructure whose functions have become obsolete and facilitate strategic investment to strengthen international competitiveness.
- Within each regional block, cities and industries that can serve as growth engines of the relevant block must be reinforced. At the same time, areas within the block that are mutually dependent and complement each other will facilitate mutual exchange and cooperation to demonstrate diverse regional characteristics based on their own culture, tradition, natural conditions and so on.

In the case of the European Union (EU), in its Community Strategic Guidelines 2007 – 2013<sup>3</sup>, which form the basis for developing communities in the EU member countries in 2007 – 2013, emphasis is placed on “concentration” to effectively use limited resources. The Guidelines state that the focus in urban areas should be on improving competitiveness through clustering and networking. The associated report entitled “Cohesion Policy and cities: the urban contribution to growth and jobs in the regions” also stressed the importance of urban policy by noting that “cities are home to most jobs, firms and institutes of higher education and their action is decisive in brining about social cohesion; cities are home to change based on innovation, spirit of enterprise and economic growth.”

Starting with the Lisbon Agenda adopted in March 2000 and the Gothenburg Agenda adopted in June 2001, the focus of EU's regional development has shifted from the conventional policy of stressing spatial balance to that stressing growth, jobs and the environment. Be that as it may, urban development continues to be seen as an important means of achieving such policy.

In the United States, the Metropolitan Institute identified ten US “Megapolitan Areas”—clustered networks of metropolitan areas that exceed 10 million total residents. According to its report, by 2040, megapolitan areas are expected to add 83 million people, and a projected 33 trillion dollars will be spent on megapolitan building construction, which represents over three quarters of all capital that will be expended

nationally on private real estate development. While the projections made in the report do not represent a federal urban policy, the report nevertheless suggests the recognition of this Institute that cities are the basis for economic growth.

## 2 Reasons Why Cities are Expected to Act as Growth Engines

As explained above, cities are expected to function as growth engines. This is because many high-level functions that drive economic growth and related functions, such as head-office departments, regional headquarters and research departments of multi-national companies, are located in cities. These functional clusters make it easy for cities to generate new value and innovation. Because of so-called economies of scale and economies of scope that occur in cities, industries and functions can readily gather in cities where greater economic effect can be achieved than in situations where diverse individual functions exist separately.

### (1) Economies of scale

To confirm the economies of scale that cities provide, the relationships between the sizes of cities in terms of population and the percentages of offices/stores in various businesses/industries that are located in such cities<sup>5</sup> (the office location percentage) are shown in Figure 1. With respect to any function (business), the larger the population, the higher the office location percentage. In addition, while low-level functions (businesses) can generate profits in cities with a small population, upper-level functions (businesses) cannot generate profits unless they are located in cities with a large population.

Retail stores that handle convenience goods (i.e., retail stores dealing with goods that consumers purchase frequently on an everyday basis with minimum effort) such as liquor stores are located in all municipalities (cities, towns and villages) even including those with a population of less than 100,000. However, department stores and general merchandise stores that handle shopping goods (usually requiring a more involved selection process than convenience goods) such as high-grade goods and durable consumer goods are found in cities with a population of at least 100,000 – 200,000; wholesalers that supply goods to department stores and general merchandise stores are located in cities with a population of at least 200,000 – 300,000. A similar phenomenon is seen for company offices. The higher the involved functions are (e.g., local offices → branches → regional headquarters), the larger the cities where such offices are located.

This is because there is a basic demand in cities with a large population that is necessary for various functions (businesses) to exist. In addition, fixed costs and costs of materials can be reduced through mass production and mass consumption. In such ways, cities with a

large population can enjoy economies of scale, and functions (businesses) can be more efficiently located in such cities than in other areas.

The functions that can be efficiently located are not limited only to existing high-level functions such as department stores and general merchandise stores. New types of functions often emerge and grow in cities with a large population that constitutes the market.

In the case of the information service industry, the office location percentage of software businesses and information processing and provision services that have already been established as part of the service industry is nearly 100 percent in cities with a population of around 200,000. These services are available in almost all sizes of cities. However, even now, Internet-related services (services that use the Internet to provide information) that are relatively new types of services, such as server housing, ASP (application service provider), electronic authentication, information network security, and portal site operating services, are mostly available in cities with a population of 400,000 or more. Office machine and equipment lease businesses (lease businesses) for business users are generally located in cities with a population of 500,000 or more.

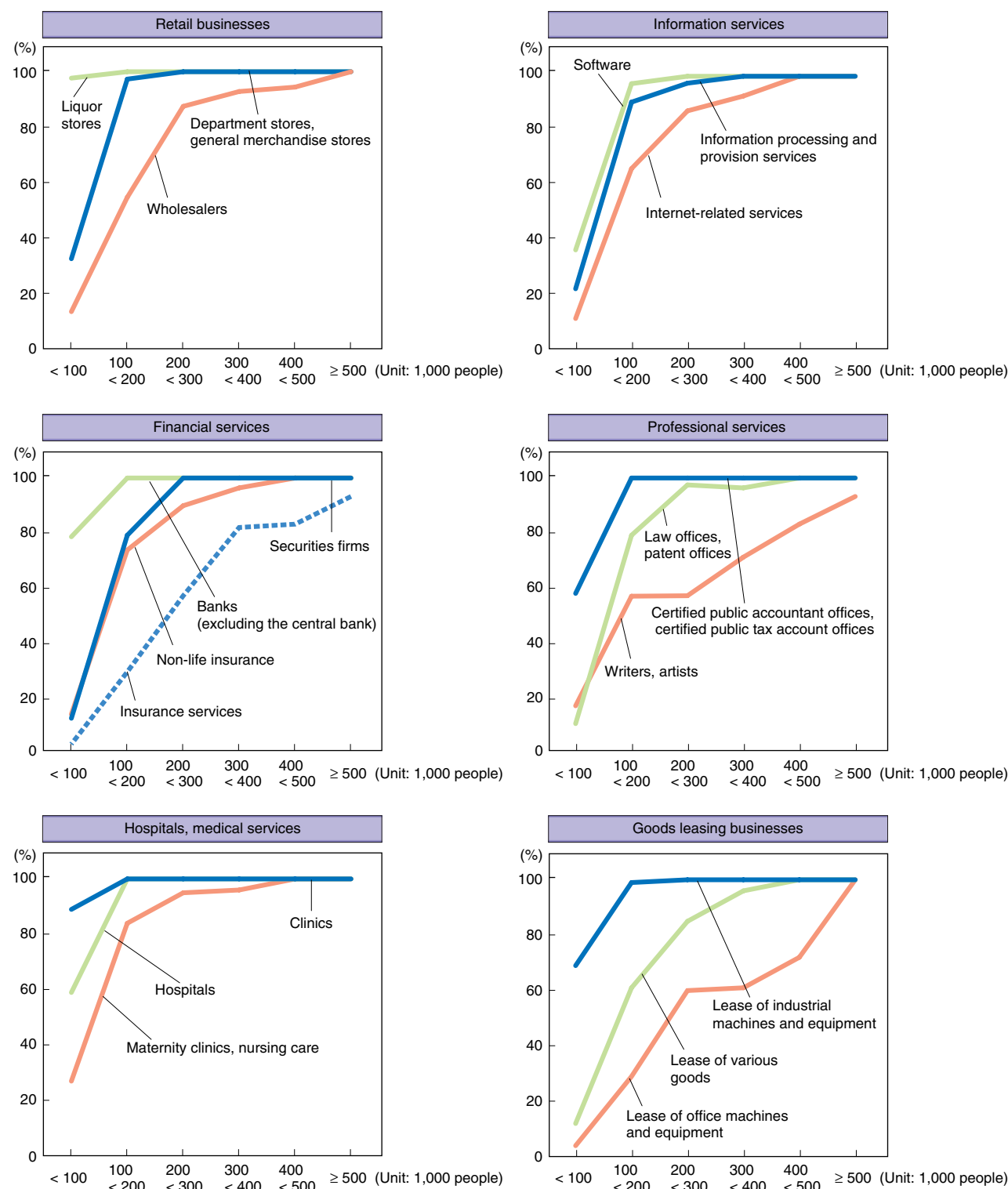
In many cases, new businesses and functions such as Internet-related services emerge in cities with a large population and spread gradually to cities with a smaller population. This process is sometimes called “spatial innovation diffusion<sup>6</sup>.” Of course, even in smaller cities, there are cases in which software firms that use their leading technologies to deploy business nationwide are located. As such, the arrival of a networked society must have destabilized spatial restrictions in locating functions. Nevertheless, according to actual data, many cases demonstrate that diverse functions and services first emerge in large cities, and then diffuse into other areas. Because of this phenomenon, cities are expected to function as growth engines.

### (2) Economies of scope

Turning our eyes to the relationships between the size of a city’s population and the number of business categories that are located in a city, we find that the larger the city’s population, the greater the number of business categories located in the city (Figure 2). In cities that have a large population and where diverse industries and functions are located, a wide variety of services becomes readily available.

As symbolized by the widely known term “industrial clusters,” individual industries that are correlated with each other form an industrial group, and this industrial group is often located in close proximity.

For example, in the case of automobile manufacturing, the categories of businesses closely related include “other automobiles,” “research,” “other electrical equipment,” “plastic products” and “advertising, survey and information services.” Greater input coefficients of

**Figure 1. Relationships between Sizes of Cities and Office Location Percentages**

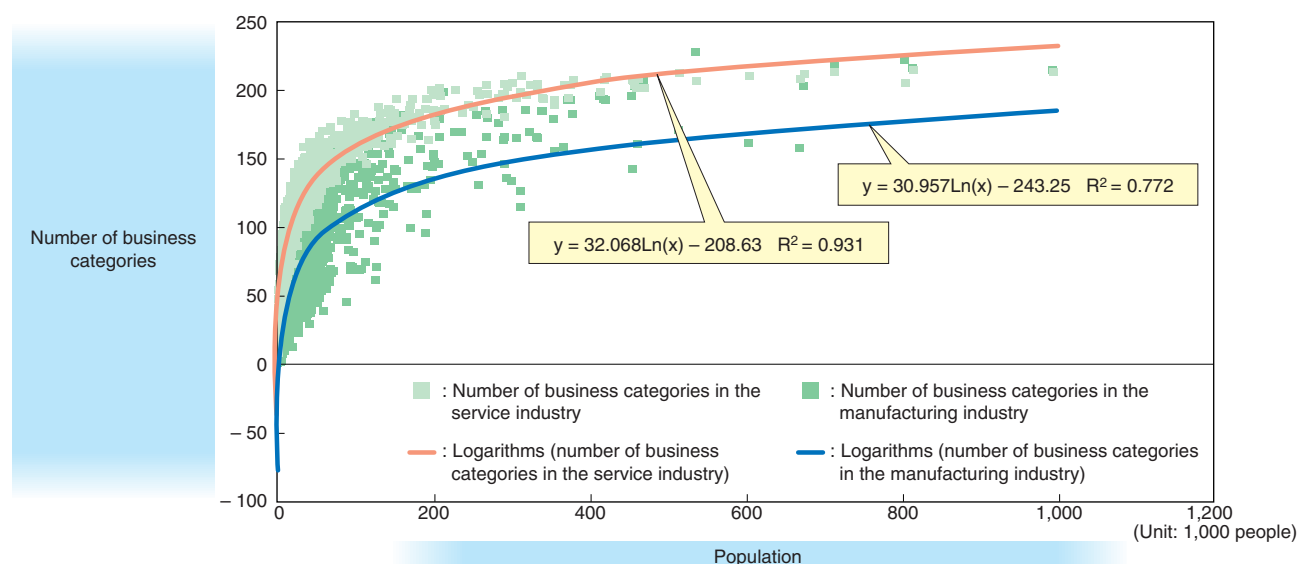
Cities with a population < 100,000:  $N = 1,555$   
 Cities with a population of 200,000 < 300,000:  $N = 40$   
 Cities with a population of 400,000 < 500,000:  $N = 185$

Cities with a population of 100,000 < 200,000:  $N = 150$   
 Cities with a population of 300,000 < 400,000:  $N = 28$   
 Cities with a population ≥ 500,000:  $N = 15$

Source: Compiled based on the 2006 Establishment and Enterprise Census of Japan published by the Ministry of Internal Affairs and Communications of Japan.

input-output tables substantiate such close relationships between the manufacture of automobiles and these businesses. Similarly, the manufacture of pharmaceuticals is closely related to “research,” “advertising, survey and information services,” “pharmaceuticals,” “organic

chemical products” and “commerce.” The input-output tables indicate that even the manufacturing industry has close relationships with the service industry in areas such as “advertising, survey and information services” and “commerce.”

**Figure 2. Relationships between Sizes of Cities and Number of Business Categories**

Note: Because the number of business categories reaches the upper limit at a certain city size, the three largest cities (Tokyo, Osaka and Nagoya) were not included.

Source: Compiled based on the 2006 Establishment and Enterprise Census of Japan published by the Ministry of Internal Affairs and Communications of Japan.

In cities where various industries and functions are located, these correlated resources can be effectively shared. From a microscopic point of view, the location of diverse industries and city functions within the same area enables the implementation of synergistic (correlated) businesses using the same production resources, which in many cases leads to cost reduction, improved efficiency and expansion of new businesses. In such a way, cities enjoy the “economies of scope” in addition to the economies of scale.

### III Advantages of Compact Cities

Cities are also often discussed from a perspective of forming compact cities. In many cities, trends are seen such as progress in motorization, increased housing development in suburban areas, opening of large-scale outlets and public facilities in suburban areas. These trends facilitate the hollowing-out of central urban areas. Under the circumstances where land use is not controlled and towns are being created along principal highways, residences, agricultural land, commercial facilities and factories are located on an intermixed basis, frequently causing congestion and environmental problems.

In a society with a declining population, it is natural to expect that the size and format of the cities should match decreasing population. However, any control to achieve an ideal status is difficult to implement, and discussions were held on measures that should be adopted. The ideal status of desirable cities that was identified through these discussions is the achievement of compaction, i.e., the

development of high-density compact cities centered on core urban areas.

#### 1 Compaction Will Increase Productivity and Added Value

The compaction of cities will bring about not only mere compact spatial usage but also various social and economic advantages. One of these advantages is improved productivity and increased added value with respect to functions located in compact cities. In addition to the economies of both scale and scope, compact cities can benefit from the economies of density.

Studies conducted on cities in the past often pointed out the importance of “density” in urban areas and central business districts (CBDs). For instance, in her book entitled *The Death and Life of Great American Cities*, written in 1961, Jane Jacobs, an American-born Canadian writer and urban theorist, stressed the importance of the existence of diverse functions in a highly dense manner for large cities to maintain their vitality and sternly criticized the UK’s New Town policy, which focused on monotonous, low-density development. More recently, Charles Landry, a British urbanist and the author of *The Creative City*, advocated the formation of a “creative milieu” where creative people are brought together in certain expanses of urban areas. The same kind of theory focused on creative people in cities is also expressed in essays by Richard Florida, US sociologist and the author of *The Rise of the Creative Class*.

Representative examples of creative milieus include the SoHo district in New York City, which is home to designers, artists and the IT (information technology) industry, and the Roppongi area in Minato Ward, Tokyo.



Areas where diverse industries and functions are located in a highly dense manner enable easy access to advanced professionals/specialists (knowledge) and facilitate face-to-face communication on which the generation of new knowledge is based. Interactive, highly dense communication between people produces an increase in added value and innovation. The OECD report introduced in Chapter I noted that 81 percent of all patent applications in OECD member countries were filed by residents in urban cities.

It is reasonable to assume that small-sized, highly dense compact cities would facilitate the formation of highly dense urban areas that act as growth engines.

In an attempt to examine the effectiveness of a compact city, a formula was created to express the relationships between per capita taxable income in prefectures, DID (densely inhabited districts that indicate the actual scope of a city) population and non-DID population (Figure 3). While the correlation is somewhat weak, the formula reveals that the greater the DID population, the higher the income level (the coefficient for the DID population is larger than that for the non-DID population). Because the coefficients for both the DID population and non-DID population are positive values, greater population contributes to an increase in the income level in both DID and non-DID cities. Nevertheless, if population increases, the extent of contribution to the increase in the income level is greater in the cases in which the DID population increases than in the cases in which the non-DID population increases.

In April 2008, a research paper<sup>7</sup> was published that estimated the production function and analyzed the factors causing differences in productivity by targeting personal services such as movie theaters, fitness clubs and cultural centers, and revealed that if population density doubles, productivity in the service industry increases by an average of 10 – 20 percent. Another report<sup>8</sup> indicated a correlation between the formation of a compact city and the improvement of productivity based on the relationships between the percentage of DID population on a prefectural level and increased productivity in the wholesale and retail industry and the service industry.

These research papers and reports are interesting in that they are indicative of the relationships between the density of an overall city and productivity. While productivity in cities was often discussed from the viewpoint of available functions and demand/population density in the center of a city and central business dis-

tricts, these research papers and reports suggest the possibility that the density of an overall city would contribute to productivity. If a city becomes compact and its overall density increases, the density of the population and functions in the center of the city and central business districts also increases, raising the possibility of contributing to increased productivity.

Of course, increased density of population and city functions might invite congestion and overcrowding. While there must be a certain limit, the degree of integration should be increased by avoiding adverse consequences by means such as employing a city structure and building design that are appropriate for a high population density.

## 2 Increased Convenience in Living in Environmentally Friendly Cities

The advantages of a compact city are not limited to the improvement of productivity. Rather, in many cases, other advantages are highlighted.

For instance, many people can have better access to services in a highly dense, compact city where various functions are integrated in central urban areas because the distance of movement between destinations within a city can be shortened. If offices/stores are efficiently deployed, it is possible to form areas of activity where people can access everyday services on foot. In addition to promoting the formation of such areas, if public transport services such as trains and buses are made available, people can also have easy access to higher-level services without using their own automobiles.

Furthermore, with the focus on the importance of city-wide and networked measures, Japan's Kyoto Protocol Target Achievement Plan calls for review of the city structure and transport systems. If the compact city structure is realized, the distance of movement between destinations can be reduced, thereby lowering CO<sub>2</sub> (carbon dioxide) emissions. Analyses of the relationships between the DID population density in Japan's cities and CO<sub>2</sub> emissions from the passenger transport sector revealed that the lower the DID population density in a city (a city with a strong diffusion tendency), the greater the CO<sub>2</sub> emissions per resident from the passenger transport sector (Figure 4).

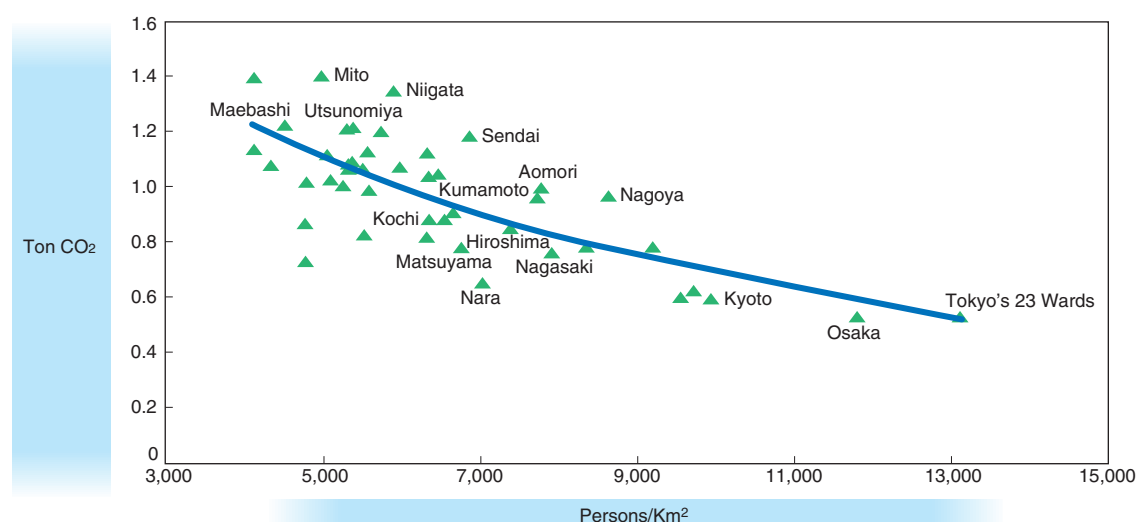
Specifically, according to the 2006 White Paper on the Environment published by the Ministry of the Environment, when Maebashi City in Gunma Prefecture and

**Figure 3. Relationships between DID Population, Non-DID Population and Income Level**

$$(\text{Prefectural income per population}) = 2,447.6 + 0.121 \times (\text{DID population}) + 0.09 \times (\text{non-DID population})$$

Correlation coefficient: R = 0.68

Notes: 1) Compiled based on the Population Census by the Ministry of Internal Affairs and Communications and the Annual Report on Prefectural Accounts (2005 data) by the Economic and Social Research Institute, Cabinet Office, Government of Japan. 2) DID: Densely inhabited districts that indicate the actual scope of a city.

**Figure 4. City DID Population Density and Per Capita CO<sub>2</sub> (Carbon Dioxide) Emissions in the Passenger Transport Sector**

Notes: 1) Compiled based on the 2000 Population Census published by the Ministry of Internal Affairs and Communication and the Development of Estimation Technique for Greenhouse Effect Gas Emission in Transport Sector and Related Factor Analysis published by the National Institute for Environmental Studies; similar analyses are made in the 2006 White Paper on the Environment published by the Ministry of the Environment that focused on the theme of a society with a declining population and the environment. 2) Ton CO<sub>2</sub>: Emissions of CO<sub>2</sub> and other greenhouse gases measured in carbon dioxide equivalents that are expressed in tons.

Source: Materials published by the Ministry of Land, Infrastructure, Transport and Tourism.

Kochi City in Kochi Prefecture, which have nearly the same area and population, are compared, dependence on automobiles is high in Maebashi City where urban areas with low population density spread out and the annual per capita CO<sub>2</sub> emissions from the passenger transport sector are 1.21 tons, which is about 40 percent higher than the emission amount (0.87 tons) in Kochi City.

If urban sprawl in a worm-eaten manner can be restricted through compaction, a clear-cut distinction can be made between urban-like land usage and natural land usage such as that seen in London and Paris where urban areas and suburban areas are obviously separated. Such distinction must also be effective from the perspective of retaining amenities such as preserving a broad expanse of green spaces, good natural landscapes and pastoral places.

### 3 Effective Use of Agricultural Land

Another benefit that can be expected from compaction is the effective use of agricultural land. In suburban areas of large cities as well as smaller cities, urban sprawl in a worm-eaten manner has been accelerating even now, causing the coexistence of urban areas and agricultural land. If a compact city could be developed, a positive effect could be expected in terms of the intensive and effective use of agricultural lands that are becoming increasingly idle.

According to the Census of Agriculture and Forestry published by the Ministry of Agriculture, Forestry and Fisheries, cultivation abandonment areas (abandoned areas that were once cultivated) remained at a level of 130,000 hectares until 1985. They started to increase in 1990, and increased to 386,000 hectares (equivalent to

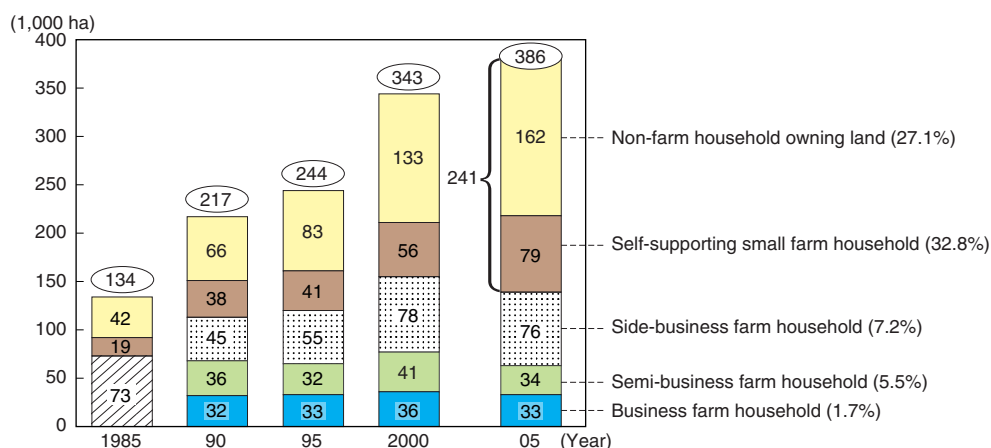
1.8 times the area of Tokyo Metropolis) in 2005 (Figure 5). The ratio of cultivation abandonment areas to agricultural land areas is in an increasing trend because agricultural land areas are decreasing; the ratio increased from 2.9 percent to 9.7 percent.

If cultivation abandonment is viewed by type of area, the ratio of cultivation abandonment areas in urban-like areas has exceeded 12 percent (which is next to that of 14.7% in mountainous agricultural areas). If cultivation abandonment is viewed by type of farm household, this ratio is high (slightly less than 30%) for non-farm households owning land. While people engaged in farming are aging, the difficulty of finding successors is assumed to be the principal factor in the increase in cultivation abandonment areas.

Actually, according to interviews held by Nomura Research Institute (NRI) with persons responsible for the planning and regulations of land usage in the neighboring municipalities of Tokyo, even agricultural areas where the aging agricultural population is increasingly giving up farming and where urbanization is expected to be restricted are increasingly being used for other purposes such as storage yards and becoming cultivation abandonment areas. Furthermore, many landowners intend to sell their land. These landowners are often strongly against regulations such as designating their land as urbanization control areas, making it difficult to formulate plans for the policy on land use and to impose regulations. For these reasons, even if the relevant land is expected to be used as agricultural land under municipal land usage plans, the reality is that it is difficult to use it as agricultural land.

To deal with these issues, the Law for Partial Amendment of the Agricultural Land Law, Etc. that was passed



**Figure 5. Cultivation Abandonment Areas by Type of Farm Household**

Notes: 1) With respect to figures for 1985, the classifications of business, semi-business and side-business farm households were not yet applied.

2) Percentages in parentheses for 2005 refer to the ratio of cultivation abandonment areas to agricultural land areas.

Source: "Cultivation Abandonment Areas: Current Status and Issues" by the Ministry of Agriculture, Forestry and Fisheries (Original Source: Census of Agriculture and Forestry published by the Ministry of Agriculture, Forestry and Fisheries).

during the 171st ordinary session of the National Diet on June 17, 2009, changed the purpose prescribed under the Agricultural Land Law from the principle of "it is most appropriate for farmers to own agricultural land" to "promoting efficient use of agricultural land." Specifically, the revision aims to promote intensive land usage through such means as promoting the transfer of agricultural land to those who engage in farm work, permitting the lease of agricultural land by corporations, etc., and adopting systematic measures to effectively use idle agricultural land. However, the coexistence of urban areas and agricultural land may constitute a bottleneck in promoting these activities.

If municipalities are able to set out clear-cut policies for the development of compact cities under their urban development plans, etc. and to make clear distinctions between urban areas and agricultural land, such initiatives would be effective in preventing the occurrence of the problems that the coexistence of land for different purposes may entail, and would contribute to the effective use of agricultural land.

## IV Concerns over the Current Status of Cities

### 1 Slowdown in Growth of Urban Population and Unevenly Increasing Urban Sprawl

As stated in Chapter I, DID and related statistics suggest that urban population growth has slowed down and that urban areas are spreading unevenly.

#### (1) Slowdown in growth of urban population and uneven spread of urban areas

As of 2005, the population of DIDs was 84,331,000, which accounted for 66 percent of Japan's total population. Since the 1960s, when statistics first became available,

the DID population was in an increasing trend, showing progress in urbanization. However, since the latter half of the 1990s, this increasing trend slowed down (Figure 6).

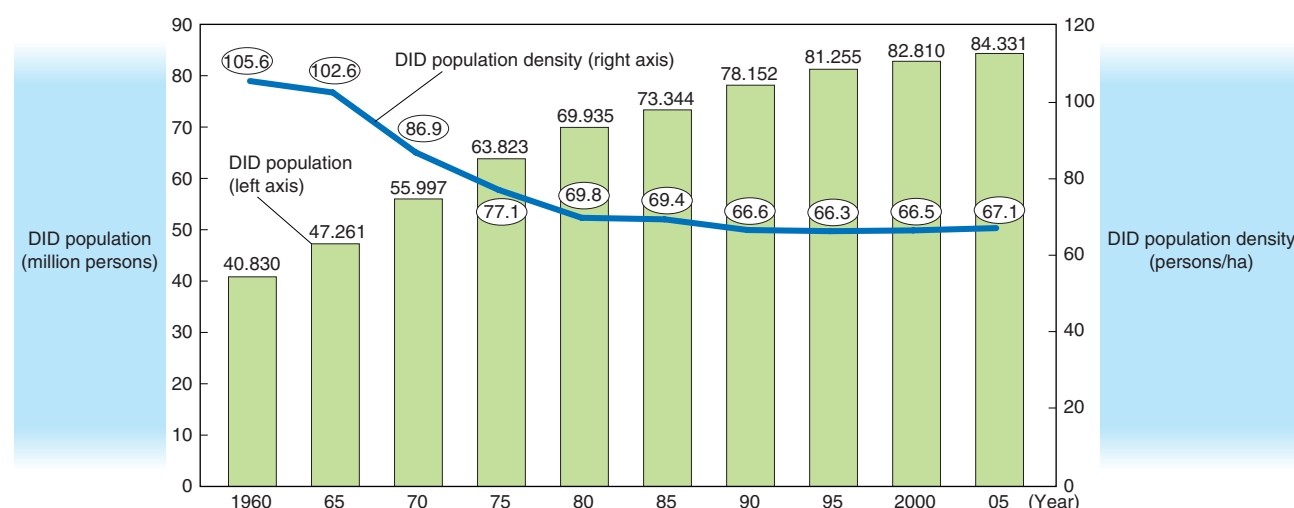
Significant increases in DID population have been recorded for the Greater Tokyo area, which consists of Tokyo Metropolis, Chiba, Saitama and Kanagawa, and Aichi. In contrast, the population in many regional prefectures such as Toyama and Wakayama has been decreasing (Figure 7). In particular, there are many areas where the population is decreasing in the prefectures with a DID population of 2 million or less. In these prefectures, the shift to a declining population is often caused by aging, which is likely to facilitate the creation of non-urban areas.

As noted in Chapter II, a positive correlation is seen between DID population and the functions available in the relevant DID and a diversity of functions. Therefore, it is highly likely that the number of city functions available and the number of industrial clusters are also decreasing in the areas where the DID population is decreasing. From the perspective of urban agglomeration, it seems that areas are broadly divided into two groups, i.e., large city areas and other areas.

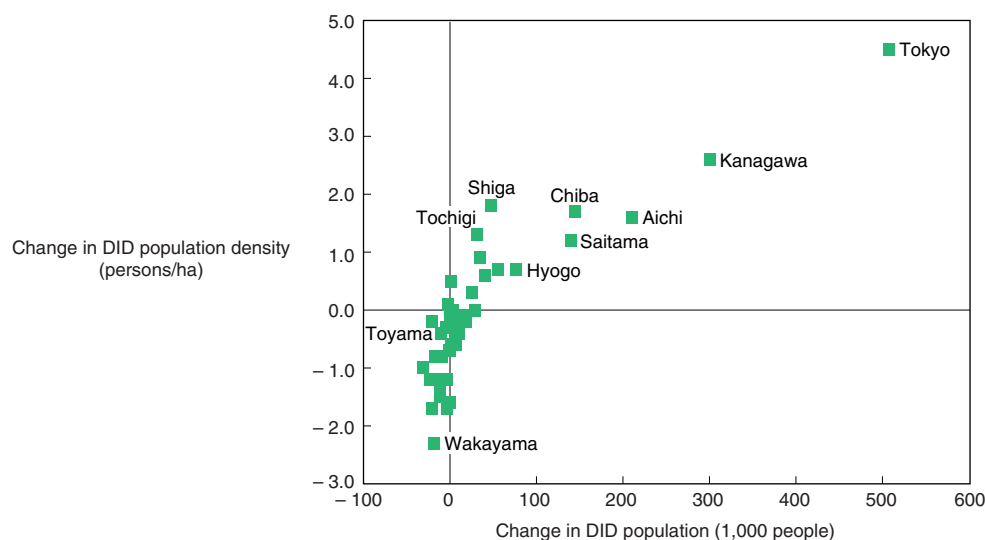
#### (2) DID population density remains unchanged

As indicated in Figure 6, DID population density was in a decreasing trend since 1960. While the decline became inconspicuous in and after 1980 and the DID population density showed slight increases since 1995, it still remains at the same level (as of 2005, the DID population density was 67.1 persons per hectare).

When DID population density is considered by prefecture, in the same way as with DID population, DID population density has been increasing primarily in large city areas such as the Greater Tokyo area (Tokyo Metropolis, Chiba, Saitama and Kanagawa) and Aichi. It is reasonable to assume that in these areas, compact cities are being increasingly developed. In areas with population

**Figure 6. Changes in DID Population and DID Population Density**

Source: Compiled based on Population Census published by the Ministry of Internal Affairs and Communications.

**Figure 7. Changes in DID Population and DID Population Density by Prefecture**

Note: Figures refer to changes by prefecture for 2000 – 2005.

Source: Compiled based on Population Census published by the Ministry of Internal Affairs and Communications.

amounting to a certain number or more including Tokyo, which has the highest DID population density, a trend is seen in which population agglomeration attracts further increases in population, thus increasing the DID population density (the fact that the DID population density is high does not constitute a restraint on growth).

Turning our eyes to areas other than large city areas, there are many areas where DID population density is decreasing. It is highly likely that in these areas, the creation of non-urban areas and urban sprawl are being accelerated. At the same time, there are prefectures such as Fukushima, Tottori and Kumamoto where DID population density is declining although the DID population is increasing. Even in large city areas such as Kyoto and Osaka, DID population density is decreasing.

Because urban sprawl is seen in these areas with declining DID population density, some types of losses

might be caused in terms of the economies of scale and the economies of density.

## 2 Expansion of Poorly Controlled Urbanization

Another major problem facing any effort to develop compact cities is urban sprawl in a worm-eaten manner. Even in large city areas where the DID population density is increasing, cases are seen here and there from a microscopic point of view in which sprawl is expanding in suburban areas.

The biggest reason why sprawl is expanding in suburban areas is the progress of motorization. With the penetration rate of automobiles increasing, residential areas have been developed in suburban areas because people seek lower-priced land. It is highly

likely that urban areas have been formed through such movement.

While some cities are promoting the introduction of light rail transit (LRT) systems (new types of streetcars) and the use of public transport systems such as buses, the number of such cities is still limited. The location of large-scale facilities such as commercial facilities, hospitals and city offices in suburban areas has increased the level of convenience in suburban areas, and urban sprawl in a worm-eaten manner has accelerated in suburban areas. To improve and revitalize city centers, regulations were imposed on the locations of large-scale commercial facilities such as large-scale retail stores through an amendment to the Urban Planning Law in 2006. Nevertheless, it appears that the amendment has not yet fully generated the desired effect.

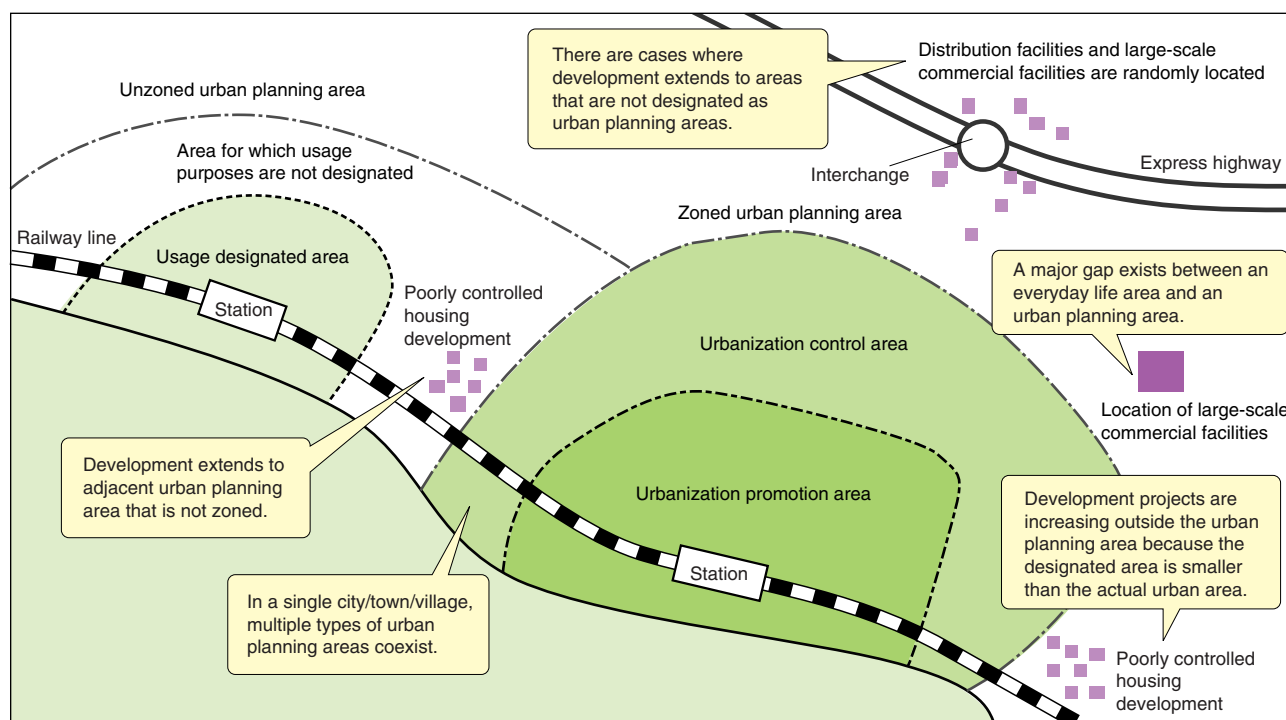
In addition, attention should also be paid to issues related to the regulations on land use in suburban areas. Japan's urbanization is designed to be managed by designating urbanization promotion areas and urbanization control areas (so-called *senbiki* in Japanese, demarcation zoning) based on the Urban Planning Law. Actually, however, many urban areas are not adequately managed. Such incapacity stems from the following problems (Figure 8).

- (1) The scope of designated urban planning areas is smaller than the scope of the areas that must be developed as unified cities, causing urban sprawl in a worm-eaten manner outside the urban planning areas. While the provisions of Article 5 of the Urban Planning Law require municipalities to designate "the areas that need to be comprehen-

sively developed and maintained as a unified city" as urban planning areas, in many cases, the scope of the areas designated as urban planning areas is smaller than the actual urban areas. Consequently, cases of poorly controlled housing development outside urban planning areas are often seen.

- (2) There are also many cases in which areas designated as urban planning areas are not yet zoned as urbanization promotion areas or as urbanization control areas, leading to situations where the regulations on land use are not fully applied. Among urban planning areas that are not yet zoned, the regulations are loose for the areas for which usage purposes are not yet designated. The absence of such designation tends to facilitate poorly controlled housing development in the areas for which usage purposes are not yet designated, especially when zoned urban planning areas are contiguous to urban planning areas that are not zoned.
- (3) There are also cases where urban sprawl in zoned urban planning areas is increasingly occurring in a worm-eaten manner due to the relaxation of regulations. With respect to the zoning system, an amendment to the Urban Planning Law in 2000 relaxed the zoning system regulations. The amendment permitted development in areas that are contiguous to urbanization promotion areas and are deemed to constitute a unified everyday life zone together with such areas, and where approximately 50 or more buildings are located in a continuous manner, provided that local municipalities (cities, towns or villages) establish an

**Figure 8. Problems of Poorly Controlled Urbanization**



ordinance on land use (Item 11, Article 34 of the Urban Planning Law). While the amendment has aimed to flexibly form urban areas based on the actual local situation, it has been pointed out that there is a strong tendency in these areas towards the acceleration of urban sprawl in a worm-eaten manner.

## V Toward Formation of Cities/Areas Contributing to the Strengthening of Competitiveness

In light of the situation explained thus far, a city policy encompassing the following viewpoints is essential in order to achieve sustainable growth of Japan's economy and strengthen competitiveness.

### 1 Forming Strategic Core Cities

As noted in previous chapters, in order to form centers having high centripetal force, cities that have sizes as large as possible and densities as high as possible must be formed. However, from a nationwide perspective, DID populations have already ceased to grow, and it is highly likely that such populations will shift to a declining trend in the future. Accordingly, in order to form core cities that contribute to the strengthening of Japan's competitiveness in the global economy, cities that should function as centers must be selected and developed on a priority basis. Because Japan's total population is projected to continue to decrease in the future, it is essential to select cities with high priorities and to make concentrated efforts to develop those cities.

First, urban development in large city areas including Tokyo is important. In large city areas, populations and functions available there are still increasing, creating cities with higher densities. In order to take full advantage of this trend, the clustering of global industries and city functions must be promoted. To strengthen the centripetal force of top priority core cities, activities to fully utilize new technologies should be promoted. Some example approaches are:

- Forming a global financial center and strengthening convention functions
- Developing infrastructure such as expanding the international role of Haneda Airport
- Utilizing electrical energy more effectively
- Utilizing ubiquitous IT technology

To develop specific urban development projects by means of new technologies, both the government and the private sector should cooperate in promoting and implementing these projects by effectively using systems

established for these purposes such as special districts for urban regeneration and subsidies for urban development.

From a global perspective, it cannot be said that Japan's cities are ranked high in terms of competitiveness. For example, according to the Global Financial Centres Index published by the City of London in March 2008, which rates and ranks each major financial center in the world in terms of competitiveness, Tokyo was ranked 9th in this third report. London and New York have continued to be the two leading global financial centers. Cities that act as national financial centers are not necessarily limited to a country's capital such as Toronto of Canada, and these cities are endeavoring to improve the competitiveness of their markets. I believe that Japan should also promote these activities.

In 2009, the Committee for Studying Large City System Initiative organized by Yokohama, Osaka and Nagoya announced a suggestion that calls for structural reform by creating *toshi-shu* (city-states having both city and broader regional government functions)—large cities that drive Japan. In addition to the introduction of the *do-shu* regional system (broader regional governments) that is now under discussion, as introduced in this suggestion, one of the measures to promote the efficient activities of cities would include the creation of a large city system targeting Yokohama, Nagoya and Osaka, to say nothing of Tokyo. This system would define the positioning of large cities and stipulate administrative and financial policies that are appropriate for each new unit of regional authorities. Based on NRI projections, inauguration of the large city system would bring about the benefit of increasing the gross regional product by about ¥7.8 trillion per year if businesses such as the service industry are effectively and efficiently deployed according to the productivity of each region. In addition to projects to develop clusters of global functions, the regional systems that contribute to urban vitalization such as the *do-shu* regional system and the large city system should be introduced.

Of course, in the areas outside the three major city areas (the Tokyo, Osaka and Nagoya areas), it is also necessary to form city agglomerations that act as growth engines for broad blocks. However, in light of the emergence of regions where non-urban areas are increasing, core cities that will drive the economy of *do-shu* regions must be carefully selected along with promotion of the integration of functions in such cities. While it might be difficult to make adjustments now because a basic law is being prepared to introduce the *do-shu* regional system, the activities should first focus on identifying the restrictive conditions for vitalization of each broad block. This should then be followed by designating strategic cores where industrial clusters are to be located and many city functions are to be available and developing the selected cities as core cities.

## 2 Reorganizing Cities/Areas with Focus on “City,” “Peripheral Areas” and “Networks”

From the perspective of vitalizing all related areas, it is important to promote integrated development of the areas together with the peripheral areas, rather than a single city unit. For this purpose, “networks” that connect a “city” and its “peripheral areas” must also be developed, thereby building an integrated regional structure.

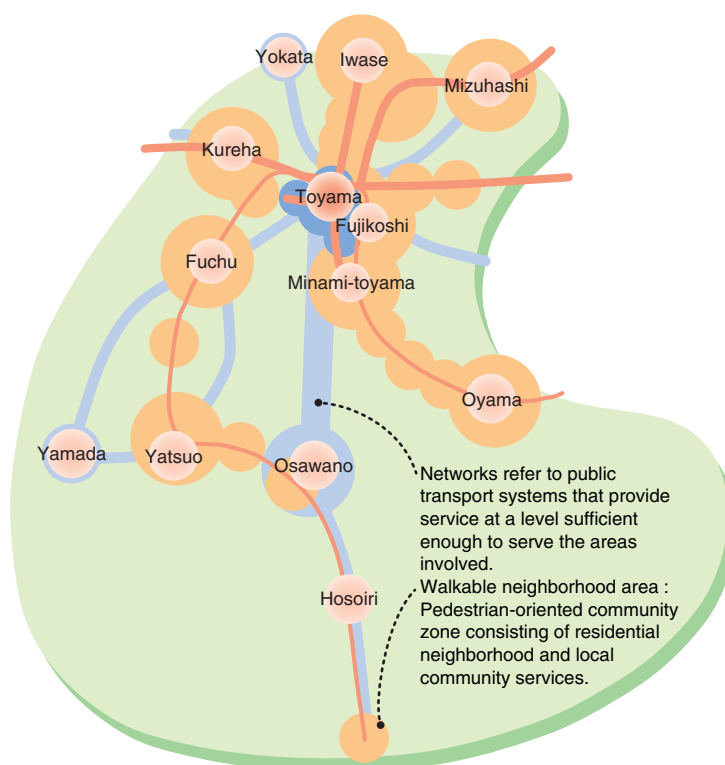
The city structure consisting of walkable neighborhood areas connected by networks that is pursued by Toyama City serves as a model structure consisting of a “city,” “peripheral areas” and “networks.” Interestingly, they compare the basic structure to the shape of skewered dumplings, a traditional Japanese sweet. Specifically, the Toyama project aims to develop a compact city with a variety of city functions such as housing, commerce, business and culture being available along with public transport systems including railways that are effectively utilized as networks. The use of public transport systems such as railways enables compaction not only as a city centered on a single core but also as a region where multiple cores are connected. In the case of Toyama, this concept was adopted when Toyama introduced the Toyama Light Rail streetcars (LRT) that run from Toyama City northward over rehabilitated tracks of the former Port Line of Japan Railway Co. Because of the LRT introduction, Toyama has been successful in facilitating a shift from the use of automobiles to that of LRT.

Naturally, this concept can also be adopted for complex urban areas such as large-scale cities and large city areas. Japan’s large city areas where railway networks are fully developed, including those for suburban areas, can be seen as a complex of “a city structure consisting of walkable neighborhood areas connected by networks.”

In the case of cities that have city centers serving as the bases for broad areas and those that have central business districts, any effort to build a city structure consisting of a “city,” “peripheral areas” and “networks” must promote the availability of functions that are of the highest level as possible to facilitate innovation. For this purpose as well, such cities should promote urban development as the foundation that can bring about creative functions through the facilitation of clustering and compaction.

Peripheral areas must increase the functions supporting urban agglomeration and expand their populations. In order for peripheral areas to develop and maintain certain market sizes and to promote the availability of high-level functions, peripheral areas must provide greater employment opportunities and increase their populations. To this end, some types of industrial clusters should be developed in peripheral areas by promoting the locating of industrial groups and city functions that are closely related to the city centers and central business districts in core cities. It would become possible for peripheral areas to increase their added value and productivity by forming agglomerations of industrial and

**Figure 9. Toyama’s City Structure Consisting of Walkable Neighborhood Areas Connected by Networks**



Source: Toyama City (available only in Japanese): <http://www7.city.toyama.toyama.jp/pr/mag/080520/pages/master.html>



city functions as industrial clusters in which available functions that make the best use of local resources are closely linked.

To establish networks that physically connect a city and its peripheral areas or areas outside the peripheral areas, what is most important is the strengthening of linkages within a city and between a city and the city areas centered on public transportation systems.

### 3 Reviewing Regulations on Land Use in Pursuit of Compactness

The priority issues to build an appropriate structure for individual cities include the formation of compact urban areas with central business districts as the core, the improvement of population/demand density and the reorganization of spatial structure. The amendment of three urban development laws in 2006 has already imposed control on the location of large-scale commercial facilities in suburban areas. Nevertheless, in suburban areas, urban sprawl is still occurring in a worm-eaten manner. For the control of such urban sprawl, much expectation is given to the urban planning system that is scheduled for revision in the future.

As noted in Item 2, Chapter IV, the scope of currently designated urban planning areas is often smaller than the scope of “the areas that need to be comprehensively developed and maintained as a unified city” as required under the Urban Planning Law. As a result, there are many areas where designated urban planning areas do not cover the actual city area as a whole. Furthermore, there are cases in which municipalities that have applied the regulations in different ways are having difficulties in coordinating the methods of applying the regulations. For instance, such difficulties are encountered in the case of a merger between a city/town/village where areas are classified into urbanization promotion areas and urbanization control areas and a city/town/village where such classification has not been made.

It is reasonable to assume that the current urban planning system in which the areas subject to planning are smaller than the actual areas and standard regulations and rules have not yet been established is not functioning sufficiently in some aspects. In order to achieve the development of a compact city, the urban planning areas must first be reviewed in light of possible mergers of municipalities. At the same time, stricter regulations must be applied for land use in the areas for which usage purposes are not yet designated and in the urbanization control areas. In this way, the system should guide municipalities towards systematic development in pursuit of developing unified urban areas.

In terms of ensuring strict control of land use, a planning permission system such as that seen in the UK should be carefully applied after taking the step of downzoning (strengthening regulations on land use)

while permitting the current situation of actual use. In the sense of utilizing the vitality of the private sector, the relaxation of regulations such as establishing special districts for urban regeneration is important. Nevertheless, in order to prevent the confusion of land use and the occurrence of congestion and/or overcrowding, the well-controlled application of regulations is necessary for areas where regulations should be relaxed and for areas where development should be controlled.

In March 1967, the Housing Land Council of the then Ministry of Construction that discussed the zoning system submitted its Report Concerning Measures to Promote Efficient Use of Land in City Areas. This report proposed the following four categories of land use:

- (1) Existing urban areas
- (2) Urbanization promotion areas
- (3) Urbanization control (coordination) areas
- (4) Preservation areas

Urbanization control (coordination) areas refer to areas among city areas other than existing urban areas, urbanization promotion areas and preservation areas. Generally, urbanization plans have not yet been formulated for these areas. Accordingly, urbanization must be controlled or coordinated for a certain period to facilitate phased and systematic urbanization in these areas.

Considering the fact that landowners strongly oppose the designation of their land as urbanization control areas on which strict regulations are unexceptionally imposed, one option would be to review the current zoning system consisting of two categories, i.e., urbanization promotion areas and urbanization control areas. I hope that future discussions on the revision of the urban planning system would bring about appropriate solutions.

---

#### Notes

- 1 The following book introduces various perspectives on compact cities and urban compaction: *Compact city saiko—riron-teki kensho kara toshi-zo no tankyu-e* (Reconsideration of a Compact City—Pursuit of City Images Based on Theoretical Verification) edited by Hidenori Tamagawa, written by Tsutomu Suzuki, Eiji Sato, Toru Yoshikawa, Satoru Sadohara, Takashi Oguchi, Taro Ichiko, Fumiko Ito, Tomoko Horikawa and Masaki Nakahigashi, and published by Gakugei Shuppansha in 2008.
- 2 This district is defined as an area that is composed of a group of contiguous Basic Unit Blocks (each of which has a population density of about 4,000 inhabitants or more per square kilometer) within the boundary of a *shi* (city), *ku* (ward), *machi* (town) or *mura* (village) constituting an agglomeration of 5,000 inhabitants or more. Essentially, this district corresponds to an urban area.
- 3 As the framework for cohesion policy 2007 – 2013, concentration, convergence, regional competitiveness and



- employment, European territorial cooperation and governance were discussed.
- 4 European Commission, “Cohesion Policy and cities: the urban contribution to growth and jobs in the regions” published in July 2006
  - 5 Similar results can be obtained when these relationships are examined for each DID population size. Considering the consistency with the survey areas of the Establishment and Enterprise Census conducted by the Ministry of Internal Affairs and Communications, Figure 1 shows the results of the surveys for each administrative area population size.
  - 6 Torsten Hägerstrand (1916 – 2004), a Swedish geographer, studied the geographical spread of new technologies and wrote *Innovation Diffusion As a Spatial Process*, published in 1967. With respect to spatial innovation diffusion, OECD Regions at a Glance (2007 Edition) revealed that patent applications were concentrated in specific areas, and about 60 percent of all patent applications were filed by just 10 percent of regions.
  - 7 Masayuki Morikawa, *Service gyo no seisansei to mitsudo no keizaisei—jigyosho data ni yoru tai-kojin service gyo no bunseki* (Productivity and the Economies of Density in the Service Industry—Analysis of Personal Services Based on Office/Store Data), Research Institute of Economy, Trade & Industry, 2008
  - 8 Aichi Amemiya and Takashi Nishizawa, *Keizai saisei to compact city* (Economic Regeneration and Compact Cities), Nomura Securities Financial and Economic Research Center, 2009

---

**Masahiko NATORI** is a senior consultant at NRI's Management Innovation Consulting Department. His specialties include national land and regional policies and administrative management.

As a leading think tank and system integrator in Japan, Nomura Research Institute is opening new perspectives for the social paradigm by creating intellectual property for the benefit of all industries. NRI's services cover both public and private sectors around the world through knowledge creation and integration in the three creative spheres: "Research and Consulting," "Knowledge Solutions" and "Systems Solutions."

The world economy is facing thorough structural changes led by the dramatic growth of IT industries and the rapid expansion of worldwide Internet usage—the challenges of which require new concepts and improvement of current systems. NRI devotes all its efforts to equipping its clients with business strategies for success by providing the best in knowledge resources and solutions.

*NRI Papers* present selected works of NRI's 3,000 professionals through its worldwide research network. The mission of *NRI Papers* is to contribute new ideas and insights into business management and future policy planning, which are indispensable for overcoming obstacles to the structural changes in our society.

All copyrights to *NRI Papers* are reserved by NRI. No part of this publication may be reproduced in any form without the prior written consent of NRI.

Inquiries to: Corporate Communications Department  
Nomura Research Institute, Ltd.  
E-mail: [nri-papers@nri.co.jp](mailto:nri-papers@nri.co.jp)  
FAX: +81-3-6660-8370