Progressing Suburbanization and the Controversial Land Use Management in a Japanese Local City - A Case Study of Miyakonojo City, Japan -

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Abstract:
Japanese cities have suffered from numerous problems, including deteriorated city-center and expanding suburban area without sufficient infrastructure and trends of deregulation and decentralization. Furthermore, Japan faces the period with shrinking and aging population that is especially severe in small provincial cities. These cities have to seek a balance between proper land use control and economic vitalization.

This paper examines the long-term development trend in Miyakonojo City, Miyazaki Prefecture, based on the building applications during 1985-2011 and then evaluates the city’s latest land use guideline, ‘Land Use Control Guideline (provisional edition)’. This paper offers the analyses of a) population, total numbers of building applications and purpose of the buildings; b) distribution of the size of development plots; c) specific geographical development locations; d) detailed features of development in the un-zoned area; and e) total evaluation of the city planning and land use management in the city.

The major conclusions are the followings: 1) During 1995-2011, the total number of building applications transitioned between 600 and 800. The tendency for half of the total applications being for the un-zoned area has continued. Most developments are housing ones in both the zoned area and the un-zoned area. Suburbanization is caused mainly by housing. 2) The size of a detached housing plot is larger in the un-zoned area than that in the zoned area. The collective housing is increasing in the un-zoned area as well as in the zoned area. 3) Not a few development concentration districts are found in the un-zoned areas that are the conventional local town-center districts, neighborhood of the interchange, areas along trunk roads, and adjacent areas to the zoned area. 4) Not a few housing agglomerations are formed by the incremental developments of single (small) developments, which generate a large-scale residential area without sufficient infrastructure. 5) Since the city did not apply the special land use restriction district in the un-zoned area, the City Planning Act 2000 did not affect the development trends. 6) The Land Use Control Guideline shows a well thought-out direction for the land use management. However, to obtain a consensus in the earlier stage of the suburbanization, a monitoring system for the developments and enlightenment of the public regarding land use management system is required.

Keywords: Development trend, Provincial city, GIS, Suburbanization, Land use management, City Planning Act, Miyakonojo City

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1. Introduction

Japanese cities have suffered from many problems, including deteriorated city-centers, inefficiently utilized former industrial areas, traffic congestion, hollowing housing districts and expanding suburban areas without sufficient infrastructure, deteriorating agricultural land and nature, all similar to issues other developed countries are facing. The Japanese cities are also faced with trends in globalization, privatization, deregulation, decentralization and more. Further still, Japan faces an age of shrinking and aging population that are especially severe in the nation’s small provincial cities.

The Japanese City Planning Act (hereafter, CPA), the primal act for land use regulation, was amended in 2000 to meet these issues. Based on the CPA 2000, local governments received alternatives between strict and less strict regulations for their land use. It was assumed that the municipalities with shrinking populations did not necessarily have to hold to strict regulations considering their economic vitals. However, under the current market/competition circumstances, local governments, especially in those the areas of lower development opportunities, were likely to seek taxes for their budgets, and then likely become oriented toward less strict regulations.

Further, this amendment was accompanied by the ‘Act on the Measures by Large-Scale Retail Stores for Preservation of Living Environment’ in 2000. Although this Act principally aimed that local governments can avoid the degradation of living environment caused by large-scale stores, it has no power to restrain the development of new large-scale stores. Thus, actually after 2000, the number of large-scale stores increased, especially in the less-strict regulation areas of the CPA 2000.

As a reflection of this problem, the CPA was further amended in 2006 in particular to control the development of large-scale stores toward the concept of a ‘compact city’, which was epochal in Japanese planning history. However, the CPA 2006 might have little effects in those cities that already had such stores. Further, since the CPA 2006 has the same regulation systems of the CPA 2000 for other purposeful development such as housing and industries, the actual possibility of the ‘compact city’ may still be doubtful. Thus, the effects and problems found in the CPA 2006 should be discussed in more detail.

Miyakonojo City, a typical small city in the provincial area, is the ‘key city’ used to investigate the effects/problems of land use regulations because it was exceptionally deregulated in 1988 in the same way as the CPA 2000 suggested. The authors previously investigated the development trend for 1985-1999, which indicated a controversial situation of land use by analyzing the building applications using the Geographical Information System (hereafter, GIS). That is, consistent suburbanization expansion was observed as a countetrend to the compact city concept.

However, the recent development trend for the city has not yet been clarified. As stated above, the CPA was amended in 2000 and 2006, the former for more relaxation-orientation, and the latter tightening oriented. Thus, the purpose of this paper is to investigate the suburbanization trend in the city (2000-2011) compared to the past trend (1985-1999). Under the progression of
city-center decline, depopulation, and the development of the large-scale stores, some new phenomena might be found to reveal the problems produced by the CPA 2006.

The study area is thus the ex-Miyakonojo city (the city merged with four municipalities in 2006) to analyze the overall period (1985-2011). As shown later, although various studies did investigate the suburbanization of provincial cities, few studies have dealt with long-term development trends other than this current study.

2. Japanese Land Use Management
2.1. The Framework of Land Use Management

The City Planning Act stipulates the basic regulations for land use and development in urban and suburban areas in Japan. Figure-1 shows the spatial model. The city planning area is ‘the area which includes a built-up areas located in the center of municipalities meeting necessary conditions for the levels such as population, number of employed population, etc. and which integrated improvement, development, and preservation as unified urban areas is necessary’.

The quasi-city planning area, newly stipulated in the CPA 2000, is ‘those areas outside of city planning areas where a considerable degree of housing or other building construction or land preparation is actually taking place or is scheduled to take place, and where it is recognized that city improvement, development or preservation may be hindered in future if land use is allowed to continue in a disorderly manner’.

Prefectural governments may divide the city planning areas into two areas: the urbanization promotion area and the urbanization control area. In the urbanization promotion areas, the use-zone system is applied. The regulations applied in the use-zones are for the purpose of land use, building-to-plot ratio, and floor-to-plot ratio. In the urbanization control areas, developments or any changes in land use for purposes other than agriculture are essentially prohibited.

Before 2000, the division of urbanization promotion/control areas was quasi-duty for the prefectures and actually was effective in preventing undesirable developments in suburban areas within the city planning areas. However, according to the CPA 2000, prefectures may choose division or non-division of these areas. In cases where municipalities decide on non-division of the areas, the city planning area is divided into zoned areas and un-zoned areas (‘Shirochi’). In fact, Miyakonojo City exceptionally chose this non-division system in 1988 (before the CPA 2000).

In the un-zoned areas, use-control is not applied, and regulations are less strict than those applied in the zoned areas. This area might be where there is room for developments. Actually, after 2000, many prefectures/municipalities, especially in provincial areas, have sought cancellation of the division. Public involvement, based on the pressure of interest groups, may promote this non-division system, and the present economic recession may also support it. Public involvement and the economic situation should be the significant factors for expanding suburbanization. Suburbanization in Miyakonojo City, the study area of this paper, is strongly related to this problem. Concerning this issue, the CPA 2000 provided several tools to control land use in the un-zoned area. Both special use restriction districts and district plans are applicable in the un-zoned areas. The former can restrain the development of the limited purposes as defined by local ordinances.

As for the quasi-city planning area, the area does not use a division system. Municipal governments may provide a use-zone system, if necessary. In fact, the authority for designating quasi-city planning area was taken over by prefectural governments from municipal govern-
ments in 2006 because municipal governments did not sufficiently utilize quasi-city planning area system for fear of diminishing development opportunities in their areas.

One more problem related to land use management is outside city planning area. Actually, the outside areas are almost free from the CPA. In these areas, although several acts related to agriculture and nature are applied, it is basically difficult to prevent/control developments. In some regions, undesirable developments in these areas are a serious problem.

Here, the CPA 2006 includes the important features of a ‘compact city’ concept, which includes strict regulations for the urbanization control areas, the un-zoned areas, which are called as ‘loose regulation areas’. That is, the CPA 2006 principally prohibits the development of large-scale stores in the urbanization control areas, un-zoned areas, and non-commercial zones in the urbanization promotion area (or the zoned-area). Actually, the development boom of large-scale stores in the loose regulation areas seems to have calmed. However, the effect of the CPA 2006 on suburbanization itself is still unclear yet.

Further, since 1999, the central government has drastically promoted municipal mergers. The number of municipalities decreased to 1,730 in 2010 from 3,229 in 1999. In many regions, the mergence caused controversial problems related to land use management, for example, plural city planning areas in one municipality with different tax standards, coexistence of city planning areas with/without a division of the urbanization promotion/control areas. Miyakonojo City also has similar problems.

2.2. Literature Review of Previous Studies
Suburbanization, the main focus of this paper, is the phenomenon often observed in the loose regulation areas (un-zoned area and outside city planning area)

There are numerous previous studies on suburbanization. Several analyzed the chronological changes of the total size of the suburbanized area and discussed the problems of land use management in the loose regulation area\(^2\),\(^3\),\(^4\). Other studies analyzed the suburbanization trend based on each development (using GIS) and discussed both the ongoing problems and desirable land use management\(^1\),\(^5\).

Recently, several studies have focused on the actual operation of the development control\(^6\),\(^7\), as well as local policies and district plans\(^8\),\(^9\) for the loose regulation areas. Further, several studies have started discussing about land use management for plural city planning areas with and without a division of the urbanization promotion/control areas following the municipal mergers\(^10\),\(^11\).

Applying an overview of these studies done over the last two decades, it is clear the focus of the discussion of the loose regulation area seems to be shifting to planning and management from an earlier analysis of the development trend/situation. However, there are few studies yet that have analyzed the actual suburbanization trend of the last two decades. Actually, these decades have a background both serious recession and several significant legislative changes, such as the CPA 2000 and 2006 which are expected to influence the development trend. Thus, the long-term actual development trend should be examined to understand the suburbanization expansion in terms of its historical background.

3. Case Study for Miyakonojo City
3.1. Research Design
Based on the discussion above, this paper analyzes the actual long-term suburbanization trend
based on the development actions using GIS. The study area is ex-Miyakonojo City. Although the city merged with the surrounding municipalities in 2006, the study area is limited to the area of ex-Miyakonojo City for conducting an effective long-term analysis. The study term is the period of 1995-2011. In terms of fixed-point observation, this analysis is expected to provide the detailed development data on suburbanization of this area.

This paper first introduces an overview of Miyakonojo City. In Section 3.2, the city’s geography, demography, population, and the framework of city planning is introduced. General city planning problems are also explained. Further, the features of the latest City Master Plan and Land Use Control Guideline (provisional) for the city are summarized. Based on earlier experience with the expansion of suburbanization after utilizing the non-division system in 1988, the city has come to recently to seeking the path toward a ‘compact city’.

Secondly, the building applications issued by the city authority in the period of 1995-2011 are surveyed to investigate development trends. This application process is a legal obligation for developers/landowners in the city planning area. As shown in the Section 3.3, suburbanization is occurred in the un-zoned area in the city planning area. Therefore, a survey on these applications can further clarify the situation of suburbanization of the city.

The research process is summarized below. The investigations c)-d) were conducted using GIS. The process proceeded as follows:

a) Analysis of population, total numbers of building applications, and the purpose of the building in the zoned-area and the un-zoned area. This analysis indicates the overall trend of developments in the city planning area (see, Section 3.3).

b) Analysis of the distribution of the size of development plots in the zoned and the un-zoned areas. This reviews the nature of the developments in the suburbanization (un-zoned) area (see, Section 3.3).

c) An overview of the development locations in the whole of ex-Miyakonojo City. This examination shows the actual process of the suburbanization (see, Section 3.4).

d) Detailed investigation of developments in the several districts of the un-zoned area. The purpose here is to analyze the features of the suburbanization progressing districts (see, Section 3.5)

e) Total evaluation of the city planning and land use management in the ex-Miyakonojo City area (see, Section 4).

3.2. Overview of Miyakonojo City

Figure-2 shows the location of Miyakonojo City. The city is located in the southwest region of Miyazaki Prefecture, Kyushu Island. The population of the city was 170,955 in 2010 and thus the second largest city in Miyazaki Prefecture (Miyazaki City is the largest city with a population of 395,593, while Nobeoka City is the third largest with a population of 135,182).

Miyakonojo City was established in 1924 by the merger of several villages and a town. Figure-3 shows the municipal structure before and after that merger in 1924. In 1969, the city had divided the city planning area into the urbanization promotion/control areas. At
that time, only the area around the center of the original Miyakonojo City was included in the urbanization promotion area (see, Figure-3). Since developments and new buildings were prohibited in the urbanization control area, depopulation and aging problems emerged and become a serious issue in the area. Thus, in 1988, the division of urbanization promotion/control area was abolished and the urbanization promotion area was categorized as the zoned area, while the urbanization control area was categorized as the un-zoned area with less strict regulations than the zoned area. This historical background and its effects were already reported in detail[12].

Although the city authority provided a ‘down-zoning’ regulation in the un-zoned area in 1988, the result was the expansion of suburbanization. The author’s previous study[1] clarified the development trend for the period 1985-1999, which showed the continuous development of housing and shops along the trunk roads. In the un-zoned area, a mixture of agriculture fields and housings, costs for the maintenance of the infrastructure and welfare service, etc. were recognized as a serious problem by the city authority.

Considering this situation, the city authority published its City Master Plan[13] in 2009 and a Land Use Control Guideline (provisional edition) in 2012[14]. These two publications have produced development control in the un-zoned area based on strong concerns for the expansion of the suburbanization and considering the city’s depopulation and aging problems. Here, Miyakonojo City has come to orient its planning direction toward that of a ‘compact city’ structure. The City Master Plan[13] showed the future structure of the city (see, Figure-4). It designated most of the un-zoned area as green zones for nature and agriculture, and only limited several places to be designated as local cores for living functions, besides the developed area (zoned area). The major activity is limited in the urban human activity zone (zoned area) and several local living cores (suburban human activity zones).

Additionally, as stated, Miyakonojo City was merged with four surrounding municipalities (Yamnokuchi, Takajo, Yamada and Takasaki) in 2006. Since the focus of this paper is the Miyakonojo city planning...
area, hereafter, this paper deals only with the ex-Miyakonojo City area.

3.3. Development Trend

Figure-5 shows the population of ex-Miyakonojo City. The total population became nearly stable during the period 1995-2010. What should be noted here, however, the population in the un-zoned area increased by more than 3,000 during these fifteen years, whereas that in the zoned area slightly decreased by 700.

It is important to notice the development trends above. Figure-6 shows the number of the building applications during 1995-2011. The total number of these applications varied between 600 and 800, although those in 1995 and 1996 totaled more than 1,000. Further, the tendency toward about half of the total applications being in the un-zoned area has continued since 1997. It is notable also that the number of applications has been increasing again since 2007. In this sense, the suburbanization pressure seems to have become stronger.

From all of these figures, it can be observed that the population slightly decreased with the constant development of ca. 400 buildings in the zoned area, whereas the population increased with the same amount as the building activities in the un-zoned area. It can be presumed then that new developments occurred more often in the un-zoned area than in the zoned area, while the re-developments/buildings are occurred more in the zoned area than in the un-zoned area. The agriculture/nature fields were eaten away in the same period in the un-zoned area.

The purpose of these buildings is shown in Figure-7 and Figure-8 for the zoned-area and the un-zoned area, respectively. At first glance, most developments are housing in both areas. However, the number of commerce and business purpose is larger in the zoned-area than in the un-zoned area. In this sense, urban function such as commerce and business, and industries still slightly were oriented toward the urban districts (zoned-area) whereas housing was scattered regardless in the zoned or un-zoned areas. Furthermore, the housing increased steadily in the
un-zoned area. Thus, suburbanization was caused mainly by housings.

Next, were there any differences between housing in the zoned and in the un-zoned areas? Figure-9 shows the distribution of size for the housing plots. To understand the chronological change, Figure-9 a) and Figure-9 b) show the situation for the zoned and the un-zoned areas, respectively, for the first five year term (1995-1999), and Figure-9 c) and Figure-9 d) show those areas for the last five-year-term (2007-2011). Basically, the housing plots in Miyakonojo City were larger than the plots in other cities. In both the zoned and the un-zoned areas, the mode plot size was 200-300 square meters for detached houses, in both time periods. However, the size of detached housing plot was larger in the un-zoned area than in the zoned area. Although the number of collective houses was small, these houses appeared more frequently in the zoned area than in the un-zoned area. The large-scale collective houses emerged in the un-zoned area only recently.

The residents were able to get wider housing in the un-zoned area, which became the inducing factor that led to suburbanization expansion.

3.4. Geographical Distribution of the Developments –A Suburbanization Trend-
Figure-10 shows the geographical distribution of the developments during 1995-2011. The figure provides maps for every 4-5 years. The colored zone is the zoned area, and non-colored is the un-zoned area. When comparing these maps, in spite of the long period (17 years) with large ups and downs in the national economic conditions and the revisions of the CPA, there were no significant changes in the geographical distribution of the developments.

Here then, let us have a look at the un-zoned area, the focus of this paper. There are several concentration zones for developments, A1-A3 and B1-B5. In districts A1-A3, there were many developments in the early period (1995-2003), however, these development activities calmed down in the last eight years (2004-2011). On the other hand, in districts B1-B5, the de-
Development activities have continued throughout the entire observation period.

The western part of A1 and the eastern parts of B1 and B2 are the central districts of the town and villages that merged into Miyakonojo City in 1924. It is obvious that the declination of the area that had once been in the urbanization control area was improved. However, at the same time, these districts became the cores of suburbanization. Actually, the developments spread along the roads emanating from these cores.

District B2 is characterized by the interchange for the expressway. The development
spread along the truck road (national highway) in the neighborhood of the interchange. Districts B4 and B5 are characterized by the trunk roads. The development there constantly occurred along the roads. That is, these districts were attractive for people (mainly residents of dethatched houses) because of convenience, cheaper land prices, and country-side-style life, which was further accelerated by loose land use regulation.

B3 is the controversial district because it rests adjacent to the zoned area. B3 is a very convenient district because residents can make use of the urban services provided in the adjacent zoned area. The living circumstance is also quite similar to that found in the zoned area, in spite of which, residents can enjoy the cheaper land prices and loose land use regulations. The development pressure seems to be largest among the A, B zones. The problem is that the city authority cannot afford to provide a sufficient infrastructure and welfare services in these zones at present.

3.5. Districts with Suburbanization Pressure

As stated above, the development activities in B1-B5 have continued. Here, three districts with a notable development trend, namely, B2, B3, and B5, are shown in Figure-11.

Looking at the B2 district, (Figure-11 a)), it is obvious that the developments extend along the road. Although
most of these are housing, developments of commerce and business are found along the roadside, as shown by the blue circles. The development of industry (factories) is also found mainly on the east side of the interchange without the development of other purposes in the yellow circle. In this sense, the development of industrial facilities is relatively well managed. Also, there are several districts of housing agglomerations, shown as red circles. Actually, in accordance with Article 41 of the CPA, developments over 1,000 (3,000 by ordinary) square meters have the limitation of height, building-to-plot ratio and floor-to-plot ratio, in the un-zoned area, first introduced in 1988 as a down zoning regulation. However, these incremental developments of single (small) developments form large-scale residential development without sufficient infrastructure as a result. This phenomenon is a serious problem to address in order to control suburbanization.

Figure-11 b) shows the detailed distribution in the B3 district. As stated above, this district is a problematic because many developments have continued. This district is convenient because it is adjacent to the zoned area. People can receive the benefits of the zoned area with relatively cheaper land prices, and furthermore, have no city planning tax levy. The red circles show the housing agglomerations. There are more red circles here than in B2 and B5. Further, several shops are found in the blue circle. These shops are located because of the neighborhood population as a market, and then provide further convenience for successive developments. This zone seems to be on a steady urbanization process rather than suburbanization. The problem is that this zone is not accompanied by an infrastructure provision. In the future, the residents would have a strong demand for the infrastructure, which will increase the public costs.

Figure-11 c) shows the situation for the B5 district. The housing is spread between two trunk roads (in the blue circle). On the other side, the housing agglomerations are limited to four. In the B5 district, although suburbanization has been caused mainly by each detached housing development, a large-scale residential area (blue circle) was formed as a result. Furthermore, several industrial developments were found in the same area. This kind of naturally built-up residential area has a disordered and mixed-use spatial structure and not enough sufficient infrastructure. This situation would cause serious problems in future and the same situation as that in the B3 district.

4. Discussion

4.1. Concerns related to suburbanization

The analysis in the previous section illustrates the suburbanization trend for ex-Miyakonojo City. Although the CPA was amended several times and the national economy changed during the observation period, suburbanization progressed at the same pace and steadily. The main factor behind this suburbanization is housing. Furthermore, although the CPA 2006 principally prohibits the development of large-scale stores with more than 10,000 square meters in the un-zoned area, it does not affect the development trend in the city. Shops under the regulated size have been located along the trunk roads in several districts.

The major concerns derived from such suburbanization thus are the followings.

a) The people would claim the provision of infrastructure when the population in these suburbanization districts becomes too large.

b) Since daily life in the suburbanization area is based on car transportation, the living environment will become severe when people become old and cannot drive their cars. Public transportation, similar to other public services, is difficult to maintain because of less amount of
demand in spite of long-distance operations.

c) To deal with the above issues, namely a) and b) infrastructure, public services including transportation and welfare, are required. However, the city authority cannot afford these services because of the limitation of public financing limitations. In fact, the city planning tax levy, the resource for urban infrastructure, is not applied presently in the un-zoned area.

d) Since the purpose of development is not limited in the un-zoned area, a mixture of housings, commerce and business, factories, and agriculture including animal husbandry, is possible at any time. This circumstance degrades the conditions for each purpose of land use. The agriculture and forest area can become vulnerable.

e) Thus, management of suburbanization is an urgent issue for the city. At the same time, the city authority has to seek economic vitalization to address future depopulation and an aging society. Strict land use management may degrade vitalization. The city authority thus has to seek balance for both aspects.

4.2. Land Use Control Guideline

Based on the documented concerns, the city authority, as stated in Section 3.2, published its Land Use Control Guideline (provisional edition) in 2012. This guideline is the first attempt to counteract the effects of suburbanization in the un-zoned area as well as the restructuring of the urban area (zoned area).

Figure-12 shows the land use direction for the guideline. This map covers the merged area and also the ex-Miyakonojo City area. The zoned area is designated as an urban district in which infrastructure will be provided to pursue city vitalization. In the urban district, the use-zone system will be reconsidered to reflect present actual land use purposes. For example, in several districts, use zones are expected to be changed from commercial and business and industry to residential-oriented zones to introduce more population into the urban district.

The un-zoned area is designated in the guideline as a countryside residential area which consists of a special use restrict district and a countryside provisional district. The former consists of six districts, including a countryside living core district and a countryside roadside district. The country living district occupies the large portion of the country residential area (un-zoned area).

The principal land use direction for the countryside residential area is to have additional land use regulation introduced to prevent degradation of the present living conditions in addition to vitalizing agriculture and to maintain green friendly living conditions. To achieve this principal direction, the six districts are expected to introduce several regulation alternatives, such as incorporation into the zoned area, district plans, and special use restriction districts.

Looking at Figure-12, most of the A, B districts in Figure-10 are designated as certain special use restrict districts. The west side of A1, the center of B1 and B5 are colored to indicate a countryside living core district. Parts of A2, A3, B2, B3, and B4 are covered by countryside roadside districts and countryside interchange districts.

In the countryside living core district, although additional infrastructure provision is controlled, small-scale shops (less than 1,000 square meters) are allowed, while entertainment facilities, factories and livestock barns are controlled with some exemptions based on the consideration of neighborhood circumstances. The building-to-plot ratio and floor-to-plot ratio are 70% and 200%, respectively, and the same as the present regulation. In the countryside interchange district, future developments that utilize the convenience of the interchange are expected and the balance between developments and housings should also be considered. Thus, only stores (larg-
er than 1,000 square meters), entertainment facilities, and the large-scale livestock barns (larger than 3,000 square meters) are restricted. Moreover, the guideline supposes the application of district plans.

The country living district covers most of the city planning area. This district is to remain green and devoted to agriculture with specious housing. In this district, only small shops (less than 500 square meters) and livestock barns are allowed, while entertainment facilities and small factories are controlled with some exemptions based on a consideration of neighborhood circumstances. The building-to-plot ratio and the floor-to-plot ratio are 50% and 150%, respectively, that are less than the present regulations (70% and 200%, respectively).

4.2. Discussion

The most forceful tool to utilize against suburbanization is the application of an urbanization control area, even now. However, in Miyakonojo City, that application is not realistic because the people once experienced negative effects like depopulation in the urbanization control area. In a provincial municipality, negative effects seem to be more severe in today’s age of national depopulation and aging. Even if the control of suburbanization is achieved without the application of the urbanization control area, it should be avoided that strong regulations causes negative effects. The adjustment between the control of suburbanization and future vitalization of the city is thus the issue.

In this sense, the Land Use Control Guideline (provisional edition) shows a well thought-out direction using other tools than the urbanization control area. The B2 and B3 districts are covered by certain countryside use districts and thought of as potential districts to be incorporated into the zoned area. Other A and B districts are also covered by the other countryside use districts to restrain land use that potentially requires further infrastructure determination. Additionally, the application of a district plans is also considered. The Land use Control Guideline is thus an important step to control suburbanization, especially considering that there
have been no amendments to the land use plan since the abolishment of the urbanization control area.

Nevertheless, certain possible concerns remain as follows:

a) According to the guideline, those districts where developments progress beyond a certain level are incorporated into the zoned area if public consensus is achieved. B2 and B3 districts are candidates. However, since this incorporation accompanies a city planning tax levy for the residents, the residents will not likely agree to such incorporation until the degradation of the living environment becomes more serious. The provision of an infrastructure after the consensus is established will cost a lot. If no consensus can be reached, the situation will continue to worsen.

b) The introduction of the district plan has a similar problem because this plan requires the agreement of most of the people in the concerned district. When the residents recognize the necessity of the district plan, it may be too late to improve the living conditions. As a result, disordered districts may possibly increase in the special use restriction districts. Otherwise, even if a district plan with strict regulation is approved, the subsequent developments possibly will avoid the planned area, which can cause further suburbanization in cases where development pressure is high.

c) When comparing Figure-10 and Figure-12, one can see that several districts are covered by the countryside living district with loose regulations even though there have been many developments in these districts, such as northwest area of the B5 district. In these districts, disordered and mixed use developments possibly will occur in the future. When the residents recognize the degradation of the living conditions there, it may be too late, similar to the above a), b) scenarios already discussed above.

d) The special use restriction district can only regulate limited undesirable land use and cannot regulate the total amount of developments. Thus, any resultant large-scale development via incremental small developments is still possible in the un-zoned area. This resultant large-scale development will create a demand for further infrastructure and induce similar problems to the issues noted above.

e) Although the special use restriction district is made up of several countryside use districts, all of these districts do not have any regulations for housing except for a building-to-plot ratio and floor-to-plot ratio. Considering that about half of the total developments in Miyakonojo City have been occurring in the un-zoned area and most of these developments are housing, the loose regulations for housing in the un-zoned area remain controversial. The situation where people can enjoy cheaper land prices with loose regulation in the un-zoned area than in the zoned area still remains. These housing developments also promote shops and other purpose developments, which then causes further suburbanization.

f) Although the completion year of the expressway is not announced yet, the planned expressway and its interchanges will influence suburbanization. Developments in the neighborhood of the interchanges will also likely become core districts for the expansion of suburbanization.

Considering the above-mentioned concerns, continuous monitoring of ongoing development is required to provide prompt counteraction against undesirable situations. At the same time, the result of such monitoring should be delivered to the residents/public to build an earlier consensus for any additional necessary counteractions, such as incorporating the un-zoned area into the zoned area, amendments to the regulation for the special land use restriction district,
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Nevertheless, certain possible concerns remain as follows:

a) According to the guideline, those districts where developments progress beyond a certain level are incorporated into the zoned area if public consensus is achieved. B2 and B3 districts are candidates. However, since this incorporation accompanies a city planning tax levy for the residents, the residents will not likely agree to such incorporation until the degradation of the living environment becomes more serious. The provision of an infrastructure after the consensus is established will cost a lot. If no consensus can be reached, the situation will continue to worsen.

b) The introduction of the district plan has a similar problem because this plan requires the agreement of most of the people in the concerned district. When the residents recognize the necessity of the district plan, it may be too late to improve the living conditions. As a result, disordered districts may possibly increase in the special use restriction districts. Otherwise, even if a district plan with strict regulation is approved, the subsequent developments possibly will avoid the planned area, which can cause further suburbanization in cases where development pressure is high.

c) When comparing Figure-10 and Figure-12, one can see that several districts are covered by the countryside living district with loose regulations even though there have been many developments in these districts, such as northwest area of the B5 district. In these districts, disordered and mixed use developments possibly will occur in the future. When the residents recognize the degradation of the living conditions there, it may be too late, similar to the above a), b) scenarios already discussed above.

d) The special use restriction district can only regulate limited undesirable land use and cannot regulate the total amount of developments. Thus, any resultant large-scale development via incremental small developments is still possible in the un-zoned area. This resultant large-scale development will create a demand for further infrastructure and induce similar problems to the issues noted above.

e) Although the special use restriction district is made up of several countryside use districts, all of these districts do not have any regulations for housing except for a building-to-plot ratio and floor-to-plot ratio. Considering that about half of the total developments in Miyakonojo City have been occurring in the un-zoned area and most of these developments are housing, the loose regulations for housing in the un-zoned area remain controversial. The situation where people can enjoy cheaper land prices with loose regulation in the un-zoned area than in the zoned area still remains. These housing developments also promote shops and other purpose developments, which then causes further suburbanization.

f) Although the completion year of the expressway is not announced yet, the planned expressway and its interchanges will influence suburbanization. Developments in the neighborhood of the interchanges will also likely become core districts for the expansion of suburbanization.

Considering the above-mentioned concerns, continuous monitoring of ongoing development is required to provide prompt counteraction against undesirable situations. At the same time, the result of such monitoring should be delivered to the residents/public to build an earlier consensus for any additional necessary counteractions, such as incorporating the un-zoned area into the zoned area, amendments to the regulation for the special land use restriction district,


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