ANDRÉ SORENSEN

Building suburbs in Japan

Continuous unplanned change on the urban fringe

This paper examines suburban development in Tokyo’s metropolitan fringe during the 1970–90 period and shows that a very great extent the old pattern is spread that the 1980s planning system was designed to prevent has continued. Local governments have been hamstrung by the absence of adequate development control legislation. The most visible characteristic of the suburban case study area examined here is that it has been, and seems likely to continue to be, in a process of constant change. This is not merely a question of building of new homes, but rather a matter of significant incremental change in the very character of the area. Major new arterial roads are being pushed through existing residential areas, bringing ideas of development and new commercial land uses associated with highway stop development. The relative stability that characterized many suburban residential environments in other developed countries is visibly absent here.

As in other countries, most visitors to Japan spend little time in the suburbs, concentrating their time either in the city centres and historic areas and possibly visiting prominent sites of great natural beauty such as Mount Fuji or a karst spring resort. However, even the casual visitor cannot help but be struck by the seemingly endless urban fringe areas which fly past bullet train windows when travelling between urban centres. The student of urban growth and planning who takes the time to get off the trains at a suburban stop and explore these suburbs will be even more surprised. Why do Japanese suburbs look so different from those of other developed countries? Why, in a country that has practiced land use zoning since 1945 is there such a great intermixture of residential, agricultural, commercial and industrial land uses? Why are there so few large-scale suburban housing estates such as those found in other

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developed countries, and why are there so few of the exclusive residential developments for the affluent that have recently become common in other similarly wealthy nations? Why does intensive agriculture persist as small patches of vegetable or rice paddy in areas that are otherwise mostly built up while at the same time until recently forested areas are scattered throughout areas that are still mostly agricultural? This paper is a product of a larger research project that sought to provide answers to these and other perplexing aspects of Japanese urbanization.

Recent research that examined the role of land development projects on the growth of suburban residential areas in Japan since the passage of the New City Planning Law of 1968 (Sorensen, 1995; 2005) showed that a predominant characteristic of suburban development in Japan has been the scattering of development, with an extreme form of haphazard, unplanned growth being common in suburban areas outside Tokyo. One of the most interesting characteristics of Japanese suburban development revealed by these studies was the extremely long development periods of suburban residential areas such as those studied. The three case study areas, all located between 20 and 40 kilometers from Tokyo Station, each included about 700 hectares of building land. All were experiencing significant suburban development pressure in 1968, yet by 1992 only about half of all developable land had been built up, with an average of 1.2 per cent of the buildable land being developed each year during the 24-year period studied. Furthermore, rates of build up had actually declined so that about 1 per cent per year during the most recent 10-year period, at such a rate it would take another half century to reach completion, for a total development period of some 75 years. That seems an extraordinarily long time for what are really rather small suburban areas. The urban fringe in Japan is thus characterized by a continuity of high-intensity agricultural practice with, in Hanayama’s (1986; 30) apt description of the process, the gradual “diffusion” of urban uses into the predominantly rural landscape as farm landowners sell tiny bits of their land holding, in his sample also at a rate of about 1 per cent per year (Hanayama, 1986, 69). The process continues until only remnants of agricultural use are left in a general sea of urban development.

Such patterns of development seem very different from those found in Europe or North America, where larger planned developments are more common and after an initial period of development and building activity most suburban residential areas are relatively stable in their built form and land use patterns compared with Japan. Indeed, such stability is highly valued in residential environments and local residents are often willing to go to great lengths to preserve their communities and their investments from change (Shin, 1997).

Through an examination of the planning and development of a new residential area in Urawa City, Saitama Prefecture—a primarily residential area in the suburbs north of Tokyo—this paper attempts to clarify the impacts of the long construction times described above on patterns of development and on residential environments in such suburban areas in Japan. The earlier research did not make clear, for example, what the consequences of such extended development periods were at the micro level of the individual
neighbourhood. It is possible for example that individual small neighbourhoods remained quite stable within the wider context of a long-term change to the overall urban area. Conversely it is possible that the larger-scale changes to road networks and the steady build up of the area could result in serious instability at the neighbourhood scale. Equally, the incremental process of urbanisation also seems likely to have had significant influence on the nature and quality of the urban environment produced, and this paper begins an exploration of those consequences.

The great danger in focusing on a single case study city (or part of one) is that it may not be representative of suburban development as a whole. Any city chosen will have its own unique characteristics, and there is in fact considerable variety in suburban development in Japan, including large comprehensively planned developments such as the residential ‘new towns’ built by the Japan Housing and Urban Development Corporation since the 1960s in the outskirts of each metropolitan area and the large-scale public-housing estates built by central, prefectural and local governments. The new towns in particular tend to have relatively high design standards and a relatively short transition from greenfield site to full development. In the present context, however, the new towns and large-scale planned developments are the exception that proves the rule, as the vast majority of suburban development in the period since 1970 has taken place as unplanned, incremental expansion to existing towns. For example, in Suita Prefecture as a whole 3.55 per cent of the newly built-up area (as defined by the Densely Inhabited Districts [DID] described below) between 1965 and 1985 was public land development that is primarily public-housing estates. Another 7.50 per cent was by development permits, that is planned developments of over 1,000 square metres which provided their own roads and other infrastructure as well as buildings (Suita ken, 1992; Table B-1). Another 23 per cent of the new urban area was land developed by land readjustment (LR) projects as described below. However, these projects serve primarily to build infrastructure, and the building plots thus created are actually developed at a pace only marginally faster than non-LR areas (Sorensen, 2006). A total of 11.05 per cent of the new urban area thus comprised comprehensive developments which included infrastructure and buildings, while the balance of development in these areas was characterised by the incremental, sporadic build up examined below. It is fair to say that the case study area examined here is representative of a significant majority of metropolitan suburban areas created during the period 1970 to 1992.

The first section briefly outlines the main factors influencing the development of suburbs in Japan in the post-war period—rapid suburban growth, fragmentation of rural land ownership, the key land policy instruments, the land use planning system and the importance of land readjustment projects. The second section describes the efforts by Urawa City to manage urban development in the case study area, which was predominantly rural in 1968 but significantly built up by 1992. The third section looks at the patterns of development that have resulted and draws out the main findings.
Suburban development in Japan

RAPID SUBURBANISATION

The dominant factor affecting planning in Japan's metropolitana areas since the early 1960s has been the rapid population growth in suburban areas. While metropolitan areas containing the central cities were still attracting strong migration from rural prefectures, even greater numbers of people were leaving the central areas for adjacent suburbs. The central 23-ward area of Tokyo began losing population after 1960, thereby beginning the process of suburbanisation that has characterised metropolitan developments ever since (Glasman, 1973, 19; Shinohara and Iwasaka, 1980).

During the post-war period the suburban prefectures surrounding Tokyo (Kanagawa, Saitama and Chiba) absorbed an enormous influx of new residents. The total population of the three prefectures tripled during the period from 6.8 million in 1950 to 20.8 million in 1995, an increase of 14 million people over 45 years. Saitama, to the north of Tokyo where the case study city discussed here is located, saw its population more than triple from 2.15 million in 1950 to 6.76 million in 1995 (Japan Population Census, 1995). Even more dramatic was the expansion of urbanised area as measured by Densely Inhabited Districts (DID). DIDs were first recorded in the population census of 1960 in an effort to record the growth of significantly built-up urban areas. They are defined as tracts of contiguous enumeration districts with a total population of over 5,000 and a population density of over 40 persons per hectare. The DID area of the Tokyo Metropolitan Area tripled in 30 years to a total of 2,137 square kilometres of new DID by 1990, a truly vast increase in the urban area (Japan Population Census, 1995). In the three suburban prefectures the area of DIDs in 1990 was almost five times that of 1960, when DID areas were first defined, compared with a population increase of 2.4 times during the same period. This disparity is partly a result of larger house sizes and smaller household sizes. However, more important is the fact that designation as DID is triggered when areas are only partly built up. Thus not all land in the new DID areas is built on, reflecting the scattered and open texture of new development in the suburban fringe areas as shown below.

Figure 1 shows the increase of DIDs in Saitama from 1960 to 1995. This figure makes abundantly clear the enormous increase of urban area as measured by DIDs, and that growth was structured along the main railway lines leading into Tokyo. The case study area, Urawa City, which is the capital city of Saitama prefecture, is also indicated. As shown below, planning policy in the post-war period has focused, reasonably enough, on the new suburban areas such as those shown in Figure 1 that have become DIDs since 1960. The case study examines one such area in Urawa.

FRAGMENTATION OF LAND HOLDINGS

While the post-war period of rapid economic growth and rapid growth of metropolitan populations clearly provided a challenging context for urban planning, the small size of rural land holdings also greatly complicated the difficulties facing suburban municipalities in their efforts to manage this...
explosive growth. The fragmented pattern of rural land holding is a major factor that distinguishes urbanization in Japan from that of most other developed countries, and is a feature Japan shares with other societies whose agriculture is based on the intensive cultivation of rice, such as in China and South East Asia. Because rice-based agriculture can support high population densities on limited areas of land, individual farms tended historically to be very small in size compared with farms in either Europe or North America. In Japan this pattern was reinforced by the post-war land reform carried out by the occupation which caused a great reduction in the number of holdings above 2 hectares, and a significant increase in operated holdings of less than 0.5 hectares (5,000 square metres) from 33 to 41 per cent of all farms (Dore, 1959, 175). Teruoka (1989) also argues that the haste with which the reform was carried out perpetuated existing fragmentation as land holdings of individual farmers were not consolidated as part of the process, with the result that individual holdings were often composed of many scattered plots.
Compounding this problem was the fact that a very small percentage of land in rural areas was traditionally set aside for roads or other public uses. As most travel was traditionally by foot and virtually all agricultural labour was by hand, roads were narrow and divisions between fields merely footpaths. A useful indicator of the pre-urbanisation share of land held publicly is given by LP projects, which make a careful record of the amount of land in public ownership before and after the project. The average amount of public land within all LR projects in Urawa City was 7.7 per cent prior to project commencement. That compares with an average of some 26 per cent (including parks) after project completion. These rural land conditions stand in marked contrast with those in North America where farms are much larger and the colonial surveyors left generous allowances of public space for roads and community needs, such as churches and schools. Even in Europe where a much longer tradition of settlement predated the tidy colonial grid, both individual land holdings and areas of land in the public domain were much larger at the onset of urban industrial growth in the nineteenth century. In many European countries moreover, the irregular property divisions arising from centuries of agricultural use were an important factor leading to stricter regulation of urban expansion in the early decades of the twentieth century.

In Japan the small, fragmented farm land holdings and irregular property divisions that were the product of centuries of intensive farming and land subdivision presented significant difficulties. These and the post-war land reform combined with the very small amounts of land in public ownership to make impracticable the simple reliance on subdivision control to achieve local roads and services that was possible in much of North America. Yet European-style land development controls were not implemented.

LAND POLICY

The obstacles inherent to achieving orderly urbanisation in such a context were compounded by post-war land policy, which has been characterised by strong central government dominance and by the consistent priority placed on the interests of landowners and the emphasis on economic growth over environmental quality. Post-war Japanese land policy has been well documented (Hanyama, 1986, 44-50; Noguchi, 1990; Noguchi, 1992; Yamamura, 1992; Sorensen, 1998, 50-64). In the present context, two features of Japanese land policy deserve attention—land taxes and land development control. Each is essential for an effective land policy.

Land taxation of urban-fringe farmland in Japan has been the subject of protracted conflict in the post-war period. Successive attempts by advocates of stronger city planning controls within both the Ministry of Construction (MOC) and local governments to reform taxes on such land have been defeated by coalitions of farm organisations and land developers and their supporters in the Liberal Democratic Party (LDP) which has ruled Japan for virtually the whole post-war period. These failures are an eloquent testimony to the power of farm and development interests in the LDP political coalition. Agreement on the political power of the farm sector in post-war Japan is widespread, and perhaps
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most convincingly put by Yamamura (1992) in his analysis of LDP land policies in which he concludes that land policy has been primarily driven by the need to reward political supporters and not by considerations of efficient or equitable use of land. Farm votes have been a key element of the LDP political base throughout its post-war dominance of Japanese government, even though the number of farmers has steadily diminished in proportion to the number of urban residents. Yamamura cites the analysis of an LDP Diet member:

"It is often said that, unlike in the past, the LDP gets only 16% of its votes from the farmers. But they are not like salariedmen. They are sharecroppers. And the NOKYO (farmers' co-operatives) near large cities have financial resources in abundance. You cannot win an election if they are against you. Farmland in cities must remain. It would not be taxed at the rate of residential land. (Yamamura, 1992, 47)"

Until the significant reforms of 1962, Japanese farmers were remarkably successful in blocking attempts to close loopholes that allow farmland within urban areas to be taxed at agricultural rates instead of at urban rates. The fixed-asset tax for farmland was between 2 and 5% of the rate levied on urban land, even if the 'farm land' was deep within an urbanised area. Such land was also given generous inheritance tax advantages by assessing it at its value as farmland—far below its market value—if the owner expressed the intent to maintain it in farm use. Because of deductions and low assessments, most farmland escaped inheritance tax entirely (Noguchi, 1992, 21-22). This system was considerably revised in 1992 but it is still too soon to see clearly the results, particularly as conditions in the land market throughout the 1990s have been dominated by the pursuing of the land-price bubble of the 1980s, with almost continuous decreases in land prices during the decade. However, while tax incentives for holding undeveloped land in urban areas have been a major contributor to dispersal in the urban fringe, equally important has been the weak regime of land use planning and development control.

LAND USE PLANNING AND DEVELOPMENT CONTROL

The current land use planning system was first introduced as part of the New City Planning Law of 1968 which was the first general revision to the city planning system since it was introduced in 1919. The old system had proven ineffective in preventing environmental deterioration during the period of rapid economic growth of the 1950s and 1960s, and the new system was the result of increasing public pressure and proliferating environmental movements during the 1960s (Ishida, 1987, 533; Callo, 1981, 405). The new law had five main aspects—Urban, which was designed to prevent urban sprawl by dividing city planning areas into two parts, the Urbanisation Promotion Area (UPA) and the Urbanisation Control Area (UCA); the Development Permission System which was to control land development, as improved zoning system new measures for public participation; and delegation of responsibility for planning to local governments. It is the development control system and new zoning system that concern us here. Although the Sanki system of dividing suburban areas into
UPA and UCA was intended to be the primary means of preventing further uncoordinated development, and a prairie goal of the 1988 system was explicitly the prevention of urban sprawl (sofōra) (Ishida, 1987: 297). Senbōki is not important here as the area examined in this paper is entirely within the UPA.

A key feature of the new planning system was that private development projects within the UPA come under the provisions of the new Development Permission System which required any development over 0.1 hectares in UPA areas to provide its own infrastructure such as roads and make a contribution to sewerage. For the first time city planners had the legal authority to withhold permission for land development projects unless a certain level of roads infrastructure, contributions to sewerage systems and even land for parks was provided. Previously landowners could subdivide, sell, or build on land with no restrictions apart from building codes and zoning provisions—an important and hard to remedy cause of substandard development. This was a big step, as Japan's Ministry of Construction proudly put it, 'of all the systems in the history of Japanese city planning, it is the development permission system that is epoch making' (MOC, 1991: 16). Local governments, and particularly those in the metropolitan areas experiencing the greatest development pressure, quickly developed their own 'development manuals' (heihaitsu yosoku). These specified what levels of contribution to local public needs were expected to accompany various sizes and types of development, using the leverage of their control over sewerage and water connections to encourage compliance (Herbert and Nakai, 1988). In many cases these manuals specified higher standards than those provided for in MOC guidance, which Reed (1986: 92) cites as an example of effective local policy making that put pressure on central government to improve its standards. It was expected that these measures would help to prevent the spread of unserviced developments that had caused such problems in the 1960s.

Unfortunately, however, loopholes in the development control system allowed continued sprawl development (Herbert and Nakai, 1988; Katsumata, 1993; Herbert, 1994; Miškin, 1999; Sorensen, 1999). The most important of these was the exemption of developments of 0.1 hectare (1,000 square metres) or less from the need to gain development permission, which has positively encouraged the development of land in small units. This led, during the 1970s and 1980s to a proliferation of what are called in Japan 'minihaihaetsu' (literally mini developments). Minihaihaetsu have always formed a part of Japanese residential development; however, after 1968 they gained rapidly in importance because of the 0.1 hectare development permit threshold. In the Japanese context of small houses on small plots this was a very considerable loophole indeed, as a typical minihaihaetsu development would accommodate 10 to 12 detached houses plus an access lane on less than 0.1 hectares. As Mori has recently shown, in 1990 the average plot size of agricultural land converted to housing sites (including both detached houses, small and multiple-unit developments) was 423 square metres (Mori, 1998: 1549)—well within the 0.1 hectare limit. There continues to be no effective regulation of the subdivision of land into smaller parcels, and the first legislation allowing local governments to specify minimum
permissible plot sizes was passed only in 1992. While the District Plan system of 1980 allowed the application of a variety of stricter regulations in designated areas, the area to which District Plans have been applied has been so small as to have had an insignificant impact on patterns of development such as those examined here.

One important consequence of Japanese land policy has thus been the continued development of areas of urban sprawl. As Mori (1998) argues, allowing the unrestricted subdivision and sale of agricultural land for urban uses means that farm landowners receive 'hot' land values, and that buyers will pay far less for housing sites, while leaving municipal governments retrospectively to provide essential public services later.

When urbanisation takes place in many parts of Japan, improvements in infrastructure such as roads, sewers and schools follow only belatedly and in an insufficient manner, particularly in UPA areas (Mori, 1998, 1999).

The costs of such ex post provision have been financed by general tax revenues on all residents and by steadily increasing local government debt.

Put simply, low land taxes on farmland in urban areas and broad loopholes in the development control system have meant that farmers can hold land speculatively at very low cost, waiting as their land gains in value. Landowners have continued to enjoy significant freedom to subdivide and sell small plots and can easily avoid requirements to contribute to infrastructure or other public needs. They therefore have no incentive to sell larger pieces of land and most residential developments are quite small scale, with individual houses on small clusters on a short cul-de-sac, while most larger developments are on redeveloped industrial sites. This institutional framework has allowed the continuation of unserviced sprawl-type development in urban fringe areas in Japan, and has been a key factor encouraging Japan's distinctive pattern of intermediate farm and urban uses in suburban areas.

The second part of the city planning system which has been important in the development of new residential areas on the urban fringe is zoning, which since 1968 has been required in all UPA areas but not in UCA areas. Before 1968 Japan's zoning system allowed differentiation between only four land use zones—industrial, quasi-industrial, commercial, and residential. The introduction of a new zoning system in 1968 with eight different use zones and numerous discretionary special zones allowed more detailed planning to take place. Apart from specifying land uses, the use zones detail permitted building heights, floor area ratios and coverage ratios. It is significant, however, that in comparison with most North American zoning regimes Japanese zoning permits a wide range of uses in more zones. Thus with the possible exception of Category 1 'exclusive residential' zones and 'exclusive industrial' zones the new use zones were structured to allow a broad mixture of uses, as shown in Table 1.

It is clear from the zones outlined above that a wide variety of uses are allowed in all but zones 1 and 8. The total national area of each use zone as of 31 March 1994 is shown in Table 2. As is evident from the table, the three residential zones account for almost 70 per cent of the zoned area and less than one-third of this
residential area is Category I. The rest of the residential zone permits a much higher mixture of uses than is common in, for example, most North American residential areas. Also, as the new zoning was only implemented at the end of the 1960s, many existing uses in already built-up areas were 'grandfathered', or allowed to continue in exceptional cases. The result has been high degrees of intermixure of different uses, to the extent that it is quite difficult to perceive
that any zoning regime has been in effect.

It should be noted that several Japanese and Western commentators have pointed out the positive consequences of the high degrees of mixed use in Japanese cities. The economic and cultural vitality of Japanese cities and particularly the safety and continuing liveliness of central city areas, for example, has been favourably contrasted with American cities (Watanaabe, 1985, 272–6; Jinno, 1995; Shelton, 1999). Japanese urban areas have also avoided the high degree of residential segregation that is prevalent in the USA, with most residential areas including residents with a wide range of incomes (Fujita and Hill, 1997).

On the other hand, with the spectacular inflation of land prices in the late 1980s, others have noted that the openness of the zoning system encouraged the spread of price inflation from commercial areas to residential areas. It was argued that the price rises caused by the speculative boom of office building was able to spread to residential areas because developers could realistically expect that residential areas could be redeveloped for office use (Hayakawa and Hiyayama, 1991, 151–64; Gakushi, 1994, 204). An example of the use of zoning to plan for urban growth is considered later in this paper.

**THE CENTRAL ROLE OF LAND READJUSTMENT**

Land readjustment (LR) projects are the third main pool used by local governments to manage land development and the provision of infrastructure in newly developing areas on the metropolitan fringe. LR is a method whereby a group of landowners can join forces to develop or redevelop land. In essence, LR is a process whereby landowners pool ownership of scattered plots of agricultural land, build roads and infrastructure and then subdivide the land into urban lots. Each landowner usually contributes a portion of their original land holding (usually about 30 per cent of the total) to provide space for roads, parks, other public space and for reserve land. The reserve land is sold at the end of the

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Table 2. Status of land use zoning, March 1994*

<table>
<thead>
<tr>
<th>Category</th>
<th>Area (hectares)</th>
<th>Percentage of total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I - Exclusive residential</td>
<td>345,160.0</td>
<td>19.8</td>
</tr>
<tr>
<td>Category II - Exclusive residential</td>
<td>327,736.7</td>
<td>18.8</td>
</tr>
<tr>
<td>Residential</td>
<td>529,180.1</td>
<td>30.1</td>
</tr>
<tr>
<td>Neighbourhood commercial</td>
<td>76,544.8</td>
<td>4.4</td>
</tr>
<tr>
<td>Commercial</td>
<td>68,831.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Light industrial</td>
<td>101,075.3</td>
<td>10.4</td>
</tr>
<tr>
<td>Industrial</td>
<td>95,719.4</td>
<td>5.5</td>
</tr>
<tr>
<td>Exclusive industrial</td>
<td>141,705.6</td>
<td>8.1</td>
</tr>
<tr>
<td><strong>TOTAL ZONED AREA</strong></td>
<td><strong>1,743,986.7</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Note: In 1992 the use zoning categories were increased from 10 to 12 and the Municipal Master Plan system was introduced. When the above data were gathered only some 6 or 7 cities out of over 1,800 with zoning had implemented zoning with the new system, resulting less than half of one per cent of the total zoned area. The above data refer to the areas still zoned under the old law.

Source: Japan City Planning Association (1995, 30)
project to put the costs of planning, administration and construction. The attractiveness of the method for landowners is based on the fact that substantial increases in land value can be achieved by the process, so that the value of the individual land holdings can be greatly increased, even though the remaining area is smaller. The attraction for planning authorities is that projects provide land for public facilities and build needed urban infrastructure.

LR has been especially important in suburban areas for four main reasons. First, local governments which were struggling with serious infrastructure backlogs, in existing built-up areas saw the potentially self-financing projects as a useful way to provide services in undeveloped fringe areas. Second, fragmented rural land holdings made a simple reliance on subdivision control to prevent unserviced development difficult because many farm plots were already small enough for housing development without further subdivision. Many other plots, while slightly larger, were still too small to allow the economical installation of main services. Third, fragmented landownership increases the transaction costs and conflict associated with building infrastructure, such as arterial roads, because of the large numbers of small landowners and because some landowners lose by being bought out entirely, while others benefit from gaining frontage on the new road. In cases where land is held in larger blocks most individual landowners are likely to realise gains in land value because only a portion of their land is bought for road use while the remainder gains road frontage. LR projects are in many more equitable because all landowners contribute a similar percentage of their land and all gain from better infrastructure. Finally, LR holds out the promise that reconfiguration and retroactive installation of main services can be carried out in suburban areas where a certain amount of unplanned development has taken place. This has resulted in a widespread belief that areas that have developed in a haphazard fashion can always be redeveloped with LR later. The conventional wisdom of Western planning that it is essential to ensure proper design and servicing of urban fringe land before any conversion to urban uses is perceived separately loses some of its force.

The role of LR projects in the development of Japan's metropolitan suburbs has been examined in some detail elsewhere (Sorensen, 1999; 2000a; 2000b). Here it may suffice merely to mention two relevant findings of those studies. First, with the implementation of the new planning system in the early 1970s many local governments, including that of Utsunomiya examined here, attempted to achieve comprehensive development of the "new urban areas" (Mukushihaishi) through the use of LR. The "new urban area" was the undeveloped part of the UPA which was expected to be developed within the next 16 years, and in practice was that part of the UPA which was not yet DID. In the event the area of UPA designated in 1970 in Saitama prefecture was significantly larger than necessary and is still only partially built up today.

Second, significantly less than half of the "new urban area" was developed through LR projects, in part because of sustained opposition to planned projects by local landowners (Sorensen, 2000a). Thus while the projects were extremely useful in providing rationalized property divisions, local and arterial roads, parks and sewage within project areas, the fact that the projects themselves were
scattered around the newly developing areas has meant that arterial road and sewer systems are far from complete and considerable 'leapfrog' development has been encouraged (Sorensen, 2000b). Furthermore, most building within the new urban area has occurred as dispersal and is spread rather evenly throughout the 'new urban area' regardless of whether it was developed with LR or not. At the same time unsuitably plots remain in agricultural use both in LR and non-LR areas.

These three sets of planning instruments—the development permission system, the zoning system, and land readjustment—were intended to provide a comprehensive toolkit for local governments to manage urban-fringe development after 1968. The next section looks at the efforts to manage growth with this planning system in one case study area, while the final section looks at the results of those efforts.

Planning for growth in Urawa City, 1970-90

This section describes attempts by the local government of Urawa City in Saitama Prefecture to manage urban growth between 1970 and 1980 with the planning system described above. The rapid urban growth of this period and the relatively weak controls on development clearly presented serious challenges for local planners.

Figure 2 shows the dramatic growth of DIDs in Urawa from 1970 to 1995; a pattern of growth that was also typical of other cities in the Tokyo Metropolitan Area. The existing built-up area is found along the main north-south rail line and new urban growth occurred to the east and west of that rail corridor, almost exactly doubling the size of the DIDs during the period from 2,150 hectares in 1970 to 4,280 hectares in 1990. The principal strategy to encourage planned growth in the 'new urban area' outside the 1970 DIDS was to promote LR projects. As shown in Figure 2, LR projects were planned for much of that new area particularly on the east side where it was intended that they would help to create a high-quality residential environment. While several projects had been started here during the 1960s and early 1970s, a new policy was developed by the Prefecture in response to the continuation of small-scale unserviced developments—LR would be used comprehensively to develop the as yet undeveloped parts of the UPA. The 'promotion areas' shown in Figure 2 are areas where new LR projects were planned by the local government, and where landowners were threatened with downzoning to UCA status if they did not agree to development of their land by LR.

A detailed account of the implementation and outcome of that policy can be found in Sorensen (2000a; 2000b). Despite most of this area being targeted for comprehensive development by LR in the early 1980s, only some of the Planned LR projects had been initiated by 1995.

Also shown in Figure 2 are the smaller LR projects carried out next to Urawa's three principal railway stations along the Japan Rail Takasuki line—the main trunk line to the north until the building of the Tohoku 'bullet train' (Shinkansen) line (shown as the heavy line to the east). These 'downtown' redevelopment projects created new station-front plazas and sites for large
multi-storey shopping centres and major department stores. Due to the fragmentation of central areas land holdings in the oldest part of the town, redevelopment projects are very time consuming and difficult to carry out, even though they are much needed to accommodate the rapidly growing population. Other major initiatives during these years were the development of a large new park in the floodplains of the Arakawa River to the west of the built-up area shown in Figure 3, and retrospective provision of sewerage services throughout much of the existing built-up areas.

Figure 3 is based on the zoning plan that was in operation in 1955 which was almost identical to that approved in 1970 as part of the implementation of the New City Planning Law of 1968. Most of the existing urban area of 1970 has been zoned ‘residential’ or ‘light industrial’, the two most inclusive zoning categories which can accommodate virtually any land use except the largest factories. This merely reflects the heterogeneous character of the existing urban area before the enactment of stricter zoning regulations in 1968. At the main rail stations large commercial areas are designated. These are significant primarily because they allow a higher floor area ratio and plot coverage, rather than because they affect a greater range of uses.

It is worth noting that areas zoned ‘residential’ as opposed to ‘exclusive
Building Suburbs in Japan

Fig. 3 Urawa zoning and planned arterial road, 1967

Residential areas are characterised by their great diversity of land uses, as is perhaps to be expected given the extremely broad range of uses allowed. High degrees of mixed land use are characteristic of Japanese cities—today as much as in the past—and that often results in a stimulating and vibrant urban environment and avoids the worst excesses of land use segregation. In many cases, however, Japanese mixed-use areas do suffer from obviously conflicting land uses. Auto wreckers, odoriferous factories, clamorous pachinko parlour-gambling parlours and dubious waste-processing facilities and innumerable stand side by side with apartment blocks and single-family houses. Complaints about noise, vibrations and bad smells—all environmental problems directly related to such mixed use—have consistently topped the list of environmental complaints in Japan (McKeen, 1981, 19). As can be seen in Figure 3, Urawa's zoning plan is an attempt to deal with some of these problems by creating an extensive new area designated for exclusively residential use on the east side of the city.

The attempt to create more exclusively residential areas is reflected in the zoning of the 'new urban area' outside the DID area of 1970. While the west side of the city was zoned 'industrial' and inner-city 'residential', the east side is zoned virtually entirely 'exclusive residential 1 and 2'. A dominant feature in this new area is the planned arterial road grid composed of roads of planned widths ranging from 16 metres to 30 metres with corridors zoned 'exclusive residential'...
on both sides to allow a variety of commercial and industrial development in strips along the roads. The new residential areas were also provided with one major commercial centre around the new East Urawa Station of the JR Musashino Line—a Tokyo orbital rail line completed in the late 1960s which was built primarily to handle freight but which also carries commuter trains.

The east side of Urawa had the advantage of an attractive physical environment of gentle hills and valleys with significant areas of mature woods and bamboo groves and a location away from the industrial areas of the west side. This area was traditionally an area of market gardening interspersed with small areas of woods and is still very green, with lots of trees, well-tended orchards and fields of vegetables—now increasingly interspersed with housing and commercial development and large arterial roads. It is this area on Urawa’s east side that was intended to become the city’s main area of high-quality housing. A primary concern of this paper is with the nature of development in the exclusive residential areas on the east side of town. How well has Urawa...
succeeded in its attempt to create a salubrious residential environment over the last 30 years.

The resulting suburban environment

This final section attempts a brief analysis of the nature of the suburban areas that resulted from the policies and plans described above and draws out the main findings of the paper. Figure 5 shows the state of completion of the arterial road network throughout Urawa as of 1995. It is clear that the city has had great difficulty completing its planned arterial road system. Only a small proportion of planned arterial roads have been built and improvements have taken place primarily on roads within LR areas and secondarily to major roads leading to the town centre. Completion of the planned network will clearly be a long-term, costly business as urbanisation has proceeded well in advance of road building. Congestion is unsurprisingly severe on existing through roads which have seen dramatically increasing use resulting from the growth in population and increasing car ownership.

Figure 6 gives a more detailed view of one part of the new urban area on the east side of Urawa, showing the road network and built-up plots in 1992. This
Fig. 6 Results and land development patterns in 1992.
area includes a large area developed by LR projects. While modified grid networks of local and arterial roads have been established inside the LR areas, outside the LR areas the old rural road system is clearly visible. The fact that the LR areas do not always connect together means that the completed bits of the arterial road network are fragmented. Also, while the only large blocks of undeveloped land are in the non-LR areas, significant amounts of undeveloped land remain in the LR areas, and large amounts of building have occurred outside the LR areas along the light tracery of the existing rural road network and on short extensions to it. In 1990 about 32 per cent of all dwellings in Urawa were on a road of less than four metres in width (Saito, 1992). Many urban areas in Japan have become fully built up in this manner, with a gradual improvement of the road network by widening here and there and with retrospective provision of sewerage and other services. It is a common mistake of foreign observers to see these areas as a vestige of Japan's ancient urban tradition, even though the vast majority have been built during the post-war period. This pattern of incremental build up along the narrowest of roads is of course precisely the reason why it has been so difficult to complete the planned arterials. In most cases they require substantial and expensive purchase of built-up land and demolition of dwellings. It is also worth noting that in the area of Figure 6 the only service areas are the LR projects. Developments outside the projects use cesspits which must be regularly pumped out into tankers. Sewerage systems in these areas will have to be instilled retrospectively.

The only parks in the new urban area on the east side of Urawa are within LR project areas which must have a minimum of 3 per cent of their area as park to qualify for central and prefectural government subsidies. The cost provision of parks is a result of the difficulties experienced obtaining land. However, the lack of park space is more surprising considering the objective of creating a high-quality residential area. The paucity of public green space does not bode well for the future, as the area becomes fully built up and population density increases. Particularly unfortunate is the fact that the natural environment was particularly rich and, given a different planning regime, could have resulted in a very high quality of urban environment. As it is, the streams, the thickly wooded swamps and the many small wooded areas are being gradually built over.

In contrast to suburban residential developments in other developed countries, in Japan there is very little chance that such natural features will remain after an area is developed. New urban land developments always start with the clearance of all vegetation and the creation of absolutely level building plots by the systematic use of retaining walls. This occurs whether the land is already arable, or is on a steep hillside. Very small residential plots, themselves the result of high land prices, mean that even a relatively small house will normally be built to within a metre of the plot line on three sides, leaving a small garden area on the south side of the building regardless of whether that is on the street side, to one side or behind the house. There is no space in these small plots for large trees and only the major arterial roads are wide enough to allow roadside tree planting. Without measures to preserve green areas it thus seems inevitable that eventually a fully built-up urban area lacking significant green space will result.
even though during the decades-long process of build up there are often generous amounts of green remaining in farmers' veggie plots and in wooded hillsides. It is often said that Japanese people move to the suburbs to achieve a better, greener environment. However, as Hanaya (1988) has argued in the Japanese case, and has long been lamented by critics of suburban residential development in the West, such a green environment is only a temporary benefit which is soon lost to further development.

Figure 7 illustrates the gradual process of build up in one part of the case study area, including both LR and non-LR areas, during the period 1968 to 1992. New houses and businesses are distributed rather evenly throughout the area. While new road systems have been completed only in the LR areas, a very significant amount of new building has occurred along the former rural lanes in non-LR areas. Particularly notable are several areas of detached housing development. That at the circled numeral (1) in Figure 7 was built prior to 1968 and is a useful illustration of the pre-1968 practice of permitting housing without any road frontage apart from a minimum 2-metre-wide access lane. Two areas of minkaizatatsu from the 1970s can be seen at numeral (2) and (3) in the bottom left of the area. As is evident, although all houses now have road frontage, many of these roads are dead ends and the size of the houses has markedly decreased while the number of houses per hectare has increased. New housing built during the 1980s at numeral (6) was located in the path of a planned arterial road even though most of that area had hitherto remained unbuilt while surrounding areas had been developed. It appears that the landowner grew tired of waiting for the road to be built and proceeded to develop his land, even though these houses will have to be demolished to complete the planned road. The occupants of the houses are presumably hoping that the road will not be built in the immediate future. The area shown in the Figure 4 photograph is indicated with the numeral (5), while that of Figure 8 is indicated by the numeral (4). As can be imagined, road congestion is a serious problem in this area as the only through roads are carrying a vastly increased traffic load. Former rural lanes are also increasingly heavily used, even though they will only just permit two cars to squeeze past each other. The wide road at the top left of Figure 7 is part of a new national highway from Omiya in the north to Tokyo in the south. The portion shown here was completed in the mid-1970s as part of an LR project. Virtually all of the area in this figure not yet developed by LR is "LR designated area" in the official plan, scheduled for comprehensive redevelopment if the city can only gain the consent of the landowners. However, as shown elsewhere (Sorensen, 2000a), such consent is not always forthcoming. Haphazard subdivision and development in the meantime means both that there are more landowners whose consent is required and greater expense of project execution if consent can finally be obtained.

Whether the area shown in Figure 7 is eventually redeveloped through LR or not, it seems certain to experience ongoing and substantial transformation in coming decades. Figure 9 shows the main factors that will affect future changes in this area—the planned arterial roads with their accompanying strips of land.
zoned to allow commercial, industrial and high-rise residential uses, and the extensive reserves of unbuilt land which can be expected to build up gradually over the next several decades. As Figure 9 clearly shows, there are few parts of this area that are likely to see any stability over the medium term and much of it is likely to see a steady and fundamental transformation as new roads and buildings are constructed.

This is perhaps the most distinctive feature of new residential areas in Japan such as that in our case study—they are characterised by constant and wholesale change. This is not merely a question of infilling of new houses in the empty plots of an established road and cadastral system. It is rather a matter of the gradual transformation of the very character of the area, with major new arterial roads being pushed through existing neighbourhoods, bringing blocks of apartments and new commercial land uses associated with highway strip development. The most important changes include changes to road networks and travel patterns, increased population and built density, increases in the range and number of land uses, and the gradual, largely unplanned shift from a primarily rural and residential area to a mixed residential/commercial area. Scattered plot-by-plot development, incremental completion of planned road
networks and 'ex-of-right' building within zoning limits, even where main infrastructure has not yet been built, all mean that these areas are continuously under construction for many decades.

It is not a question of whether these areas might turn into slums. Land prices are far too high for that to be likely. Rather, the question is what kind of residential environment are the new residents getting for their investment and would it have been better and cheaper with a different planning regime? The fact that the ministry of suburban development that is well planned and protected from unplanned change such as the New Towns is so popular and so much more expensive, suggests that many Japanese home buyers prefer a more stable
residential environment. This is also confirmed by the recent proliferation of citizen-based efforts to protect their communities through local development control ordinances (Machizukuri Tetsuryō) during the 1990s (Kobayashi, 1999; Watanabe, 1999). However, while these efforts are an important development and sign of change in Japanese urban planning, the fact remains that the problems of urban development seen in the case study area examined here are typical of a majority of the metropolitan suburbs created since 1970. While the significant changes to the city planning legislation in 1992 and again in 2000 have significantly strengthened controls over development, the enormous half-built areas such as those examined here seem certain to absorb a disproportionate share of planning resources for many years to come.

The major loopholes in the Development Permission System, the relative openness and inclusiveness of the zoning system and the inability to implement LR projects comprehensively have meant that much development in suburban Japan built up as haphazard dispersed development and sprawl. Most urban infrastructure is provided after areas are substantially developed and park provision is minimal. Road networks are incomplete and traffic congestion on the existing routes is intense. Suburban residential areas have high levels of intermixture of activity, change is constant and environmental stability is noticeably absent. The old patterns of sprawl that the 1968 planning system was designed to prevent have been reproduced on a larger scale. The suburban case study area examined here has been, and seems likely to continue to be, in a process of enormous, incremental change to its very character. This is a remarkable contrast with suburban residential areas in the other developed countries where environmental stability is one of the most highly valued qualities.

It seems fair to suggest that the main culprits have been lowland-holding taxes and lack of development control, not local planners. I would argue that, given the planning framework available, the efforts of the Urawa City planning department were reasonable and that the main problems stem from a planning system, and particularly a land development control system, that was inadequate for the task. Current suburban housing conditions are to a great extent the result of the low priority placed by central government on public investment in or regulation of residential areas, as compared with infrastructure to support industrial growth. Until 1992 local governments were hamstrung by the refusal of central government to pass even permissive legislation allowing local areas to strengthen their own planning powers, such as the legal right to set minimum plot sizes or to implement subdivision controls. The emphasis was rather on ensuring the continuation of maximum freedom for the landowner and land developer.

This approach seems likely to ensure higher long-term public and private costs as well as a degraded urban environment. As is well known, scattered development patterns greatly increase the costs of main infrastructure provision such as water supply, roads, sidewalks and parks. Widespread retrospective provision and the need to buy land at full urban values also seem certain to have greatly increased the costs of local government. A detailed examination of municipal finances is beyond the scope of this paper but it seems clear that being unable to
prevent unserviced subdivision and development has strained the ability of local
government to provide services. Municipal provision has fallen further and
farther behind need, even though increasingly large amounts of money are being
spent. The infrastructure backlog therefore continues to increase. A decisive
factor has been the high price of land. Because of Japan’s extra-linearly high
land prices purchasing land for roads and parks is virtually impossible. To be able
to achieve these space-intensive public facilities local governments have been
forced into an increasing reliance on LR, as it holds out the promise of obtaining
this type of land from the landowners at no charge as their contribution to project
costs. In the Japanese case, unrestricted land markets have not led to low land or
housing prices but rather to poor residential environments and high long-term
costs for local governments and residents. The fundamental planning ideas
fought for by early planners such as Raymond Unwin at the beginning of the last
century are distressingly relevant here—without basic public controls over the
private development of land good urban environments are unlikely to result and
heavy long-term costs are likely to be incurred.

It should not be assumed that no other alternative was available, even without
a strong planning law such as that in post-war Britain. In 1968 when the new
planning system was enacted the Urawa study area was almost entirely rural in
land use. If different choices had been made then, whether it was enforcing
slightly stricter conditions of development permission, placing strict controls on
building in the route of planned arterial roads, purchase of the development
rights to such land or even outright purchase of the land, it seems likely that it
would have been cheaper in the long run.

In reviewing the incremental development of these suburban areas an
impression can be gained of how narrow the conception of the eventual built
urban environments must necessarily become for those charged with city
planning in these circumstances. The vision of a completed arterial road network
must—hence in the dreams of the planners responsible. However, the inability to
achieve even that must prohibit more ambitious ideas, such as bicycle routes or
decent parks, or an urban design that uses the hills and valleys of the area to
advantage or that would allow the numerous streams to flow above ground
through green corridors instead of in concrete ditches beside roads.

The situation described above suggests a number of questions: For example, one
wonders what do local people think about these areas as a place to live? Do
local residents agree that the local environment is improving or getting worse?
Are local residents aggrieved about the poor provision of urban services, or do
they simply see this situation as inevitable? Who, if anyone, benefits from these
sorts of development patterns? What is in fact have been the impacts on local
government finances? Why was the Japanese planning system unable to manage
such urban growth when Japan is rightly recognized as having had one of the
world’s most effective systems of planning for national economic growth?
Answers to these questions may serve to shed light on Japanese urbanism and
urban planning. At the same time they highlight the differences between Japan’s
experience and that of other developed countries. Similarly, such insights may
prove useful in understanding the difficulties particular to rapid urbanisation in

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other Asian counties where the vast majority of new urban development during the twenty-first century will occur (Sorensen, forthcoming).

However, for Japan and particularly for Japanese suburban residents the patterns of development described here represent a tragedy of immense proportions. The reluctance to regulate urban land development has effectively meant that the central government has presented existing landowners with the lion’s share of the benefits of urbanisation, while all-eating the associated social costs to the hapless local governments and residents of suburban areas. The situation appears likely to contribute mightily to the perpetuation of the problem of Rich Japan, Poor Japanese which has been the unfortunate companion of rapid economic growth in the post-war period.

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