

A Theory-Based Approach to Urban Planning at the City Edge

An Analysis of Japan before World War II

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Abstract

Early urban plans in Japan, such as the Tokyo Park System, included wedge-shaped green belts that penetrated urban areas. The reasons for their establishment, however, were unclear. To explore the reasons behind them, focusing on the outskirts of cities is necessary. Therefore, the purpose of this study was to focus on the green areas at the edge of urban areas to decipher the ideas of urban planning experts from that time and clarify the planning background behind these wedge-shaped green spaces. By keyword searches at the National Diet Library, thirty-nine documents on urban planning up to 1945 were selected. Subsequently, we analyzed them with a focus on the ideal city size and objectives of green spaces. As a result, many experts believed that cities should be developed in a planned manner. Furthermore, most experts understood green belts as a natural enclosure for the artificiality of the city, instead of a non-urban area to control the area of the city. From the above-mentioned results, it is believed that wedge-shaped green spaces emerged to satisfy the demands of the experts of the day, which were to ‘develop cities’, ‘prevent continuous urban areas’, and ‘bring cities and nature closer together’.

Keywords

wedge-shaped green space, green belt, urban expansion, small town theory

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INTRODUCTION

The Tokyo Park System, the Kanto Region Metropolitan Structure Plan, and the Tokyo Metropolitan City Plan for Postwar Reconstruction presented urban visions that ushered in modern urban planning in Japan, and each plan included wedge-shaped green belts that penetrated urban areas.

The reasons for their establishment, however, are unclear. For example, the Tokyo Park System (1939) only mentions that ‘green belts are one means of preventing the overexpansion of the greater Tokyo Metropolis, which is expanding infinitely (omitted), and shall include numerous wedge-shaped green spaces to heighten its effect’.

To explore the reasons behind the creation of these wedge-shaped green spaces, it is necessary to focus on the outskirts of cities. Therefore, the purpose of this study was to focus on the green areas at the edge of urban areas to decipher the ideas of urban planning experts from that time and clarify the planning background behind these wedge-shaped green spaces.

LITERATURE REVIEW

Multiple studies on ideas in pre-war urban planning have been published to date. Kohji Takeuchi et al. clarify the urban planning ideas of the architect Toshikata Sano based on his discourses on urban planning. Yuji Kawase et al. focus on the urban planner Hiroshi Ikeda, known as the Father of Urban Planning, and attempt to explain his philosophy on the subject.

In studies on the influence of European ideas, Akinobu Murakami studied the transfer of Howard’s idea of the garden city. Sanada studied the significance of green spaces and parks in the early years of urban planning, taking into account the influence of European ideas.

Most studies that explored the philosophy behind urban planning focused on a single individual or a specific subject; thus, it has not been possible to understand the ideas on urban planning that include experts from every field involved in urban planning at the time.

RESEARCH METHODS

In this study, the National Diet Library was queried for documents up to 1945 that contained the keyword ‘urban planning’. Thirty-nine documents on urban planning published before the war were selected from the results and used as data (Table 1). Based on these documents, Section ‘The experts’ understanding of a “city” demonstrates how writings on urban planning from experts at the time provide an understanding of how they perceived the urban situation and urban problems. Section ‘The ideal city size’ focuses on city size, which is closely related to the green spaces that encompass cities, and clarifies concepts of the ideal city. Some experts supported the small town theory as the ideal city, and so Section ‘Interpretations of

small town theory' clarifies how they viewed these green belts encompassing larger cities. The last section summarises what this research uncovered and then uses journal articles from the time as clues into the reasoning behind wedge-shaped green belts.

THE EXPERTS' UNDERSTANDING OF A 'CITY'

This section provides insight into how the experts of the time perceived the state of urban areas and the problems facing cities when writing books on urban planning.

(1) THE STATE OF URBAN AREAS

Regarding the state of cities, in his 1908 publication *A Study of Cities* (Discourse 1. The number attached to each discourse corresponds to those in the above table), newspaper proprietor Miyake Iwao stated 'that the population of cities grows every year and that they are becoming increasingly more prosperous is a generally recognised fact requiring no explanation.' Discourse 4 also states that 'the development of modern cities differs significantly from that of ancient or mediaeval cities in that the momentum of quantitative development is particularly rapid.' This was mentioned in discourses from each year (7, 10, 12, 14, 20, 31, and 38), and experts at the time shared an understanding that urban population growth was significant.

Discourse 5 notes that population growth 'is characteristic of modern cities in that large buildings cover even the smallest city plot and that force exerts itself beyond the urban areas as the city continues its development', an observation recorded in other discourses from various times (6, 19, 26, 27, 31, and 34). Many experts considered the urban situation of the time to be one of population growth in urban areas and residences expanding into suburban areas.

Regarding the relationship between urban development and transportation, Discourse 9 points out that 'it is no exaggeration to say that cities always emerge and develop in places with good transportation centres'. This sentiment can also be found in discourses 8 and 18.

(2) URBAN ISSUES

Of the 27 discourses that reference urban issues, most identify population density as the premise. For example, Discourse 18 says that 'a number of problems occur when centralisation causes cities to absorb capital and population, which in turn leads to their gradual expansion and loss of balance. Traffic congestion is one of the most important issues'. Discourse 21 says that 'a relatively large number of people and homes congregating in a relatively small area create frequent congestion and complicated living conditions, and eventually leads to physical and mental issues in citizens, such as sanitation problems, disarray, and conflict'. This discourse focuses on the negative effects of population density, as do 2, 4, 12, 25, 28, and 38.

On the other hand, literature from the 1920s (1, 6, 7, 10, 16, 17, 20, and 27) focuses more on problems involving unplanned urban population density rather than density itself, as the effects of urban planning may have been less visible at the time. For example, Discourse 10

states that ‘the harm of urban life is that this rapid urban expansion proceeds uninhibited and no steps have been taken to address it’. These sources do not always see population density as a bad thing.

Many experts were concerned about urban expansion, and they can be divided into two categories: those who saw large cities themselves as the problem and those who viewed the problem as one of unplanned expansion and not urban expansion per se. As an example of the latter, Discourse 14 states that ‘failure to plan for and control the areas adjacent to cities, which are expanding ever faster in their attempt at infinite expansion, will force us to repeat the bitter experiences currently facing the suburbs of Osaka and Tokyo’. Similarly, discourses 8, 9, 17, 22, 24, 26, and 27 view unregulated development as the problem, as do many discourses from the late 1920s onwards. Other problems with the geographic expansion of city areas were found in discourses 19, 20, 31, 34, 35, and 39. They do not, however, clarify the problems involving urban expansion. They are nostalgic reasons, such as the loss of access to nature. This small town theory appears more often in discourses starting in the late 1920s and was the prevailing opinion of bureaucrats and technicians in the Home Ministry.

Seen in this way, it can be said that the issues surrounding cities have gradually shifted from population density, congestion, and unplanned congregation to uncontrolled expansion, which in turn led some experts to view urban expansion itself as the problem. While many experts considered unplanned and uncontrolled concentration and expansion to be problems, many were not actually opposed to concentration and expansion in and of themselves and believed that ‘cities should expand’.

THE IDEAL CITY SIZE

This section examines discourses to clarify the experts’ conceptions of the ideal city. Twenty-seven of the 39 discourses contained references to ideal cities. Looking at them in relation to the size of the urban area, which is closely related to the peri-urban green space, it was found that they could be divided into three main categories: ‘support’, ‘opposition’, and ‘indifference’ to the geographic expansion of cities. This section provides a detailed review of discourses in each category.

(1) SUPPORT FOR URBAN EXPANSION

These authors favoured the expansion of urban areas. Eight of the 27 discourses—or approximately one-third—held this opinion. It was most common up to the early 1920s and then not seen again until 1930. Discourse 1, for example, sees population density as a problem and therefore states that density must be reduced by expanding cities. The same applies to discourses 2, 4, and 5.

Discourse 8 discusses the urban ideal in terms of density rather than area, stating that ‘in urban planning, it would be appropriate to define an area-to-population ratio (omitted) of 10 tsubo (33 square metres) for residential areas in urban areas and 20 tsubo (66 square metres)

in suburban areas'. The same is true of Discourse 9, wherein planned expansion is the ideal.

Discourse 13 contains something similar, but as a specific structure within a larger part, saying 'the surrounding residential areas that provide order to a city should be garden suburbs surrounding a small hub'. The idea is to expand the residential areas around large cities.

Discourse 21, which was published at a slightly later time, describes the need to encourage expansion in order to avoid overcrowding, and then notes that cities will not continue to expand if left unchecked, saying 'urban expansion cannot be infinite and is always limited to the extent that residents of a city find it convenient for their urban activities'. The author appears to have been aware of the emerging contemporary views that opposed the geographic expansion of cities.

It can be said that the idea of enlarging cities as a solution to densification has led to a greater awareness of the appropriateness of enlarging parts of cities.

(2) OPPOSITION TO URBAN EXPANSION

This section examines discourses that view the expansion of urban areas negatively. Seven of the 27 discourses that discuss city size, or about one quarter, hold this view. This opinion emerged in the late 1920s.

In discussing the ideal city, the author of Discourse 19 states that 'my ideal with regard to urban planning is that each city should be built according to the Garden City theory and be organised according to the theory of local planning', indicating that the author idealises small cities based on garden cities. For city size, the author says that 'cities should expand in the same way that life progresses. Cities, like other organisms, do not expand unnecessarily once they have reached a suitable size, but give rise to different cities as new cities once they have reached an appropriate size'. His view can be expressed as one that permits cities to expand to a certain size but disapproves of expansion beyond that size. Discourse 27 from the same author and Discourse 34 by an urban economist express similar views.

Discourse 26 states that in order to 'counteract the expansion of urban areas', it is 'necessary to use agricultural land to stop urban over-expansion and prevent nearby satellite cities as they are called in regional planning from being engulfed by the expansion' and that 'at any rate, if coercive measures with effects similar to regional systems established under the law are not taken, it will be impossible to easily maintain agricultural land.' The author, Yoshichi Asami, had a PhD in agriculture, so his ideal was to protect the agricultural land around urban areas.

Discourse 31 takes a position against urban expansion, saying that 'expansion and growth is not a good thing'. The book also introduces garden cities and satellite cities, but says that simply establishing agricultural zones to separate small cities from each other will not be effective; it states that it is necessary to 'carefully consider and work on plans that include comprehensive plans for large, medium, and small cities to act as liaison networks between large cities or regional plans centred on large cities, with each plan also considering the hundreds of thousands of rural villages contained within them'. Instead of focusing only on cities, rural

planning proposes preventing the urbanisation of rural areas by planning urban and rural areas simultaneously. Discourse 14 also takes this same rural-based approach.

Discourse 35 from the urban planner Hideaki Ishikawa says that ‘the existing large cities use too much land, partly because of the expectation that cities should develop without constraint. If there were to be any concept for controlling cities, it must be done in a way that “the bigger the city grows, the more it shrinks”’. Not only does he oppose urban expansion, but he even believes that cities should be made smaller. The author describes the need to decentralise cities to realise this ideal and proposes a method for doing so by dividing current metropolises into three zones, with the current city as the ‘controlled zone’, the outermost circumference of the city as the ‘development zone’, and the green space between these two zones as the ‘restricted zone’, with smaller cities contained within the green spaces.

(3) INDIFFERENCE TO URBAN EXPANSION

The third category includes authors who are indifferent to urban expansion. This refers to discourses that contain no reference to urban expansion or, if it is considered a problem, those that do not reflect it in their ideals. It is the largest of the three categories, covering 12 of the 27 discourses that discuss the ideal city. This sentiment existed for a long period of time, from the start of the 1920s until the pre-war period.

Discourses 6, 7, and 25 discuss concentration in cities and express their ideal as a symmetrically planned city, with no concern over size.

Discourse 10 involves the issue of population density, with a decentralised population as the ideal. It claims that ‘modern city management must be based on a “comprehensive city plan” that makes the city the centre of rural areas and places rural areas on the edge of the city’. At first glance, it appears to share Discourse 31’s opposition to urban expansion, but it makes no reference to city size and is solely concerned with the distribution of population between urban and rural areas. This is also the case for Discourse 17.

Discourses 18, 20, and 24 also aim to disperse the population from an urban perspective, but do not seek a balance between urban and rural areas and are not concerned with urban expansion.

Although Discourse 22 cites regional city theory, it views the theory as ‘a method for decentralising industry and population’ and is not concerned with urban expansion. The same applies to discourses 12 and 28.

Discourse 39 was written by Hideaki Ishikawa. Even though he says that large cities should be smaller in his Discourse 35 from 1941, he begins to question that idea in his discourse from 1943. He mentions that big cities are better for culture; small cities are better for human life (and national defence) and that he believes in the possibility of ‘big/small cities’ that would contain elements of both. These ‘big/small cities’ the author mentions are regions. Transportation channels connect several small cities that have rural villages and parks between them, and these small city clusters are grouped together as a single ‘region’. The cities themselves are small, but when considered as a large administrative unit that is the ‘region’, they can be

thought of as a large city. Although the author's argument is rooted in considerations of large and small cities, it was classified as 'indifferent' because it discusses the relationship between cities and makes no mention of the geographic expansion of urban areas.

	Year issued	Title	Author	Author's occupation
1	1908	A Study of Cities	Iwao Miyake	Newspaper owner and politician
2	1916	A Study on Modern Cities	Yasushi Kataoka	Architect
3	1918	The Imperial Capital and Its Suburbs	Michitoshi Odauchi	Geographer
4	1919	The Demands of the Modern City	Hiroshi Ikeda	Home Ministry official and urban planner
5	1921	A Discussion on Urban Planning Legislation	Hiroshi Ikeda	Home Ministry official and urban planner
6	1921	Contemporary Urban Issues	Toshikata Sano	Architect, structural engineer, and technical high school principal
7	1922	Urban Management Theories	Hiroshi Ikeda	Home Ministry official and urban planner
8	1923	A Lecture on Urban Planning	Sanjiro Ishizu	Architect
9	1923	A Discussion on Urban Planning	Haruo Nakaizumi	
10	1923	Building Modern Cities	The Imperial Capital Reconstruction Institute Planning Department	
11	1924	Parks and Urban Planning	Keiji Uehara	Landscape architect and doctor of dendrology
12	1924	Cities and Parks (on Garden Cities)	Usaburo Takahashi	Dendrologist
13	1924	Housing Issues and Urban Planning	Hajime Seki	Social policy scholar, urban planner, and mayor of Osaka
14	1924	Urban or Rural?	Makoto Kono	
15	1925	A Discussion on Urban Planning	Secretariat of the Home Ministry, Urban Planning Department	
16	1925	General Theories of Urban Policies	Daikichiro Tagawa	Social activist
17	1926	Urban Planning	Yoshitane Tochinai	City beautification activist and journalist
18	1927	Urban and Rural Planning	Ryotaro Kurotani	Urban planner and mayor of Tsuruoka
19	1927	Urban Planning Theory and Legislation	Kazumi Inuma	Cabinet official
20	1928	Urban Planning and Road Administration	Shinzo Kikuchi	Home Ministry official
21	1929	Urban Planning and Legislation	Hayataro Okazaki	Urban planner
22	1929	General Knowledge for Urban Planning	Masakazu Morishita	Politician
23	1929	Urban Planning	Kazumi Inuma	Home Ministry official
24	1931	Advanced Civil Engineering and Urban Planning	Shimosuke Uchiyama	Director, Osaka City Urban Planning Department
25	1932	Urban Planning Theory and Designs	Munemitsu Fujita	Home Ministry technician
26	1933	Transcripts of Lectures on Urban Planning (on Agricultural Regionalism)	Yoshichi Asami	Professor, Tokyo University of Agriculture and Technology, Doctor of Agriculture
27	1934	Late Night Discussions on Urban Planning	Kazumi Inuma	Home Ministry official
28	1935	Urban Planning Road Infrastructure and National Parks	Munemitsu Fujita	Home Ministry technician
29	1935	Urban Planning Essentials	Hideaki Ishikawa	Home Ministry technician and urban planner
30	1935	Urban Planning	Yasushi Kataoka, and Nobutake Yoshida	Architects
31	1935	An Overview of Urban Planning	Masanobu Imoto	Park technician (Aichi, Hyogo, Osaka)
32	1938	Air Defence and Urban Planning	Tokyo City Bureau of Urban Development, Urban Planning Division	
33	1938	Changes in Japanese Urban Planning and the Rush Towards Wartime Urban Planning	Tokyo City Bureau of Urban Development, Urban Planning Division	
34	1940	Theories on Modern Metropolises	Fukutaro Okui	Urban economist and Keio University professor
35	1941	Theories on Japanese Land Planning	Hideaki Ishikawa	Home Ministry technician and urban planner
36	1942	Applying Modern Urban Planning	Takashi Kunitomo	Urban planner
37	1942	Implementing National Land Planning	Hideaki Ishikawa	Home Ministry technician and urban planner
38	1942	Urban Planning	Central Association for the Promotion of Business Education	
39	1943	Urban Ecology	Hideaki Ishikawa	Home Ministry technician and urban planner

Table 1. Starfish-Shaped Urban Development

INTERPRETATIONS OF SMALL TOWN THEORY

The experts sometimes used the terms ‘garden cities’ or ‘satellite cities’ as examples when talking about their ideal cities. These terms appeared in 10 of the 27 discourses on the ideal city. Garden cities and satellite cities are originally linked to the small town and regional city theories, both of which are based on the idea of surrounding a city with a green belt to prevent the urban area from expanding. However, some discourses that support or are indifferent to urban expansion also champion this concept of small cities. Why is that? This section looks at how satellite cities and peri-urban green belts were understood in each of the discourse positions: support, opposition, and indifference.

(1) SUPPORT OF URBAN EXPANSION

First, only two of the nine discourses in favour of urban expansion mention garden cities (discourses 1 and 2). Discourse 2, however, mentions them as a renunciation of garden cities.

Discourse 1, which supports urban expansion but recommends garden cities, advocates reducing urban density by relocating factories to the suburbs and migrating the ‘lower classes’ there. That is not the only reason, however, as it notes the importance of ‘getting them out of the city so that they can breathe fresh air and soothe their souls with nature.’ This can be read as the author’s interpretation of enclosing urban areas with the green space of garden cities because it would bring nature closer to cities, rather than as a way to prevent urban expansion.

(2) OPPOSITION TO URBAN EXPANSION

Next, six of the seven discourses that oppose urban expansion (discourses 14, 19, 26, 27, 31, and 35) mention garden cities or satellite cities. They object to the geographical expansion of cities, so it is only natural that they adopt an urbanism that limits city size. However, of these works, discourses 14, 27, and 35 simply introduce those theories, while other discourses attach different meanings to establishing green belts around a city.

Discourse 19 states that ‘the countryside gives garden cities a pastoral flavour that modern metropolises have lost and permanently provides the rural landscapes and pastures that large cities have forgotten’, indicating that the agricultural land around cities has value not only for its ability to limit urban expansion but also for its natural richness.

The author of Discourse 26 held a PhD in agriculture and saw the importance of securing green spaces around cities as agricultural land, as Howard advocated.

Discourse 31 states that we should ‘preserve the natural scenery in city suburbs as much as possible and turn them into residential areas that incorporate as much nature as possible into our urban lives’. Here, too, the author sees value in the bounty of nature.

(3) INDIFFERENCE TO URBAN EXPANSION

Of the 12 discourses that were indifferent to urban expansion, 6 (12, 17, 22, 24, 28, and 39) con-

tained descriptions of small or garden cities. Three of these discourses (17, 22, and 24) only introduced the concepts, so the other three will be examined in more detail.

In introducing garden cities, Discourse 12 describes them as ‘cities that are planned and developed to achieve perfect harmony between city and countryside, where residents can lead healthy urban lives with a rural flavour. Ideally, part of it should have a separate industrial area. The city should thus be permanently enveloped in an area spacious enough to retain its rural character, with the city administered by a municipality’. The word ‘countryside’ is used to describe the richness of nature and invoke a connection between nature and the city.

In Discourse 28, the author states that ‘by returning the city to the countryside as a way to prevent the concentration of population from the countryside to the city, Mr Howard’s book *Garden Cities of To-morrow* has caused a stir in Britain by aiming to harmonise cities and the countryside and integrate agriculture and industry under the banner of an ideal garden city’. Similar to Discourse 12, the word ‘countryside’ is associated with the richness of nature and suggests a joining of it with urban life.

Discourse 39 by the urban planner Hideaki Ishikawa examines garden cities in detail before adopting a negative view of garden city theory, citing that cities with populations of 20,000 or 30,000 people would not provide stimulating living environments. He advocates approximately 100,000 people as a good number and states that when dispersing the population, the space between cities must feature ‘agriculture and parks’. Though their significance is not mentioned specifically, it seems important that they are ‘not urban’.

(4) EXPERTS’ VIEWS ON THE ROLE OF GREEN BELTS

The above exploration of opinions on urban expansion and peri-urban green belts suggests that the reason why garden cities and satellite cities are mentioned in discourses that support or are indifferent to urban expansion is that they see the role of peri-urban green belts as bringing the city and nature closer together rather than as a way to control urbanisation. Discourses that oppose urban expansion naturally see their role as a limit on urbanisation, but it can also be said that they see green spaces with their abundance of nature as a way to provide cities with a sense of the natural world.

CONCLUSIONS AND DISCUSSION ON WEDGE-SHAPED GREEN SPACES

So far, it is plain to see that many experts believed that cities should be developed in a planned manner. Clearly, a certain number of experts wanted nature and cities to be close together, even if the urban area expanded. On the basis of those findings, this paper will now use contemporary magazine articles as sources to consider the background from which wedge-shaped green spaces emerged.

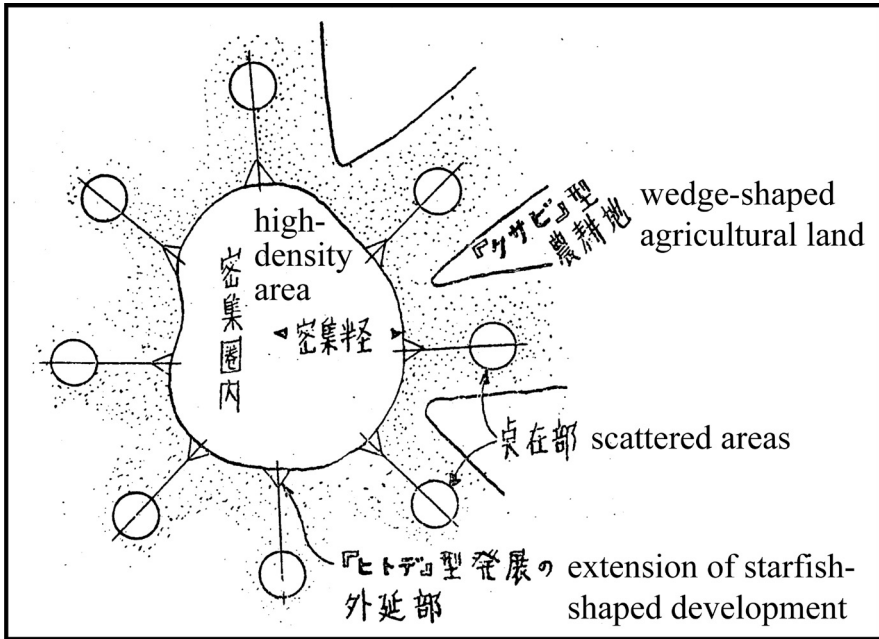


Fig. 1. Starfish-Shaped Urban Development

(1) WEDGE-SHAPED GREEN BELTS AND STARFISH-SHAPED CITIES

Seiichiro Nakazawa proposed the idea of wedge-shaped green belts. Then the director of the Osaka Prefectural Architecture Department, he stated in his 1937 'One Suggestion for Suburban Planning of the Great City' that 'the adverse effects of urbanisation are so obvious that they cannot be disputed any longer, but it is also impossible to stop them'. He then began his thesis with the question 'Is there any way to eliminate the harmful effects without interfering with urban development?'

He then discussed how the garden suburbs, which were seen as a by-product of garden cities, are actually linked to urban expansion, that proponents of garden cities reject garden suburbs, and that the concept of satellite cities is too vague before summarising the urban theories of the experts of the day and pointing out that he has not found any compromise between large city and small city theorists.

Nakazawa said that the 1910 proposal of wedge-shaped green spaces by the Eberstadt et al. 'provided me with a tremendous suggestion for suburban development' that he referred to in order to 'create green spaces in large cities that preserve the natural advantages of the suburbs while simultaneously acknowledging the development of large cities. This allows for the possibility of dispersing people to more distant satellite cities'.

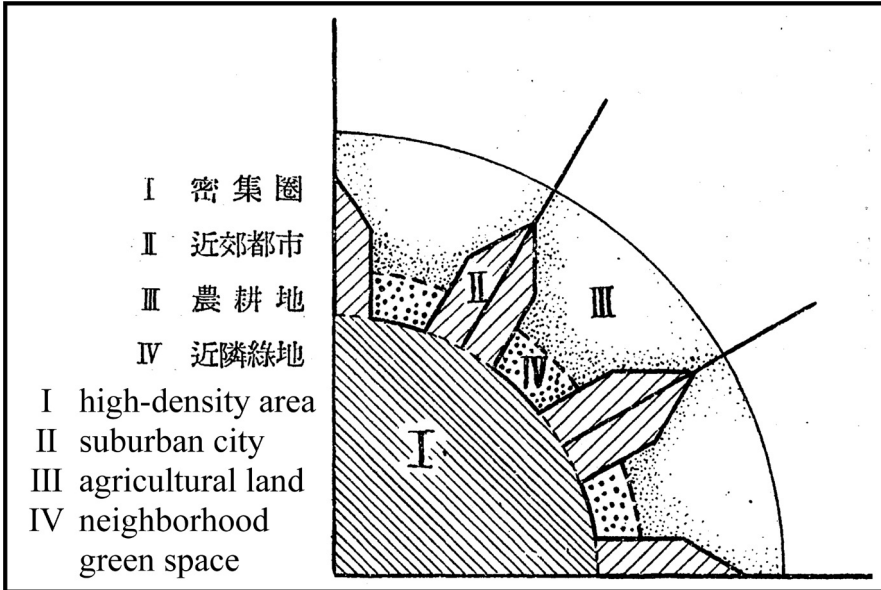


Fig. 2. Appropriate Preservation of Wedge-Shaped Green Spaces

As a result, he proposed that urban development proceed along radial streets in a starfish shape (Fig. 1) and that 'suitable expansion' can be achieved by accepting the drive to expand while appropriately preserving wedge-shaped green spaces in between developments (Fig. 2).

This plan accounted for the claims of both large and small city theories and allowed him to 'establish a regional plan that acknowledges big cities without being biased towards the fantastical denialism or fatalistic praise of big cities'.

(2) SPECULATIONS ON WEDGE-SHAPED GREEN SPACES

From books on urban planning and articles on wedge-shaped green belts from the time, it was discovered that most experts were interested in developing cities and believed that such development was necessary to reduce the population concentration and density and control the shape of urban areas. Most of the experts hoped for 'suitable expansion' because they had witnessed the practical application of unplanned development. Furthermore, some experts who either supported or were indifferent to cities growing larger also saw significance in the proximity of cities and nature.

On the other hand, opponents of urbanisation did not have clear-cut reasons for the harmful effects of large areas per se and some saw significance in the natural abundance of green spaces that would control cities.

Wedge-shaped green belts such as the ones proposed by Nakazawa would have likely satisfied both the large city and small city theorists. However, although Nakazawa provides a logical

explanation for these spaces, the German wedge-shaped green spaces he cites were featured in the magazine *Parks and Open Spaces* in 1939; thus, it is not clear whether the influence came from Nakazawa's arguments or directly from information on the German wedge-shaped green spaces.

In any case, it is believed that wedge-shaped green spaces emerged to satisfy the demands of the experts of the day, which were to 'develop cities', 'prevent continuous urban areas', and 'bring cities and nature closer together'.

NOTES ON CONTRIBUTORS

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IMAGE SOURCES

Fig. 1 Nakazawa, Seiichiro. One Suggestion for Suburban Planning of the Great City. *Journal of Architecture and Building Science*, No.629, 1017-1024, 1937.

Fig. 2 *Ibid.*