

Part I.

Land Readjustment: Concepts and Practice in Japan

What is Land Readjustment?

Concepts on Land Readjustment

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Urbanization, Compact City, Holdout Problem, Urban Sprawl and Land Readjustment

Urbanization, or urban growth, is the physical and functional increase of human population into particular areas, leading to structural changes in land use, usually from forest or agriculture to other patterns of usage. The effects of urbanization include changes in density, environment and infrastructure and, essentially, include a dramatic increase in transaction costs. Urbanization encompasses different kinds of people movement, including migration and commuting, and is strongly shaped by information exchange and by social and economic opportunities. Understanding this phenomenon is important because the structure of human life reaches another level of complexity here: the larger the urban area, the higher the human costs and benefits. If, on the one hand, a proportionate saving in costs can be obtained by an increase in production – known as economies of scale, and partially possible due to human agglomeration –, on the other hand, human agglomeration can lead to negative externalities caused by how that population is clustered within the territory. If we think of the existence of cities as the result of advantages outweighing disadvantages, cities do exist challenged by their geopolitical boundaries, social integration, environmental management, and spatial structure. And, of course, many different public policies, some wise, some not, can affect the extension of such externalities (O’Flaherty 2005).

The world has been facing decades of massive urbanization, mostly in developing countries, and 60% of the total world population is expected to live in cities by 2030. In 1990, more than 70% of all Latin Americans were living in urban areas, and the highest urban growth ratio was found in Africa at 4.9% on average, when the global annual rate was at 2.8% (UNCHS 1992). In 2000, more than 40% of the Asian population was urban and, excluding Japan, this level is expected to reach more than 50% before 2030 (UN 2012). This convergence of urbanization, therefore, is largely taking place in

emerging economies where government capacity to regulate local and regional development, to build public infrastructure, and to set aside green areas and other facilities, as well as to regulate land property rights, are weak or nonexistent. Enormous areas have been developed without any trace of planning processes, without a minimum amount of public space, without adequate road systems, and without green areas and basic infrastructure.

The accumulation of these disorders occurs when cities, especially in their peripheral areas, absorb increased human population, settling on a structure of diffuse and disorganized urban environments, as the result of a “structural transformation and intensified interaction between every point of a rural-urban continuum” (Guldin 2001, 14). Living in urban conditions that are diffuse, disorganized and without proper planning – in the so-called “obsolete urban structures” – generates “an unsafe and dangerous everyday life, blocking access to jobs, educational and cultural opportunities” (Rolnik 2000, 75). Not only do obsolete urban structures require intervention because they lack adequate urban facilities, but also because they retain the lower classes – excluded and in full expansion (Davis 2006). The problem is that these groups do not have access to the full possibilities offered by societies and economies, nor do they take advantage out of them. In other words, the accumulation of disordered spaces has greatly reduced urban livability, socio-economic opportunities, and quality of life.

Once urbanization happens, whether legally or illegally, and land is subdivided and settled, it is extremely difficult to reorganize or rearrange property ownership boundaries, especially to secure land for basic public needs. Such difficulties arise mainly due to two major factors (Sorensen 2009). First, any intervention requires displacement of existing users, which affects their social, cultural and economic networks – or the so-called “social capital” (Jacobs 1961; Putnam 2000) – and also affects their sense of equality and fair distribution of rights. Second, the value of urban land increases with its intensive usage, especially when supply is scarce in a situation of great demand. In recent years, the urban land value in developing countries has been increasing at levels above inflation or gross domestic product rates, as argued by Edwin Mills and Byung-Nak Song since the 1970s, and that is influenced by the result of the distortions caused by the inequality between the best and the worst lands served with infrastructure (Mills and Song 1979), among other factors.

Land has unique determinants that make it difficult for supply to respond quickly to demand (Doebele 1982). A plot of land, mainly in urban areas, has unique determinants that transform it into an agent of power, which are:

- a. Every plot of land has a unique geographical location, which makes it impossible

– for that single reason – to produce an identical plot of land. Such a simple factor provides “a degree of monopoly power, especially to those controlling parcels in areas where economic development and increased migration are most intensely concentrated” (Doebele 1982, 1);

- b. Even though it is impossible to produce an identical plot of land, it is possible to reproduce its characteristics by providing infrastructure; and all installed infrastructure generates a direct added value, proportional to the size of the land. It is worth pointing out that plots of urban land require a huge variety of infrastructure, including “water, electricity, roads, sewers, storm drainage systems, parks, schools, public markets, fire stations, police services, and other installations, which mostly must be provided by public bodies” (Doebele 1982, 1);
- c. Besides, not every plot of land can be treated as a public asset, which leads to the existence of market transactions. Market transactions take place through the comparison between less productive lands (or less equipped) and the best (or more equipped) lands, added to their economic and environmental externalities. As government or individuals cannot easily create plots of urban land as migrations arise, “the basic principle of supply rising to meet demand encounters many obstacles and prices continue to rise” (Doebele 1982, 1).

It seems certain that urban areas occupied in the past, especially in countries highly affected by the globalization movement, will tend to “suffer pressures to reconvert land use and occupation, and the old rural land pattern, road systems and divisions of property will be a major obstacle to the emerging demand for readjustment or reorganization of urban areas” (Sorensen 2009, ix). The 21st century will experience a huge demand to reorganize obsolete urban structures with insufficient public facilities and path dependent ownership of property (Sorensen 2015); and, furthermore, will experience the need to find significance in these re-organized spaces, focusing on proximity and its costs and benefits within urban agglomeration economies.

Addressing the importance of proximity – understood as the nearness in space, time and relationship of urban functionalities – and its benefits on urban agglomeration economies, means that while some scholars decline significance in space and distance due to telecommunication innovations (Cairncross 2001; Newman 2005), others highlight significance in space and distance, correlating it to urban forms, structures, organizations and globalization (Hall 1988; Sassen 2001). This is the reason why the terminology “compact city” arose among urban planners advocating “sustainable efficiency,” and the concept has emerged primarily in response to the acknowledged need to find better models for towns and cities around the world (Jenks et al. 1996). From the global

perspective, the compact city approach has been mainly associated with efficient public transportation, planned population density, land use control, low energy consumption and the reduction of CO₂ emissions (Dempsey 2010). The term compact city (neighborhoods) is often attributed to Jane Jacobs and her classic book “The Death and Life of Great American Cities” (Jacobs 1961); a critique on Modernism and modernist planning practices. A whole range of problems, such as disinvestment in urban central areas, reliance on private cars, and the holdout problem and urban sprawl (Ewing et al. 2002), have been discussed throughout the academic literature, and have served as arguments in favor of compact city as a model for planning policies.

Among the already mentioned urban problems, the holdout problem is defined as the problem of assembling land where an agent, for example, a land developer, must negotiate with several rights holders and must provide their consent to proceed. However, since the rights holders realize that their land is required and essential to the completion of a project, they usually try to extract an extra portion of the producer surplus above their opportunity costs; in other words, rights holders seek prices well in excess of their true reservation value (Miceli and Sirmans 2007). As a result, large-scale projects that require land assembly, such as housing developments, parks, stadiums and other facilities, will have high bargaining costs and are likely to be under-produced. This creates the incentive for developers, aiming to minimize costs, to look after that land whose ownership is less dispersed, which creates bias toward development at the urban fringe where average plot sizes are larger, resulting in urban sprawl.

Urban sprawl is a pattern of land use that exhibits low levels of some combination of the following eight distinct dimensions: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity (Galster et al. 2001), and recently a correlation among sprawl and increase in public transportation costs, infrastructure network inefficiency, and income concentration has been shown (Nechyba and Walsh 2004). As argued by several scholars (Calthorpe and Fulton 2001; Dieleman and Wegener 2004; Sorensen 1999), in the absence of strong planning intervention at the regional and local scale, cities have a tendency towards urban deconcentration and spatial separation rather than spontaneous tendencies for new multifunctional forms and concentrated mixed land use settlements. Such trends are not a transient phenomenon, but rather the consistent outcome of a long-term fundamental change in economic conditions, modes of production and distribution, household patterns and lifestyles, and transportation technology (Dieleman and Wegener 2004). Whereas the most comprehensive review on urban sprawl literature (Burchell et al. 1998) concluded – after an analysis of 475 case studies – that sprawl has both positive and negative effects, and that compact development is less costly for both operating and capital costs, some scholars, like Michael Newman (2005), refute the paradox that compact development

is more sustainable than sprawl: “asking whether a compact city, or any other form of city, is sustainable is like asking whether the body is sustainable. The proper question is not if the body is sustainable, but rather, does the being that inhabits the body live sustainably?” (Newman 2005, 23). In other words, the author argues that the attempt to prove sustainability by measuring form or via other physical means is nonsensical; conceiving the city in “terms of process” would hold more promise in attaining the elusive goal of sustainability.

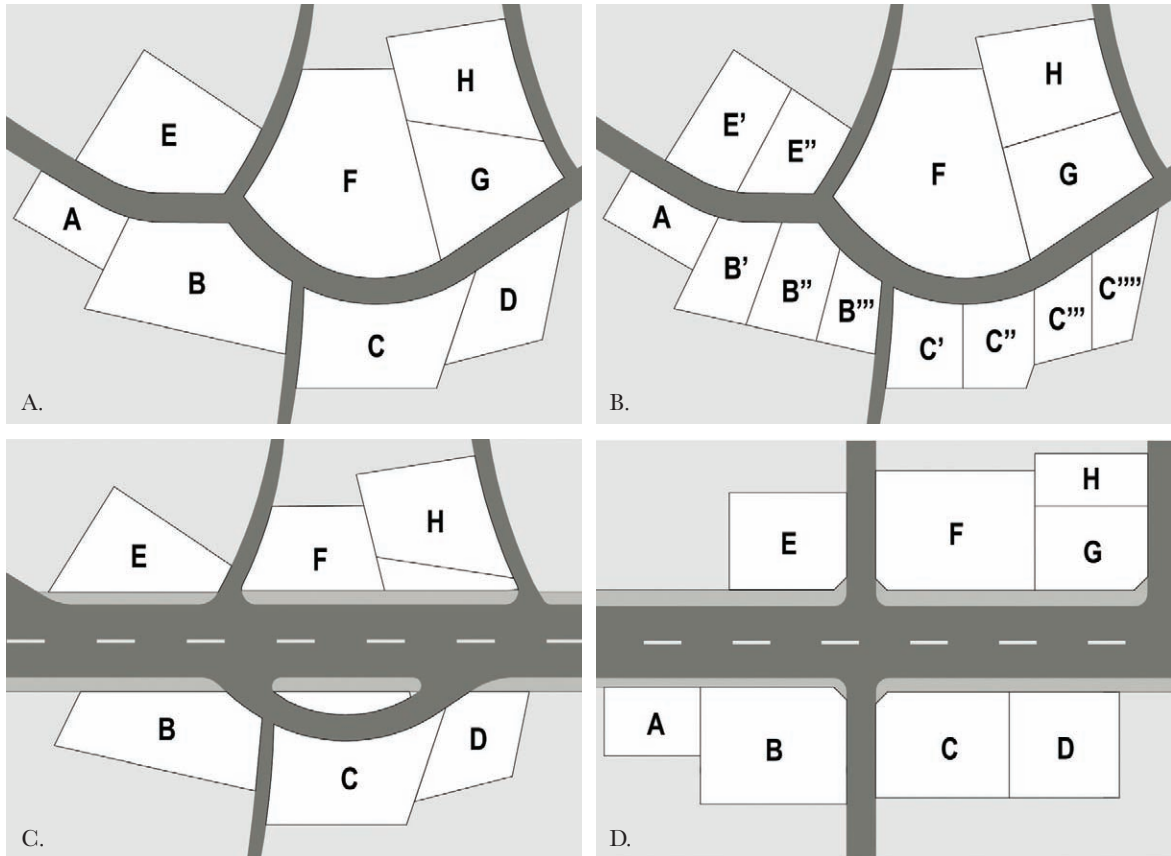
Concerned with this overview on compact city, the holdout problem and urban sprawl, there are two main tools to address the demand to reorganize urban structures and land patterns, and to address the lower likelihood of producing large-scale public and private projects. Eminent domain, or expropriation, is one of these and is delegated by the government, which exercises the function of compulsory purchase of private property for public use, or the delegation to third parties who will devote it to public or civic uses. However, the process doesn’t consider “pareto-efficiency,” as it is not clear whether governments that exercise eminent domain are increasing social welfare or simply having greater influence over a political process designed to transfer resources from one group to another (Miceli and Sirmans 2007). The other legal tool is a practice known as land readjustment. Because problems arise from market and government failures: such as (i) the market is not assembling land to promote sufficient housing projects to supply for the demand; and (ii) the government reveals itself as inefficient and unfair through expropriation procedures – land readjustment has been promoted as an innovative assembly method to overcome reorganization problems faced, mainly, by developing countries.

This innovative urban-land-assembly approach may bring two significant benefits when compared with the eminent domain one, as argued by Andre Sorensen (2009). The first benefit relies on the preservation of social, cultural and economic networks that are closely tied to a physical location, and the routines and interactions of everyday life in that place, through original community maintenance. Such a posture is quite opposite to the 20th century urban reformers’ way of thinking; the one that too often proposed “erasure” – like removing underprivileged communities with signs of poverty from their original location – as the most efficient means of dealing with urban problems, with equally often catastrophic social consequences, as so eloquently exposed by Jane Jacobs (1961). In the case of land readjustment, “by engaging the existing community in a process of redevelopment, creation of new public spaces and infrastructures, and keeping them in that transformed place during and after the project, it is possible for the land readjustment processes to actually enhance and enrich places based on social networks instead of obliterating them” (Sorensen 2009, xi).

The second benefit relies on the equitable distribution of costs and benefits in the urbanization process: “by requiring that all property owners contribute with a share of their property for public spaces, and for land to sell to pay back improved infrastructures, land readjustment projects can go a considerable distance towards a more equitable distribution of both costs and benefits of urbanization” (Sorensen 2009, xi). In short, on the one hand, when landowners provide a significant land contribution to increase public spaces and to produce reserve land, they bear the costs of urbanization at the time of development or redevelopment; on the other hand, they have incentive to do that because their net land value may increase after the urbanization process. Usually, especially in developing countries, urbanization generates enormous increases in land values, and land readjustment can work as a form of betterment collection for the public good due to investment towards area improvement. According to Andre Sorensen:

“In a situation where all the costs of the public infrastructure – buying land for roads, building roads and sewers, etc. – is paid by the State through taxes, while only a small percentage of the population owns land, a great inequity results, as the broader public is paying for improvements, while only a small number of land owners receive the benefits of property value increases. This inequity was so clear to urban thinkers in the period before the World War II that a number of schemes to collect betterment tax were attempted, perhaps most famously in Britain, where a tax of 100% of the ‘unearned increment’ of increased land values was applied during the late 1940s, but subsequently removed (Cullingworth and Nadin 1994; Ratcliffe 1976). All such attempts encountered major problems, however, not least of which were the difficulty of consistently and accurately measuring that portion of increased land value that was due to public actions (urban growth and public infrastructure) as opposed to private efforts (such as capital improvements or effective management). Actually, collecting the betterment tax also proved both practically and politically difficult. Today there is much less acceptance of the advisability of taxing unearned profits in land, but many countries do levy some form of capital gains tax on increased capital values, while property taxes are also widely used to pay for the costs of urban infrastructure.” (Sorensen 2009, xi-xii)

In other words, through land readjustment projects, the main contribution is in the form of land that will simultaneously improve the public realm – roads, parks, sidewalks, sites for public schools and hospital sites – and, consequently, increase private land values. As purchasing land for public facilities can be prohibitively expensive, through the win-win potential of land readjustment it can be possible to finance and promote projects that would not be possible by any other means. Landowners’ property rights, in this sense, still prevail, with a smaller land size and a possible higher total asset value, but aiming for a fair distribution of costs and benefits in urban development (see Figure 1.1).



▲ Figure 1.1 (A-D). Comparison between land intervention processes

- A. Medieval, agricultural or unplanned pattern of growth: Owners A, B, C, D, E, F, G and H have property ownership of lands without basic infrastructure and/or without adequate public facilities;
- B. Individual private subdivision and development, plot-by-plot: Owners A and F remain inert to any transformation; Owners B and E subdivide their plots into smaller ones and privately build up basic infrastructure; Owner C acquired owner D's land and subdivided it into smaller plots; Owners G and H mutually agreed to exchange part of their adjacent plots of land (amalgamation);
- C. Development process through expropriation: Owners A and G are expropriated; Owners B, D, E, and in greater proportions F, receive compensation for the loss of part of their plots through eminent domain; also, they still benefit from the newly built infrastructure and consequently obtain asset appreciation of their remaining plot portion; Owners C and H remain intact and they fully benefit from their proximity to the newly built infrastructure; and
- D. Development process through land readjustment: all landowners remain after project implementation; the plots of land now have adequate basic public infrastructure, even though smaller in size after the project implementation.

Public Policies and the Fair Distribution of Costs and Benefits for Urban Development

Contemporary urbanism has a special focus on the nature of social change during urban development processes, and a significant number of studies refer to these dynamics as the arrangement and potential relationship of equity and fairness – racial, wealth, health – that may lead to less disparity among citizens in societies (Davies and Imbroscio 2009). In fact, concepts of justice, balance and fairness are related to national principles and guided by national constitutions. In terms of urban development, such national principles guide individual and collective rights on housing and private property, as well as their relationship with the public realm. Nations create urban legislation that can identify scales of operation between public and private interests, based on systems of territorial management through the delimitation of rural and urban areas, potentially guided by zoning laws, and through instruments and tools for specific interventions on predetermined zones, as established by master plan regulations.

The relationship between public (government, public bodies) and private (investors, brokers, buyers, and sellers) interests is part of the construction of the city: the decision-making of all individuals involved generates future reflections on the social, environmental, cultural, and, obviously, physical spheres. When a planning system deals with structural issues between social justice and economic demands, it must consider conditions for the fair distribution of costs and benefits for urban development. Even before advocating fairness as a requirement for urban policies, it is necessary to understand that unfairness leads to social exclusion, and “social exclusion is a shorthand term for what can happen when people or areas suffer from a combination of linked problems, such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown” (Li 2005, 2).

As urbanization increases, policies, decisions, structures and institutional behaviors may prevent communities from accessing properly equitable housing markets, employment opportunities, health care, and democratic participation (Silver 1994). Influenced by Henry Lefebvre (1968) and David Harvey (2013; 2014), among other scholars, several social movements have been criticizing the actual shortcomings of urbanization to promote the “right to the city.” Such a slogan means “far more than a right of individual access to the resources that the city embodies,” “it is, moreover, a collective rather than an individual right since changing the city inevitably depends upon the exercise of a collective power over the processes of urbanization” (Harvey 2016, 272). On the contrary, urban processes have undergone undesired transformations – which have become global – and, for a number of reasons, the power of the privileged few is making it hard for urban communities to truly access the city and its resources. This is the

reason why the contemporary ongoing debate criticizes the fact that the city has become a major real estate operation, in which the so-called “urban regulation” – including urban planning acts, master plans and zoning laws – is losing control over the real estate game, and the financialization of housing is challenging the security of both homeownership and subsidized rental housing (Aalbers 2016). In short, the debate asserts that the city, when operated only as a private asset generates social inequality, whereas as a collective asset, it establishes public spaces, allows resources redistribution and generates social inclusion; and profit becomes only one of its many functions, not its main driver. Therefore, there has been an international reflection on the close relationship between social justice, inclusiveness and real estate development.

Let us consider one of the problems of the real estate game presented internationally: on the one hand, the private sector undertakes – through private capital investment – construction works previously approved by urban legislation that regulates the land use and its occupation. On the other hand, the government undertakes infrastructure works through public funds generated through taxes – also national or international subsidies – in the public space, with the intention to create general conditions for production and consumption of public assets. Public assets paid by the public through taxes that benefit a restricted number of private property owners who do not necessarily invest proportionally to the benefits of property value they acquire. As highlighted by Andre Sorensen (2009), while only a small percentage of the population owns land, or owns land in areas where economic development is mostly concentrated, an increase in inequality and social exclusion may result. That is why the “fair distribution of costs and benefits of urban development,” presented in many laws around the world, is under discussion. The concept itself has four definitions: fair (unbiased, right), distribution (division, balance), of costs (resources, risks) and benefits (values, profits). These definitions are important in urban development, and provide means to drive public or collective interest to prevail over private or individual interest (as exposed in the course “Urban development focused on land readjustment measures” in Japan, 2005).

By strengthening the link between fair and balanced actions from both public and private sectors, land readjustment can be used as a tool to achieve proper public policies, such as: (i) the transition between rural and urban areas performed in a controlled manner; (ii) the rehabilitation of regional and urban vulnerable districts performed periodically; and (iii) the urban development financing system performed to generate resources capable to create the surplus effect. Therefore, given the current intention in several countries to adopt land readjustment, to analyze its advantages and disadvantages in different contexts is highly recommended as, for this reason, there will be no room for “misplaced ideas” (Schwarz 1981).

Aiming to deepen some understandings, it is worth establishing a common ground between public policy and urban development instruments, such as land readjustment. On the one hand, public policy refers to administrative actions guided by the government to delineate and approach problems, facing them through technical means and rational decisions, made legitimate by legally established procedures (Villanueva 2006). It is also understood as the “State in action,” therefore, any public policy achievement is enabled by action or omission, preventive or corrective, designed to maintain or change the reality of one or more sectors of social life. From this understanding, public policy is decision-making conditioned by values, ideals and visions from social actors, internal and external to public institutions, involving strategies and resource allocation, designed to achieve certain predetermined goals (Saravia 2006). On the other hand, urban development instruments, or tools, are technical-legal objects elaborated as one among several elements for the formulation of public policies. Although conceived in a specific context, these instruments might transcend political party administrations and might serve to differentiate additional purposes from those that were initially conceived. Even when idealized, for example, to guarantee the “public interest,” such as the inclusion of social segments according to the “right to the city,” they can serve specific groups and certain lobbies, creating conflicts between social actors around the public policy. We must admit, therefore, that no single urban development instrument can constitute a decisive factor in social inclusion or exclusion; still, it is necessary to recognize that an urban development instrument can be a factor that either causes the worsening or the mitigation of social exclusion, depending on its use.

The 20th century experienced the development and diversification of public policy instruments mainly resulting from the rapid growth of the welfare state in the postwar period (Lascoumes and Le Gales 2007). The growth dynamics of the major postwar States revealed a fairly explicit theorization of the relationship between the governing and the governed, which illustrates how public authorities tend to gradually gain ground in different policy fields within a context of permanent social conflicts until policies are made legitimate. In other words, policy-makers faced – and still face – immense difficulties in the practical implementation of innovative urban policies. The first difficulty is known as path dependency, or the set of decisions made in the past that are likely to limit current and future decisions, even though past choices may no longer be relevant (Arthur 1994). The longer the time that certain choices that initiated particular practices have been in place, the more institutions will be invested on them, and the greater will be the incentive that policies continue. There are thus important examples to explain path dependent planning policies, such as “restrictive residential zoning that is understood to protect property values, or greenbelts and green-space designation that guarantee landscape amenities” (Sorensen 2015, 21). Another example is the extensive usage of expropriation, for a long period of time in public policy that

might “lock the system,” and constitute a possible challenge to the adaptation and incorporation of other urban development instruments.

The second difficulty is the challenge related to the correction of coordination failures. Coordination is the simultaneous organization of different elements in a project or policy to enable them to work together effectively. Its failures “arise either because the private sector held a different set of time preferences and did not trust the government’s rosy forecast of future economic growth” (Hayami and Aoki 1998, 104), or when market mechanisms do not work, and government fails to stimulate entrepreneurs effectively. Imagine that urban planning policies are composed by several coordination elements that require simultaneous organization to promote “proper urban development,” and that the identity of these elements, and even their number, may be unknown to policy-makers (Aghion et al. 2009). Deficiencies in enforcement, inefficient implementation, and time span and partnership risks are some examples related to challenges in the practical implementation of innovative urban policies. The third difficulty is the significant cost to promote urban institutional changes and improvement. When urban institutions, “such as water supply, sewers, development control, social housing, or condominium ownership models” (Sorensen 2015, 33), were initially adopted, they had enormous costs and profound impacts on urban outcomes, such as urban size, level of gross domestic product and urbanization rate. What would be the costs to promote an institutional change, such as throughout the implementation of land readjustment practices, not only financially but also related to the externalities produced? The answer to this question is likely to produce policies of significance to institutional reconfiguration.

In this sense, institutional reconfiguration – led by the overcoming of path dependent planning policies, correction of coordination failures, and institutional changes and improvement – may occur through politically imposed “reforms,” or when captured and absorbed by other organizations, or when dissolved and supplanted by newly created institutions (Aghion et al. 2009). Such institutional “clash” related to new and old institutional legitimacy was experienced by Japan when adapting land readjustment on German principles, more than 100 years ago. As argued by Bashir Siman (1990), the scale of problems Japan was facing back then, to provide adequate infrastructure for industry and housing in a short period of time, were enormous. In other words, there was no gradual, or relatively long, transformation of Japanese society from an agricultural to an industrial mode of production, and this sudden change caused practical difficulties ranging from labor to administrative relations. In a technical sense, Japan experienced serious shortcomings after its early attempt to provide land for public use and infrastructure through purchase methods (under the *Regulations for Purchase Procedures of Land for Public Use* of 1875). Expropriation somehow

lacked the kind of legitimacy and efficiency necessary to purchase irregular plots and leftovers, and to change plot positions and street patterns, according to the short time span necessary for adequate industrialization. And, “land readjustment, seemed to offer a ready technical tool that could combine public works and town planning objectives,” with a “considerable saving for public purse” (Siman 1990, 24), while promoting the fair distribution of costs and benefits arising from urban development.

Japan and Land Readjustment

Japan is an archipelago located in the East Coast of Asia. More than 6,000 islands and mountain forests occupy approximately 70% of the country’s surface. “There’s no oil, nor iron, nor coal of good quality, nor copper or aluminum and other nonferrous minerals essential to the industrial activity. Japan does not have enough arable land to feed its population” (Barros 1988, 5). Subject to volcanoes, typhoons and earthquakes, around 1,000 events happen every year and some can be felt almost every week. The last major earthquake and tsunami, the Great East Japan Earthquake (東日本大震災 *higashi nihon daishinsai*), which occurred in March 2011, killed approximately 15,900, injured over 6,000 and left 2,562 missing people across 20 prefectures (National Police Agency of Japan 2014).

The so-called “Land of the Rising Sun” has undergone major transformations, from the feudal period to the post World War II recovery process. The concomitant industrialization process has generated a population concentrated in urban areas and uncontrolled land occupation. In the past, agricultural communities were settled without the provision of basic infrastructure and there was little support for urbanization activities. How did a country with such a lack of natural resources and minerals, incomplete and inefficient in its basic infrastructure, the target of several natural disasters, and devastated by World War II, managed to achieve the rank of one of the world’s greatest economic powers? Japan has nothing economically favoring its growth but 126 million Japanese people (as of 2016). “In spite of being a nation exhausted and defeated [72 years ago], and although [105 years ago] at the edge of the world, closed in a feudal structure, the four generations that came from the Meiji Era (1868-1912), have turned it into one of the first nations of the world” (Barros 1988, 5).

Despite the historical reasons offered for the whole growth process in the country, and the so-called “Japanese phenomenon,” which are often subject to immediate and incorrect analysis due to their complexity, it is important to study land readjustment in the Japanese urban planning context. This is because the Japanese growth experience is one among a few, over the past decades, which have managed to implement solutions

to urban problems faced by all developing countries: migration from rural areas to urban centers, urban expansion and uncontrolled growth, and countless environmental problems. How Japanese society managed to overcome the limitations of centuries of agricultural patterns of property ownership and rearrange urban land to promote its economic growth? Japan, a nation with a high likelihood of natural disasters, over the past 120 years, has spent considerable effort to achieve better technical results in its urban reality transformation. Throughout this entire process, methods for territorial planning were institutionalized across the country, including negotiation processes to control urban growth, and to implement infrastructure and land pattern changes without the extensive use of expropriation, through land readjustment practices.

Land readjustment (土地区画整理 *tochi kukaku seiri*) is a public-private partnership instrument, in which governments and landowners bear the urban development costs and benefits in places where existing land use patterns are inadequate and inefficient; searching, in principle, for property title maintenance after project completion. The primary mechanism for project implementation is known as “replotting” (換地 *kanchi*). Replotting means the change of location, format and area of several plots of land to achieve a project’s final scenario. Transformation processes using replotting are performed by land readjustment implementation agencies – local, prefectural, national government agencies, and private corporations – after attempts at “consensus and agreements” among the land rights holders, complying with the guidelines and conditions predetermined by the *Land Readjustment Law*. Often, the scenario expectations are that every piece of transformed private land will be smaller than the original one due to the significant increase in public spaces, such as roads, sidewalks and parks, that are often required, and a higher land value due to the added facilities (see Figure 1.2). *A priori*, it is expected that the value of the replotted land will be higher than the original land, due to the effective improvement in its use, and its proximity to new urban facilities, such as green areas and wide access roads. In those cases where land readjustment projects result in a decrease in land values, compensation in money might in principle be paid to landowners.

The percentage difference in private property area before and after replotting is called the “contribution ratio” (減歩率 *genbu ritsu*). Its value corresponds to the area of the reduced property after project implementation, and to the amount of benefits that a given area requires, shared among all rights holders. Replotting and contribution, therefore, serve two complementary purposes: (i) to adjust the demand for land required for proper urbanization (public infrastructure), and (ii) to create supply to – partially or fully – finance project costs. Also, contribution of land in Japan has the purpose to amalgamate shares in “reserve land” (保留地 *horyūchi*), which are plots of land to be sold to finance the land readjustment projects (see Figure 1.3). The location,

▼ Figure 1.2. The mechanism of land readjustment in Japan

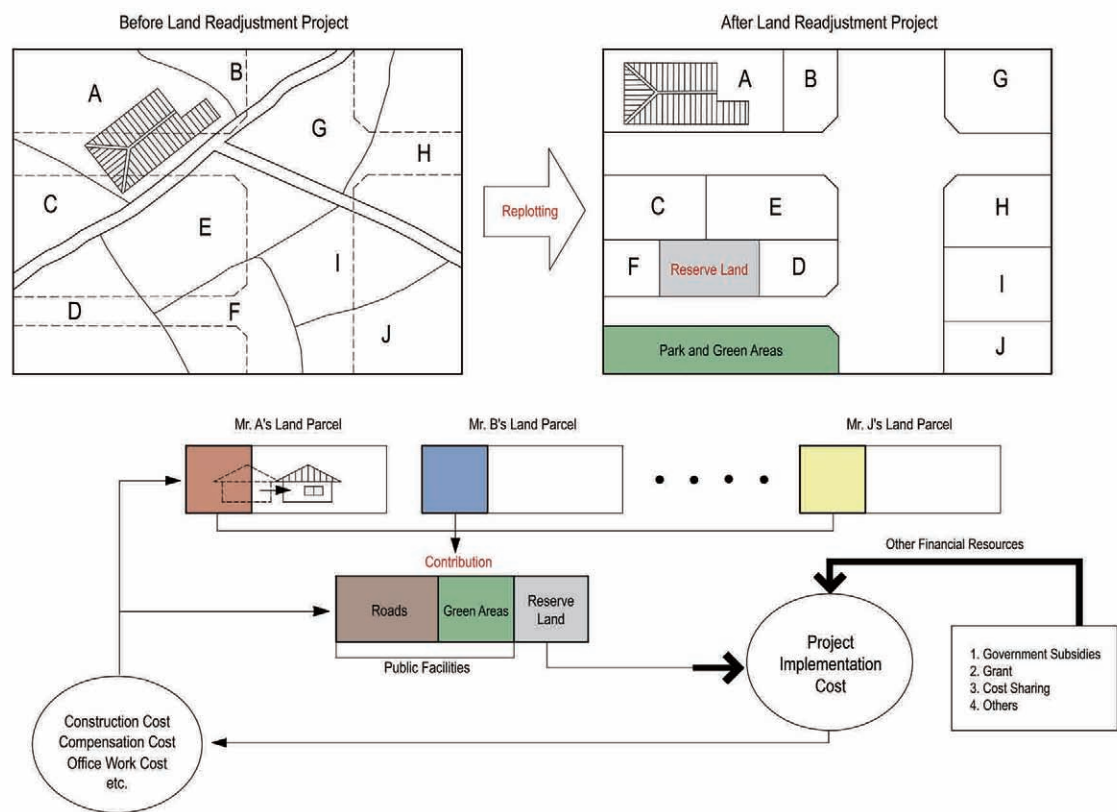


Figure 1.3. Reserve land after the implementation of the land readjustment project ▼



quantities and dimensions of reserve land are determined according to: (i) the economic criterion, which is the capacity to finance new public facilities; and (ii) the equity criterion, which is the ability to equitably balance the land value increase generated by the land readjustment project. In some cases, when the landowners need to remain with the same property, as they already inhabit a small sized plot, the contribution can be made in money instead of land. Although the sale of reserve land is intended for the payment of the project in most cases, the national or prefectural government can provide subsidies for the implementation of some larger infrastructure projects.

Land readjustment is performed on a voluntary or on a compulsory basis. The management of the transformation process of various land units is exclusively performed by implementation agencies. This refers to the administrative organization of the public sector (local, prefectural, national government, public corporations, and so on), or the private sector (cooperatives of landowners, a land readjustment stock company established by landowners, and so on). In addition, to command the “consensus and agreement” process between landowners and leaseholders during the project implementation, implementation agencies also play a key role by coordinating the dialogue with builders, contractors and other service providers for the planning and execution of construction works.

In Japan, the usage of land readjustment is broad in scope and purpose, and can be divided into five categories:

- a. Control of urban sprawl in suburban/peripheral areas. This type of land readjustment is implemented with the purpose of providing necessary urban infrastructure in peripheral areas, or in transitional areas between rural and urban, guiding growth and implementing residential areas with urban services (see Figures 1.4-1.5);
- b. Development of new towns in suburban/peripheral areas. Land readjustment is used to develop new towns in suburban/peripheral areas according to city master plans to supply residential land to cope with the population increase in large cities (see Figure 1.6);
- c. Urban rehabilitation. Land readjustment is used to reorganize areas that are highly populated, already have basic infrastructure, but need to regenerate their urban functions, change use patterns, and/or promote commercial zones or improvements in infrastructure (see Figure 1.7);
- d. Development of complex urban infrastructures. This type of land readjustment is



▲ Figure 1.4. Land readjustment for the development of agricultural areas (Tokoyama area 1994-2000, Aichi Prefecture)



▼ Figure 1.5. Land readjustment for the prevention of unplanned growth (Obu-Hantsuki area 1994-2002, Aichi Prefecture)



▼ Figure 1.6. Land readjustment for the development of new towns (Kayata area 1989-2005, Chiba Prefecture)





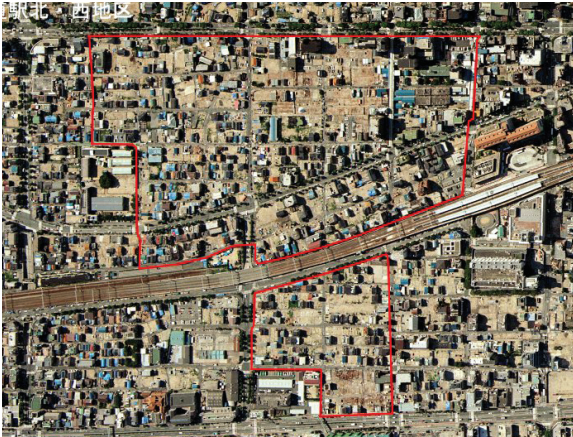
▲ Figure 1.7. Land readjustment for the urban rehabilitation of high-density areas (Dambara area 1987-2005, Hiroshima Prefecture)



▼ Figure 1.8. Land readjustment for degraded areas from railway lines (Nijo area 1998-2007, Kyoto Prefecture)



▼ Figure 1.9. Land readjustment for urban reconstruction and disaster prevention (Rokkomichi Station 1995-2007, Kobe Prefecture)





▲ Figure 1.10 (A-D). High quality small-scale public and private spaces developed through land readjustment projects (A-C Aichi Prefecture, and D Kobe Prefecture)

implemented with the purpose of developing urban infrastructure of greater complexity in intensely urbanized areas, in old industrial areas, or in degraded areas from railway lines (see Figure 1.8); and

- e. Disaster reconstruction. This is designed to recover war-damaged areas (such in World War II), and recover areas destroyed by disasters from, mostly, earthquakes, typhoons and tsunamis, and their consequences, such as landslides, fires, and floods (see Figure 1.9).

Replotting, contribution, consensus, persuasion and opposition – these are all concepts related to the land readjustment projects in Japan. This means that land readjustment consists of several concepts and implementation phases and, therefore, the law plays an important role in determining not only the process but also the equity rules for costs and benefits distribution among all rights holders. In this sense, the Japanese legal framework is an appropriate place to begin to understand how land readjustment is fully regulated in a country with, probably, the greater amount of successfully realized (see Figure 1.10), and also unrealized, projects of land readjustment in the world.

Land Readjustment and the Law in Japan

Felipe Francisco De Souza and Takeo Ochi

In Japan, the *Land Readjustment Law* (土地区画整理法 *tochi kukakuseiri hō*) (LRL) N° 119, promulgated on May 20, 1954 regulates land readjustment implementation. Currently, the law is divided into seven chapters, the second of which has six sections, and the third, nine (according to the latest amendment as of June 13, 2014):

Chapter 1. General Provisions (articles 1 to 3.5)

Chapter 2. Implementation Agency

Section 1. Individual Implementation Agency (articles 4 to 13)

Section 2. Land Readjustment Association: 1. Establishment (articles 14 to 24)

Section 2. Land Readjustment Association: 2. Management (articles 25 to 44)

Section 2. Land Readjustment Association: 3. Dissolution and Amalgamation (articles 45 to 51)

Section 3. Land Readjustment Corporation (articles 51.2 to 51.13)

Section 4. Prefectural and Municipal Governments (articles 52 to 65)

- Section 5. Ministry of Land, Infrastructure, Transport and Tourism (articles 66 to 71)
- Section 6. Urban Renaissance Agency and Public Corporation for Housing (articles 71.2 to 71.6)

Chapter 3: Land Readjustment Project

- Section 1. General Rules (articles 72 to 85.4)
- Section 2. Replotting Plan (articles 86 to 97)
- Section 3. Designation of Temporary Replotted Land (articles 98 to 102)
- Section 4. Enforcement of Replotting (articles 103 to 108)
- Section 5. Compensation for Loss in Land Value (article 109)
- Section 6. Collection and Payment for Equity (articles 110 to 112)
- Section 7. Coordination of Rights Concerned (articles 113 to 117)
- Section 8. House Building in Priority District for Housing Supply (article 117.2)
- Section 9. Expertise Certification Given by the MLIT (articles 117.3 to 117.19)

Chapter 4. Allocation of Project Expenses (articles 118 to 121)

Chapter 5. Supervision (articles 122 to 127.2)

Chapter 6. Miscellaneous (articles 128 to 136.4)

Chapter 7. Penal Provisions (articles 137 to 146)

The purpose of the law is to facilitate the building of sound urban areas and to encourage public benefit by enacting necessary measures for implementation and the allocation of project expenses to land readjustment projects (LRL article 1). According to the law, land readjustment means to alter the shape and condition of plots of land, and to install or improve public facilities in a city planning area to provide better public facilities and to increase the usage of each plot (LRL article 2.1). Also, according to the law, the implementation agencies for land readjustment projects are divided into six categories (LRL articles 3 to 3.3): individuals; associations of landowners and leaseholders; land readjustment stock companies established by landowners; prefectural or municipal governments; the Ministry of Land, Infrastructure, Transport and Tourism; and the Urban Renaissance Agency (a central government agency) and the Corporations for Housing and Urban Development (prefectural or municipal government agencies).

In the case of an implementation agency set up by individuals, those who are going to implement the land readjustment project shall obtain a prior approval related to the project plan from the prefectural governor (LRL article 4.1) and in case of association, those who are going to establish it, in cooperation with seven or more people, shall determine the articles of the association and the basic policy of the project plan to

obtain the approval of the prefectural governor (LRL article 14.1). Regarding the project plan, “the plan for public facilities and housing plots shall be formulated in consideration of improving the living environment, securing traffic safety, preventing disasters and creating sound urban areas” (LRL article 6.8). Also, in case of association, it is necessary to obtain consensus from at least two thirds of all landowners and leaseholders respectively within the project area. Moreover, the total sum of the areas of the landowners’ and leaseholders’ plots that consent to the project’s implementation shall at least total two thirds of the total land area of landownership and land lease rights (LRL article 18). Where the land readjustment project is carried by the public sector, this requirement is not necessary because the project shall be implemented as a city planning project according to the city master plan.

If there are objections to the implementation of projects, land rights holders may submit written objections to the prefectural governor or to the Minister of Land, Infrastructure, Transport and Tourism (LRL articles 20.2, 55.2, 69.2, 71.3.5). The governor or the minister shall examine all the objections: if an objection is accepted, they shall order the implementation agency to amend the implementation ordinance or the project plan, and if an objection is not accepted, the result of this decision shall be informed to the land rights holders who submitted it. The methods of appealing against the government’s decisions are prescribed under the provisions of the Japanese *Administrative Complaint Reinvestigation Act* (行政不服審査法 *gyōsei fufuku shinsa hō*) N° 160 of 1962, which is applied to examine the written objections submitted (LRL articles 20.4, 51.8.4, 55.5, 69.4, 71.3.9).

Each land readjustment project implemented by a government agency remains under the supervision of a land readjustment council that shall be established for each project (LRL articles 56, 70, 71.4). The council members are representatives of landowners and leaseholders elected by the rights holders. Also, experts on matters related to land readjustment might be added as needed by the implementation agency (LRL articles 58.3, 70.3, 71.4.3), which shall also appoint three or more advisors for property valuation, with the consent of the council. When the implementation agency evaluates the value and rights of the lands, when the agency decides the equity amount or sets reserve land in a replotting plan, or when it delivers compensation for loss in land value within the project area, the agency shall ask for the opinions of the aforesaid advisors (LRL articles 65, 71, 71.5).

During the period from the public announcement regarding the beginning of the project (approval of the project plan) until its completion, any alteration of physical conditions that could delay or hinder development works – construction, reconstruction,

expansion of buildings and other structures – shall be restricted, unless subject to permission and prior approval from the prefectural governor (or minister or mayor in some cases) (LRL article 76). If changes without this approval are verified, the governor or minister shall be able to order the violators or those who succeed to the land concerned, buildings and other structures, or the rights related to those objects, to restore the land back to its original condition or to remove the said building or other structures concerned (LRL article 76.4). Moreover, through replotting, the rights holders' rights are converted to newly replotted land lots. This means that the rights holders lose the right to use their original parcels. So, buildings, plants, soil, stones, and other structures need to be transfer or removed from the original land plots (LRL article 77). Article 77 enables the implementation agency to conduct this transfer or removal after they inform the possessors or occupants of the buildings in advance. However, the possessors or occupants usually execute this transfer or removal by themselves with compensation for loss – if necessary – provided by the implementation agency (LRL article 78).

Also, the implementing agency shall formulate the replotting plan to enforce replotting of the plots within the project area. According to the law, the replotting plan shall guarantee the maintenance of the characteristics corresponding to the original land “in terms of location, area, soil, water supply, land use, environment and other conditions” (LRL article 89). This is known as the “principle of correspondence” and in cases that a full correspondence is not possible, at least part of the transformed land must keep the original characteristics¹. The replotting plan comprises of: (i) a replotting design, (ii) specifications of each replot, (iii) specifications for equity payment for each plot and each right, and (iv) specification of the lands with special arrangements, such as reserve land, among others (LRL article 87). Such plan shall avoid excessively small plots of land, considering the appropriate sizes for the prevention of disaster, and improvement of sanitary conditions (LRL article 91). To avoid excessive small plots of land from this process: (i) the small land and the adjoining land may be consolidated to one replot and the landowners may get co-ownership of the replot if they agree (LRL article 91.3); (ii) the replot may not be given to the small land and an equity shall be paid by the landowner instead (LRL articles 91.4 and 94); or (iii) land plots that are big enough shall be able to be reduced, and used for additional allocation to the small land. In this case, the landowner shall be given or pay the equity respectively (LRL articles 91.5 and 94). Imbalances which may arise during replotting shall be corrected by means of equity payments, which shall be calculated and established in monetary terms taking into account the location, area, soil, water supply, land use, environment, and other characteristics, of both the original plots – or their parts – and the replots (LRL article 94).

Concerning project feasibility, the law determines that, during the development of the

replotting plan, a certain amount of land must be left out of the replotting to be designated as reserve land, which shall properly be used to raise funds through its sale to pay the costs of the land readjustment project (LRL article 96). The equivalent value of the land contribution shall not exceed the percentage stipulated on the increase of the total value of private land after the project (LRL article 96.2). In case of public projects, revenue from reserve land may only be used to improve the project and cannot be allocated elsewhere.

Concerning replotting, it is executed by administrative measure, not by a contract between the parties (rights holders) involved. This administrative measure of replotting is called “enforcement of replotting,” which is implemented according to the replotting plan (LRL article 86). The enforcement of replotting shall be carried out as soon as all the construction works of land readjustment finish (LRL article 103.2), and this shall be informed through a public announcement (LRL article 103.4). The replotted lands under the replotting plan shall be regarded as the original plots, and the rights related to the original plots having no replotted lands designated in the plan shall lapse on the day after the public announcement. Rights other than land ownership and easement are similarly treated (LRL article 104). The reserve lands designated in the replotting plan shall be incorporated by the implementing agency on the day following the public announcement of the enforcement of replotting (LRL article 104.11). The lands used for public facilities and the public facilities being created by the implementation agency shall revert to the government administrators of the public facilities (LRL articles 105 and 106). After the public announcement of the enforcement of replotting, the implementing agency must apply for or entrust the registrations relevant to the alteration of lands and buildings within the project area caused by the land readjustment project (LRL article 107).

Finally, the law provides penal regulations to land readjustment projects. In cases that the implementation agency is the private sector, any member of the implementation agency or the project board that accepts, demands or promises a bribe shall be sentenced to up to three years in prison, and if he or she conducts anything deemed dishonest or inconsistent with their duties and obligations, such member shall be sentenced to up to seven years in prison. In addition, if any member requests a third person to accept, demand or receive a bribe, such member shall be sentenced to up to three years in prison (LRL article 137). Any holder of rights who violates the requests made by the implementation agency or the project board, as well as members that fail to comply with their obligations, for example, one who provides false documentation of records and technical reports, shall also be subject to criminal penalties and payment of fines (LRL articles 138 to 146).

Table 1.1. Land Readjustment and the Law in Japan (as of June 2014)

Legal Content	Description
Urban planning tool (Objective of land readjustment)	Land readjustment means to alter the shape and conditions of plots and to install or improve public facilities in the city planning area in order to provide better public facilities and increase the usage of each plot (LRL article 2).
Relationship to local regulations	When the implementation agency is the private sector, the government examines if the proposed project area is suitable for urbanization, and is basically out of any urbanization control areas, in accordance with the city master plan (LRL articles 9, 21 and 51.9). When the implementation agency is the public sector, the project area shall be the area designated as a land readjustment project area according to the <i>City Planning Law</i> (LRL articles 3, 3.2 and 3.3; CPL article 7).
Implementation agencies (Both the public and private sectors)	Land readjustment implementation agencies can be divided in six categories: individuals; associations of landowners and leaseholders; land readjustment stock companies established by landowners; prefectural or municipal governments; the Ministry of Land, Infrastructure, Transport and Tourism; and the Urban Renaissance Agency and Corporations for Housing and Urban Development (LRL articles 3 to 3.4).
Major related concepts (Replotting, the principle of correspondence and transfer of rights)	The land readjustment law does not clearly define replotting, but it is taken for granted that it means the change of location, format and area of several plots of land to achieve the results proposed by a land readjustment project. The principle of correspondence means that the replot shall correspond to the original plot in terms of location, area, soil, water supply, land use, environment and other conditions (LRL article 89). Transfer of ownership rights means that the lands replotted under the replotting plan shall be regarded as the original plots (LRL article 104).
Rights holders' participation (Consensus building and minimum adhesion percentage)	In cases that the land readjustment project is carried out by the private sector, it is necessary to obtain consent of at least two thirds of all of the landowners and leaseholders respectively and, in this case, the sum of the areas of plots of those who consent to the project shall amount at least two thirds of the sum of the total areas of plots in the land readjustment project (LRL articles 18 and 51.6). In cases that the land readjustment project is carried out by the public sector, such requirement is not necessary because the project shall be implemented according to the city master plan.
Land contribution and cost recovery land	The area of a replot is smaller than the area of its original plot. This decreased area is called land contribution. Land contribution is used for additional surface of urban infrastructure and the reserve land. The land readjustment law does not clearly define land contribution but that this will happen is taken for granted since the purpose of land readjustment project is to install and improve public facilities (LRL article 2). Reserve land means a certain extent of land, which shall be left out of the replotting to appropriate profit from its sale to meet the land readjustment project expenses or for fulfilling the purposes prescribed in the project rules (LRL article 96).
Development restrictions until project completion	During the period from the public announcement regarding the beginning of the project until the project's completion, any alteration of physical conditions – land, construction, reconstruction, expansion of buildings and other structures – shall be restricted, unless subject to permission and prior approval from the government (LRL article 76).

Fair distribution of costs and benefits for urban development	The fair distribution of costs and benefits for urban development through a land readjustment project is achieved by the area or value of replots compared to their original ones through the replotting design. Each project establishes the rules of the replotting design and land evaluation method based on the <i>Land Readjustment Law</i> and its cabinet orders.
Penal regulations for bribes, dishonesty and violations	Any member of the association or implementation agency that accepts, demands or promises a bribe related to the project, shall be sentenced to up to three years of penal servitude, and if a person who conducts anything dishonest or does not carry out his duties as required shall be sentenced to up to seven years in prison (LRL article 137). Any holder of rights who violates the requests made by the implementation agency or the project board, as well as members that fail to comply with their obligations shall be subject to criminal penalties and payment of fines (LRL articles 138 to 146).

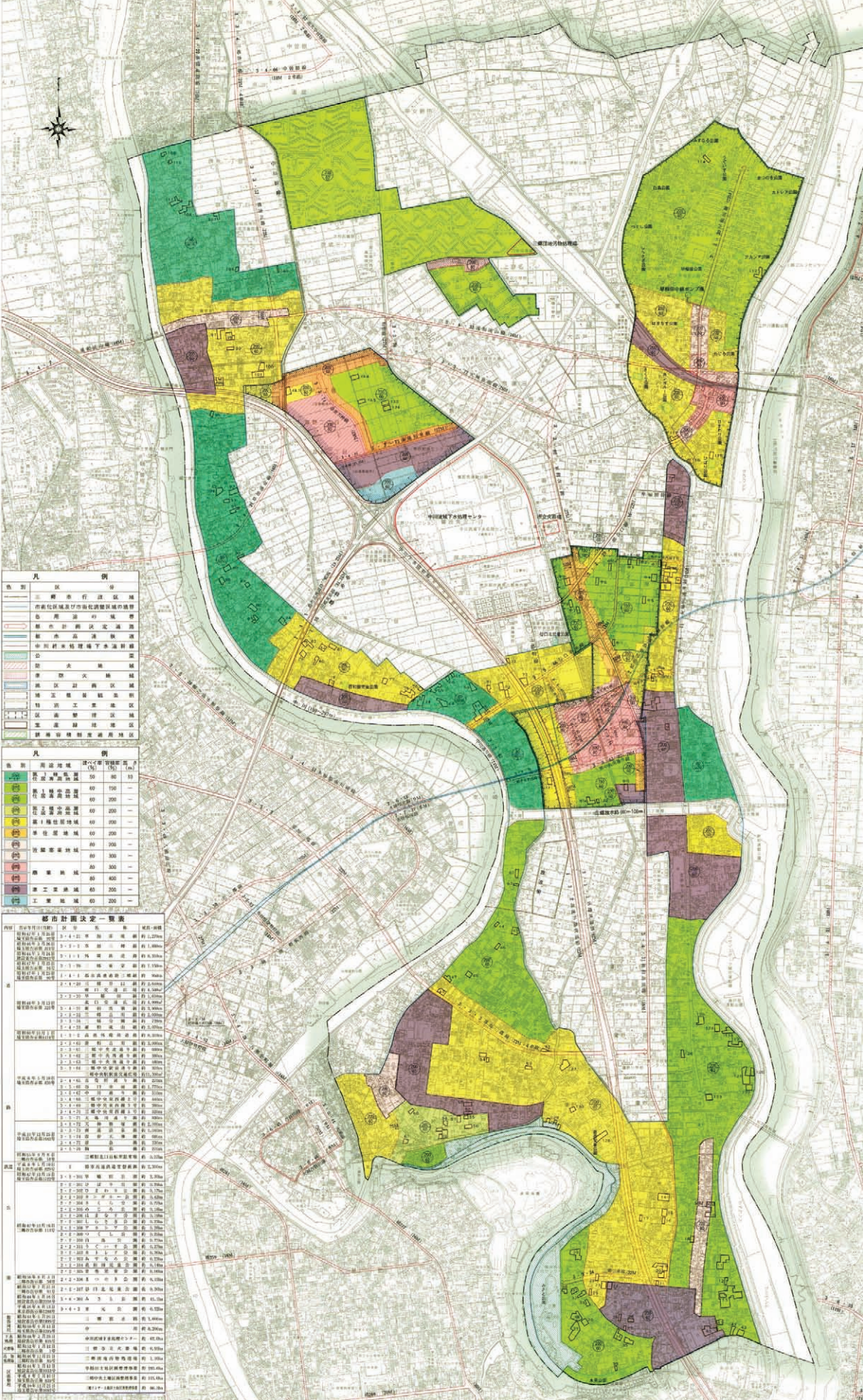
(Source: Felipe Francisco De Souza and Takeo Ochi based on the *Land Readjustment Law* of 1954).

The Japanese Procedures and Methodology for Land Readjustment

Felipe Francisco De Souza and Takeo Ochi

The application of land readjustment projects relies on the methodology and procedures established under the Japanese *Land Readjustment Law*. The legislation, as noted previously, established the description of land readjustment related concepts, such as replotting, reserve land, development restrictions, and the fair share of costs and benefits, among others. It also established the rights and duties for landowners, leaseholders, implementation agencies, and other third parties involved from the initial phase until project completion. We describe the Misato Chuo project as a case study to illustrate project implementation and financial planning for land readjustment projects in Japan.

Located in Saitama Prefecture, the Misato Chuo project was one of the locations, along with twenty others, where land readjustment was conducted to secure land for a new public transportation line – the Tsukuba Express – and to develop the area around its train stations. The new railway connects directly the metropolitan area of Tokyo, especially its central area, to the Tsukuba Science City, 50 kilometers towards the northeast. Predicting the impact that the new line would cause in the areas affected by the line construction, and considering its regional scale, land readjustment was chosen as the strategy to be used to coordinate the railway construction with land development, and to solve problems with land acquisition and limited public finances. Since 1998, the land readjustment project has been coordinated and implemented by the Urban



凡 例		
色 別	区 分	
緑	緑地・公園用地	
黄	商業・業務用地	
橙	住宅用地	
赤	工業用地	
紫	公共施設用地	
白	未利用地	
青	水域	
灰	交通用地	
黒	その他	

凡 例		
色 別	用途地域	建ぺい率/容積率(%)
緑	第一種緑地	50/50
黄	第一種商業	60/100
橙	第一種住宅	60/100
赤	第一種工業	60/100
紫	第一種公共	60/100
白	第一種未利用	60/100
青	第一種水域	60/100
灰	第一種交通	60/100
黒	第一種その他	60/100

都市計画決定一覧表		
用途地域	区 分	建 築 規 格
第一種緑地	第一種緑地	3.4-12.1 第一種緑地 約 3,270㎡
第一種商業	第一種商業	3.4-12.1 第一種商業 約 3,270㎡
第一種住宅	第一種住宅	3.4-12.1 第一種住宅 約 3,270㎡
第一種工業	第一種工業	3.4-12.1 第一種工業 約 3,270㎡
第一種公共	第一種公共	3.4-12.1 第一種公共 約 3,270㎡
第一種未利用	第一種未利用	3.4-12.1 第一種未利用 約 3,270㎡
第一種水域	第一種水域	3.4-12.1 第一種水域 約 3,270㎡
第一種交通	第一種交通	3.4-12.1 第一種交通 約 3,270㎡
第一種その他	第一種その他	3.4-12.1 第一種その他 約 3,270㎡

Renaissance Agency, a Japanese central government agency responsible for major Japanese urban development projects, and its team was responsible for the land survey, land appraisal evaluation and stakeholder coordination. The challenge for the project was to rearrange 114.8 hectares under 3,290 land plots, 925 land rights ownerships, and 790 existing buildings (see Figures 1.11-1.13).

▼ Figure 1.11. Satellite image of the Misato Chuo project area before the land readjustment project (2002)

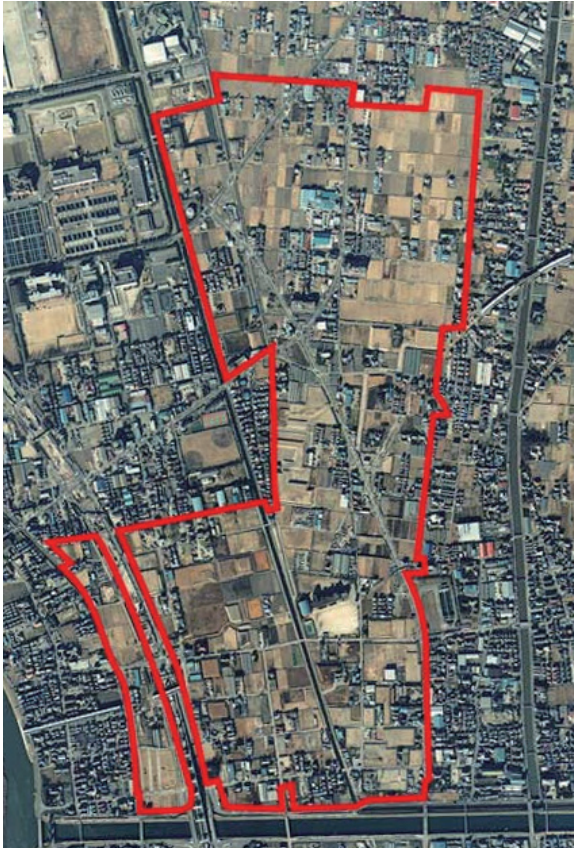


Figure 1.12. Cadastral ownership map of the Misato Chuo project area before its implementation ▲

◀ Figure 1.13. City Planning Map 1/20,000, with the delimitation of the land readjustment project

On the city planning map that includes the Misato Chuo project area, there are areas for urbanization promotion to be urbanized within a period from 5 to 10 years (colored, with existing and/or proposed uses); and areas where urbanization shall be controlled and not intensified (not colored), indicating the preservation of natural environment and agriculture. The map also includes the existing infrastructure, and any infrastructure proposals that need to be taken into account for further intervention possibilities. In this area, in addition to the sewage system, drainage, green areas and the residential and commercial land use that was proposed, the land readjustment project of Misato Chuo secured land necessary for the construction of the station and the railway line, attached to a new urban park.

Focusing on the financial planning and feasibility study for the Misato Chuo project, the first condition for its analysis was to establish a budget that could be approved by the Minister of Land, Infrastructure, Transport and Tourism, considering implementation expenditures and estimated revenues. Expenditure refers to all relevant costs: construction, removal and relocation of facilities, research and project development, and direct and indirect costs according to the specifics of the project. Revenues refer to all sources of funds for the project development: government subsidies – national, prefectural and local –, gains from the sale of reserve lands and other sources of investments. Table 1.2 shows the expenditure and revenue plan for the Misato Chuo project: 33% of all expenses came from (C1) constructions and (C3) infrastructure and soil preparation, and another one third came from (C2) removal and relocation costs; and revenues were divided into 41% from government subsidies and 57% from the sale of reserve lands. The construction costs of the Misato Chuo train station were not included in this calculation.

Table 1.2. Misato Chuo Land Readjustment Project: Expenditure and Revenue

Expenditure (million JPY)		Revenue (million JPY)	
Construction costs (C1)	8,918	National subsidies (NS)	11,192
Removal and relocation costs (C2)	19,242	Prefecture subsidies (PS)	9,307
Infrastructure and soil preparation (C3)	12,059	Municipal subsidies (MS)	4,850
Research and project costs (C4)	6,950	Revenue from the sale of reserve lands (R x e)	35,092
Miscellaneous and office costs (C5)	7,390		
Indemnity and interest (C6)	7,002	Other revenues (OS)	1,120
Total (T)	61,561	Total (T)	61,561

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

The second condition for financial planning and feasibility study was to establish a land evaluation system for all rights holders. Land evaluation has significant purposes: it is used to judge the contribution for reserve land, calculate compensation for loss in damage, calculate the replotting area, and calculate equity collection and payment. The equity is money to be collected and paid to clear imbalance for the replot value, if any. Besides the conventional system based on market value for land evaluation and real estate appraisal, the Japanese land readjustment uses three additional calculation methods: experience-based, zone value and street value evaluation. The street value is the most widely used today, and was first introduced by the Ministry of Construction (now the Ministry of Land, Infrastructure, Transport and Tourism) in 1950 as “The Standard for Calculation of Land Use Value” (宅地利用増進率算定基準 *takuchi riyō zōshin ritsu santei kijun*). The methodology was revised several times and, in 1978, became “The Standard for Land Evaluation in Land Readjustment” (区画整理土地評価基準

kukaku seiri tochi hyōkamotojun). This evaluation system has considerable advantages compared to the others: it allows the evaluation of large amounts of plots in a short period of time; the deviation in evaluation has been shown small; it is logical and scientific, which makes it easier to gain rights holders understanding; and it emphasizes acknowledgement of land prices before and after the project at the same time (Tamano 2005).

In the street value evaluation method, “the price per unit area of a plot facing a street with standard frontage and shape is assumed as the street value for a street. Plots are then evaluated based on this street value, with modifications made for the correlation of location with the street, shape and use conditions” (Tamano 2005, 11). The street value is composed normally by the sum of index figures evaluated separately; consisting of street, accessibility and land coefficients. The street coefficient gives a value according to the continuity, the degree of systematic production, and the condition of the road a plot faces (represented by road rank, road width, existence of sidewalks, pavement, street trees, parking lanes, slope and curves, among others). The accessibility coefficient gives value to the distance between the plot and the traffic and public facilities, like stations, parks and schools; and also, conversely, gas tanks, sewage treatment plants, graveyards, and other unwelcome facilities that are considered minus factors. The land coefficient gives value to the plot’s features, such as scale, land use, public land ratio, street density, conditions of sunlight, ventilation and topography security, and installed infrastructure, such as water, sewage, electricity and gas supplies.

By using formulas and charts stating values for every coefficient already mentioned, the street value is converted into an index to be multiplied for each plot size according to its individual features; such as a corner plot, an ordinary plot, a through plot (a plot sandwiched between two streets), a flag-shaped plot, or an isolated plot. The evaluation of each plot “must be adjusted according to land market prices in the area, and judged by sales or by indices as the property-tax evaluation, national evaluation for succession tax, and publicly announced land prices” (Hayashi 1982, 111). In short, there is a numerical evaluation for every land parcel, a grading for every property, before the execution, to be compared with the graded property after the execution of the land readjustment project, and then the replotted plots will be adjusted according to the acquired benefits. In establishing the replotting plan, the implementation agency is legally required to obey the principle of correspondence, which is that the replotted land and the former land shall correspond as much as possible in terms of location, soil, water condition, land use, and environment, among other features.

After the evaluation of every land ownership and land use right according to the mentioned land evaluation method, the third condition for the financial planning and

feasibility study was to establish an overall contribution ratio from land in private ownership to increase the public area required for project implementation. In the case of the Misato Chuo project, within its 114.8 hectares, it was stipulated, according to the plan proposed, a public area increase from 14.0% (M) to 32.5% (N) (an 18.5% increase), proportionally compared to the reduction in private property from 86.0% to 67.5% (an 18.5% reduction). Included in the 67.5% private area after project implementation, 13.9% was earmarked for reserve lands (Table 1.3), targeting a revenue of JPY 35 billion to make the project financially feasible.

Table 1.3. Classification of Land Use Before and After the Project

Category	Before the Project		After the Project	
	Area (m ²)	(%)	Area (m ²)	(%)
Public areas				
Road system	82,285	7.2	267,461	23.3
Parks and green areas	12,329	1.1	40,812	3.6
Streams, rivers and water sources	65,752	5.7	65,294	5.7
Subtotal	160,366 (M)	14.0	373,567 (N)	32.5
Private areas				
Private properties	987,667 (A)	86.0	614,329 (E)	53.5
Reserve lands	-	0.0	160,137 (R)	13.9
Subtotal	987,667	86.0	774,466	67.5
Total (M + A) (N + E + R)	1,148,033	100.0	1,148,033	100.0

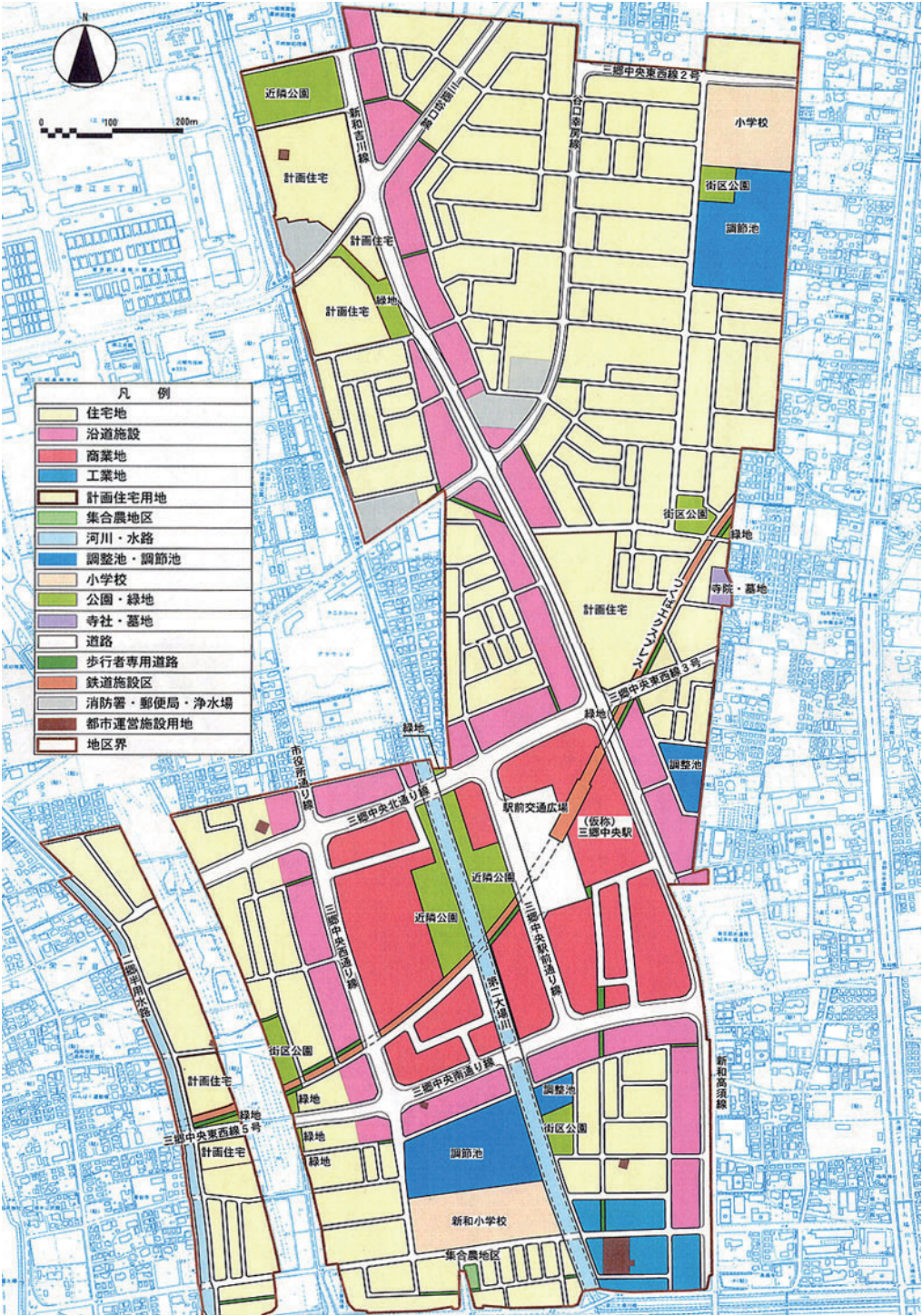
(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

Since a decrease in private property area will take place to allow for the improvement in public facilities and the establishment of reserve land to fund the project costs, the contribution ratio is the sum of land increase for public areas ($P = N - M$), plus the contribution for the establishment of reserve land (R), divided by the total area of private properties prior to the project implementation (A), and multiplied by 100 (or percentage). Table 1.4 shows the calculation of the contribution ratio for the Misato Chuo project. The total contribution ratio is 37.8%. This ratio is an average contribution of all the land parcels, which will be equalized – may increase or decrease – when an individual land parcel evaluation is conducted according to the original asset relationship with the previous road, infrastructure, and public facilities conditions, and the posterior characteristic of the plot after the replotting plan (see Figure 1.14) according to the street evaluation method previously described.

Table 1.4. Land Contribution Ratio Calculation

Private Properties		Contribution			Contribution Ratio		
Before the Project (A)	After the Project (E = A - P - R)	Increase in Public Areas (P = N - M)	Reserve Land (R)	Total (P + R)	Public Areas (P / A)	Reserve Land (R / A)	Total d = ((P+R)/A)
987,667 m ²	614,329 m ²	213,201 m ²	160,137 m ²	373,338 m ²	21.6%	16.2%	37.8%

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).



▲ Figure 1.14. Land use plan, after the land readjustment development

After determining the average contribution ratio, an analysis and valuation of the properties' net asset value is estimated. The proportional ratio (Pr) is defined as the comparison between the previous and posterior land values, and the previous and posterior area of the private properties, excluding reserve land. For instance, if the contribution ratio (d) is 33.3%, the value per square meter is required to increase by 50% (land value increase ratio (y) = 1.5) to maintain the equal balance of values between previous land plot value and posterior replot value (in this case the proportional ratio (Pr) is 1):

$$\text{Equal balance: The proportional ratio } Pr = (1 - d) y = (1 - 33.3\%) \cdot 1.5 = 1$$

Table 1.5 shows that by dividing the estimated value after the project (e) by the value per square meter before the project (a) we will estimate the land value increase ratio (y = previous land price divided by posterior land price). In case of the Misato Chuo project, JP¥ 151,000 per square meter was the average assessed land price before the project implementation; estimated to rise to JP¥ 295,000 per square meter, an increase of 95.4% (y = 1.954) after project completion. If we divide the total value of private properties after the project (V' = area of private land without reserve land (E) multiplied by the estimated unit value (e)) by the total value of private properties before the project (V = area of private land (A) multiplied by the unit value (a) before implementation), we reach a real appreciation of the value of private properties brought about by the project, which is called the proportional ratio (Pr). The Pr was 1.215 in this case (calculated for private land without reserve land).

$$Pr = V' / V = (E \cdot e) / (A \cdot a) = (1 - d) y = (1 - 37.8\%) \cdot 1.954 = 1.215$$

Table 1.5. Increase Ratio and Proportional Ratio Calculation

Private Properties Before the Project (A)	Price per m ² Before the Project (a)	Total Value Before the Project (V = A • a)	Whole Replots After the Project (E)	Price per m ² After the Project (e)	Total Value After the Project Without Reserve Land (V' = E • e)	Land Value Increase Ratio (y = e / a)	Proportional Ratio (Pr = V' / V)
987,677 m ²	¥ 151,000/m ²	¥ 149,139,227,000	614,329 m ²	¥ 295,000/m ²	¥ 181,227,050,000	1.954	1.215

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

The proportional ratio (Pr) is used to calculate the area of each individual replotted lot. Pr is used as a constant (common for all the land plots). The following formula determines the relationship between value of an individual plot before the project and value of its replot after the project:

Proportional Ratio Calculation

$$Pr \cdot Ai \cdot ai = Ei \cdot ei \quad (\text{Pr is the same for all the land plots and replots})$$

When Pr is calculated, the area of an arbitrary individual replot (i) can be calculated as follows:

$$Ei = \frac{Pr \cdot Ai \cdot ai}{ei}$$

- Pr : the proportional ratio of total private-plot value
 Ai : area of an individual plot (i) before the project (m^2)
 ai : unit value of an individual plot (i) before the project ($¥/m^2$)
 Ei : area of an individual replotted plot (i) (m^2)
 ei : unit value of an individual replotted plot (i) ($¥/m^2$)

The final analysis made for the Misato Chuo land readjustment project was the level of sharing of project costs through contributions for reserve land. Reserve land is the resource for project cost recovery, and landowners share the project costs through the contribution of their land for reserve land. The weight of the landowners' share of costs is expressed as $r = R/R_{max}$; where R is the acreage of the reserve land that is secured in a project, while R_{max} is the maximum acreage of reserve land that could be secured theoretically. The latter means that the total value of all the replots is equal to the total value of all the private land before the project (in which, theoretically, a landowner gets no profit from his land). The " r " (R/R_{max}), as calculated in Table 1.6, shows how much of the costs and the benefits of the project landowners share: if " r " is 100%, it means that landowners' share of the project costs is quite heavy, but if " r " is 0% (there is no reserve land), landowners will receive most of the development benefits. In Japan, " r " is used as an indicator of the necessity for government financial support (subsidies). If R/R_{max} calculated *without* subsidies is more than 1 (or 100%), the government will recognize the necessity for subsidies. If a project receives a government subsidy, " R " decreases, so, " r " also decreases. The condition of the provision of subsidies from the central government is that R/R_{max} calculated with subsidies needs to be more than 50% in principle. In the case of the Misato Chuo project, the " r " was calculated at 59.55% considering an increase in land value, in average, from JP¥ 151,000 to JP¥ 295,000.

Table 1.6. Reserve Land and the Share of Costs and Benefits

Total Value Before the Project ($V = A \cdot a$)	Total Value After the Project With Reserve Land ($Ve = (E + R) \cdot e$)	Increase of Total Value ($\Delta V = Ve - V$)	Price per m^2 After the Project (e)	Reserve Land		$r = R/R_{max}$
				Maximum Acreage of Reserve Land ($R_{max} = \Delta V/e$)	Acreage of Reserve Land (R)	
¥149,139,227,000	¥228,467,470,000	¥79,328,243,000	¥295,000 / m^2	268,909 m^2	160,137 m^2	59.55%

(Source: Aoki 2004; updated by the Ministry of Land, Infrastructure, Transport and Tourism of Japan).

Rmax is the acreage of the reserve land when the total value of all the replots is equal to the total value of all the private land before the project.

So,

$$V = Ve - (R_{\max} \cdot e)$$

Therefore,

$$R_{\max} = \frac{(Ve - V)}{e} = \frac{\Delta V}{e}$$

After drafting the project plan and the financial plan, consensus building was performed to implement the project. Then, the draft project plan with the financial plan was submitted to the Minister of Land, Infrastructure, Transport and Tourism. The plan included the draft of the implementation ordinance stipulating project costs sharing, the formation of a land readjustment council, the appointment of land evaluation advisors, and the equity estimation, among other features. The draft of the project plan and the implementation ordinance were presented for public inspection. According to the *Land Readjustment Law*, written complaints can be submitted to the minister within a two-week period during the project's time on public inspection through the prefectural governor. The minister must order the implementing agency to modify the implementation ordinance or project plan if the objections are found to be valid after examination, and shall notify the submitters that the objections were rejected if the objections are found to be invalid. In the Misato Chuo project, no written complaints were submitted.

After the project plan and implementation ordinance were approved, the land readjustment council was established. Representatives of landowners and leaseholders elected among themselves made up the council, and other skilled and experienced persons were appointed by the implementation agency. The council was responsible for the replotting plan, designation of the provisional replotting proposals, and the designation of reserve lands. The council worked for the dialogue between land rights holders and the implementation agency. To undertake construction works, the implementation agency designated the provisional replotting so that the landowners and leaseholders were required to stop utilizing their original land, when necessary for construction works. For the provisional replotting, the implementation agency formulated a draft replotting plan by listening to the opinions of the land readjustment council and land evaluation advisors, and negotiated the draft proposals with the rights holders through individual explanations about the relationship between the new and the old property locations, the new shape of the replots, and the reasons why he/she needed to bear his/her contribution ratio. The implementation agency had to deal with

complaints and grievances of the rights holders about the draft replotting plan.

In general, complaints in land readjustment projects are commonly related to equity issues. In some cases, landowners will require that former land should receive better treatment in conversion calculations than other lands: “some owners will have flat, easy-to-develop land that already has high value for farming. Others will have hilly, rocky, or marshy land more costly to develop, and generally of less agricultural value” (Doebele 1982, 6). In other cases, complaints will be mainly related to the land use designation after project completion: “each of these designations carries a different per square meter value. A plot near the center of a large project and designated commercial area may have many times the value per square meter of a low-density residential plot on the periphery of the project” (Doebele 1982, 6). And, in most cases, landowners will complain about difficulties and loss of income during the construction period: “some land plots will be immediately impacted (particularly those falling in the beds of planned streets or on the sites of utility plants and lines), while other land will be much less affected, permitting its use for agricultural income until the final stages of the project” (Doebele 1982, 6).

Lastly, after the construction works, the enforcement of replotting, which is an administrative measure in Japan, was carried out according to the replotting plan approved by the prefectural governor. So, the implementation agency drafted the final replotting plan based on the provisional replotting plan, and presented it for public inspection for two weeks before submitting it to the governor for final approval. According to Article 88 of the *Land Readjustment Law*, the persons concerned with the replotting plan could give their written objections to the implementation agency during the inspection period. In the case of written objections, the implementing agency shall examine them and: (i) if it deems that the objections should be adopted, the implementing agency shall make the necessary modification to the replotting plan, and (ii) if the objections shall not be adopted, the implementing agency shall notify this decision to those who submitted the written objections. When the implementing agency has drafted the replotting plan, and examined the submitted written objections, it is required to consult with the land readjustment council. After the enforcement of replotting and the end of the construction works, the new replots will be registered and the equity will be paid or collected to clear the imbalance of replots.

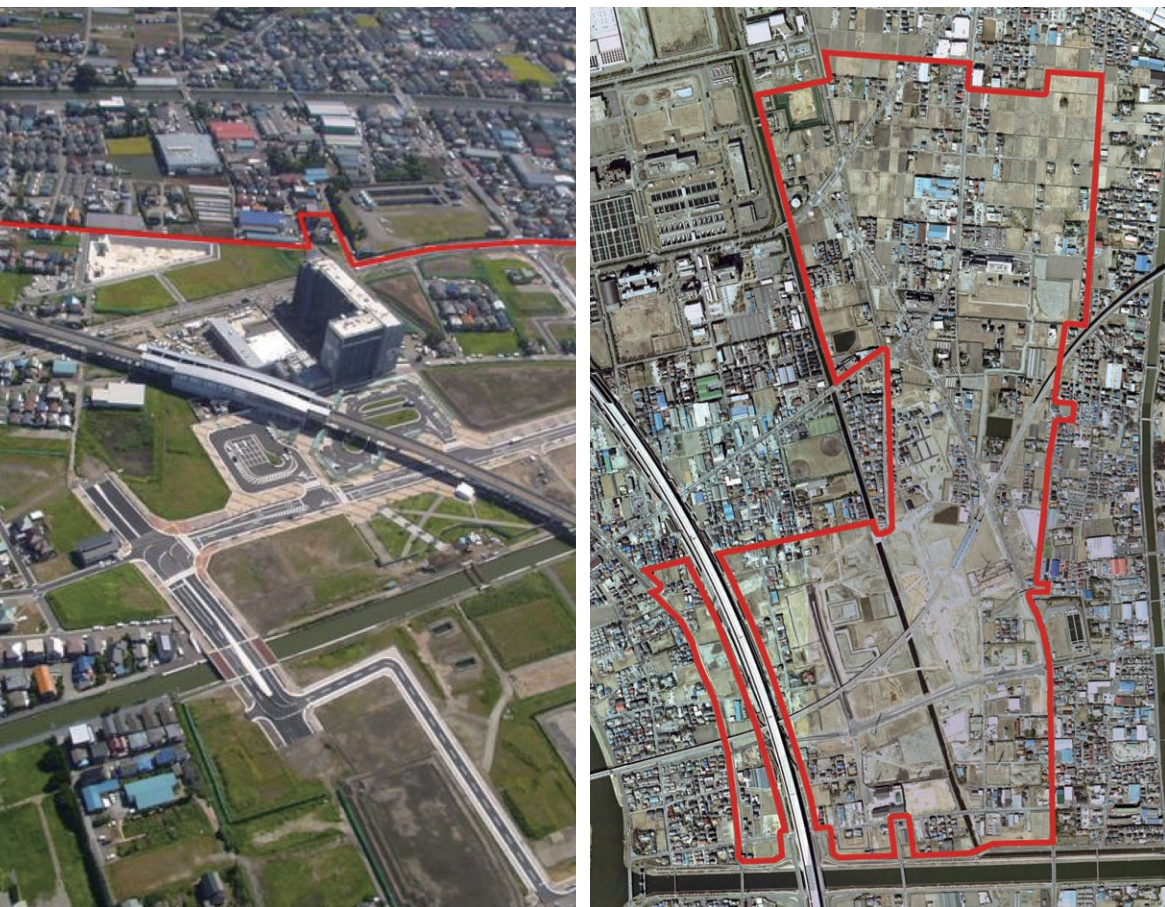
After these processes, the Misato Chuo project, whose project plan was approved in 1998, is expected to be completed by 2018 (see Figures 1.15-1.19).



▲ Figure 1.15 (A-D). New public facilities implemented by the Misato Chuo land readjustment project

▼ Figure 1.16. Aerial image of the region of the Misato Chuo project during its implementation

Figure 1.17. Satellite image of the Misato Chuo project area during the land readjustment project (2004) ▼





▲ Figure 1.18. Satellite image of the Misato Chuo project area during the land readjustment project (2012)

Figure 1.19. Panorama of the Misato Chuo project area during the land readjustment project (2013) ▼



The Successful Extensive Use of Land Readjustment in Japan

Felipe Francisco De Souza

Widely applied throughout the country, land readjustment is known as the “mother of urban planning” in Japan (都市計画の母 *toshikeikaku no haha*). Several project modalities have been improved over the past century, transforming 10,909 areas covering 329,248 hectares (Table 1.7) as of March 2013, which represents approximately one third of the country’s urban area. These figures include projects completed even before when the *Land Readjustment Law* of 1954 was enacted, or more precisely, 1,285 projects completed before 1954.

Table 1.7. Achievements of Land Readjustment Projects in Japan (as of March 2013)

Category / Implementer		Completed		Under Implementation	
		Number of Projects	Project Area (hectares)	Number of Projects	Project Area (hectares)
Under the former <i>Urban Planning Law</i>		1,285	67,862	-	-
Under the 1954 <i>Land Readjustment Law</i>		9,624	261,386	928	36,296
Public sector	Local government	2,244	102,012	504	20,925
	Local government ordered by the MLIT (*)	83	4,150	-	-
	Government corporations	385	26,969	35	4,462
	Sub-total	2,712	133,131	539	25,387
Private sector	Individual	1,293	17,512	51	890
	Land readjustment association	5,618	110,738	337	10,016
	Land readjustment corporation	1	5	1	3
	Sub-total	6,912	128,255	389	10,909
Total		10,909	329,248	928	36,296

(*) The Minister of Land, Infrastructure, Transport and Tourism shall order a prefectural or municipal government to implement land readjustment projects, which are urgent due to disasters or other reasons of crucial national interest.

(Source: Urban Regeneration and Land Readjustment Association of Japan 2013).

The origin of land readjustment in Japan refers to the mid-1870s, when the method began to be drafted for the consolidation of farms, just as in Germany, and for the reconstruction of Tokyo after the Great Fire of 1872. Its first formal legislation was passed in 1919 in the former *City Planning Law* of Japan. Until then, projects were adapted with the rural mechanism approved by the former *Arable Land Readjustment Act* of 1899. The law of 1919 extended the system established by the law of 1899 to urban areas, and the effectiveness of its application was validated in the approval of

the *Special City Planning Law* of 1923. This law was promulgated in response to the Great Kanto Earthquake, which devastated Tokyo and Yokohama in that year. In 1946, after the destruction of the major cities of Japan during World War II, another *Special City Planning Law* was promulgated, this time focusing on the urgent need for reconstruction of the country.

After World War II, with a huge accumulation of experience, land readjustment became the target of a national act, the *Land Readjustment Law* of 1954. In the 1960s, during the time of intense population migration to urban areas, related to the beginning of the economic growth of Japan, land readjustment was used as a strong instrument for the prevention, control and remediation of urban sprawl, providing urban infrastructure in the peripheral urban areas. As a consequence of the great economic growth and the rapid industrialization process, various kinds of urban and environmental problems started to occur in major Japanese cities. In 1968, the *City Planning Law* N° 100 was promulgated, designating land readjustment as a legal instrument for all scales of urban development.

So, what would be the reasons for such extensive use of this urban development tool in Japan?

Three relevant aspects may help to answer this question. The first is the fact that it was 1875 when the Japanese first land expropriation regulation was established, as the *Regulations for Purchase Procedures of Land for Public Use*. Back then, expropriation faced several shortcomings and lacked the legitimacy necessary to purchase irregular plots and to change plot positions and street patterns fast and efficiently enough. On the contrary, land readjustment offered a ready technical tool that could combine public works and town planning objectives, without considerable burden for the public purse (Siman 1990). Therefore, changing from one solution to the other paved the path for the application of land readjustment to different situations, reinforcing it – project after project – as a flexible instrument until its ultimate legal legitimacy in 1954.

A second relevant aspect is the country's historical context of difficulties, such as spatial constraints, lack of resources, natural disasters and wars, followed by major events of destruction. All these established an institutional responsibility by which the country would sacrifice whatever was necessary to recover (Barros 1988). In this sense, the strong Japanese bureaucracy and its reinforced structure successfully promoted land readjustment at the local level, within the country's centralized system of urban planning, to be the solution for recovery processes (Ishida 2000). In Japan, official government agencies attract the most talented graduates of the best universities, and the

positions of higher-level officials in the ministries have been the most prestigious in the country (Johnson 1982). The Japanese bureaucracy, therefore, reinforces its organizational structure, and the effectiveness of the State comes from the complexity and stability of its interaction with several stakeholders. This human resources' structure seems to enable Japan's collective actions and problems solving, helping the market to find solutions that would otherwise be difficult to achieve, even within the organized Japanese system (Evans 1989; 1992).

And a third important aspect of the extensive use of land readjustment in Japan refers to the Japanese ability to generate consensus to design and implement land readjustment projects. On the one hand, according to some scholars (Nagamine 1986; Nishiyama 1992; 1995), the Japanese tradition of participation, consensual decision-making and group mobilization made the extensive use of the instrument possible; moreover, the Japanese would be less individualistic and more cooperative than the citizens of Western countries. However, on the other hand, refuting such arguments, Andre Sorensen (2007) demonstrated that opposition and lack of consensus to operate land readjustment in Japan may be common, and not the exception. The scholar has provided his particular own view to explain the extensive use of land readjustment in Japan as follows:

- a. First, the weak development control regulations, fragmented land ownership patterns, illiquid land markets, and limited amounts of land in public ownership. "It seems unrealistic to expect that local governments or other actors will be willing to pursue land readjustment so tenaciously in a country in which simpler methods for achieving adequate urban infrastructure, such as the [North] American system of subdivision control, are available. Similarly, where Japanese landowners do agree to land readjustment projects, a major incentive is that they are unlikely to gain such basic urban infrastructures as sewers, sidewalks, and local parks without them" (Sorensen 2007, 110-111);
- b. Second, the strong incentives and/or effective restrictions on development without land readjustment, as well as able and numerous organizers. "The flexible *senbiki* policy² allowed planners to use the threat of downzoning to persuade landowners to engage in a process of land readjustment organizing" (Sorensen 2007, 108). In some cases, the expected results on development restrictions were successful, but in some others opposition emerged, as in case of Saitama Prefecture, during the 1980s: "even in the fifteen areas that had escaped downzoning through the establishment of a committee of local landowners to promote land readjustment, two thirds could not be converted to land readjustment projects, and in six of them opposition movements emerged" (Sorensen 2007, 109); and

- c. Third, the major commitment of time and energy from government planning officers to overcome strong opposition movements. “Unless a substantial majority of landowners supports the project (the rule thumb is 80%), local government is seldom willing to go ahead. This is significant because the government may legally proceed without landowner consent if the project is initiated as a local government project [...] but based on the bitter experience in the 1960s and 1970s, the implementation problems can be so severe when local landowners are opposed that is not worth pressing ahead without significant support” (Sorensen 2007, 108-109).

Sorensen’s findings were mainly focused on his case studies in Saitama Prefecture and the Tokyo metropolitan area. Other authors have their own perspectives on the successful extensive use of land readjustment in Japan. Kiyotaka Hayashi (1982) attributed such successes to a separate set of four reasons and their Japanese roots cultivated from the feudal age. According to him, the first reason for the successful extensive use of land readjustment was that “[Japanese] people were forced to obey the government and knew that obedience was essential for self-defense” (Hayashi 1982, 107). The long domination of the Japanese military government from the 17th century to the 19th century helped to develop a characteristic social discipline important for the initial political acceptance of land readjustment. The second reason was the strong attachment to land of the Japanese people. Somehow, there is an historical principle that people are completely dependent on agricultural land for family welfare, which makes difficult to treat land as a mere commodity and easily expropriable. The third reason was that Nagoya city – Hayashi used Nagoya, his hometown, as case study to elucidate all these reasons – “has received less national investment than other large cities in Japan, forcing the city to develop urban areas at its own expense” (Hayashi 1982, 107). With the strong and centralized Japanese State lending its efforts, from time to time, to specific goals – such as the promotion of specific infrastructure to promote industrialization or specific reconstruction projects for Tokyo capital city – the potentiality of land readjustment spread to other local governments to develop urban areas. And the fourth reason was that the Japanese farm flat plot was well suited for land readjustment. During the rapid industrial revolution and urban expansion towards agricultural areas, even with the limited and small-scale construction techniques known at that time, land readjustment was suited to the agricultural land flat characteristic in Japan.

Different authors – and different case studies – have produced different opinions on the successful extensive use of land readjustment in Japan. Our contribution to this debate relies on two other reasons. The first seems to be a sort of Japanese pragmatic planning culture – developed throughout the years – combined with a more technical and specialized project-driven system. Therefore, land readjustment is an important

engine of this system because it encompasses important aspects of the Japanese social life: (i) it is heavily dependent on social mobilization, which is the foundation of the Japanese nation to overcome important problems throughout its history; and (ii) it contains an answer to unearned increments due to urban improvements that not only could have led to social injustice, but to a heavier burden on the Japanese centralized State and, consequently, to a lack of resources to promote other important major goals. Somehow, Japan could not find a better answer to return the collection of betterment to its mobilized society in the form of basic infrastructure – leaving important resources to other major goals of the State – other than land readjustment.

The second reason is the particularity that land readjustment in Japan is not project contract-based, but is an administrative measure guided by the Japanese *Administrative Complaint Reinvestment Act* (行政不服審査法 *gyōsei fufuku shinsa hō*) N° 160 of 1962. In a regular project relying on a contract, two or more parties create legally binding obligations between them, on which actions can be taken if obligations are not met. In other words, a single party that disagrees with some particularity of – or entirely – its implementation can take the project to the Court. In Japan, a single party, or landowner, can disagree entirely or partially with the project – he is not in favor of his contribution ratio or the place of his plot after the replotting, for instance – but he cannot stop the project or take it immediately to the Court as in the contract-based case. In a situation that a single project – extremely complex and difficult to implement – gathers over 1,000 rights holders to build consensus, a single landowner cannot generate a transitional provision to paralyze or stop its implementation. Of course, conflicts are inevitable, making the role of mediators inside implementation agencies quite a key factor but, if legal actions are taken against the project – beside previous administrative attempts to build solutions and positive results – the project is still valid and its implementation can continue until the legal action is judged under strict rules and procedures. And these strict rules and procedures are considered lengthy processes that weaken the landowner's potential opposition and strengthen their disposition to obtain consensus and best results as possible.

Therefore, we cannot neglect the centrality of land readjustment in Japan and the efforts of the Japanese governments and the civil society to overcome problems to execute successful projects. So far, there is no single answer on the reasons why this urban development instrument has had such successful and extensive use in Japan, but it is fair to attest that much can be learned from the Japanese experience, from the legislative to the methodology approach, and from the landowner's reactions to the project's completion. Chapter 2 will present a detailed historic overview of land readjustment in Japan by Norihiko Yanase, followed by Chapter 3 with an extensive presentation of international case studies. And lastly, Chapter 4 will discuss Japan's endeavors to

achieve the global dissemination of land readjustment, written by Takeo Ochi.

Endnotes

¹ According to some Japanese scholars, including Ikuo Shimomura (1999), the principle of correspondence between the original land and the replotted one is highly controversial in Japan. The concept states that all characteristics should be maintained through a comprehensive evaluation of all land conditions before the project. However, the characteristics to be maintained and how to correspond to them are not stipulated in the law and regulations. Although there have been many experiences and Court decisions regarding the characteristics of the principle of correspondence, they are still ambiguous.

² In 1980, the Ministry of Construction of Japan issued a notice to local governments relating to the change of zoning designation between “urbanization promotion areas” (UPA) (where land development was to be promoted), and “urbanization control areas” (UCA) (where land development was, in theory, not to be allowed). This system became known as *senbiki* (線引き *sen biki*), or “drawing the line” between town and country, which was literally a boundary, intended to prevent urban sprawl (Sorensen 2007). However, flexible *senbiki* made it possible to change a UPA where plot of farmland exists to a UCA (downzoning) on the premise that this area would be changed to a UPA again when the implementation of a land readjustment project in an area is ensured. This idea was born in Saitama Prefecture.

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