

THE ROLE OF LAND READJUSTMENT IN URBAN DESIGN

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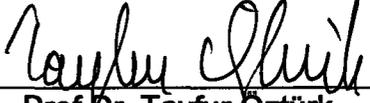
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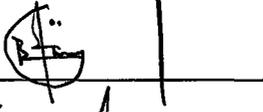

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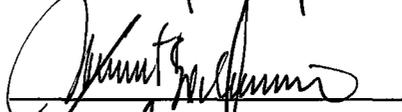
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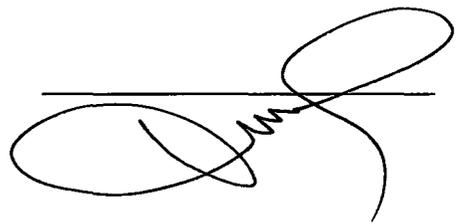
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ABSTRACT

THE ROLE OF LAND READJUSTMENT IN URBAN DESIGN

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(Re) production process of space is the transformation from unsettled to built-up or built-up to built-up environment, which is the process of building the city. This process includes the conversion from cadastral to development land, *land readjustment*, as well. Through the process of structuring the urban space, the land ownership pattern and rights evolve synchronously.

In the formation of urban environment, land readjustment process has important role. This process is to be evaluated just the tool for converting rural to urban environment. But, this process has big impacts on structuring the urban form. So, the thesis aims to present the ways of developing different urban forms in space through using land readjustment process as a design instrument. There is the search for revealing the design capacity of existing process of land readjustment and producing some proposals to increase the richness and flexibility of design in Turkey.

In Turkey, the land readjustment process is conducted with respect to 18th article of 3194 The Law of Development. In this process, fragmented cadastral parcels are transformed into development parcels. As a result, space organisation is limited with solely subdivision of land causing uniform, ordinary, unaesthetic, uncreative and inflexible urban environment.

When space organisation is based on land consolidation, creates really better urban environments compared to land subdivision organisations. In land readjustment process, there are organisational structures of transformation from fragmented property pattern to consolidated one in so many countries. Although it is not the guarantee of excellent design and implementation, it increases the richness and the flexibility of design.

To further examine various land readjustment processes, cases from other countries' have been studied together with cases from Turkish experience.

Keywords: Land Readjustment, Joint Development, Land Re-allocation, Re-allocation of Property Rights, Property Relations, Real Property, 3194 The Law of Development, 18th Article of the Law of Development, Property Transformation, Land Subdivision, Land Consolidation, Property and Urban Space, Urban Form, Design and Urban Form, Three Dimensional Reallocation.

ÖZ

ARAZİ DÜZENLEMESİNİN KENTSEL TASARIMDAKİ ROLÜ

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Mekanın üretimi ve yeniden üretimi süreci, yapılaşmamış çevrenin yapılaşmışa veya yapılaşmış çevrenin yine yapılaşmışa dönüşümüdür ki, bu da kentin imarı sürecidir. Bu süreç, aynı zamanda kırsal arazinin kentsele dönüşümünü yani *arazi düzenlemesini* de içerir. Kentsel mekanın yapılanma süreci boyunca, mülkiyet biçimleri ve hakları eş zamanlı olarak evrilir.

Arazi düzenlemesi süreci, kentsel mekanın oluşumunda önemli bir role sahiptir. Bu süreç, sadece kırsal çevrenin kentsele dönüştürülmesi için kullanılan bir araç olarak değerlendirilmektedir. Fakat, bu sürecin kentsel formun oluşumuna büyük etkileri vardır. Bu sebeple bu tez, arazi düzenlemesi sürecinin tasarımın bir aracı olarak kullanılarak farklı kentsel mekanların oluşmasını sağlamanın yollarını aramaktadır. Tez kapsamında Türkiye'deki mevcut arazi düzenlemesinin tasarım kapasitesi ortaya koyulacak ve tasarım zenginliği ile esnekliğinin artırılması için önerilerde bulunulacaktır.

Türkiye’de, arazi düzenlemesi, 3194 Sayılı İmar Kanununun 18. Maddesi ile düzenlenmektedir. Bu süreçte bölünmüş kadastral mülkiyet yapısı tekrar bölünmüş bir yapı olan imar parsellerine dönüşür. Sonuç olarak, mekan organizasyonu sadece arazinin bölünmesiyle sınırlıdır ve estetik, yaratıcı ve esnek olamayan sıradan, tekdüze kentsel mekanların oluşmaktadır.

Arazi toplulaştırması yönündeki mekan organizasyonları, arazi bölünmesi yönünde olanlara nazaran daha iyi mekanlar yaratırlar. Birçok ülkedeki arazi düzenlemesi sürecinde, parçalı yapıdan toplulaştırmaya yönelen bir mekan organizasyonu bulunmaktadır. Bu yapı, mükemmel tasarım ve uygulamanın garantisi olmamakla beraber tasarım zenginliği ve esnekliği getirir.

Çeşitli arazi düzenlemesi süreçlerini incelemek için diğer ülkelerdeki örneklerle birlikte Türkiye’deki mekan üretim deneyimleri çalışılmıştır.

Anahtar Sözcükler: Arazi Düzenlemesi, Arazinin Yeniden Dağıtılması, Mülkiyet Haklarının Yeniden Dağıtılması, Mülkiyet İlişkileri, Taşınmaz Mülkiyeti, 3194 Sayılı İmar Kanunu, 18. Madde, Mülkiyet Dönüşümü, Arazi Bölünmesi, Arazi Toplulaştırması, Mülkiyet ve Kentsel Mekan, Tasarım ve Kentsel Form, 3 Boyutlu Dağıtım.

To My Parents



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CHAPTER 1

INTRODUCTION

Cities are built-up environments. They are made up of single buildings that come together where the harmonic relations of these buildings shape the urban form and urban silhouette emerges within those relations. Beside the physical relations between buildings, there is social, cultural and political relationship in the city. "Cities are amalgams of building and people" (Kostof, 1991:16) and living organisms that everything is shared. And Bacon (1975: 13) defined the city as follows:

The building of cities is one of man's greatest achievements. The form of his city always has been and always will be a pitiless indicator of the state of his civilization. This form is determined by the multiplicity of decisions made by the people who live in it.

There are many factors in structuring the built environment. It would be convenient to examine those factors in three stages. As Kostof (1991) explained that, for the Conzen school, urban fabric is composed of three interlocking elements (*Figure 1.1-1.3*).

First, there is *the town plan* itself, which consists of the street system; the plot pattern, that is to say, land parcels or lots; and the building arrangement within this pattern. All this is taken at the ground level. This town plan the younger Conzen-M.P. Conzen-describes as "the cadastre or matrix of land divisions functionally differentiated by legally protected ownership." Then comes *the land use pattern*, which shows specialized uses of ground and space. Finally, there is *the building fabric*, which is the actual three-dimensional mark of physical structures on the land ownership parcel.



Figure 1.1-1.3 - The basic components of a town plan are identified by urban geographer M.R.G. Conzen as the town plan or street pattern (left), the land use pattern (centre), and the building fabric defining the city in three dimensions (right) (source: Kostof, 1991:26)

Those three stages of building the urban space evolved for the aim of satisfying the human needs. Planning is something for creating better living conditions, property relations are arranged to achieve the equity in the society, and building the fabric is creating the living environment that satisfies those human needs. In all societies, those relations are arranged by legally based regulations and this brings the concept of state into agenda that differentiates from society to society according to variations in needs.

Before examining those three stages, it would be helpful to summarise the needs of human being and its reflections on building the environment process. Desire for the satisfaction of needs orients the human behaviour. As Lang (1987) notes, there are such models produced to define the concept of human needs. H. Murray 1938, Maslow 1943, 1954, Erikson 1950, Fromm 1950, Whiting and Child 1953, A. Leighton 1959 developed such concepts regarding the human needs. Leighton's model of scale of essential striving sentiments (1959) and Maslow's model of hierarchy of human needs (1943, 1954) seem to

be more convenient for understanding the nature of the environment (Lang, 1987:85).

Lang (1987: 85) summarises the model of Maslow that there is a hierarchy of needs. This hierarchy is stated from strongest to the weakest as follows:

Physiological needs, such as hunger and thirsty; safety needs, such as security and protection from physical harm; belonging and love needs, such as membership in a group and receiving of affection; esteem needs, those desires of an individual to be held in high value by himself or herself and others; actualisation needs, representing the desire to fulfil one's capacities; and cognitive aesthetic needs, such as the thirst for the knowledge and the desire for beauty for its own sake.

1.1 Human Needs and Reflections on Built Environment

Although natural environment is shaped within the process of locating the settlements with respect to the needs of human, natural environment should be examined beyond the title of human needs as the geographic, topographic and climatic conditions bring external effects to the urban form, itself. Varying natural conditions lead to different urban silhouette, urban form and architectural structure.

1.1.1 Natural Environment

One of the main factors that structure the city is the natural environment. Geographic and topographic characteristics, climatic conditions, natural resources and natural transportation axes are the factors structuring the urban space. "Transport cities are performing break-of-bulk and allied services along transport routes" (Harris, Ullman, 1951:238).

Gallion and Eisner (1975:1) developed a definition regarding the selection of naturally protected areas such as elevated terrain, islands, peninsulas, or sites surrounded by barricades and moats as the locations of villages.

1.1.2 Human Needs

Human valuation, spiritual and physical needs, social and political living conditions affect the structure of the city as much as the natural conditions (Günay and Selman, 1994).

When the historical development of the settlements is examined, it would be seen that they emerged with the concept of surplus, the need for safety and the need for controlling the environment. Human started to cultivate the land to meet his physiological needs and the concept of surplus emerged as a result of this attempt which led the cities to develop as market places. "In a thesis popularised by Jane Jacobs's *The Economy of Cities* (1969), cities are presumed to develop as nodal markets; agricultural intensification then followed to feed the city" (Kostof, 1991: 31). Kostof (1991) states that with the emergence of surplus in the city, people started to specialise in other tasks such as scribes, craftsman, priests and warriors.

In addition that the settlements are located on naturally protected areas, the need for protection also affected their form. Spreiregen (1965) who describes the form of the settlement of a defensive city indicates that the role of a circular town form was a defensive one with maximum land and minimum fence and it kept enemy out. "The circle was originally the product of herdsman, the

descendant of the hunter and the ancestor of the warrior” (Spreiregen, 1965: 2).

Gallion and Eisner (1975) states, social and political organisations in the settlements emerged because of the necessity for mutual responsibility and co-operation. “The physical form of cities has been shaped by the economic, social and political forces of society”.

Although the cities seem to be established for physical necessities, human needs must also be satisfied in spiritual terms. The desire for the aesthetic satisfaction has also its reflection on urban form.

Design is means of enhancing human’s satisfaction. As Bacon (1975) states, when a man becomes a part of a larger system, he gets greater aesthetic satisfaction. “The more the universal the system, the deeper the satisfaction” (Bacon, 1975: 15). There is an interrelationship between man and his universe. “In all cultures of the world, architectural form is an expression of the philosophical interaction of the forces of mass and space” (Bacon, 1975: 16). Egyptian pyramids appear as a dominant mass in the space. In Chinese architecture, the concavity of a roof shows not the dominance but the modesty of a man in nature. In Islamic architecture, magnificent domes are the reflection of inner space. As it is seen in all those cultures, architectural form emerges with respect to the relationship between mass and space.

Günay and Selman (1994) summarises the positive and the negative elements in the city form the urban environment. Masses in the city are positive elements while the space between these masses is defined to be negative. Relationship between negative and positive elements and harmony between them defines the quality of the urban

aesthetic. “The essence of design is the interrelation between two” (Bacon, 1975:15). Positive elements come together and define the negative elements that are open areas and circulation systems. In the third dimension, positive and negative elements are defined with building heights. “The skyline of the city has long been a dominant element in urban design and should be reconstituted as a major determinant in city building” (Bacon, 1975: 24).

1.2 City and Planning

Planning is a process that is conducted to meet the human needs for better living conditions and in order to implement the plan in a city; the power of state via rules and regulations is necessary.

Kostof (1991: 43) differentiates cities as planned or designed or “created” city and the spontaneous or grown or chance-grown city. Planned city is shaped by the decisions of an overseeing authority while the spontaneous cities are geomorphic ones (*Figure 1.4-1.5*).



Figure 1.4-1.5 - The irregular geometry of the spontaneous city versus the ordered framework of the planned city (source: Kostof, 1991)

On the other hand, F. Castagnoli (1971) makes the definition of irregular and regular cities as:

The irregular city is the result of development left entirely to individuals who actually live on the land. If a governing body divides the land and disposes of it before it is handed over to the users, a uniformly patterned city will emerge.

The urban form is determined within the framework of a plan and then this form is applied on the property pattern of the city. In this process, the designers have an important guidance role in the evolution of urban form. "The designer conceives a three-dimensional form which is later built on the ground" (Bacon, 1975: 30).

Bacon (1975: 33) describes the role of designer in the process of designing the city as;

To influence the growth of cities, the designer must have a clear concept of underlying design structure that must be produced to set in motion that involved processes of city-building.

1.3 Property, Real Property, Plot Pattern and the City

1.3.1 Property and Real Property Relations

Ertaş (1997) makes the definition of property rights as guarantee of liberty which is offered by law. Günay (1995) also defines it as a relationship between owners and things or goods and adds the following:

Conceptually property is a bundle of rights over tangible (*res corporeales*) or intangible (*res incorporeales*) things which permits the owner the right of use and disposal over them.

Among the property types, real property is the one that includes the land and physical structures on it. As Günay (1995) states physical space became a product of property relations with the emergence of private property. "Since space is both a material product and a system of relations evolving within the production process, it becomes an object of property as well" (Günay, 1995:7). Real property relations emerged with the concept of private property.

Ertaş (1997) states, the political structure of government differentiates according to its approach to property concept, which is defined within the framework of their laws. In addition to this, Günay (1995: 52) indicates that in capitalist countries, property appears as a very powerful private right. This right provides a total control to the individual over his own property and causes a conflict among public and private owners where state appears as regulative power. State in capitalist society acquires the task of regulating the property, while totally dominates it in socialist society.

Although the property system is developed for the aim of ensuring justice in the society, as Günay (1995) states inequality comes with the same concept. "That's why, the anti-property discourse has developed in a dialectical relationship with the property arguments" (Günay, 1995: 205).

1.3.2 Plot Pattern and Urban Form

Rural land division on land plays an important role in structuring the urban form. "Often the city-form is locked into rural systems of land subdivision" (Kostof, 1991:38) (*Figure 1.6*).



Figure 1.6 – Nowdushan (near Yazd, Iran). The town plan is conditioned by the rural system of irrigation ditches (source: Kostof, 1991)

"With the plow, man put his first lines on the earth's surface" (Spreiregen, 1965, 1). In agricultural societies, plots emerged with the use of plow, more or less rectangular in shape because of the need for easy land division system. The rectilinear plotting in rural environment also led to rectilinear plotting in the town (*Figure 1.7-1.8*). "The grid had been the product of the farmers" (Spreiregen, 1965, 2). This layout has been used in the history in Greek towns; in Roman colonial outposts; in the Indian, Chinese and pre-Columbian cities.



Figure 1.7-1.8 - Air view of rectilinear land division in a farming area; a village of rectilinear mud-brick houses (source: Spreiregen, 1965: 1)

1.4 Building the Fabric

This is the third stage in building the environment where the actual three-dimensional space on a plot pattern is constituted. Although natural conditions, physical and spiritual needs, social, cultural and political structures are accepted as the major factors affecting the city form, planning and its application on a defined property pattern is the basic determinant of built environment structure and the planning process is conducted in harmony with those major factors.

To implement the planned structure on a defined plot pattern, control mechanisms convenient for the real property have to be improved. Built environment, which is developed through this process, is generally different from what is planned. "Almost invariably, the final product of the designer at the city scale will be quite different from the original form proposed" (Bacon, 1975:23).

In this process, through the conversion from rural to urban land, ownership pattern appears to be the most striking point. "In fact, 'rearrangement of property rights in land' is a basic task of urban development and transformation" (Günay, 1995:3).

1.5 City and Control on Land

The state authority is one of the important factors in shaping the city. As Kostof says, power controls the urban land and designs the city (Kostof, 1991:52). First of all, the approach of the government is strongly relevant with the relations between individuals and state in a society. Furthermore, the ownership pattern and property rights on land are determined by the government, itself and these relations are very important factors in the formation of built environment.

Property has its roots in the Roman Law that constitutes the origin of private law. On the other hand, public law emerges with the appearance of state and it presents the power of state in controlling the property rights and relations. Regulative actions of state are “the right of eminent domain (the power of the state to take one’s real property paying a just compensation), ‘servitude’, ‘taxation’, and ‘zoning and physical control of the urban environment’” (Günay. 1995: 52).

In history, state appears as a control mechanism that regulates the property relations in the society. According to Kostof (1991), the government has the power of “taking over private property for public use” (Kostof, 1991: 11). Government can bring regulatory rules such as “the institution of the legally binding master plan...; building codes and other regulatory measures; instruments of funding urban change, like property taxes and bond issues; and administrative structure of cities” (Kostof, 1991, 11). These regulations are conducted by the use of related laws in the society. “The organic urban space of England has much connotation with its Common Law, while the Roman Law based continental societies produced more rational urban space, and the space of the Germanic cities entailed an extension of German Idealism” (Günay, 1995).

As Kostof (1991) states, in societies where “the state is the principal owner, it can put down whatever pattern it chooses” and gives examples of cities such as royal cities of ancient Persia, the imperial capitals of China, Baroque seats of European princes, company towns in the Soviet Union and the socialist countries of Eastern Europe in which “the rights of private property were severely curtailed”

It would be convenient to examine three interlocking elements in the formation of the urban space; “the town plan”, “the land use pattern” and “the building the fabric” (*Figure 1.9*) where all these elements include processes that directly affect the urban form. Therefore, to enhance better implementations it is necessary to determine the underlying problems in these processes.

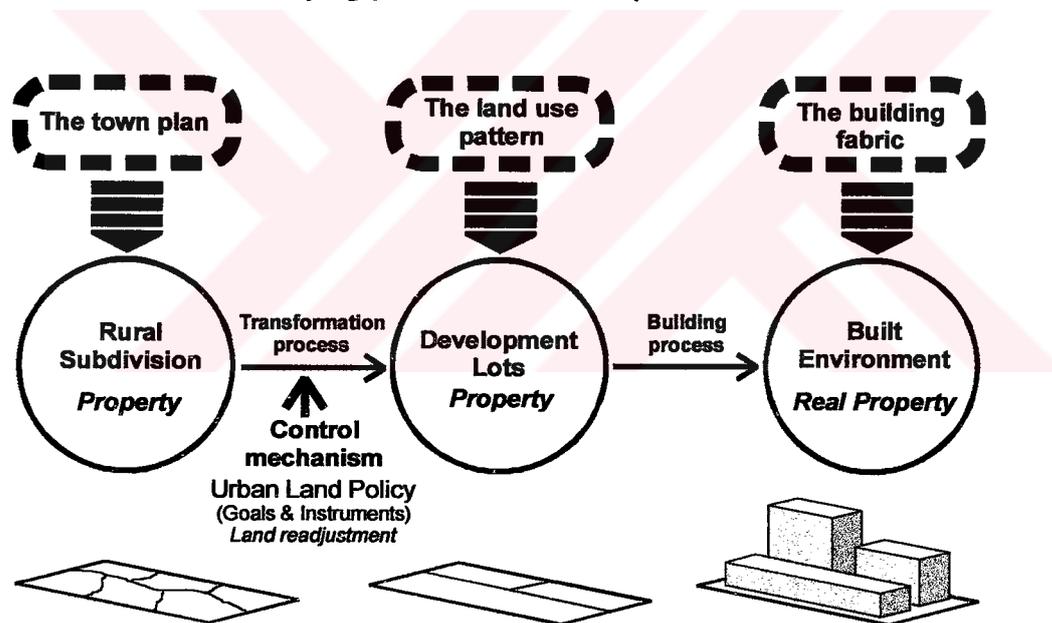


Figure 1.9 - The process of evolving the urban space

There are both control mechanisms developed for the processes of each element separately and for some transition processes between these elements such as transformation and

construction. The control on the process of transformation, which can be defined as the conversion of rural subdivisions to development plots, has a special importance in the evolution of urban form as the development lots which are influential in the definition of mass and space are produced at the end of this process. The mass of units to be located on the parcels are defined in this process so that they form the structure of the space. On the other hand, the process of construction is directly related with the architectural form of the urban space. As a result, when the all the processes are examined, it would be concluded that the control on transformation process is very important for the evolution of urban form.

1.6 Aim and Methodology

1.6.1 Aim

The aim of the study is to examine the process of land readjustment to determine whether it is used as an instrument of designing the urban environment or not. This instrument, which is arranged by 18th article of the Development Law of 3194 in Turkey, is actually a part of the design process and used for converting the cadastral parcels to development parcels. Application of the development plan on land, in other words land readjustment is referred as article 18 application '*18. madde uygulaması*' in practice. However, while land readjustment is used for obtaining land to allot public uses in the development process, it is not used as a design instrument. The fragmented pattern of real property and its unequal reallocation according to the area method in the second dimension are the main reasons that the proposed form of the plan, always or mostly, appears poorer in the real urban space. Unavailability of reallocation of property rights in three-dimension eliminates the chance of three-dimensional

design. Thus, the result is uniform, ordinary, unaesthetic, uncreative and inflexible urban environment.

The thesis tries to put forth the design capacity of the existing process of land readjustment, in other words 'joint development' and searches for the ways of improving this application in Turkey. In this context, the design has to be perceived as space organisation for achieving to create better urban environments. It aims to show more proper methods of land readjustment to achieve the envisaged urban form in two and also in three dimension with respect to the processes in other countries and previous methods proposed in Turkey, but does not develop an approach that evaluates the form of the space if it has good design concept or not.

There are several methods developed for controlling the transformation of space and these are managed with some instrument packages that vary from one society to another according to their cultural, economic, social and political structure including property pattern on land.

Those methods and instruments are used for urban land provision all over the world. Among these, land readjustment method is the most widespread one in private property dominant societies as it is most suitable method to conform the expectations and needs of those societies. In such societies, there is fragmented private property structure on land and therefore, the planning process and its application can not be easily conducted in contrast with the countries that don't have a private property structure. As a total control all over the private property is impossible, the 'zoning' concept came into the agenda of urban space. Thus, in implementation, the method of making partial arrangements to fulfil the principles of the whole plan is followed.

In capitalist societies, where the private property is dominant on land, the trend is to build a mass based on the structure of the cadastral property. As Kostof (1991) states, the forms of the cities are locked into the rural land subdivisions. The control of urban form is very difficult as the property system has been extremely influential on land since it was seen as the guarantee of liberty as offered by the law. In these societies, the state acquires the land to regulate the property and brings some regulatory rules, master plans, building codes, etc. In socialist societies, state totally dominates the land. So, the implementation of proposed form on land as a whole is realised much easier.

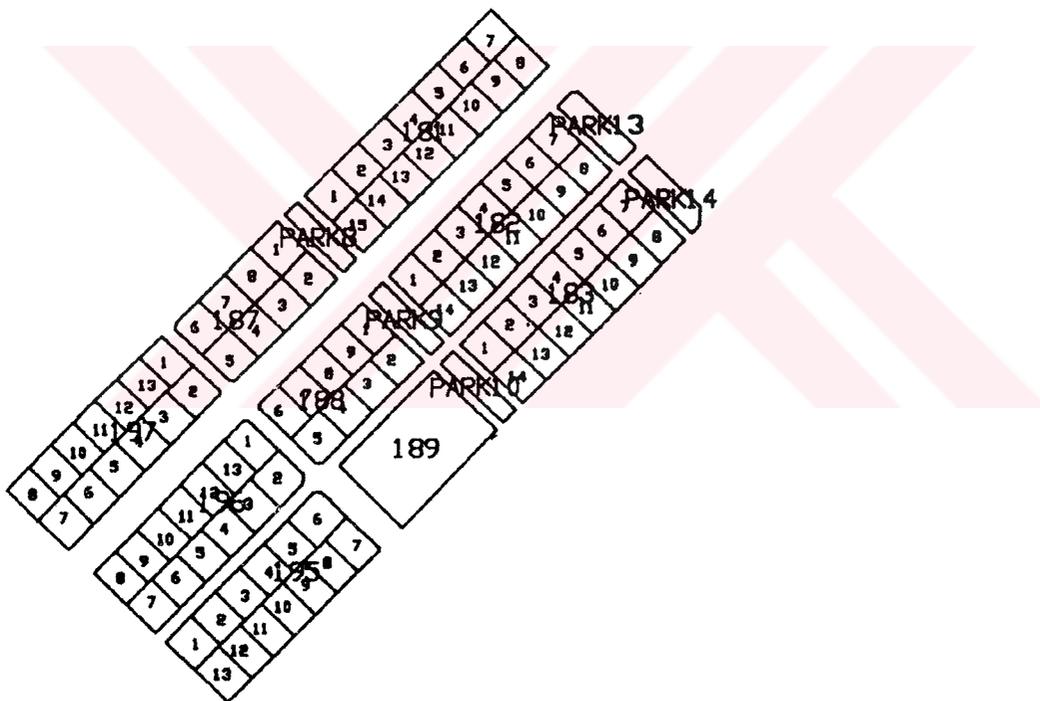


Figure 1.10 - An example of evolving the development parcels in Turkey (Part of the allotment plan, Tuluntaş, Ankara) (source: Ankara Metropolitan Municipality)

Instead of land consolidation in public or private property, land subdivision is encouraged in the formation of urban environment as it has an easier implementation. The main advantage of the subdivision process is that the provision of development parcel is ready to construction with minimum share and maximum number of parcels and as a result, construction on those parcels can be fulfilled rapidly and economically (*Figure 1.10*). On the other hand, land consolidation is a very expensive method. Additionally, the process of gathering the whole land in one hand takes a long time and it cannot meet the land demand of rapid urbanisation on time.

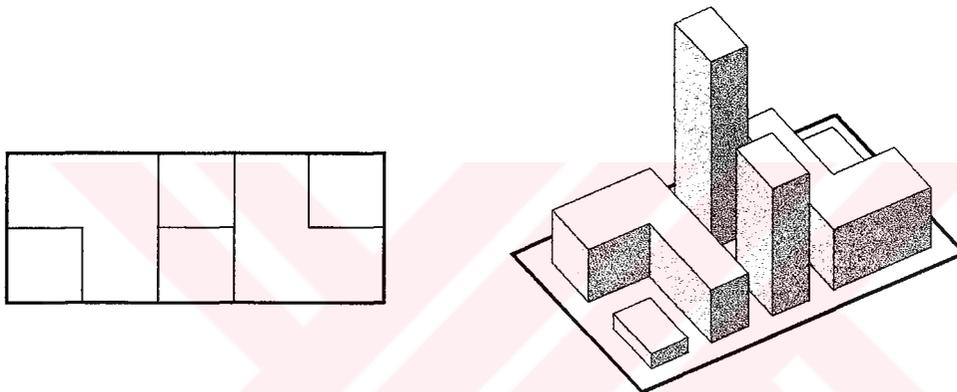


Figure 1.11 – An example of development subdivision of parcels in a block

Although rapid development is provided with subdivisions, the fragmented pattern of property on land restricts the richness and the flexibility of design in land readjustment process. Big parcels have a chance for subdivision but small parcels don't have a chance for unification. Land readjustment method is the most widespread used method in small and fragmented property pattern. It is a process of holding a part of the land for public purposes and providing private parcels ready for construction. If different sized and shaped parcels are produced for the flexibility in a block, this may increase the shares in a parcel and decrease the equity (*Figure 1.11*). With such an

implementation, the share in one parcel and the period of the process will rise and the equity problem will become more complex. It can be shortly said that in land readjustment method economic necessities are always more prior than the design concept for the project area. However, although some problems are encountered in this method, they can be overcome with some regulations.

Actually, land consolidation projects create better urban environments. For sure, it cannot be the guarantee of excellent design and implementation by itself, but at least the designer has the chance of creating better designed and built environments by the use of this method. As indicated before, fragmented property on land leads problems in the process and land readjustment method used in this property type obstructs the design opportunities of the designer.

In Turkey, the existing land provision methods can be examined in two categories. Expropriation and land readjustment are involved in compulsory category while the boundary exchange, subdivision and unification of land and leaving land for street are the voluntary ones that are based on agreement. In addition, some municipalities use negotiation procedure in land provision. Although voluntary methods replaced with land readjustment legally, they are still used in most of the municipalities. Turning back to the compulsory category, expropriation is a very effective land provision method, but it is too expensive to be utilised by the municipalities. However, there is a category of settlement development, namely mass housing, which is carried out upon expropriation. It can be concluded that the land provision via expropriation constitutes a small amount among the others. Therefore, land readjustment is used as the main land provision instrument. This method is a relatively cheap and a timesaving one. However, it also brings some problems stemming from the fragmented

property structure on land. Uniform urban environment and unequal reallocation of properties among landowners are the problems emerged in the land readjustment process. Those problems encountered in land readjustment process also leads the utilisation of voluntary methods in land provision including negotiation process as well.

Turkish land development is based on a method of subdivision of land parcels (*Figure 1.10*) and there is no trend for using the method of land consolidation in urban development. In subdivision method, starting point is unique cadastral parcel and end point is again a unique development parcel.

In Turkey, relatively easy ways of implementation are preferred in planning, land readjustment and construction processes as the urban development mainly bases on land subdivision method. Although existing processes permit to implement the form proposed within the framework of the whole urban plan, problems in fragmented property pattern distorts this form and leads it to become uniform and inflexible.

In the planning process, plans are prepared with the aim of producing maximum standard parcels with a minimum share. The size and the shape of the building blocks are defined just for obtaining those standard parcels (*Figure 1.12*). They are determined to enhance the easy subdivision. By defining the density, building coverage ratio 'TAKS', floor area ratio 'KAKS' and set back '*çekme mesafesi*' in the plan, buildings are almost locked into the parcels. Therefore, the built environment is mostly uniform, monotonous, ordinary and unimaginative where most of the created development lots are in *classical type* as mentioned above.

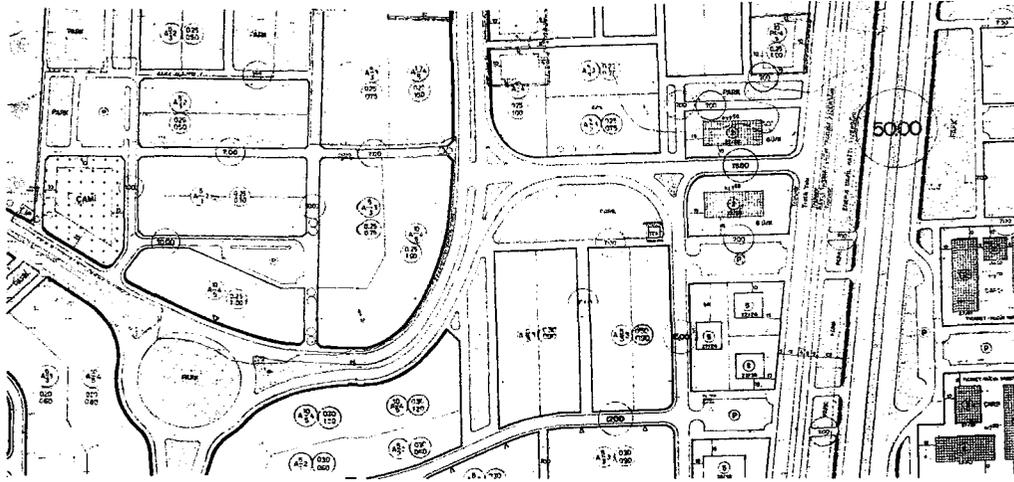


Figure 1.12 – An example of Development Plan, Selçuk, Konya (source: Selçuk Municipality)

In the preparation of allotment plan, land assigned to public services is subtracted from the total implementation area and the remaining land is subdivided into parcels with respect to decisions taken in the development plan. There are two methods of subdivision; first one is to divide blocks according to subdivision layout defined in the plan. In this case, planner determines the exact size and shape of the parcel. According to regulations, the subdivision layout has to be involved in the development plan, but in most cases this is not like that and this forms the second method of subdivision which is referred as subdivision according to shares. In this case, cartographer subdivides the land according to measures defined in the plan and he tries to minimise the share in a parcel by adapting the size. This method speeds up the process of implementation but decreases the effectiveness and aesthetics of design.

In construction process, similarly, the architect is restricted with the boundaries of the development parcel and the decisions taken for it within the framework of development plan.

In Turkey, during the land readjustment process, the land can only be held for public uses. In an arrangement area, the 35 percent of the land is surrendered for greens, roads and other public uses. However, this amount is not sufficient to create large green areas and greenbelts that are main necessities of the whole city. It can be concluded that zoning plans and land readjustment implementations are incapable of creating large areas within the city to be used for public purposes. Therefore, there is need for effective and strong land provision methods. As it is indicated before, expropriation is an effective and legally used instrument for land holding. Thus, this method has to be activated when necessary.

This study is generally focused on land readjustment process. It aims to enable the process to be used as a design instrument. Within this framework, space organisations, design possibilities and problem areas are examined. This process covers all of the three stages defined above and develops a questioning approach and proposals regarding these stages which will take Turkish implementation procedures into consideration. The studies conducted within this thesis are not aiming to search and find the best design concept but to present the insufficiencies in land development process and propose land provision organisations. So, at the end, space organisation will be examined with comparison of other countries' land readjustment processes to improve the method of land provision.

1.6.2 Methodology

The end product of the study is to present some proposals about space organisation to enhance the evolution of better physical environments.

Within this framework, control mechanisms and regulations on land regarding the development of built environment are examined in chapter two. In addition, land management methods and reasons underlying the widespread use of land readjustment process will be presented here.

In chapter three, land readjustment process is presented in detail. Other countries' land readjustment methods are examined to comprehend the system better so that they will be helpful for the efforts of developing proposals to improve the system.

In chapter four, land readjustment process in Turkey is presented. Problems of the process are determined and solutions are proposed in comparison with the processes used in other countries.

In chapter five, planning, land readjustment and construction processes are examined. The design capacity of the land readjustment will be presented in relation with the planning and construction procedures in Turkey. Some case studies including land readjustment practices and other land provision methods in Turkey are examined and they are compared with each other to determine the problems encountered in land readjustment process.

Consequently, The land readjustment process in Turkey will be examined with comparison to other countries' to improve the design capacity and flexibility. As a result, space organisation types will be presented to create better urban environments.

CHAPTER 2

URBAN LAND POLICY

2.1 Urban Development and Problems on Implementation

There is a rapid urbanisation trend particularly in developing countries and control of this development seems to be very difficult. As a result, uncontrolled and undesired urban environments emerge. Therefore, developing convenient land management methods for varying urban development types becomes a necessity. “Perhaps neither local authorities nor individual owners have resources for developing the urban structure in step with population growth” (Larsson, 1993). He also adds although it seems to be a big problem in developing countries, it is still a problem of industrialised world either.

Through the rapid urbanisation, some major problems are encountered in the process of transforming the land from rural to urban. Small, fragmented rural land pattern causes difficulties in the process of transformation. Undesired urban pattern is the result of inefficient implementation methods or the deficiencies in the related laws and regulations regarding the transformation of land.

2.2 Urban Land Policies

'Urban land policy' is the formulation of one or more goals to find suitable land development method via using different policy instruments. By the use of these land policies, varying problems that are encountered in urbanisation are tried to be solved by decision-makers.

It is wrong to claim that there is a single correct land policy which is appropriate for each and every society. International Federation for Housing and Planning (IFHP) (1981) states that each country have its own package of goals and instruments differentiating in accordance to with its own social, economic, political, administrative and legislative situation.

The limits of land policies are defined by IFHP (1981: 8) as follows:

A land policy will never be more effective than what the instruments which are used permit it to be – especially so if most of the goals of such a policy are to be found in the socio-economic field. It must also be noted that a successful land policy is dependent on the political will of the decision-takers concerned and on the effectiveness of the existing administrative system and its civil servants.

IFHP (1981) states, land policy differs according to interference to land market in a country. Countries differentiated as a scale of degrees of public involvement. On the one side, there is the market economy country where both goal and instruments have weak public profile. On the other side, there is the Eastern European socialist countries where strong public profile exist, mainly in the form of a very

high degree of permanent public land ownership. Between these two extremes there are combinations of individual vs. public profiles.

IFHP (1981) interprets that there is a direct relationship between the existing degree of planning control in a country and the degree of political contents or aims in the country's land policy.

Not all aspects concerning urban land policy are related with political choice. There are other impacts on land policy like relative quantities of urban land required, the existing legislative and planning systems and so on. Therefore, goals should be set with both political will and the necessary research activity. Each country has to formulate its own urban land policy goals (IFHP, 1981).

2.2.1 Goals on Urban Land Policy

As it is mentioned, each country has its own package of goals on urban land policy.

IFHP (1981) categorise the goals in three parts to minimise the problems related to land in the context of urban development. The first category of goals involves "assisting urban development in the planning and plan implementation phase". This goal is aiming to attain certain form of land use either in an already existing process of planning and plan implementation or for substitution of urban planning in the countries that implementation process of planning does not exist. Second group is "to influence land prices and profits on land in various ways". This goal is aiming to recover the "unearned increments in land values" of the individual landowners and to divert speculation profits of land for the sake of the society. Third category includes "achieving the

social justice in urban development (equality principle)". One of the major aims of humanity is providing equality among human beings. This major goal points at treating landowners within a particular planning area equally. Thus, compulsory replotting is used to ensure even distribution of profits expected from a new urban development plan and also to provide equality between landowners in different planning areas.

In the below diagram, the goals are stated in details. (*Figure 2.1*).



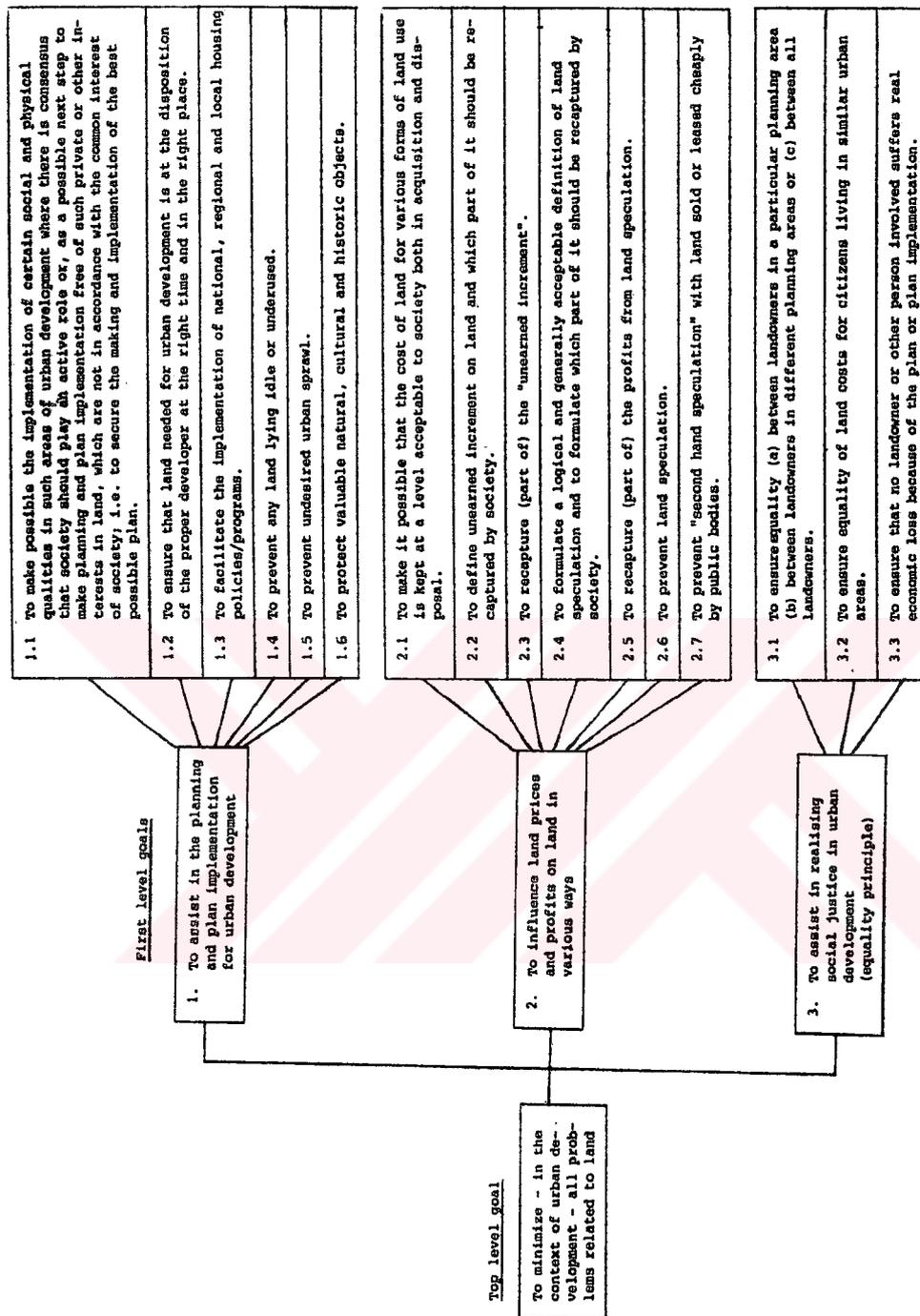


Figure 2.1 - Goals on urban land policy (source: IFHP, 1981)

2.2.2 Instruments on Urban Land Policy

Instruments are closely related with these goals and other political, economical and specific circumstances. They are categorised by IFHP (1981) as follows: “Planning instruments”, “taxation instruments”, “market instruments”, “financial support instruments” and “administrative instruments”.

IFHP (1981) makes the definition of these categories as follows:

Planning instruments are closely connected with actual land-use planning and with the legalisation adopted to further this. Taxation instruments include various taxes on land, land use and the transfer of land ownership. It also concludes however special charges or duties based upon land ownership or tenure. Market instruments comprise those measures where the normal market mechanism plays a central role, especially in determining the prices. Financial support instruments are those where subsidies or other financial help is given in order to promote the acquisition of land and/or the leasing the land to developers. Administrative instruments are related to local authority’s general tasks in planning and plan-implementation. This group includes also those instruments which are based upon special legislation and which need the active participation of local authorities.

All of these instruments are not equally effective. Besides, the effectiveness of the same land instrument differentiates in various countries because of the legislation, the practices in the country concerned and to the prevailing circumstances.

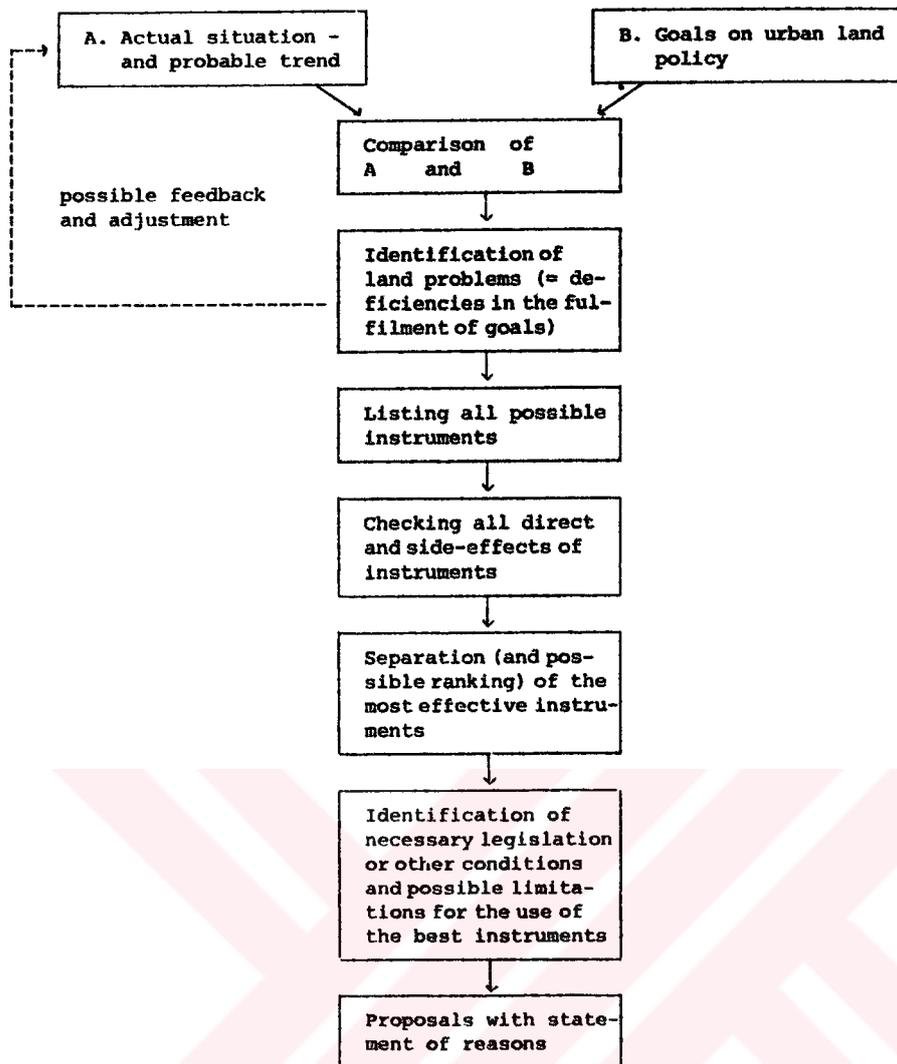


Figure 2.2 - Selection of instruments (source: IFHP, 1981)

IFHP (1981) notes that the preferred instruments must lead to desired results rather than leading some detrimental consequences. The diagram shows the way of choosing the proper instrument to attain a particular goal (Figure 2.2).

2.3 Implementation Methods for the Plan

There is a rapid urbanisation trend especially in developing countries. Thus, as Doebele (1982) and Yomralıođlu (1994) mention cities are faced with the lack of readily available land for the urban development. This also causes a lack of public services to meet the demands of urbanisation.

For better urban development, there is a need for acquisition of urban land for public uses like roads, housing, green areas, schools and other public facilities. So, the authorities have to develop efficient land acquisition methods to enhance the planned development under the pressure of rapid urbanisation.

In previous urban development procedures, the municipality or private landowner had the right of constructing on his own land within the framework of a plan. However, in recent urban development practices, it is understood that the control of such a process is difficult and it leads to undesired consequences. Therefore, transformation and reorganisation of the original pattern of land is conducted with more organised and rational subdivision methods including the infrastructure developments.

Many different methods are developed varying with respect to the evolution of cities and their administrative, social, political, economical structures where they are defined with a bundle of goals and instruments.

As Larsson (1997) states, there are three implementation methods for urban development. First, superimposing a new plan over

the old structure and waiting for the implementation of this plan. This method needs a long period for the realisation of the plan and it is difficult to get a co-ordinated implementation. Second method is collecting the land in one hand either public or private. This process is very expensive and again a long time period is required especially in old settlements. The last one is land readjustment, which is the widely used one in recent times. In this process, the owner of the land does not change upon implementation where the procedure is based on private agreements and in particular cases exchanges of land.

Larsson (1993) makes the definition of this organised method which is referred as joint development or land readjustment and conducted within a framework of a formal organisation. Therefore, this method requires legislative regulations in general, but sometimes it can be carried out on voluntary, unregulated basis.

2.4 Land Readjustment

Land readjustment is an important planning tool for converting the land from rural to urban. It is used for provision of new land to meet the needs of urbanisation, particularly in developing countries. As Seele (1982) and Yomralioğlu (1994) mention that land readjustment provides the land needed for public purposes as well as it is appropriate to arrange the private land according to the town planning rules. In this process, irregularly subdivided lands are brought together and they are reallocated as regular development plots.

Larsson (1997:141) makes the definition of land readjustment as follows:

Joint development or land readjustment can be an important tool for developing new land or reorganising urban areas. The landowners collectively leave land for streets and other public places, build the required infrastructure wholly or partly and adapt existing boundaries to the new plan. The new building sites are distributed according to area or value of inputs.

In recent decades, land readjustment seems to be the most convenient method among the others as it is more efficient and cheaper than collecting the land in one hand. One of the advantages of this method is its being a time-saving process. Upon the selection of implementation area, the method is applied as mentioned above. (Larsson, 1997: 141)

As Larsson (1993) states that as local authorities have scarce resources, self-finance can augment resources to enhance continuous urban development. This self-financing alternative emerged and is practically used in Far Eastern countries such as Japan and South Korea.

In more complex cases where there are many landowners, this process is carried out through co-operation which should be subject to formalisation. This formalised process generally includes pre-emptory rules and some kind of official sanction and the action area is delimited. Property owners constitute temporary associations if the local authority is not willing to get involved. Land exchange, equalisation of effects and communal facilities are important parts of the readjustment process. The land needed for public facilities such as streets, parks and other public places is provided with the surrenders of the landowners in equivalent portion of the area or value. In addition the process is financed with the further surrenders. Process must be completed without damaging the personal property rights of

shareholders. Upon the completion of the project, owners have the right to appeal. They also have the responsibility for further subdivision and sale of their land. This responsibility is sometimes left to the association (Larsson, 1997).

Yomralioğlu (1994) mentions that in the land readjustment process all plots in the project area are combined and the percentage of each plot in the total area is calculated to determine the shares in the public services sites. The percentage that will be assigned to public use depends both on the size of the project area and the size of public use area. Remaining land is reallocated among the site blocks as defined in the zoning plan (Figure 2.3).

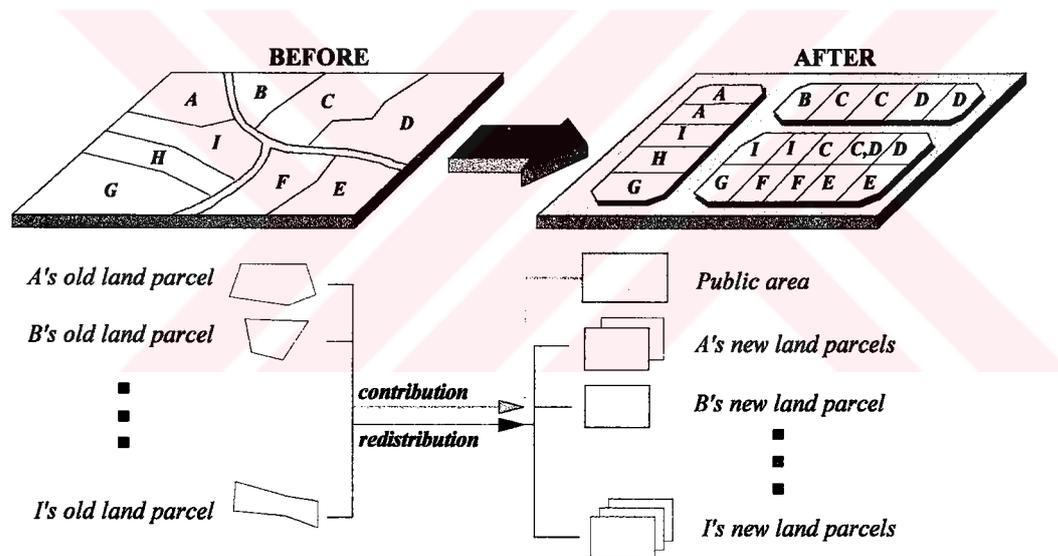


Figure 2.3 - Mechanism of land readjustment (source: Yomralioğlu vd., 1996)

Various bodies participate in land readjustment process and share its profits. Rainer (1992) mentions that these bodies involve “city government, other designated public bodies, or even private associations”

In Europe, land readjustment method started to be used in Germany, France and lately in Sweden. In Asia, this method is utilised in Japan as well as in South Korea, Taiwan, and Bombay region of India and in Perth region of Australia. This application is also seen in some cities of Canada (Larsson, 1997).

2.5 Advantages of Land Readjustment

Land readjustment method arises the possibility of a more efficient implementation and fairer allocation of development benefits. Larsson (1993) states that more efficient plans can only be prepared if there is no restriction on property boundaries. The method can also provide solution to financial problems of landowners and local authorities.

Land readjustment leads to benefits both for the government and the landowners. Doebele (1982), Yomraliođlu (1994) and Larsson (1997) indicate the advantages of land readjustment in their studies.

2.5.1 Advantages for The Government

Land readjustment greatly reduces compensation expenses for public-use land as the public service areas is obtained in more economical way (Yomraliođlu, 1994). Larsson (1997) thinks, in many cases it is a cheaper and more efficient method than collecting the land under a single ownership. Doebele (1982) found it orderly and efficient method of obtaining lands for public uses like schools, markets, all other needed public buildings and facilities.

In land readjustment method, as the problems of ownership are overcome the process of project implementation is conducted rapidly upon the preparation of zoning plan. Particularly in urban fringe areas, urban development programmes are systematically carried out via using the land readjustment method (Yomralioğlu, 1994).

As Larsson (1997) indicates new structures can be established regardless of old ownership pattern and plans become more efficient. Doebele (1982) adds, with land readjustment method, fragmented and scattered land holdings are consolidated into a single unit which provides better planning, servicing and subdivision.

The public agency recovers its costs while private landowners receive some of their land back which is ready for construction (Doebele, 1982). Furthermore, Yomralioğlu (1994) says, the tax revenue in the project area increases upon the implementation and it provides an extra resource to the government.

Larsson (1997) states, the association that is mentioned above can solve the financial problems easier and enhance a faster implementation than the municipality which lacks sufficient financial resources.

2.5.2 Advantages for Landowners

With land readjustment, a cadastral parcel is transformed into a more economic and sufficient development lot where the values increase rapidly and provide larger revenue for landowners (Yomralioğlu, 1994).

In addition to this, Larsson (1997) states, the land readjustment method gives fairer results. The development gain can be distributed among the owners within the accepted principles. According to Yomralıođlu (1994), land readjustment reduces the injustices in planning as the effect of land readjustment is same for everyone.

Another end advantage of this implementation is that there is land assigned for public services and therefore new social services are brought to the area (Yomralıođlu, 1994). Larsson (1997) adds, existing social environment may also be preserved as previous landowners keep their property.

At the end, Larsson (1997) mentions, in this system the negotiations with the local authority can be carried out easier with the help of association.

CHAPTER 3

PROCESS AND PROCEDURES OF LAND READJUSTMENT

3.1 Institutional Framework

There are several procedures to meet the needs of urbanisation and to reflect the solutions to the property pattern of the city one of which is land readjustment.

Yomralioğlu (1994) mentions, there is no single land readjustment method that can be universally applied as there are varying conditions in the cities of the world, in cultural attitudes toward land and in political and institutional structures.

Institutional framework is the organisation in a process. This is related with the balance between private and public interests and the balance between voluntary participation and compulsion. The role of the public sector in a process gains importance and control over the private interest determine the organisation of joint development.

It is important to decide who will take the responsibility of the process or the parts of the process. Role allocation in organising the process of land readjustment is an important indicator for constituting the institutional structure. Responsibility in a process appears on

initiating the process, and in the co-ordination between detailed planning and the rest of the process.

Larsson (1993) makes a differentiation between countries through the role of the public sector. On the one hand, authorities relatively have a passive role where they put certain main guidelines on land use and traffic arteries; subsequently checks the detailed project to see if it conforms to the proposed framework. This style is generally seen in USA and Japan. On the other hand, for example in Sweden, the authority mainly at municipal level takes the responsibility not only for general planning but also in detailed development plans with their legal power. There is also a strict control of buildings. In this style, the authority has very active role. Between these two extreme types, there are the countries that stand in an intermediate position like Germany where there is a close control of the plans, but for many parts constructions are made privately.

3.2 Pre-process

This process starts with information gathering and opinion development and ends with decision-making. In this process, there are obstacles that must be overcome which are indicated by Larsson (1993) as “negative bodies of opinion among the landowners”, “lack of interest on the part of the authorities”, “a bureaucratic decision making mechanism or meagre financial resources”. For the successful completion of the process, there must be an adequate impelling force, i.e. financial possibilities, resources in terms of motives, interests, possibilities of action etc.

There are the initiators of this process that depend on the dominant motives and the interests. Besides, there are other actors

acting for or against the process. As there will be obstacles as mentioned above, strategies must be developed to overcome them.

Larsson (1993) specifies the factors to exist for initiating the process as needs, suitability, interest, profitability and impulse. To enhance the financial feasibility of the project, first of all there must be a need for the land use. The project can be initiated with this need and also there is the need for a suitable area. If these factors do not emerge within the framework of general planning decisions and guidelines, no initiative will be taken. In the same framework, there is need for interest groups of private and public to initiate the project. In private side, there are "property-owner's association", "one or more large landowners in the area", "private professional developer" and "building contractor proposing to invest in the area". In the public side there is "local authority", but it may also be "national authority" that plan to conduct a large-scale project.

Interests put forth by public and private bodies are different. Public interest emerges as a result of social and non-commercial needs, while private interest involves economic concerns and profitability.

As Larsson (1993) mentions the laws of the various countries such as German and Western Australia, entitle the municipality to take the initiative. However, the laws generally do not give any exclusive right for the formal initiative to the municipality. So, initiative remains relatively free.

With the start of the process, main actors actively become a part of the project and commit the required resources. As Larsson (1993) indicates initiators, as a rule, are the main actors. There are also

co-actors, who don't commit the resources but support the project. Besides, there are passive participants and counter-actors. Finally, the authorities - local and superior – can be treated as a special group of actors, if they are not included in one of the groups already mentioned.

In the process, there are many obstacles to overcome. To achieve this, as Larsson (1993) says co-actors must be more active and more willing to commit the resources so that they can neutralise the counter-actors. The suitable implementation strategy is to be found by the main actors.

The appropriate preparatory investigation is already specified in legislation, statutory regulations and established practice in some of the countries. Larsson (1993) says that in Japan and France, there are detailed regulations for the pre-process. In other countries, there are only very general phrases about it. It is reasonable not to limit one's options any further, considering different conditions at the beginning phase of the readjustment.

Investigation, information, consultation and negotiation are more or less integral part of the process. All of the above, various actors can influence the process.

During this process, in some of the countries there can be either participation in connection with planning or not. This is the process of negotiation between landowners or between landowner and municipality. As Larsson (1993) mentions in Germany, there is no right of participation before land readjustment. And also in Western Australia, the right of participation is weak. The preliminary draft project is prepared for negotiation with landowners and displayed to the public. But, the authorities can make their decision regardless of objections. In

other countries, there is a public exhibition arranged for presentation and objections. A certain measure of support is stipulated, often a two-thirds majority. In some countries like Sweden, it is stipulated that the preparations must be conducted in consultation with of the landowners.

The pre-process aims in and end with achieving a decision. The process following this decision includes permission for the project according to plan, final delimitation of the project area and authorised organisation in the form of an association or suchlike.

3.3 Formal Process

This process includes the “the phase between the formal authorisation of readjustment and the formal conclusion of the process”. “Commencement of land readjustment” and “preliminary delimitation of the area” are the starting points of decision (Larsson, 1993).

In this process there is the involvement of associations that have legal status. These associations bring some advantages to the process which are specified by Larsson (1993) as follows. The association can contract or underwrite loan for the activities, practical implementation can be enhanced by this association, within such a process no individual landowner can stop the activities or extort special benefits, it can negotiate and conclude agreements more easily through communicating with many different persons who are the parts of the project.

In Germany and Western Australia, the entire procedure is conducted by local authority and no formal organisation is involved. In other countries, there is legislation procedure for setting up readjustment organisations under public law. Only the main outlines of

the organisation are defined by legislation. When the association is formed, detailed statutes and guidelines are fixed (Larsson, 1993).

In association, to make the decisions on behalf of all participants, a general assembly is entitled and this assembly elects a board. Following that, assembly or board elects a chairman (Larsson, 1993).

In Japan, if there is a large number of a participant, the assembly may appoint a representative 'intermediate body' which is consulted by the board on various matters. Special advisory body takes the place of association and the process is conducted by the public sector (Larsson, 1993).

In the process, the body which is impelling force – an 'executor', 'agent' etc, plays an important role. The chairman can act as a consultant to the board, but this duty is commonly performed by somebody else. He may be the representative of municipality or another authority that has an interest in the project. It may also be a representative of a private contracting or development company, if the project is initiated by these agents (Larsson, 1993).

3.3.1 Disposal Restriction

Once the process begins, if some changes and measures regarding the project area are taken independent from the adjustment process, this can be disruptive for the process. Therefore, the some regulations stipulate that certain changes should not be carried out without the consent of the association or the authority. In Germany, there are serious of measures which landowners can not take without consent from the authority such as allotment, sale, leasing, major site

improvements, construction work enhancing the value of the property, and so on. In France, permission from the prefectorial authorities is required for the construction works to be done during the process. In Sweden, restrictions on property rights regarding the reallocation are determined with respect to the general rules of the Property Formation Act (Larsson, 1993).

3.3.2 Participating Landowners

Delimitation of the area is to decide which landowners will be involved in the readjustment process. Most legislation gives the preference of whether to participate the readjustment or not to the shareholders. In some of the countries, this application is compulsory.

As Larsson (1993: 106) states, in Germany, once the municipality defined the area, participation in land readjustment '*Umlegung*' is made compulsorily. In Western Australia and in some of the states of India, the same application is utilised.

In other countries, the process is not strict as it is in the countries mentioned above which are illustrated by Larsson (1993) in his study. For example in France, landowner within the delimited area, announces his intention of selling his property to the association in a month period after its establishment. In Sweden, participation is voluntary. If there is detailed development plan for the area of readjustment, implementation of readjustment is realised with the force of law. Association can request the transfer of the land with respect to the foresights of the plan. Conversely, each landowner can demand the purchase of his land.

In all cases, if the land is purchased, the compensation amount is paid according to the market value or it is expropriated. The purchase of land doesn't bring any loss to the landowner, but on the other hand he doesn't have the chance of taking share from enhancement of the land value or the development profit (Larsson, 1993).

No matter which type of implementation is valid, the best provision for the interest of landowner is preferred. It is arguable that compulsory participation as in Germany does not force landowners to sell the property in a particular time. If the landowner doesn't want to be involved in the project, he can sell his land any time he wants in the free market. So, the sale of the land is generally deferred until the property reaches to the intended use. In France, landowner is forced to decide at an early stage, generally before detailed plan determining the future structure of the property. Swedish rule is more favourable for the landowner from this point of view. Before the detailed development plan for the area has acquired by the force of law, no compulsory surrender or request for purchase come into agenda. Landowner has another six-month to purchase his property. However, this process takes long time period (Larsson, 1993).

3.3.3 Calculation of Shares

Larsson (1993) describes the main purposes of the calculation of shares for the participants. As land allocation is made according to the shares of the participants, this calculation provides a basis for the apportionment of costs and benefits. In addition, shares can be used for other purposes like calculating the votes.

Design of economic mechanism in land readjustment process is developed on the basis of the shares of landowners. Larsson (1993) adds that in all systems of readjustment, the calculation of shares is essentially determined either by the acreage or the value of the area. "The primary basis, therefore, is always a list of the holdings, acreage and possible values which each landowner puts into the enterprise".

3.3.4 Land Deduction

Land deduction procedures in all countries are conducted as landowners surrender a certain portion of their land for the common purposes. As Larsson (1993) states, it is often defined expressly in the legislation, sometimes with an exact maximum limit as in Germany. In other countries, there is no formal rule, the amount of land of surrendering for public places and streets in the area varies according to agreement concluded with the municipality on the apportionment costs.

There are four main purposes of land deduction defined by Larsson (1993). First is to provide the land needed for streets, green spaces, public places etc., second is to compensate the municipality for its expenses, third one is to recover the development profit for the municipality and fourth one is to use the profits for covering the costs of association.

3.3.5 Determination of Valuation Methods

Larsson (1993) shows the necessity of valuation method. It is required in the process for the calculation of shares, land deductions,

allocations, development profit and compensatory payments of various kinds.

In principle, market valuation is regularly used, often with reference to the valuing rules which apply to expropriation. Less frequently, national laws include further provisions. The detailed design of the methodology, the levels to be applied and the valuers to be engaged are therefore decided by the association in consultation with its technical expert, or perhaps by a special executive official.

According to Yomralioğlu (1994), in most cases, during the calculation of percentages that will be contributed by each landowner for public areas, land unit value is not taken into consideration. The only criterion for contribution is the parcel size envisaged in the zoning plan. This approach does not provide equity in the project area as many factors, which affect the parcel value is neglected, like land-use, topography, shape, view, proximity to commercial areas and other public facilities.

3.3.6 Compilation of a Property Regulation Plan

Within the process, the new property subdivision is created. Larsson (1993) brings the guidelines for creating the new property subdivision. Each landowner, as far as possible, obtains land in approximate proportion to his shares and the new lot is, again as far as possible, located in close surroundings and similar qualities. Unless it is necessary, buildings and large facilities should not be moved or demolished without consent. This subdivision must be co-ordinated with a suitable structure of streets, blocks etc., often defined in a detailed plan prepared by the municipality.

3.4 Post-process

Larsson (1993) specifies four types of relevant measures for the post-process. These are “judicial appeals”, “construction work”, “other joint measures” and “reinstatement measures”.

In all stages of the process there are efforts to resolve the differences. The rules aim in determining a decision, which will be acceptable for a great majority. Although those rules reduce the differences, still some discontents can remain. So, in all countries, the landowner has the right to appeal. As Larsson (1993) defines, the faculty of appeal, as a rule, is confined to two or three occasions of the “commencement order”, “the readjustment order” and perhaps valuation order”.

The main principle of the land readjustment is to enable an economic way of development which aims to develop an equal allocation and to speed up the implementation. So as Larsson (1993) states, in all countries appeals do not halt the advancement of the process when a permit has been conclusively awarded. All the processes of construction works and other measures progress regardless of appeals pending.

During the process of construction work as Larsson (1993) says, generally speaking, national legislation contains few provisions. This work either comes entirely outside the process, as in Germany, or it is entirely an agreement of local authorities and landowners. Usually there are no detailed statutory rules on this subject, but there are certain codes of practices that gradually evolve.

Joint development or land readjustment is, as a rule, limited with land exchanges and the site improvements associated with them. This process does not include construction of buildings or sale of the land. However, Larsson (1993) indicates certain exceptions. In many countries like Germany, surrendering the land for the cost coverage is settled as a method. The municipality has the right of utilisation and sale of the land that accrued. But in Japan, it is the responsibility of landowners to set common 'reserve land' aside for sale or building development under the auspices of association itself, for the cost coverage.

In the process, co-operation may be desirable. Landowner often doesn't know what to do with his land. This is an obstacle and this delays the progress of development. Co-operation speeds up the development with its organised structure.

Larsson (1993) mentions that co-operative procedures can hardly be regulated by statute. Voluntary and informal co-operation is allowed for practical joint solutions.

There are efforts to induce previous residents to stay in the area of land readjustment. 'Reinstatement' brings an advantage to preserve the social environment. As Larsson (1993) states, it is mostly used for the renewal projects. This approach is not confined to the post-process. There are also great attentions for reinstatement during the preparatory negotiations and during the evolvement of the plan in order to preserve the social environment.

3.5 Selected Land Readjustment Applications

3.5.1 Germany

Komae (1996) states, *Flächennutzungs Plan* (F-Plan) and *Bebauungs Plan* (B-Plan) forms the German planning system. F-Plan refers to the general land use plan and its preparation is the responsibility of all municipalities while B-Plan is the detailed one at district level. B-Plan designates district facilities, land use, floor area ratio, lot size, height and/or the number of stories, building location, shape and form, landscaping, and others. Land readjustment, boarder adjustment, acquisition, demolition orders and others are also the implementation methods of B-Plan.

The land readjustment process in Germany is called *Umlegung*. Rural land consolidation methods have been adapted to urban conditions.

Larsson (1997) explains the process which is the responsibility of local authorities, from initiative to planning and implementation phases. After land has been reallocated to suit a new development, previous owners still have a property in the area. Final exploitation is also left to the owners (*Figure 3.1*).

With a detailed building plan that has been approved, municipality can start the process of *umlegung*. Appointed committee or the proper cadastral or consolidation authority can be the executor.

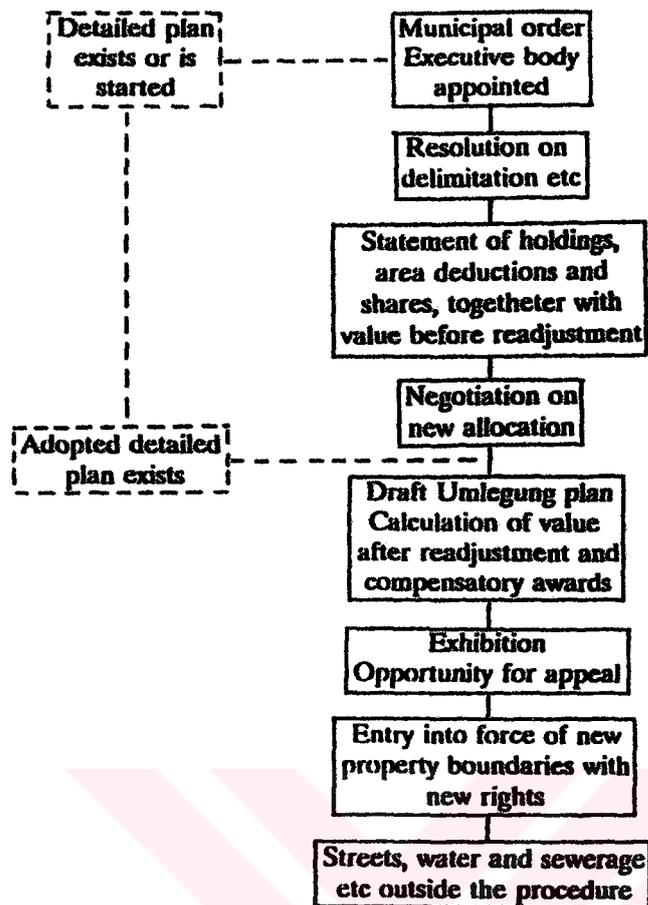


Figure 3.1 - The Umliegung procedure (source: Larsson, 1993)

Larson (1997) summarises the process: as an initial decision the extent of the area is defined in which all landowners are included. There is no possibility of leaving the programme. Initially, owners, parcels and buildings are determined. Following this, parcel sizes in the defined area are calculated to find the total readjustment area. Then, common share for streets, green places and other public areas is reduced from the total area. Everyone gets a share from the left total area in proportion to either the area or the value of his included land. As a contribution to the cost, municipality can take further land.

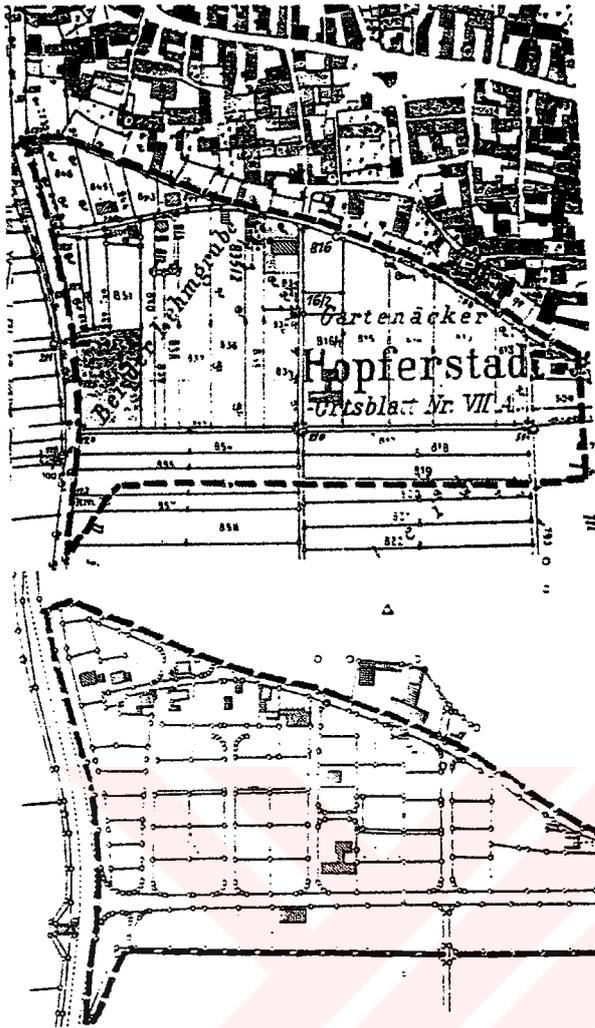


Figure 3.2 - Property boundaries before and after a completed Unlegung (source: Larsson)

A new allotment plan, based on the distribution of shares is adapted to the approved building plan and this last scheme is discussed by the individual owners. Last revisions are made and the allotment plan is displayed in the locality detailing the period of time for appeal. Upon this, the legal procedure is completed (Larsson, 1997).

It is the most commonly used method for implementation of new dwelling plans. An example of this process is shown in Figure 3.2.

3.5.2 France

Komae (1996) explains that the planning system in France has two tiers, *Schéma Directeur* (SD) as the master plan and *Plan d'Occupation des Sols* (POS) as the general land use plan.

The whole process of land readjustment is the responsibility of the landowners. Implementation is conducted by the landowners and the economic gains are under their control. Initiator may be the municipality or voluntary association of private interest holders and the association can function only in the case of agreement. Further step is to establish an authorised association, *foncière urbaine autorisée* (AFU) (Larsson, 1997).

First, a pre-project must be worked out by the authorities regarding the boundary proposals of the area, the draft record of owners and parcels affected from the project in order to form the basis of the future decisions. It includes the main lines of the project, benefits and estimated costs. For the pre-project normally a consultant is chosen which is often a private surveyor. It is also possible to get public support for this procedure. The pre-project must take the existing land use plans of the municipality into consideration (Larsson, 1997).

Prefectoral authority exhibits the project and receives objections against it. If 2/3 of the landowners agrees the project and at the same time at least 2/3 of the total area belongs to these owners, the project is accepted. Project is carried out according to this accepted land use plan and it is supported by municipality. The prefectoral authority can authorise an association of owners within the area that has the power of implementing the project and recovering the costs from the members. Each owner has the right of giving up his property if

he announces this in one-month period. The price is determined with agreement or according to the rules of expropriation (Larsson, 1997).

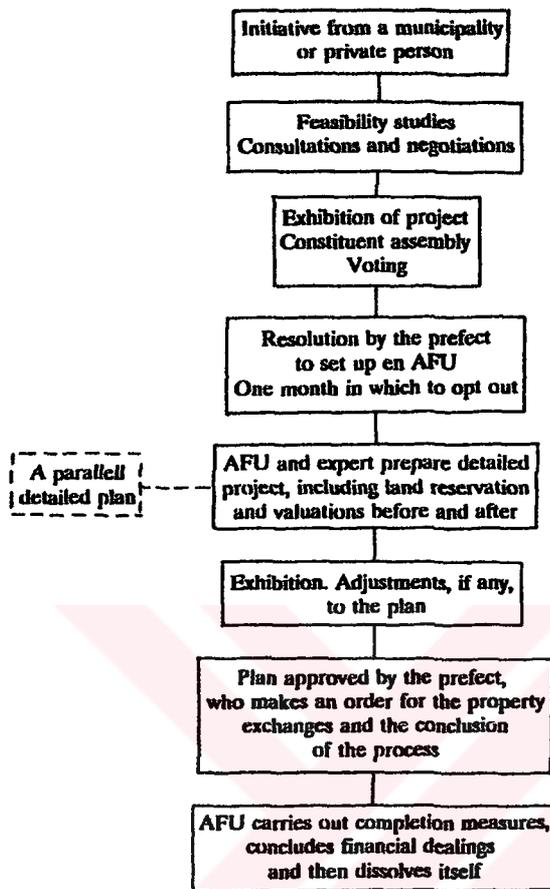


Figure 3.3 - Sequence of a French AFU procedure (source: Larsson, 1993)

Proposed blocks, sites, streets and other constructions are displayed in the readjustment plan. The area that is necessary for the public use is subtracted and the remaining land is distributed to owners. The new value covers at least the previous value of the land. Land can be exchanged for cash. Some of the owners voluntarily prefer to give extra surrender from their land instead of covering the costs with cash money. After possible modifications, municipality approves the plan and displays it during 20 days. Final adjustments are made by association board and again it is approved by prefectoral authority. Following this,

the association finishes the construction works and final account of costs and indemnities is prepared before the dissolving of the association. If necessary, a formal building plan with building regulating provisions is developed in parallel with the readjustment plan. In *Figure 3.3*, the proceedings are illustrated (Larsson, 1997).

As Larsson (1997: 145) states the French procedure has been used less than the German procedure of *Umliegung*. Regulations of French method are also of a later date. It is more time-consuming and entails more commitment and risk-taking on the part of the landowners. On the other hand, in this method, landowners have more possibilities to pursue their own policy.

3.5.3 Japan

City Planning Law of 1968 forms the legal framework of Japan's urban planning practices.

As Komae (1996) mentions land is subdivided into small lots in Japan which makes the development difficult. It cannot be sufficiently achieved if the process relies upon the intents of landowners. The public sector is thus vested with functions to carry out development regardless the landowner's will.

There is the land use zoning in Japan which aims to regulate the use, density and form of buildings in guiding the development. Land use zoning is classified as "land use district", "special land use zone" and "efficient land utilisation zones, fire protection district, etc" (Komae, 1996). OECD (1986) states that the zoning decisions are generally taken by the municipality.

Komae (1996) categorises the urban development project in three types as “using re-plotting measure - land readjustment system”, “using right conversion measure - urban redevelopment system” and “using land expropriation measure - new residential built-up area development system, industrial estate development system, etc” (Table 3.1)

Table 3.1 – Comparison of urban development projects systems (source: Komae, 1996)

Name of Systems	Land Readjustment Project	Urban Redevelopment Project	New Residential Built-up Area Development
Measure	Conversion of rights from land to land	Conversion of rights from land to floor space	Entire acquisition involving expropriation
Characteristics of Project Institution	Widely applicable comprehensive urban development system. Participation and co-operation of landowners, leaseholders in the project.	Integrated development of public facilities and buildings. Participation of landowners, leaseholders and tenants in the project.	Planned development of new built-up area by single implementing body.
Implementing Body	Local governments, public corporations, landowners cooperative ¹ , etc.	Local governments, public corporations, landowners cooperative ¹ , etc.	Local governments, public corporations.
Main Project Area	Almost entire urban area (existing urban area, developing urban area in sprawl form, new urban area).	Existing central urban area	New urban area
Project Size	Approximately between 10 ha and 1000 ha	Maximum 10 ha Mainly 1 to 3 ha	Approximately between 100 ha and several thousand ha
Achievement	358,231 ha	893 ha	15,591 ha

Note 1) : Landowners Co-operative is considered by law as a public body with compulsory power.

Land readjustment process in Japan is called *Kukaku-seiri* (KS) (Figure 3.4). “The land readjustment technique originated in the Arable Land Consolidation Act of 1899, based on German Legislation (OECD, 1986). Komae (1996) defines that the land readjustment schemes were systematised to be independent and integrated project in Law dated 1954. As Larsson (1997) explains, in this process -unlike the German and French procedures- land readjustment is not solely designed either for the public or the private sector. “Local authorities, public enterprises, big private entrepreneurs and ordinary landowners can take the initiative and implement the readjustment”. OECD (1986) states that the half of the projects are developed by private initiatives of

individuals or land readjustment associations and half were promoted by the public sector of municipalities, prefectures and public corporations. The projects that are developed by the private sector generally have a size of about 20 hectares while the public sector projects are larger than 150 hectares and they are more complex.

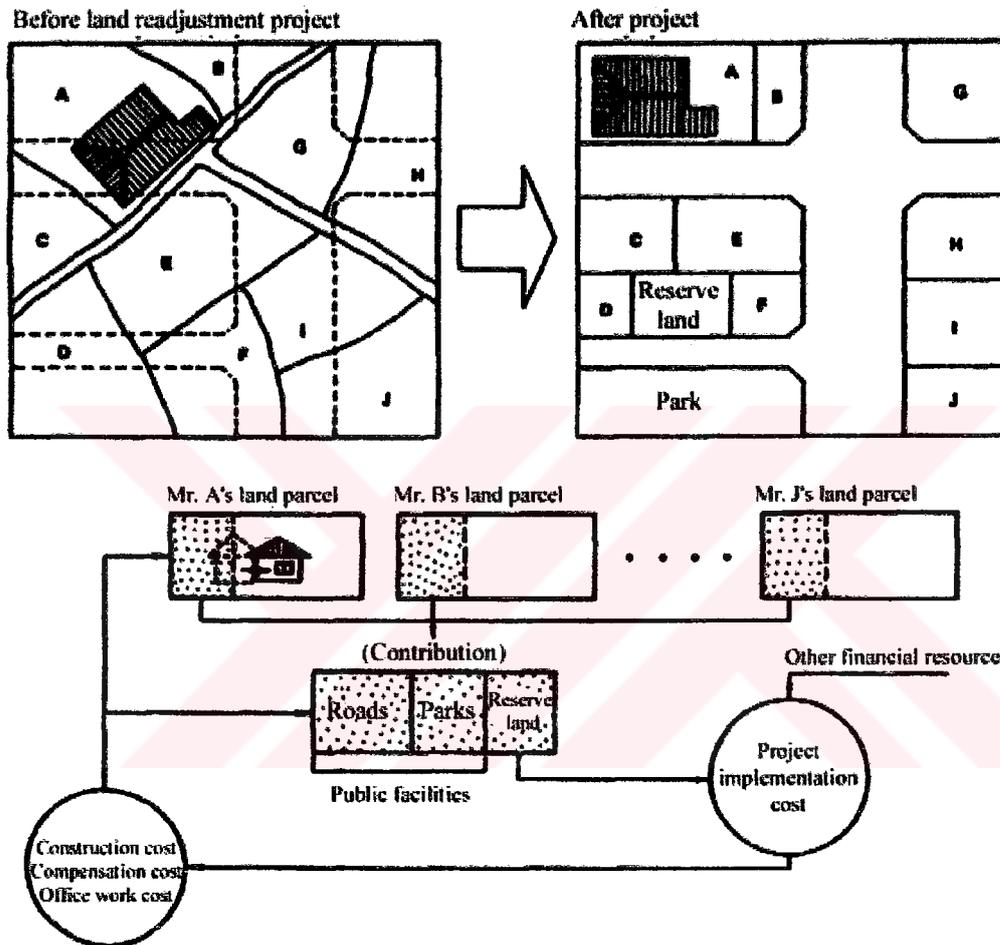


Figure 3.4 - Diagram to illustrate the basic KS model (Nagoya Planning Bureau) (source: Larsson, 1993)

If the project is carried out by the private sector, it must be supported by at least 2/3 of both owners and leaseholders in terms of number and size of the area. Superior authority must supervise the project, irrespective of the initiator. An extensive pre-planning process,

including goals, preconditions, planned results and construction, estimated costs and gains must be prepared. The plans are displayed for 2 weeks after which the objections are evaluated and their corrections are made. The authorities can approve the pre-plan and its proceeding regulations and establish an authorised association of owners and leaseholders (Larsson, 1997).

Ownerships are defined in maps and records so that the shares can be determined according to size or value of land. Percentage of land to be surrendered by the landowners is determined according to the size of the area needed for public use and the payment of costs. The land that is obtained for payment of costs is normally sold by association to achieve the self-financing of the project. Upon the completion of readjustment, the remaining land is allocated back to the owners and the cost is shared by public and private sectors within mutual agreement. The final plan is displayed for 2 weeks in order to take the objections. In the case of private land readjustment, final plan must be supported by a 2/3 majority. If a public authority is responsible for the project, such a voting is not necessary and no association is established. In all cases, final plan is approved by a superior authority. Appeals are allowed (Larsson, 1997).

Nagamine (1986) explains that development costs are in the form of contribution (*Figure 3.5*). There are two reasons for landowners to contribute first of which is for “land required for new roads and public open spaces” and second one is for “the Cost Equivalent Land (CEL)”. The later one is used for recovering the project cost through consolidating at several strategic locations in the project site. Executive body of land readjustment project carries out the sale.

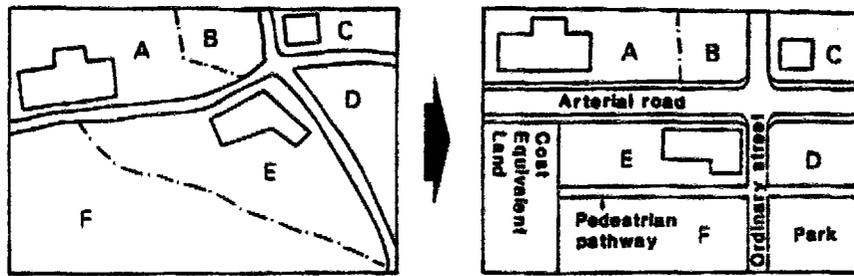


Figure 3.5 – Before and after land readjustment project (source: Nagamine, 1986)

Larsson (1997: 147) notes the criticism about Japan land readjustment method. One of these critics is that the readjustment plan is not always combined with a formal building plan. Therefore, within the same block, the height of buildings can vary. Another one is not fixing the final date of the development. For speculative or other reasons, the actual construction according to the plan can be spread out over a long period of time.

OECD (1986) states that the urban projects in existing city layout are conducted according to The Urban Renewal Act that became validate in 1969. Urban redevelopment projects are founded on the principles of owner participation and there is more intensive use of land and title conversion system (Figure 3.6). He explains the system as:

The system entitles each owner or title holder to co-ownership of the reallocated land and, after demolition and higher density rebuilding, to a pro rata share of the floor space in the new building. The system makes it easier to build co-operative blocks of flats and condominiums and promotes community stability by allowing residents to remain in the same area.

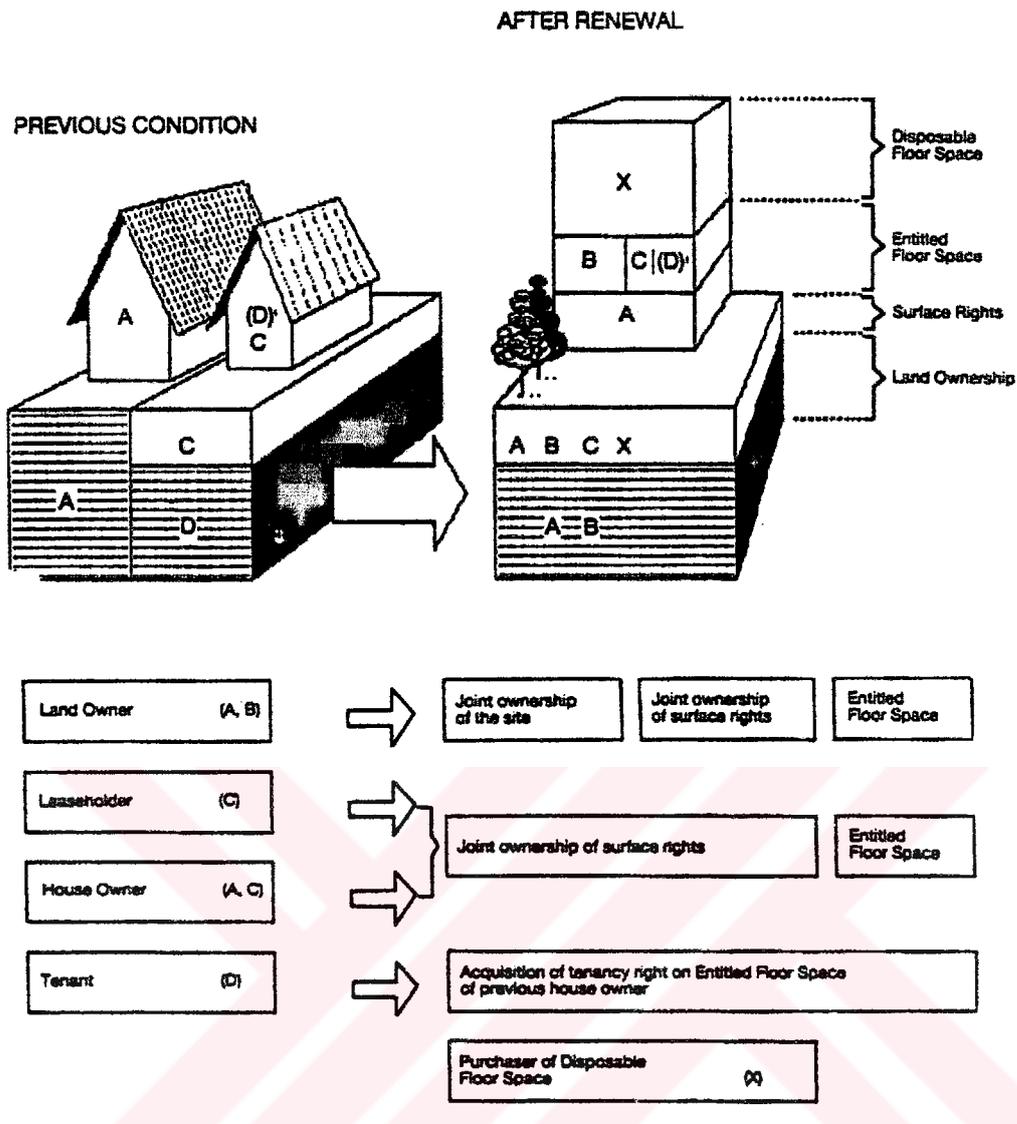


Figure 3.6 – Title conversion system in Japan (source: OECD, 1986)

The equivalent exchange system is developed based on tax legislation in order to provide the agreement between a landowner and a private developer (Figure 3.7). This system is closely related to the title conversion system and designed to achieve the same ends (OECD, 1986).

Regulations on building control, building coverage, floor-area ratio, shade restriction, height control, set back from boundary of building site, etc. are included in the land use of Land Use Districts (Komae, 1996) (Figure 3.8).

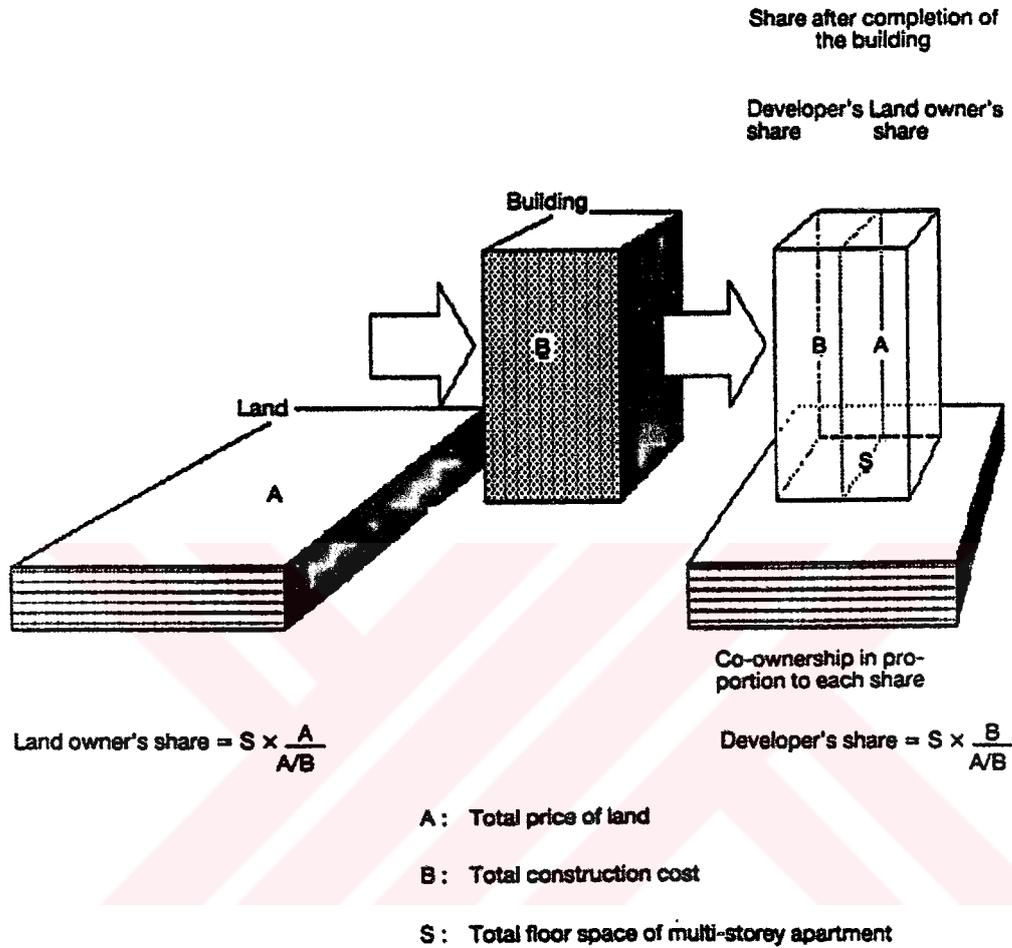


Figure 3.7 – Equivalent exchange system in Japan (source: OECD, 1986)

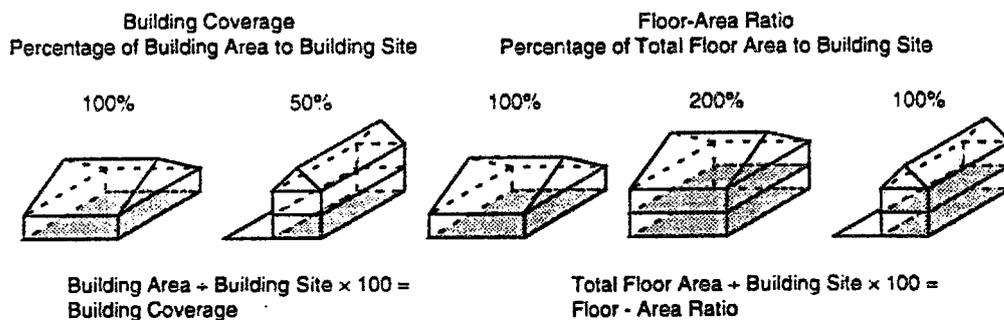


Figure 3.8 – Concept of building coverage and floor-area ratio (source: Komae, 1996)

Table 3.2 – Floor-area ratio and building coverage ratio regulations in land use district (source: Brochure, 1998)

	Category of Land Use Districts	Maximum floor area ratios to the area (%)	Maximum building coverage ratio to the site area (%)
1	Category I exclusively low-story residential district	50,60,80,100,150,200	30,40,50,60
2	Category II exclusively low-story residential district	50,60,80,100,150,200	30,40,50,60
3	Category I exclusively medium-high residential district	100,150,200,300	30,40,50,60
4	Category II exclusively medium-high residential district	100,150,200,300	30,40,50,60
5	Category I residential district	200,300,400	60
6	Category II residential district	200,300,400	60
7	Quasi-residential district	200,300,400	60
8	Neighbourhood commercial district	200,300,400	80
9	Commercial district	200,300,400,500,600,700,800,900,1000	80
10	Quasi-industrial district	200,300,400	60
11	Industrial district	200,300,400	60
12	Exclusively industrial district	200,300,400	30,40,50,60

Table 3.3 – Control of building use by Land Use Districts (source: brochure, 1998)

SAMPLE	1	2	3	4	5	6	7	8	9	10	11	12
Residential houses, residential houses with other small scale function (store, office, etc.)												
Kindergarten, schools (elementary, junior high, senior high)												
Shrine, temple church, clinic												
Hospital, university												
Store (mainly selling dairy commodities) / restaurant with floor space of 150 m ² max. on the first or second floor												D
Store / Restaurant with floor space of 500 m ² max. on the first or second floor												D
Store / Restaurant not specified above				A	B							
Offices, etc. not specified above				A	B							
Hotel, Inn					B							
Karaoke box												
Independent garage with floor space of 300 m ² max. on the first or second floor												
Warehouse of warehousing company, independent garage of other types than specified above theater, movie theater												
Theater, repair shop								C	C			
Auto repair shop								E	F			
Factory with some possibility of danger or environmental degradation												
Factory with strong possibility of danger or environmental degradation												

Can be built usually cannot be built

Note
 A: Should not be built on the third floor or higher. Should not exceed a floor space of 1,500 m².
 B: Should not exceed a floor space of 3,000 m².
 C: Audience seating floor space should not exceed 200 m².
 D: Store and restaurants should not be built.
 E: Floor space should not exceed 150 m².
 F: Floor space should not exceed 300 m².

A pattern for land-use zoning in each type of urban area is created through twelve categories of Land Use Districts. They are generally categorised into residential, commercial and industrial uses. Each Land Use District has its land use and building regulations (*Table 3.2; 3.3*) (Brochure, 1998).

Incentive systems for good project implementation is defined in a brochure (1998) as:

The total floor area ratio by City Planning is a fundamental rule of feature. It is determined to ensure a balance between urban infrastructures and the level of development, and achieve a pleasant urban environment in an area. Unified relaxation of the regulations concerning floor-area ratio may be imprudent in that it may cause problems, such as traffic congestion, environmental degradation and conflicts within the community.

To prevent overcrowding and encourage efficient land-use, a special bonus to total floor-area ratio is awarded for "good project implementations", which include the development of public infrastructures, open spaces and housing a part of their projects.

Substantial developments are created through specific block system. This system aims "to promote a certain level of open space in a built-up area and renew and improve its amenities". In a specified block area, the maximum floor area ratio, the maximum height and the set back regulations can be increased. It is possible to transfer the floor-area between the adjoining blocks (Brochure, 1998).

3.5.4 Western Australia

Urbanisation method, which is called pooling, has been used around the capital Perth in the state of Western Australia since the 1950s. Although it is a well-established system for Western Australia, it

utilised in other Australian states yet. Archer (1988) makes the definition of land pooling as a technique for the unified subdivision of separate private holdings in urban fringe areas. These projects are self-financing and landowners share the costs and benefits. It is a powerful tool for local governments to implement their municipal land use plans and to supply adequate urban land.

Archer (1988) states, the pooling projects set up compulsory partnership between the council and landowners for the design, subdivision and servicing of their lands as a single estate. "The pooling technique uses the "resumption" method of compulsory land acquisition". In this method, private, public and government lands in the scheme area are transferred to the council by publication of ministerial notice in the *Government Gazette* with the landowners then lodging their claims for compensation. Each share is determined based on the market site value of the land in the pooling project. If there is a building in the project area, its owner takes a compensation for the building or receives back the site with the building on it. Some lands in the scheme area may be excluded in the cost and benefit sharing arrangements which usually locate on the edge of the area and receive little benefit from the pooling project.

Archer (1984) explains the process of land pooling method as (Larsson, 1997);

A mini town planning scheme is prepared for each land pooling project in order to define it and then when approved to authorise and regulate the implementation of the project. Each scheme usually (and desirably) consists of before and after land use and land holdings maps, a scheme text, a project budget and a schedule of landholdings and valuations. The scheme text sets out the objectives of the project, the steps of the projects and the terms and conditions on which the

project will be carried out. It therefore can be seen as a form of partnership agreement between the landowners and the local government. The pooling scheme is usually prepared in consultation with the landowners and the various government bodies involved in the implementation. The draft scheme is then placed on exhibition for landowner and public information and for formal objections, if any. After review and possible amendments, it is then approved. The scheme text is published and becomes a legal document to authorise and regulate the project. Each landowner's share of the costs and returns of the project is based on the official assessment of the market value of his land as at the time of the local government's decision to prepare the scheme.

Larsson (1997) explains, upon the approval of the scheme by a superior authority, the municipality takes all the land without any compensation but with a guarantee of existing mortgages. A detailed plan is prepared by the local government and implementation of all new construction of streets, etc., is conducted by this authority. Certain plots are kept for the costs and the remaining land is distributed among the previous owners according to their claims, with certain adjustments and attendant compensation to provide suitable building lots. If a person surrenders his claim wholly or partly, it is compensated with cash. Gains are collected and distributed among the owners. The final selling of the building plots is left to the owners which causes a certain risk of exploitation if the completion of development extends for a long period.

Archer (1988) gives an example of the land-pooling project. The Canning Town Municipal Council in suburban Perth completed the Tribute Street Land Pooling Project in three years. Consolidation of lots would have increased the value of the land because all the lands were too small (*Figure 3.9*).

Canning Town Planning Scheme No.26
(Approved by Minister in June, 1973)

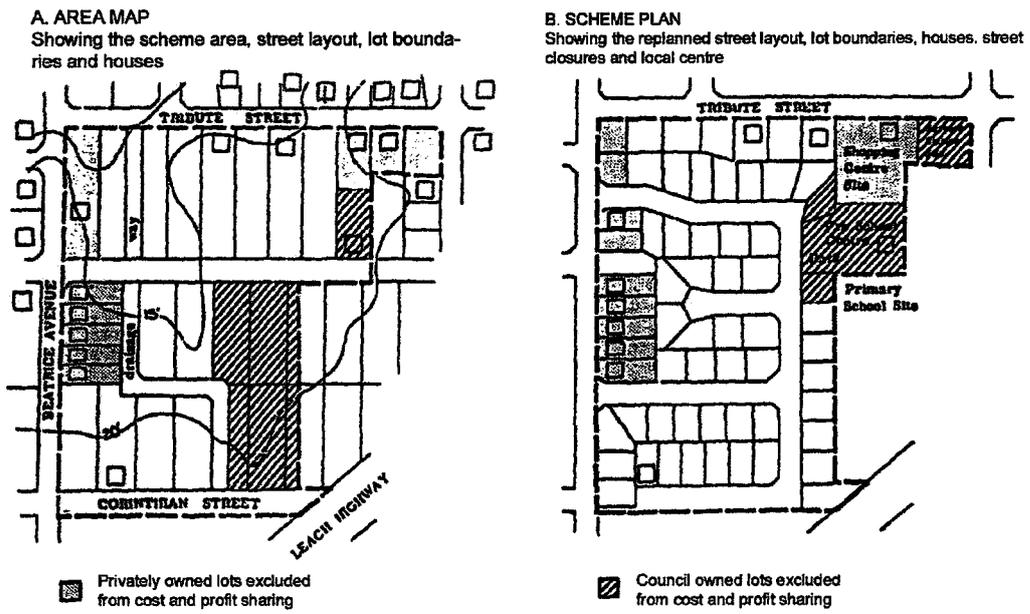


Figure 3.9 - An example of pooling (source: Archer, 1988)

CHAPTER 4

LAND READJUSTMENT IN TURKEY

4.1 Evolution of Property Structure on Land

In Turkey, a transformation process in the property system is observed starting from the Ottoman Empire. During the Empire period, the owner of the land was state, which has a strict control over the land. Today, however, the property system is privatised and there is a less control of central authority over the land.

Günay (1995) mentions that the system of Ottoman Empire is similar to English property system, which contrasts with the Roman Law. "The feudal tenant (*sipahi*) was entitled to a fief (*timar*) in land rather than the land itself". The *sipahi* was arranging the relations between the state and the peasants as an extension of the central state. State is the owner of the land. Peasants were the possessors of the land and appropriated it in turn for a lease paid to *sipahi*.

With the decline of central authority in Ottoman Empire, the local feudal tenants transformed into proprietors of land. 'Deed of agreement' (*sened-i ittifak*) was signed in 1808 between the sultan and the emerging local feudal landlords. Günay (1995) states that this agreement was the recognition of private property in Ottoman Empire which was further consolidated in the *Tanzimat* Edict. As Akdağ (1990)

indicates the ownership rights totally belonged to state until the validation of Edict.

In 1858, the land law of first comprehensive real property legislation came into force. All of the traditional rules were converted into the legal base. Between 1869 and 1876, another set of regulations called *mecelle* was promulgated defining more specific private relations (Günay, 1995).

The real recognition of private property corresponds to the enactment of the Turkish Civil Law in 1926. This law takes its basis from the Roman law that is the origin of Civil Codes of Europe. With this development, the process of privatisation of state or public property started. Günay (1995) states that with the enactment of Turkish Civil Law in 1926 and Land Registry Law in 1934, new property relations emerged to cope with the capitalist mode of production.

The article 618 of Turkish Civil Law is used for the arrangement of property rights. It gives three kinds of power to the possessor that are explained as; “the right to use (*usus*), collect the fruits (*fructus*) and use the thing until it is exhausted (*abusus*)” by Günay (1995: 52).

In Turkey, beginning from Tanzimat Edict, the laws have guaranteed property right as a basic human right. The article 35 of the 1982 Constitution guarantees the property right including the right of heritage, as it is so in 1961 Constitution. In addition, the article 46 of the Constitution indicates that if there is the necessity of expropriation in the name of public interest, it could be done in condition that government pay the price of property (Ertaş, 1997).

Property relations are arranged by the Law of Belongings in Civil Law, which came into force at 4th of October, 1926. The Law of Belongings is a special part regulating the human domination on things. Turkish Law defines the concept of thing in with five items. It is a tangible and limited with a boundary on which domination can be set. It has a financial value and a thing that is inhuman and does not have a personality (Ertaş, 1997).

Yomralıoğlu *vd.* (1996) states that in Turkey, all land parcels were registered with their existing layouts which were mostly irregularly shaped, according to the Land Registry Law in 1934. Because of the technical and financial problems, the government had difficulties in controlling the transformation of the land from rural to urban and couldn't provide sufficient land both for private and public sector requirements. Therefore, squatters have been constructed that are out of the framework of national cadastral system.

Construction and Roads Law '*Yapı Yollar Yasası*', "envisages the production of small land subdivisions that fitted the capital accumulated in the hands of new urbanites" (Günay, 1995).

Following these legislations, new property relations appeared in urban space with the rise of liberalism. Bourgeoisie dwelled in legally owned real property and lower income group occupied the public lands for dwelling. This occupation is then legalised via the attribution of first possession right. As Günay (1995) states to solve the spatial problems appear through this transformation, 'comprehensive planning' was introduced. Although the state was

supposed to control the city through comprehensive planning, it could not achieve this aim like it happened in the western societies.

It can be expressed that urban space development could not be controlled through comprehensive planning in Turkish case. Although development plan, '*imar planı*', has been introduced for the arrangement of real property relations forty-years ago, it could not achieve to prevent the spreading of illegal squatters.

Development plan practice was supported by the middle classes as it fitted with the small property structure. Comprehensive planning was used for the development of suburban settlements when larger capital entered to the housing market.

As Günay (1995) mentions, 1970s was the period corresponding with the utility based planning activity of social democrats. In this time horizon, left wing of Turkish political fan was in search for an alliance with the squatter population. This approach resembled the modernist production of space of the western cities. However, it was not realised as building social houses, instead land was distributed to co-operatives as property. The control over the space became weaker and the power of controlling the real property was distributed to the co-operatives.

New era of liberalisation of property emerged in 1980s and 1990s when the new Development Law issued 3194 has shown its influences on planning. Although the Law involved a 'comprehensive planning' in the essence, in practice, local authorities took the control over real property with decentralisation of the central government

power. This led to diminishing central state control over the development plan '*imar plani*'.

4.2 Land Development Methods

Land development methods are used for the development of built environment. To provide new development plots, some land acquisition methods are practised in Turkey the objectives of which were to achieve the provision of public services and other infrastructure facilities for the urban areas. Most of these methods are performed by municipalities using master plans and zoning regulations (Gürler, 1986).

Yomralıoğlu *vd.* (1996) mentions, in Turkey, some large projects of new highways, railways and other kinds of main infrastructure investments are carried out only by central state while municipalities are responsible for providing new settlement and public service areas via using the regional and zoning plans.

There are basically two development methods used by local authorities which can be referred as voluntary and compulsory methods.

4.2.1 Voluntary Method

Voluntary method is usually applied if a landowner attempts to take construction permit. In the voluntary method, the basic principle is to re-demarcate the existing cadastral boundaries according to the rules of zoning plan. The development suitability of the parcel under consideration is examined by the municipality in regard with zoning

requirements. If it is found to be unsuitable within the framework of zoning decisions, landowner has to develop alternatives to fulfil the requirements.

This method is applied with the collaboration of some or all of the landowners in a particular area. Basically, there are two types of voluntary method, which are namely boundary exchange along with the subdivision and unification of land and leaving land for road.

4.2.1.1 Boundary Exchange

If the existing land parcel has an irregular shape, there can be re-demarcation or exchange of some portion of land with adjoining cadastral parcels. This process can only be realised with the agreement of related landowners. If a satisfactory agreement is achieved, the cadastral office carries out the technical procedures.

Uzun (1992) states that this procedure was not involved in the Development Law issued 6785 and its regulations. It doesn't exist in the Development Law issued 3194, either. However this application took place in the article 21 of the Registration of Cadastre and Title-deed Law issued 2163 and in article 92 of the Reform of Land and Agriculture Law issued 1757.

4.2.1.2 Subdivision and Unification of Land and Leaving Land for Road

If an existing parcel is adequately large, a special subdivision can be made according to zoning requirements. The parcel can be subdivided into two or more suitable lots. In such a process, if

there is a public service area in that particular location envisaged by the zoning decisions, that part is left to public use. Subdivisions are carried out by private surveyor but the subdivision plans and all other related documents have to be registered by municipality and cadastral office.

Another instrument, which is referred as unification is used if an existing parcel is not large enough with respect to the foresights of the plan objectives. In this situation, the small land has to be unified with the adjoining parcels. Again an agreement between the related landowners is required before the unification. If there is remaining land of any participated landowner at the end of the unification process, that land must certainly be appropriate for further development in terms of its size and shape.

Article 15 and 16 of Development Law issued 3194 covers the procedures of subdivision and unification. There are two main objectives of these two applications one of which is the division and unification for the aim of sharing the plot and with agricultural purposes and the second one is division and unification conducted for the creation of the development parcels (Uzun, 1992).

Gürler (1983) states that the equilibrium of the advantages and disadvantages cannot be provided within such applications. For example, only 10% of some parcels may be left for public uses while others may give the whole parcel. So, the system brings an unjustified sharing by itself (Uzun, 1992).

The applications that were conducted according to the article 39 of the abolished Development Law issued 6785 and the articles 15

and 16 of the current Development Law issued 3194 are main causes of the poor structuring of the cities. Via the utilisation of these articles, excess and irregular development parcels emerge (Uzun, 1992).

As Yomralioğlu *vd.* (1996) mentions, voluntary method is not an expensive application, but it is time-consuming. It is not expensive because the government obtains the required land without any compensation, freely. Furthermore, within the process cadastral parcels transform into site lots and this increases the tax revenue either. Individuals are involved more actively than the government. On the contrary, there are disadvantages of the process. First of all, this method is only applied if a landowner decides to begin a construction. In addition, the whole or a big part of one particular parcel may be assigned to public uses. As a last disadvantage, land exchanges between landowners have to be conducted according to a legal agreement.

Although there are advantages of voluntary method, it is a time-consuming application and it leads to an injustice way of urban development.

4.2.2 Compulsory Method

Compulsory method is applied in a development area without the approval of landowners, directly by the authority.

4.2.2.1 Expropriation

Expropriation is a method in which authority takes the land for the sake of public interest of a society through obligatory rules

without waiting the approval of the landowners. In this method, public interest is accepted to be more important than the personal landowner. Gözübüyük (1983), Bıyık and Uzun (1990) states, as the public interest is a prior issue, the equality concern becomes invalid if the authority faces with a personal landowner's demand in a situation where public interest is tried to be achieved. So, the expropriation is one-sided decision that is taken by the authority.

Actually, landowners are not satisfied with this method as the land is acquired by the authority. However, when the concern of public services came to the agenda, the important issue is public interest not the private one.

This method takes its basis from French Law. Article 46 of 1982 Constitution 2709 pertains to the issue of expropriation and all the expropriation procedures are carried out according to the Law of Expropriation issued 2942, which was enacted in 1983 (RG: 06.11.1983 / 18215). This issue has existed in Turkish Law since *Tanzimat* Edict. However, as Bıyık and Uzun (1990) mentions, today more democratic and fair implementations are replaced with the previous applications. It can be said that although the expropriation method exists in laws and regulations, authorities use it as a last solution if there is no other alternative.

Expropriation can be practised at any level of the government. However, the decisions must be approved by the city council and the landowners in that particular area must be informed about the decisions. At the end of the process, determined value of land is directly paid to the landowner. As Uzun (1992) states landowners always complain that determined value does not reflect the

real value of their property. As a result, there is always a prolonged litigation in courts of law.

This method is used especially in big projects like road, airport, dam and public buildings, etc. constructions for the sake of public interest. As it is a costly method, it is generally not used by the municipalities in urban development projects. If the municipalities acquire the land, they have to compensate and pay for the land to the landowners. It is known that municipalities in Turkey are face to face with financial problems and that's why the expropriation method is not preferred by them.

Municipalities and General Directorate of Real Estate Office '*Arsa Ofisi Genel Müdürlüğü*' together can apply the expropriation method for the provision of public lands and development parcels.

As Tüdeş (1997) states if the landowner and the administrative authority can reach an agreement after the expropriation decision is taken, the administration can compensate the total price or a part of the expropriated land via exchanging it with another real property. Related article of the law is as follows:

In the case of the owner's acceptance, the real properties of the administration that are idle can be used for the total or the partial compensation of expropriation. The adjudication committee of the administration decides the value of the real property that will be used for compensation. The difference between the values of real properties is compensated as cash amounts by the sides. But the value that is determined by the administration cannot exceed 20% of the expropriation price.

Tekinbaş (1990) states, the urban land provision for housing estates is managed according to the Law of Mass Housing (RG: 17.03.1984 / 18344) and its application regulation (RG: 30.05.1985 / 20180). Real estate development areas are designated by Governorate and expropriation is conducted by General Directorate of Real Estate Office (Uzun, 1992).

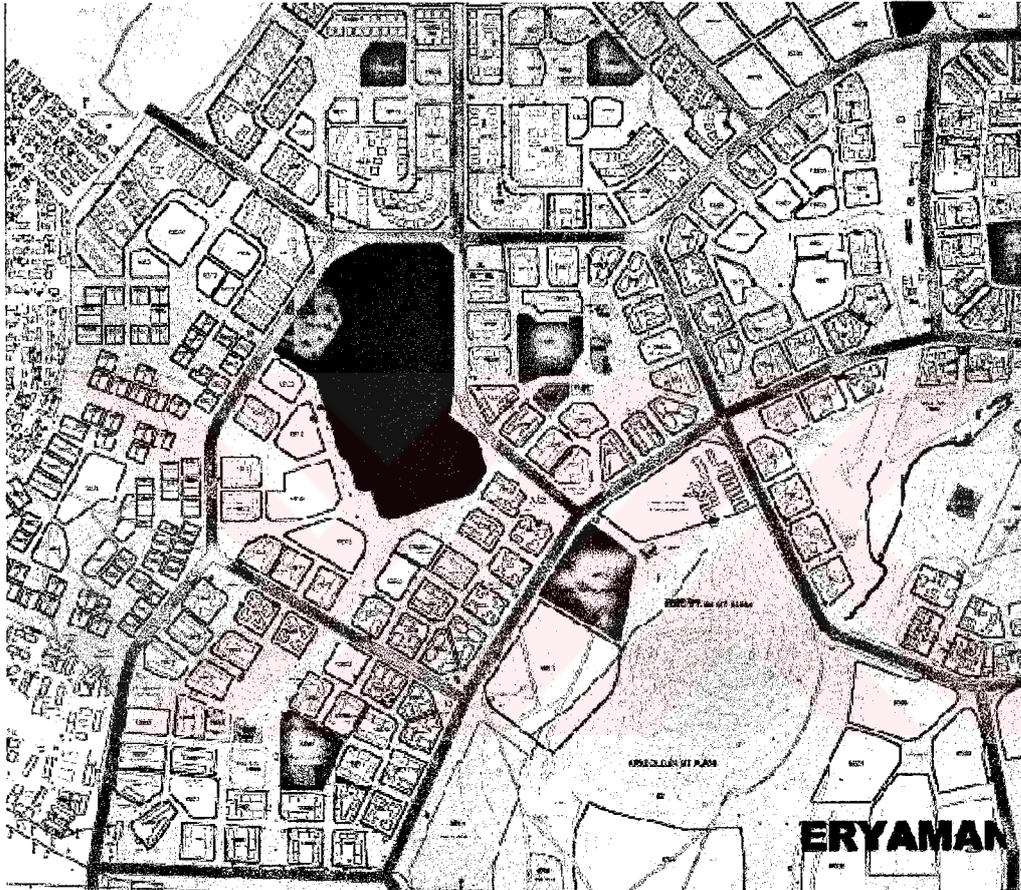


Figure 4.1 – A part of Eryaman mass housing project (source: Ankara Metropolitan Municipality)

Mass Housing implementations lead to emergence of more flexible urban environments, as there is the chance of making design on one unified property. It can certainly be claimed that design in one property pattern always give better solutions than in fragmented pattern (Figure 4.1).

Expropriation for the whole property creates better conditions for implementation while for the parts generally results in poorer implementations. Akyol (1985) states, expropriation is carried out to enable the provision of several public services within the framework of a plan, however there is no effort to arrange the remaining land pieces upon expropriation. For example, opening or widening a road via expropriation distorts the urban form and the parcels locating in that particular area become demolished development parcels at the end of the process. Furthermore, there won't be sufficient space for constructing the connection roads of the new way. Therefore, as a result of such an implementation an ugly urban environment will emerge (Uzun, 1992).

4.2.2.2 Improvement and Development Plan

Since 1985 with the laws issued 2981, 3290 and 3366 respectively, the improvement and development plan implementation started to be used prevalently, However, the method of land readjustment can't be applied to these regions of densely structured, shared, slum and squatter lands (Uzun, 1992).

With this application, it was intended to provide the regions' social and technical infrastructure as well as solving the ownership problems in the area (Uzun, 1992).

4.2.2.3 Land Readjustment

In Turkey, with the beginning of utilisation of land readjustment method, the voluntary methods should be eliminated as they have negative effects in achieving the planned development and

cannot be sufficient for the rapid development demand. On the other side, expropriation is a costly method where the resources of municipalities are inadequate for affording it. Because of the negative aspects of these methods, a more effective and fairer application, namely land readjustment was introduced.

Land readjustment method had been used in many countries in the time it was introduced in Turkey. Keleş (1990) states, the law of Addikes -is tied up to the name *Addikes* the old mayor of Frankfurt- which is known as '*Lex Addikes*' land readjustment is used in nearly all countries for the application of the development plans.

As Akdağ (1990) states, after Tanzimat, the concept of the private ownership emerged and state was not the owner of all the property anymore. By that time, there was an increase in the number of the fires in İstanbul that damaged large areas, as it was hard to put the fire of because of the narrow roads in the city. Following this, the Building Regulation '*Ebniye Nizamnamesi*' that controls the structural formation and presents some planning principles were enacted in 1848 which regards the old city center including Üsküdar, Galata and Eyüp regions. This regulation involves the testimony of compensation prices for structures that must have been demolished to enlarge the roads and presents expropriation regulations. As Kırıl (1980) adds, this regulation also involves sentences regarding the direct (*re'sen*) subdivision and unification of the land along with the surrendering it for road arrangements and some common facilities.

In the period of Ottoman Empire, The regulation of Buildings and Roads '*Turuk ve Ebniye Tüzüğü*' (1864), gave the possibility of land adjustment of the streets and structural parcels if a fire occurs in

the neighbourhood (Keleş 1990). As Kırıl (1980); Akdağ (1990) states, this regulation was spread to all country. Besides, in the new development sites, there was the obligation of leaving land for the roads. Kırıl (1980) adds, this regulation exactly defined the voluntary subdivision and it obliged that this application must be carried out in a planned way.

Keleş (1990) states, in the 1882 Building Law '*Ebniye Yasası*', there was the testimony that in case more than 10 buildings are demolished in the same neighbourhood due to the fire, the land is readjusted and the region becomes the subject of a new allotment. Within the framework of this application, each land parcel was adjusted and arranged in rectangular or square shapes and then they are given back to the previous owners taking the old value into account. However, the law brings the obligation that these landowners must surrender maximum 25% of their lands for the enlargement of roads. Kırıl (1980) states that this law also detailed the voluntary land division. The conditions of public interest that were not clear in 1864 regulation were also explained in a detailed way. This regulation introduced two new concepts to the development law and its applications, namely compulsory land division and the concept of leaving land without compensation. Akdağ (1990) interprets that this law was followed until the one enacted in 1957, with only few changes.

In 1925, the law issued 642 brought an alteration to 1882 law expressing that the neighbourhoods which have more than 150 burnt units, would be treated as a unified area with the graveyards and gardens in the close surroundings and would be readjusted (Keleş 1990).

By the date June 2, 1930 and with the law issued 1663, a change was made in the law issued 1351 that organises the establishment and responsibilities of Planning and Construction Directorate of Ankara. The law vested the directorate with the authority of readjusting the land with a surrender of 15% and re-allocate the parcels upon the completion of readjustment either they are faced with a fire or not. Keleş (1990) states, this was the first law that permits the application of land readjustment '*hamur kuralı*' without any pre-condition such as fire.

According to the Municipal Building and Roads Law issued 2290, which was valid between 1933 and 1957, municipalities had the right of taking 15% of all lands without any compensation, during the unification and division processes in the development plans. The characteristic of this regulation was that it acknowledged the power of using land readjustment method to all municipalities (Keleş, 1990). An example of an allotment plan made in that period is given by Kırıl (1980) (*Figure 4.2*).

When the plan was made, the arrangement area had rural structure. Half of the area was settled with rural houses. Plan was made with respect to the cadastral parcel boundaries and houses settled on them. Development parcels emerged with plan were four times bigger than the size of the cadastral parcels on the average. So, 75 percent of the development parcels were allocated as single parcels. With allotment plan, the area hold for public use was 14 percent of the total adjustment area. So, green areas could not be created (Kırıl, 1980).

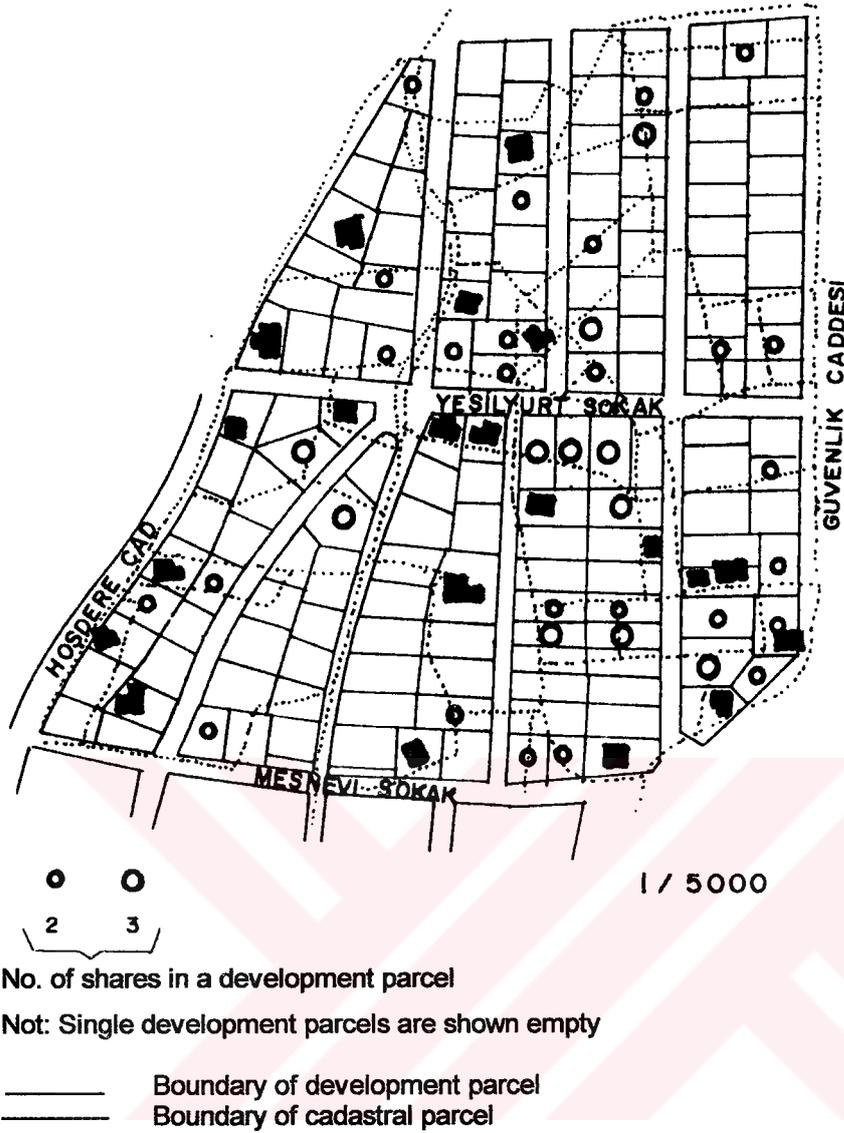


Figure 4.2 – Aşağı Ayrancı 16275 numbered allotment plan (1949) (source: Kırıl, 1980)

In 1957, the Development Law issued 6785 came into force. Land readjustment process was detailed in the article 42 of the Law. According to this article, 25% of the land had to be surrendered by landowners for public use. However, as Gürler (1983), Tüdeş (1987), Bıyık and Uzun (1990) mention this application was not an appealing method for the municipalities and besides, they were technically

incapable of implementing it. Therefore, the method hadn't been used effectively.

As a result of the above-mentioned process that could not utilise the land readjustment method properly, this application was abolished in 1963, however in 1972 it became validate again with the law issued 1605.

The allotment plan shown in *Figure 4.3* was made in accordance with Development Plan issued by 6785 / 1605 and its 42nd article in 1978. Previous property structure had rural characteristic. Up to this date, the land had been allotted voluntarily since 1958 and 1959. There were single parcels with small in size and also large in size in the arrangement area. Besides, there were so many shared squatter properties. Development parcels were 2.5 times bigger in size than the cadastral parcels on the average. In some of the parcels this ratio increases to 10-15. So, the shared structure in the development parcel becomes inevitable. According to Regulation of the Development Plan, 25 percent of the total area has to be surrender for the public uses, but this amount stays in the level of 15 percent. Besides, the density in the area is determined as 1.5 emsal. Although it was profitable for the area to be constructed, there were no construction made in the area (Kıral, 1980).

According to Development and Squatter Amnesty Law issued 2981 (dated 1984), up to 25% of the land can be taken as adjustment share during the application of improvement and development plan in squatter and illegal development areas. (Keleş 1990).

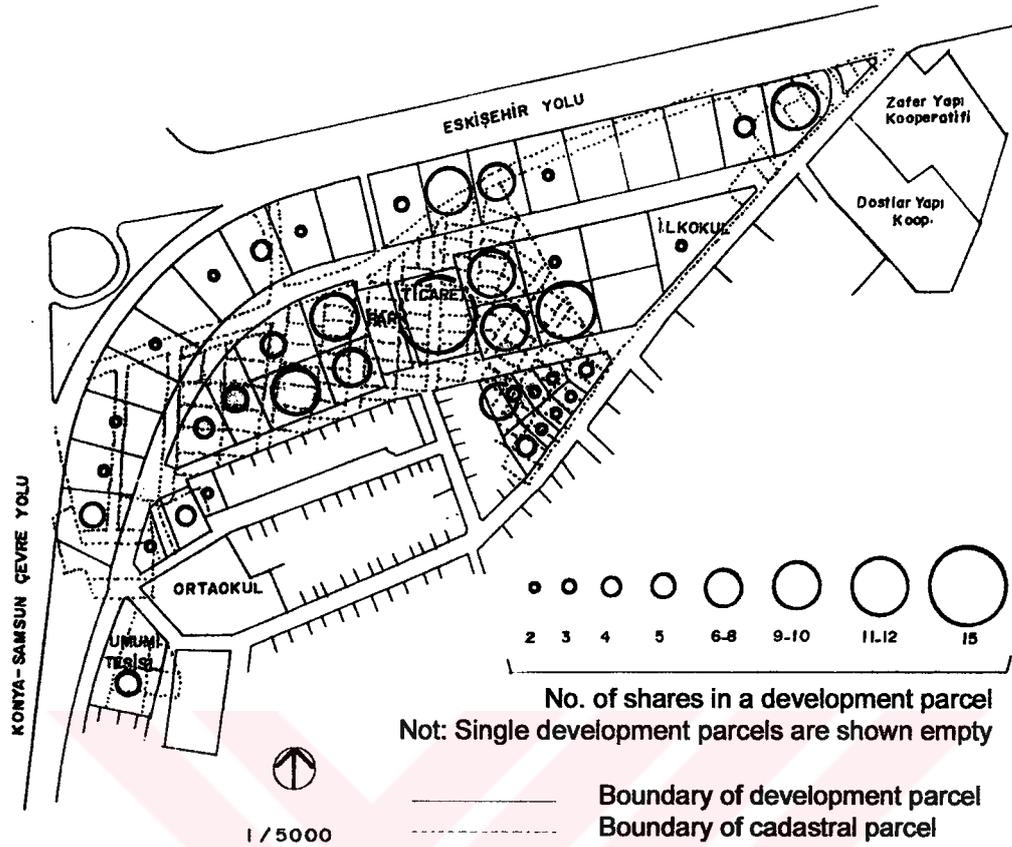


Figure 4.3 – Balgat 70.300 numbered allotment plan (1978) (source: Kiral, 1980)

In 1985, the new Development Law issued 3194 came into force (RG:09.05.1985 / 18749), article 18 of which arranges the land readjustment process. The definition of article 18 in the Law as follows (TAU, 1996):

Within the development boundaries, the municipalities have the power of consolidating the land -with or without a building on it- with other parcels, with road left-overs and with lands that belong to public institutions or municipalities; re-subdividing these land into blocks and parcels in accordance with the development plan; re-allocating the parcels to the shareholders depending on the basis of independent, shared or flat ownership and to directly (re'sen)

conduct the registration procedures without taking the consent of related landowners and shareholders. If these lands are out of the municipal or development boundary, the above-mentioned power is utilised by the governorates.

With the law, the percentage of land to be surrendered for public use is increased to 35% with which the land readjustment method became more appealing for the municipalities.

Upon the completion of land readjustment process, the value of new development lot increase respectfully much more than its previous value. Decrease in the amount of land because of the deductions for public use is compensated with the increase in its value.

The new land readjustment process increased the number of shares in a development parcel and inequality as well although the green areas located in cities are increased more in respect to the ones in Turkey.

In the process, after the deduction of amount allotted to public use, the reallocation is realised according to the area method that is to distribute the remaining land among landowners with respect to the size of their previous property. As Bıyık and Uzun (1990) mention, instead of area method, the value method can be used to enable a fairer implementation.

Process starts with the selection of the arrangement area, ends with registering the new property structure in the title deeds.

Yomraliođlu vd. (1996) elaborates that the method of land readjustment is more efficient and fairer than the other methods that are being practised in Turkey.

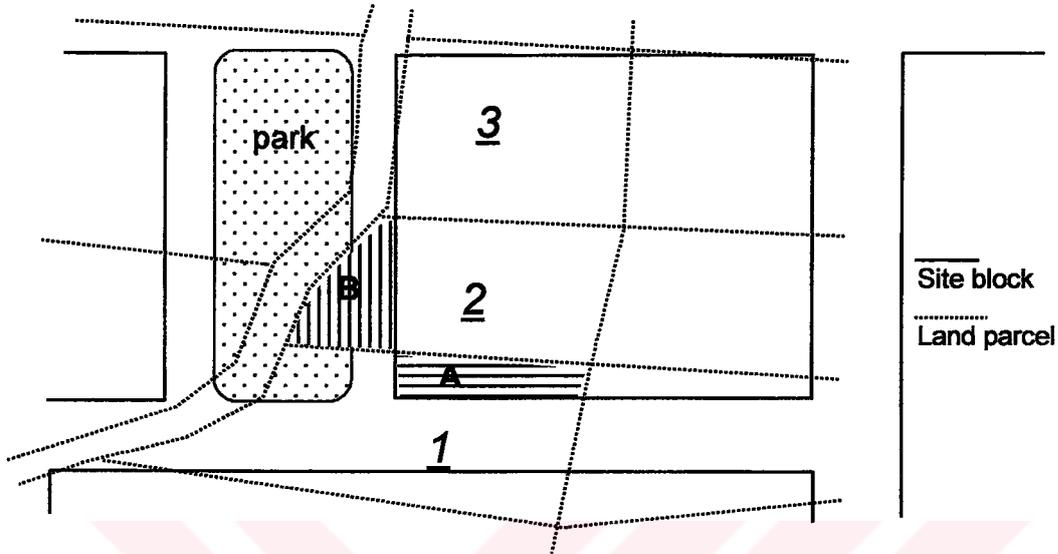


Figure 4.4 - Comparison of the methods (source: Yomraliođlu vd., 1996)

Figure 4.4 shows a small model illustrating the zoning plan overlaid on cadastral map. Landowners are defined with parcel no. 1, 2 and 3. When the parcels are compared according to their availability for development, it is seen that parcel no. 1 can use only a small part of its land while parcel no. 3 almost uses the whole area for development. Parcel no. 2 is somewhere in between. The area labelled as "A" cannot be developed as a single plot. Therefore, the owner of parcel no. 1 must either wait for the expropriation or consolidate his land with adjoining parcel in order to utilise his property. The owner of parcel no. 2 still has sufficient amount of land for development upon the deduction of area "B" for the purpose of public use. Its location is still better than parcel no. 1. The owner of parcel no. 3 is actually not affected from the zoning plan. While other parcels are losing considerable value, it will

obtain benefits from the project due to the compensation of its neighbours. It could be said that there is a zoning lottery for the parcel. This is an example of voluntary method. However, if the land readjustment method was applied to this site, all the parcels would have the chance of getting its benefits that stem from the adjustment in an equal way (Yomralıođlu *vd.*, 1996).

4.3 Process and Procedures of Land Readjustment

4.3.1 Institutional Framework

In Turkey, land readjustment process is conducted with respect to the Land Readjustment Act and related regulations defined in the Development Law issued 3194. Municipality is the authority that supplies the requirements of this process.

The part of public sector in the process somehow resembles to the application in Germany. It has an intermediate role between passive and active participation as the close control of the plans is carried out by the municipality while the construction over the parcels are mostly conducted by private sector.

4.3.2 Pre-process

To determine the adjustment sites in order to provide adequate amount of land, to prepare these sites for construction and to manage the application process are the tasks of municipalities within the municipal and neighbouring '*mücavir alan*' boundaries, while they are undertaken by governorates beyond these borders. The initiator of

the process is municipal council '*belediye meclisi*' within the municipal boundary, otherwise it is the city administration council '*il idare meclisi*'.

4.3.3 Formal process

This process begins with the determination of the project area by municipal council or city administration council and ends with the registration of new lots by land title office (*Figure 4.5a, 4.5b*).

"The land planning branch" designs the land readjustment project and presents it to the council. Council decides whether this project will be implemented or not and they determine, approve and announce the final project area. The prepared plans are presented to public during one-month period. Upon the final decision, municipality carries out all required technical and non-technical tasks (Yomralıođlu *vd.*, 1996).

Basic cadastral works must be completed before the beginning of the process. All of the needed legal records, topographic and cadastral maps are updated. On a base map all kinds of boundaries of cadastral parcel, project area, zoning details and site block outlines must be shown precisely. "Using this map, site blocks are demarcated in the field, fixed block corners are re-surveyed and new point coordinates are calculated" (Yomralıođlu *vd.*, 1996).

Defined adjustment site cannot be smaller than a single development parcel. Adjustment boundary is passed through the settlement border, road accents in the settlement field, the outer border of Mosques and police stations and proper borders of green areas and carparks determined according to the percentage of common share of

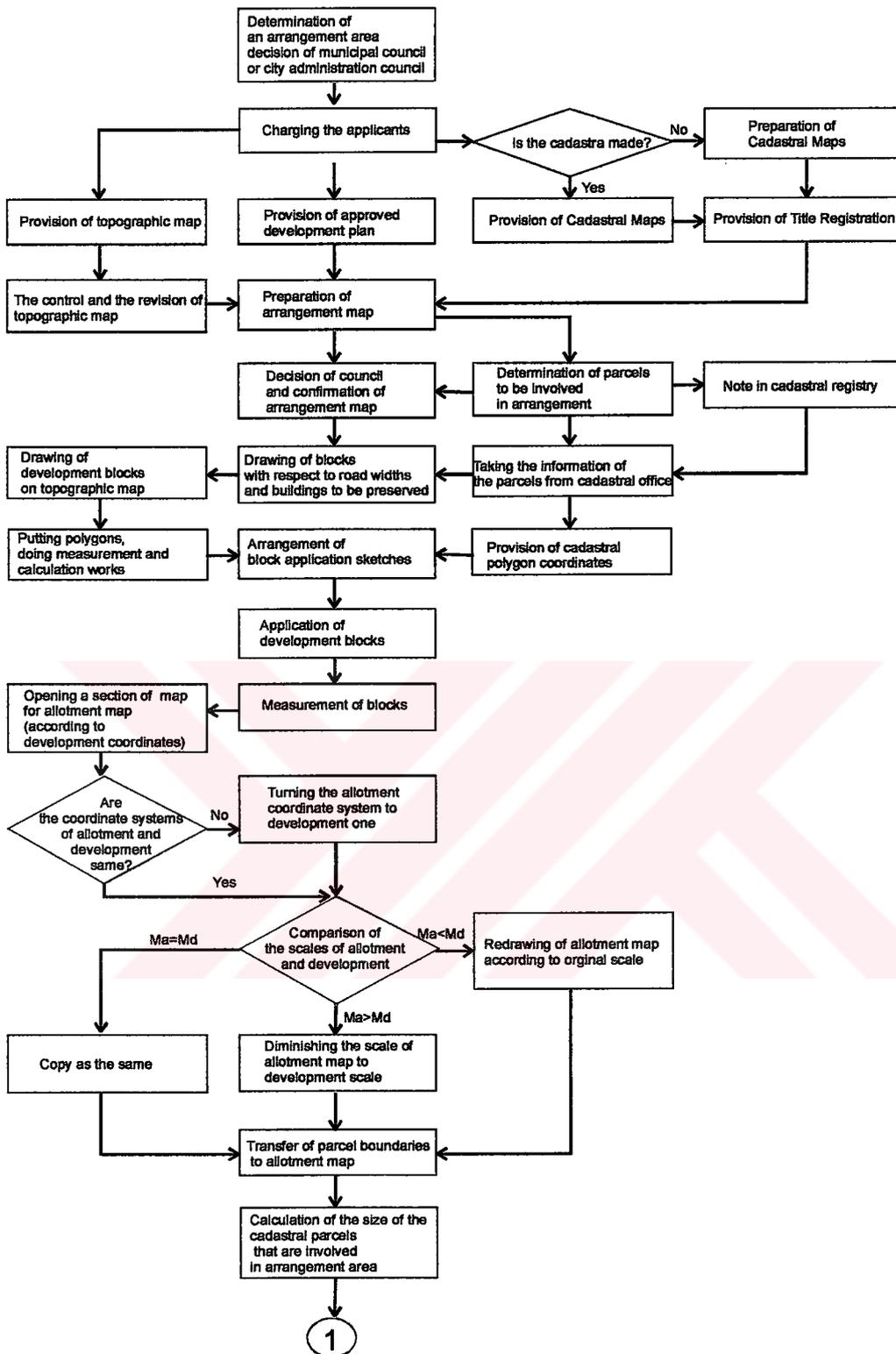


Figure 4.5a - Land readjustment procedure in Turkey (source: Bıyık; Uzun, 1990)

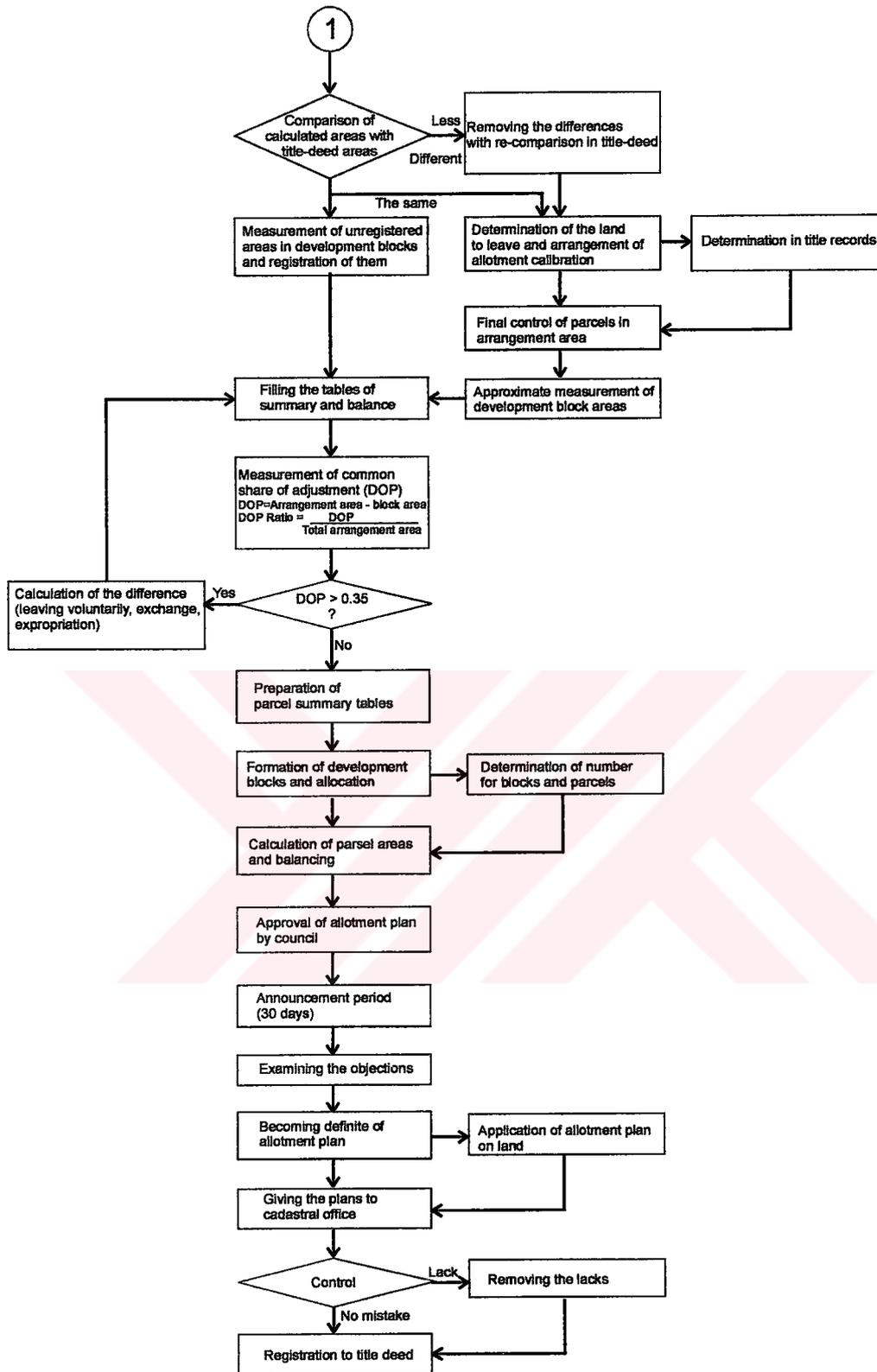


Figure 4.5b - Land readjustment procedure in Turkey (source: Bıyık; Uzun, 1990)

adjustment '*düzenleme ortaklık payı*' and the parcel boundary under application. But if there are some adjustment borders shown in the development plans, these are taken into consideration (TAU, 1996).

4.3.3.1 Disposal Restrictions

Once the process has begun with the approval of the municipality, as Yomralıoğlu *vd.* (1996) mentions, the cadastral office is informed about the project so that it can be taken into account in the related cadastral transactions. No construction is permitted within the project area until the laid rules have been fulfilled.

4.3.3.2 Participating Landowners

Upon the determination of land readjustment area, landowners within this delimited area are directly involved in the project. Land readjustment process is compulsory as it is in Germany.

4.3.3.3 Calculation of Shares

In Turkey, the shares are calculated according to the acreage of the area, but not the value of it. As Gündüz (1990) states, the value of whole land that goes under the adjustment process is accepted to be equal.

Yıldız (1990) tells the acreage system as; with the land readjustment process, the land required for urban services is taken and a value increase occurs in the area. To formulate this value increase, first the ratio of deducted land to the remaining area must be calculated which can be expressed as $P/(100-P)$. When the deduction share

denoted by P is placed to this formula in percentage, then we find out the percent of required value increase in order not to lead any value loss due to the adjustment of the site. For example, a deduction of 25% of land requires 33% of value increase on the intangible. For each parcel, the value before and the increment in value after the adjustment process will not be the same as the number of flats to be constructed on these properties differs, i.e. one can take permission for 8 flats while the other for only 3. The upper limit of deduction ratio, in other words the common share of adjustment, is raised to 35% with the Development Law issued 3194 which assumes that there occurs a 54% increase in the value of real property due to the adjustment. If deduction ratio is raised to 40%, then 67% of value increase must be provided on the property. However, it is obvious that these figures are not realistic.

Yıldız (1990) states, the system must depend on the equal valuation principle, whether the land is allocated according to the area or value method which brings no loss or no profit to the landowner. The same area method is used in Germany and landowners take single parcels instead of shared ones (*Figure 4.6*). Upon the reallocation of single parcels to the owners, the inequalities between them are eliminated with cash compensation (*Figure 4.7*). In this system, the reallocation according to area method is used in newly developing areas and the deduction ratio is determined to be approximately 30%. This amount of deduction is sufficient as the municipality has land stock in hand.

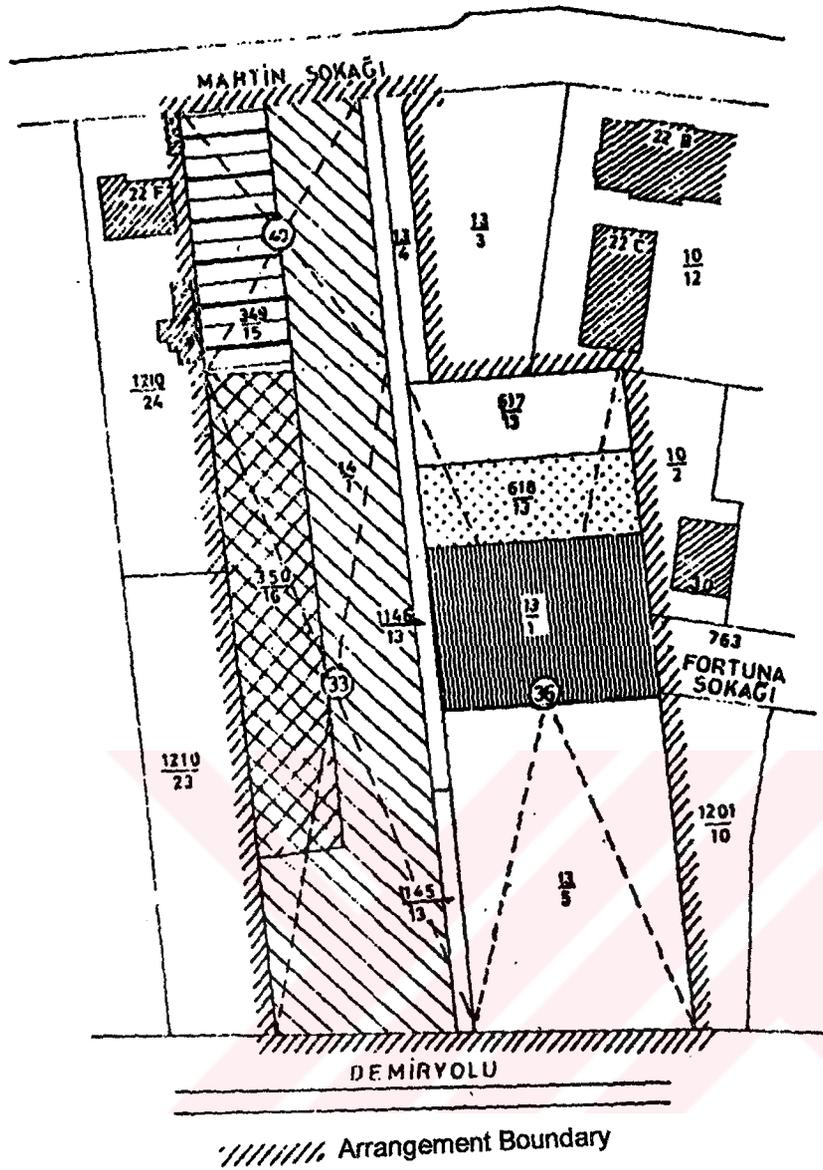


Figure 4. 6 – Parcel structure before land readjustment project (source: Yıldız, 1990)

As Yıldız (1990) says, in Germany the lots that are smaller than a particular size are bought by the municipality and extracted from the adjustment application. This is one of the major deficiencies and problems of our legislation. As it is seen in Figure 4.8 (an application conducted in Bakırköy) parcel no. 3 is reallocated as shared parcel inevitably.

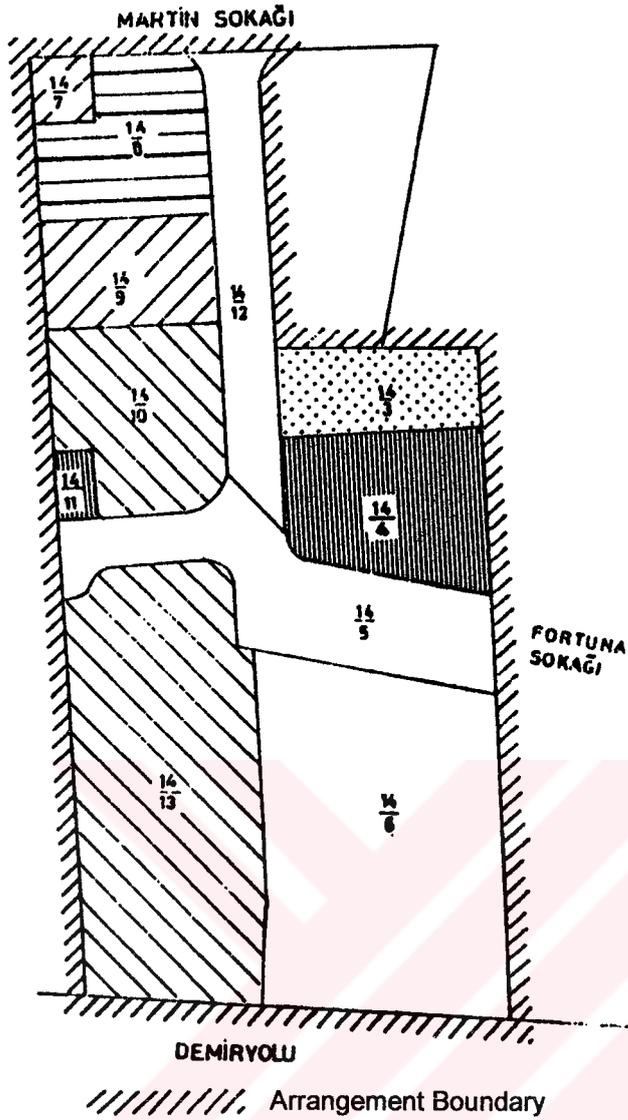


Figure 4. 7 – Parcel structure after land readjustment project (source: Yıldız, 1990)

A value increment occurs due to the adjustment while there is also a value decrease due to the deductions. In order to enable an efficient system, this increase and decrease must be equal to each other. Yıldız (1983); Gündüz (1990) say, it is impossible to provide this equality for each and every parcel. In addition, the differing development rights for each parcel increase this inequality further. In such a scheme, the reallocation must be realised on value basis

instead of area method. To achieve this, the values of the parcels before and after the adjustment must objectively be determined and once the process and allocation is completed, the difference between these values must be compensated either by the municipality or the landowner according to situation.

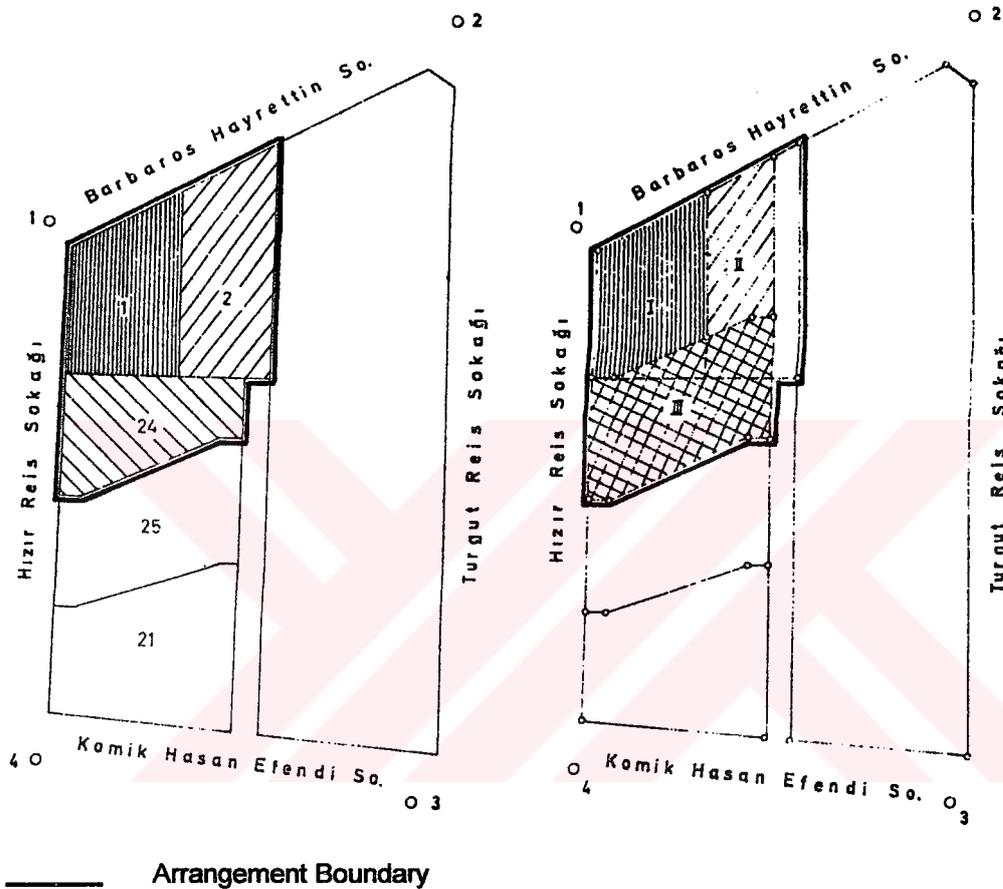


Figure 4.8 – Parcel structure before (on the left) and after (on the right) land readjustment project (source: Yıldız, 1990)

There are attempts to minimise the differences in the unit value of development parcels in existing procedure. In land readjustment projects conducted by co-operative, there is a system of compensation and betterment 'şerefiye'.

This valuation system is executed by '*compensation and betterment commission*' that is established under the co-operative. This commission determined some criteria due to the location and utilisation opportunities of the buildings and graded them with respect to these criteria. The criteria depend on the properties of the buildings such as penthouse, terrace, front set-back, location on the corner, low frontage, accessibility and the altitude of the land. With this grading system, the differences between the values of the buildings are calculated and they are eliminated by cash compensation.

Such kind of attempts, at the same time, shows that there are value variations that emerge through land readjustment and they cannot be eliminated within the process. These differences among parcels further increase with varying construction decisions. However, the co-operation system can enable some common efforts as it is the organisational body of the whole area.

Yomralıoğlu (1997) proposes a model for land reallocation with respect to value of land. According to model, the new value allocation of properties in an adjustment area must be parallel to one before land readjustment. So, the land reallocation must be done according to unit value instead of the size of the land.

To make the reallocation according to value of land, problems in a process has to be eliminated and some changes has to be done in Civil, Land Registry and Development Laws and Constitution.

Besides, there are proposals for allocation of property rights in three-dimension. In this context, Türkoğlu (1988) and Gülkan,

Balamir, Sucuođlu (1999) put forward three dimensional reallocation mechanisms in their studies. Those proposals are important in three aspects; bring the flexibility in two and three dimensions as an organisation in space, provide sufficient land for public uses, remove value differences emerged with reallocation. The common and important features of those proposals are the definition of property rights and being transferable of them.

Türkođlu (1988) mentions, property has to be defined as three dimensional with its volume not only in size. Because, while the size of the land is measured in two dimension, the economic value, the use and the rights are three-dimensional concepts. Proposed model is based on flat ownership. Although the reallocation according to flat ownership is realised in a defined parcel in existing system, it is independent from defined parcel in the proposed model. When there is a transfer of property rights, the construction right (floor area ratio) given in new location has to be the same as the previous one. This could only be applied when homogenous construction right is given to arrangement area. This process encourages the consolidation projects.

Gülkan, Balamir, Sucuođlu (1999) put forth the concept of “transfer of property rights” with revision proposal of 3194 Development Law and its Regulations. This concept brings the right of transferring construction rights to new location. To preserve those rights, “development right certificate” concept has been suggested.

The most important feature of the proposed system is that encourages the consolidated applications. This space organisation provides flexibility in three dimension. In application areas, in condition that preserving the rights of real estate, there could be practised that

shared 'şuyulandırma' structure, establishing common partnership, producing common projects, reallocation according to flat ownership, putting out to tender of construction works, improving common enterprise types.

4.3.3.4 Land Deduction

Landowners surrender a certain portion of their land for common purposes. As Larsson (1993) mentions, in most of the countries there is no formal rule and it varies according to the agreement concluded with municipality on the apportionment costs. But in some other countries, it is often defined in legislation and it is sometimes with exact maximum limit as in Germany.

In Turkey, for land deduction a similar procedure is followed with Germany. The maximum exact limit is defined in legislation. It is defined in The Development Law that the increment in value is a result of the readjustment of land and before the redistribution of parcels, a certain amount of land is subtracted for public uses which is referred as Common Share of Adjustment '*Düzenleme Ortaklık Payı*', The Common Share of Adjustment cannot exceed the 35% of the land that is adjusted. If this occurs, the municipality or governorate compensates this difference via using expropriation method.

Common Share of Adjustment cannot be used for purposes other than streets, squares, parks, car parks, playgrounds, green areas, mosques and police stations and the services related to these land-uses (TAU, 1996).

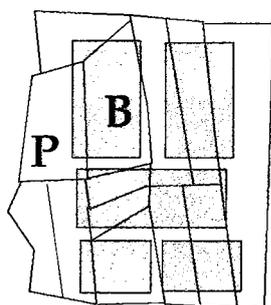
Another important point stated by Development Law is that Common Share of Adjustment cannot be taken more than one time from the same parcel. But another readjustment application can be carried out in an area including that parcel if it is envisaged by the development plan (TAU, 1996).

The aim of the land deduction in Turkey is the provision of land for public uses. Like in other countries, municipality can't use it to compensate the municipal expenses and can't take development profit for the municipality. Because the system of establishing associations is not used in Turkey, there is no costs to be covered.

For the land deduction, as Yomralıoğlu *vd.* (1996) mentions, the project site is to be determined in a base map displaying precise project boundary. All cadastral parcels within the area are determined with respect to the legal records including basic property information such as the parcel ID, owner name(s), legal size, and other land tenure related information. If a parcel is entirely involved in the project area, the parcels registered size is used in the studies. But if the parcel is divided into two or more lots by the project boundary, then the area, which is inside the project, is taken as an input area.

With this study, participated landowners are determined. After determination of participating parcels, site block areas are calculated. Single contribution coefficient is determined with the formula via the utilisation of variables (Dale and McLaughlin, 1988). This coefficient shows the contribution percentages (CP) of each land parcel to the land readjustment project. To determine each land parcels individual contribution rates (cr), the CP is applied to them separately (*Figure 4.9*). If the CP is greater than 35 %, the authority must either

reduce the figure to 35% or should expropriate the access amount as the upper limit of deduction is determined to be 35% in the act.



$$CP = 1 - ([B]/[P]) \quad [1]$$

$$RP = 1 - CP \quad [2]$$

$$cr_i = CP * p_i \quad [3]$$

$$np_i = RP * p_i \quad \text{or} \quad np_i = p_i - cr_i \quad [4]$$

[P] = Total area of the input land parcels

[B] = Total area of the site blocks

P - B = Total area of required public use land

CP = The contribution percentage within the project

RP = The percentage of land given back to original landowners

p_i = Land parcel area

cr_i = The contribution area for a parcel

np_i = Land area given back to owner

i = 1,2,...,n (n = the number of land parcels involved in the project)

Figure 4.9 - Fundamental calculations for determination of land parcel's contributions (source: Yomraliođlu vd., 1996)

4.3.3.5 Compilation of a Property Regulation Plan

The allotment plan is prepared with respect to the development plan and is approved by municipal council within the municipal boundary while by the city administration council in neighbouring area 'mücavir alan' (TAU, 1996).

New property subdivisions are determined in the process. There is an exchange of lands between landowners and the community and also among the landowners, themselves. Landowners receive new

lots which are in different size and different location. Each landowner obtains a parcel with approximate proportion to his previous share and locating in close surroundings as far as possible. Yomralıoğlu *vd.* (1996) states, within the process, according to town plan, existing structure of the parcels is changed and the land tenure system is affected.

Land is re-allocated so that the development lots are shaped as envisaged in the development plan '*imar planı*'. First the municipality determines the proper street and block locations in a detailed plan and then each site block is subdivided into suitable new lots.

As Akyol and Uzun (1997) explain, according the land adjustment system, the value of all cadastre parcels is accepted to be equal. However, it is hard for to achieve a reallocation with equal values and conditions as the development parcels that is formed by the plan can be at different values. For example in the same block, the two side of the subdivision line can have different building rights. (*Figure 1.12*).

Upon the adjustment, according to the regulations, if the owners of the common shared real estates do not make a deal or do not appeal to courts for the deterioration of the common share in six months time after the declaration of *cominiqué* of the authority, the related administration can appeal to court for the deterioration of the common share as a shareholder (TAU, 1996).

During the readjustment, a building that is convenient to conserve according to plan or legislation is not demolished but remains in the development parcel.

At the end of the land readjustment process, the municipality or governorate can compensate the loss of some landowners via giving parcels from their own properties on which constructions can be made according to the plan or legislation instead of paying expropriation fee upon the agreement of related parties. (TAU, 1996)

The completed allotment plans are sent to cadastral office so that the arrangement and registration transactions are directly carried out according to the plan without taking the owners' consent any more. (TAU, 1996).

If there is need for constructing more than one building or facility on one parcel (i.e. co-operatives, mass housing constructions etc.), allotment plans are adjusted according to this settlement type without making subdivisions and if necessary, the testimonies of Flat Ownership Regulation are applied. If these areas are previously subdivided, with respect to the site plans they are unified again and the allotment plans are rearranged (TAU, 1996) (*Figure 5.10*).

4.3.4 Post Process

In Turkey, the person has the right to appeal as in all countries. Tentative subdivision plan is announced to public after the completion of land reallocation process. Objections are made to the municipality in a month period. As Yomralıoğlu *vd.* (1996) states, the objections are mostly about the new location and reallocation decisions. Planning committee evaluates the demands of landowners and corrections are made according to recommendations of the committee. After all these, cadastral maps are drawn as new legal

records, new lot corners are calculated and submitted to the cadastral office. Here, these documents are controlled and approved. Following this, Land Title Office registers the new lots, prepares the titles and they are distributed to the landowners.

Construction works are entirely out of this process like in Germany, there is no agreement of local authorities and landowners like in other countries.

In order to take construction permits within the boundaries of settlement area, the allotment plans must be approved with respect to the development plans of these sites and the regulations by the municipal or city administration council. In addition, the streets and the drinking and wastewater system of the region must be constituted according to the plan and the conditions of the area to take the permits. (TAU, 1996).

In Turkey, the process does not include the construction of buildings or sale of the land. It includes just land exchanges and site improvements. On the other hand, in other countries there are cost coverage implementations. As Larsson (1993) states, in Germany, there is a surrender of landowners for the cost coverage of municipality. The local authority has the right of utilisation and sale of the land which accrues. In Japan, the cost coverage process is the responsibility of the landowners. They set aside common 'reserve land' for sale or constructs buildings under auspices of association itself.

Co-operation may be desirable in the process, as the landowners often don't know what to do with their lands. It speeds up the implementation through organisation. There is the co-operative

implementation in Turkey and its procedure is not regulated with a statute. This is a voluntary and informal process and is allowed for practical joint solutions.

As a result, there are problems in space organisation of Turkish land readjustment process. Within the context of the thesis, when we examine the existing procedure of land readjustment, it could be concluded that proposed solid void relations in urban space couldn't be organised. There is a strict boundary between public areas and private development areas. Although consolidation projects could be realised with co-operative developments, solid void relations are limited with this strict boundary.

Subdivisions in land seem more feasible in existing process. Because, the procedures of planning, adjustment and construction have detached structure. To implement the proposed solid void structure on land those processes have to be evolved together. When the land is subdivided, the flexibility of the space organisation decreases. Although building regulations could prepare the base for more flexible structure, land subdivisions limit the flexibility in space.

Reallocation of property rights in three dimensions seems preliminary condition of proposed solid void organisations. But, when we apply this type of reallocation in the existing transformation system of land from fragmented to fragmented structure, the created environment can't include differences in three dimensions as we proposed. The shared structure emerged with subdivisions also continues. Consolidated structure of space organisation is necessary for the flexibility in space.

CHAPTER 5

DESIGN ELEMENTS IN THE EVOLUTION OF URBAN FORM IN TURKEY

The formation of urban space and thus urban form is an outcome of three following processes that are namely planning, allotment and constructing. Actually, these are parts of a unique formation process that is the formation of city. However, these should be examined separately as they appear to be separate and pursuing processes in the legal formation of the space.

5.1 Design Elements in Planning Process

The planning process begins from macro-scale and has a stepwise deceleration to micro-scale plans. When the process in Turkey is examined, according to TAU (1996), the process begins with Regional Plans and Environmental Arrangement Plans and is followed by *Nazım* Development Plans to Implementation Development Plans. *Nazım* Development Plans includes a detailed report that is covering several issues such as general land-use types, major region types, future population densities of the regions, construction densities if necessary, growth directions and sizes of several settlement areas and their principles, transportation systems and the solutions of the existing problems. Following this, the Implementation Plans are prepared that covers the block arrangements of several regions, their densities and

structures, the implementation phases which form the basis of development implementation programs and other related information.

According to Development Legislation, in the issues those are not included in development plans, The Development Law and especially the Development Regulations are valid. Özbay (1989) states, the regulations alter from municipality to municipality. This situation is specified in Development Law as;

The municipalities can add the issues that are necessary for their settlements to the Regulation with the decision of municipal council. However, these additions must be in accordance with the Development Law and must not change the content of the Regulation. The added sentence came into force the day following its declaration in the locality.

As Özbay (1989) expresses, these changes can even cause the distinctive interpretation of the main concepts. This exception is the result of some decisions that appear in the old regulations of large cities such as Ankara, Istanbul and Izmir.

The "Typical Development Regulation, which is issued 3030, of Municipalities that are out of the Law Context" (RG: 02.11.1985 / 18916) is prepared with respect to the Development Law issued 3194 and is implemented in the areas that have development plans within the municipal or neighbouring boundaries of related municipalities.

The testimonies of this regulation are applied if there is no contradicting judgement in the development plan. However, in case the allotment conditions and the measurements of building masses are not involved in the development plans and only the construction settling types and schematic arrangement figures are displayed, the

expressions regarding these are not counted in development plan records.

The reflection of planning process in the space can be analysed in four phases. The first one is the zoning that aims to determine the land-use types and regional conditions by the division of space into parts. This is followed by the formation of construction blocks and then the arrangements within the blocks, in other words the process of forming the parcels. At last, the arrangements in the parcels are made.

5.1.1 Zoning

The development plans put forth the land-use areas and their utilisation conditions in the city. The urban space is zoned and the conditions of growth and construction in these zones are determined. These zones, as indicated in the development regulation, involve the residential, commercial, industrial and social-cultural land-uses. Social and cultural infrastructure areas include green areas, sports and playgrounds and green areas can be further categorised as kindergartens, parks, picnic and recreation sites.

Zoning also aims the determination of implementation phases along as well as the land-use types. The implementation areas are explicated as adjustment sites in the development plan.

A further land-use differentiation is made within the adjustment sites where the areas that will be surrendered to public use are determined. The remaining land is reallocated to landowners for development.

The zoning implementations in Turkey do not have a strong structure unlike in some developed countries. In Turkey, the zoning conducted according to the utilisation and the density of space cannot result in a categorised development pattern as in Japan. Another important point is that in Japan there is also a zoning system regarding the construction forms. There are 12 determined land-use zone patterns, each having different construction adjustments.

5.1.2 Determination of Building Blocks

The shapes and the sizes of blocks are determined according to land-uses designated in the zoning. The parcel shapes and sizes envisaged in the plan form the structure of the whole city.

In case there are settlement developments such as mass housing, co-operatives or housing estates, the development plan allows implementation on block basis. This brings more flexible applications on block sizes and shapes. However, as the implementation phase is not taken into account during the planning process, the outcome structure usually includes building blocks subdivided in a standard way. The application on block basis can create flexibility only within the block but not in the general block structure.

5.1.3 Determination of Building Parcels

The sizes and shapes of building parcels are determined according to the parcel standards depending on the land-use type. One important point in the formation of development parcel is to provide a

structure so that each parcel can take service from the road and this necessity plays a major role in the shaping of blocks.

In addition, the building order has an important effect on parcel forms (*Figure 5.1*). In implementation, there are three different building orders, namely detached, adjoining and block orders. In the detached order, the building has no adjoining wall with the neighbouring constructions while in the adjoining order, the buildings are attached with one or more surrounding constructions. The block order expresses a structure with garden where one building mass, which's frontage length, depth and height is determined in the development law or regulation, settles on one or more parcels.

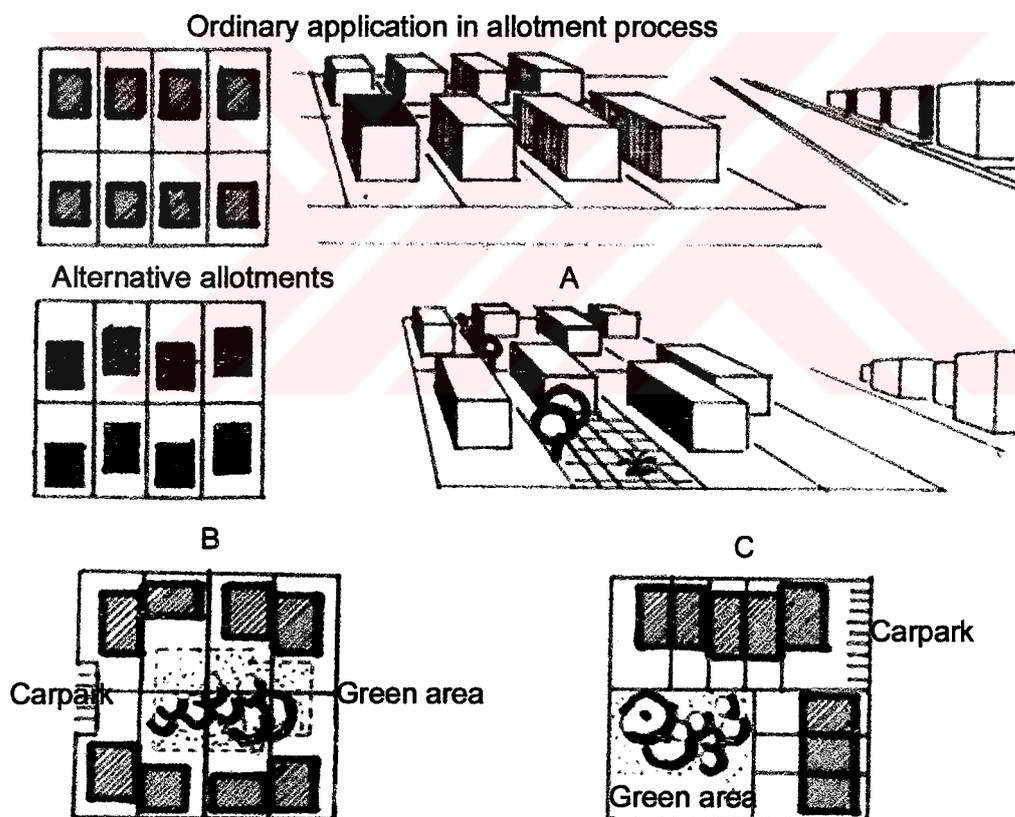


Figure 5.1 – Building orders (source: Bala, 1998)

According to Özbay (1989), the settling of the building in a parcel with distances of 5 m for front set back, 3 m for side set back and as usually accepted 3 m for back set back has no logic behind. Even, this can be accepted as a misuse as the back set back cannot be utilised properly. The main reason of this misuse is the allotment plans that are prepared after the development plan. During these procedures, in order to control the constructions on the blocks, a “mass study” must be carried out and the existing buildings must be rearranged if there is any. However, it cannot be said that comprehensive mass studies are conducted during the allotment plan preparation process and this results in the formation of ordinary parcels.

In several regions which have development plans, if the plan does not bring any distinctive decision, the minimum dimensions of the new parcel due to the subdivision is determined with respect to the site characteristics such as site slope, street conditions, existing buildings, etc. and to the dimensions and necessities of the potential buildings to be constructed on these parcels (RG: 02.11.1985 / 18916). The determined parcel widths and lengths are as follows.

5.1.3.1 Parcel Widths

Parcel Widths in Residential and Commercial Land-Uses;

In the areas where 4 flats are allowed, parcel widths cannot be less than 6.00 m. in adjoining order; side garden + 6.00m in block ends; side garden + 6.00 m. in detached order.

In the areas where 9 flats (including 9th flat) are allowed, parcel widths cannot be less than 9.00 m. in adjoining order; side

garden + 9.00m in block ends; side garden + 9.00 m. in detached order.

In the areas where 10 or more flats are allowed, parcel widths cannot be less than 12.00 m. in adjoining order; side garden + 12.00m in block ends; side garden + 12.00 m. in detached order.

Parcel Widths in Commercial and Small Industrial Estates where only one flat is allowed;

In these areas, parcel widths cannot be less than 5.00 m. in adjoining order; side garden + 5.00m in block ends; side garden + 5.00 m. in detached order.

Parcel Width in Industrial Land-Uses;

In these areas, parcel widths cannot be less than 3,00 m.

Parcel Width in Non-Residential Urban Land-Uses;

In these areas, parcel widths cannot be less than 3,00 m.

5.1.3.2 Parcel Depths

Parcel Depths in Residential and Commercial Land-Uses;

Parcel depths cannot be less than 13.00 m. in the order without front set back; front set back distance + 13.00 m. in the order with front set back.

Parcel Depths in Commercial and Small Industrial Estates where only one flat is allowed;

Parcel depths cannot be less than 5.00 m. in the order without front set back; front set back distance + 5.00 m. in the order with front set back.

Parcel Depth in Industrial Land-Uses;

In these areas, parcel width cannot be less than 30.00 m.

Parcel Depth in Non-Residential Urban Land-Uses;

In these areas, parcel depth cannot be less than 40.00 m.

5.1.4 Instruments of Adjustments in the Parcel

It will be appropriate to make the definition of the parcel before specifying the adjustments within it. Parcel is the smallest unit in urban development on which buildings can be constructed.

The expressions regarding the parcel adjustment are as follows. The parcel frontage is the front of the parcel to the street that it locates on. In the corner parcels, the front looking to the broader street is accepted as parcel frontage. If two streets are equal, then the short edge is accepted as parcel frontage. Parcel depth is another concept and it represents the average distance between parcel front frontage line and back frontage line. Parcel width is the distance between the two sides of the parcel.

Some development instruments are developed to arrange the location, size, shape and height of the building in the parcel. As mentioned before, these instruments can arrange the building characteristics only within the determined parcel and this leads to an inflexible design layout.

These adjustments will be examined under two headings as set back distance adjustments and the arrangements regarding land and building utilisation.

5.1.4.1 Set Back Distance Adjustments

The location of the building in a parcel is shaped by the instrument of set back distances (*Figure 5.2*).

- f = Front set back distance
- n = Neighbouring set back distance
- s = Street (side) set back distance
- H = Building height
- h = H/2 = Back set back distance

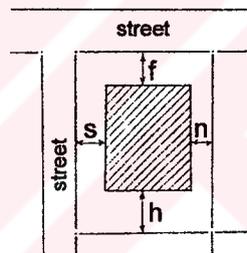


Figure 5.2 – The determination of set back distances in a development parcel (source: Uzun, 1992)

Upon the demand of increasing the flat numbers, the minimum distance between the opposite buildings, as calculated in the following formula, must be provided to propose new flat numbers.

$$K = \frac{H1 + H2}{2} + 7 \text{ m}$$

- K = distance between opposite buildings (m)
- H1 = the height of building in one front of the street
- H2 = the height of building in the other front of the street

Front Set Back Distance

It is the distance between the front frontage of the land and the front frontage of the building and they are utilised in broadening the streets. According to typical development regulation, which is issued 3030, of municipalities that are out of the law context, the front set back distance of buildings to be constructed within the settlement areas is at least 5.00 m.

Side (Street) Set Back Distance

It is the distance between the side frontage of the parcel and the side frontage of the building in corner development lots. According to typical development regulation, which is issued 3030, of municipalities that are out of the law context, the side set back distance of buildings to be constructed within the settlement areas is at least 5.00 m.

Neighbouring Set back Distance

It defines the minimum distance between the neighbouring parcel boundary and side frontage of the building. According to typical development regulation, which is issued 3030, of municipalities that are out of the law context, the side set back distance is at least 3.00 m. in the areas where 4 flats are allowed (including 4th flat). This distance is increased 0.50 m. for each extra flat.

The rules of 5 m. of front set backs and 3 m. of side set backs were taken from the German norms during the planning of Ankara. However, this rule was applied for 2-3 flatted buildings in

Germany while we use it for higher buildings even for 10-flatted ones (Figure 5.3). In countries like Japan, USA, Spain and Egypt, the set back distances are determined with respect to angle of sunlight (Figure 5.4) (Özbay, 1989).

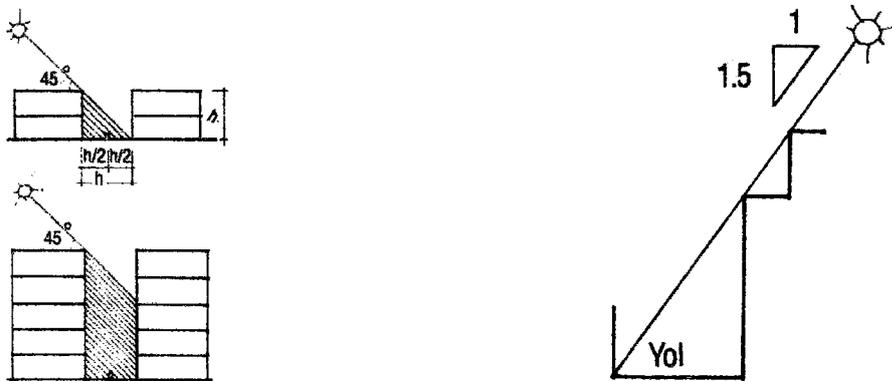


Figure 5.3, 5.4 - Side set back distances and sunlight angles (on the left). In this system, as the number of storeys increases, terraces are used considering the sunlight. Thus the sunlight of the opposite building is not impeded (on the right) (source: Özbay, 1989)

Back Set Back Distance

It is the minimum distance between the front frontage of a building and the front frontage of the parcel which it is constructed on.

5.1.4.2 Land and Building Utilisation

Some adjustment instruments are used in the determination of densities and the provision of mass-space relationships. These relationships are provided with the concepts of base area, base area ratio, floor area, floor area ratio.

Base Area (TA)

It is the maximum area to be covered by the horizontal projection of the base of a building that is arranged according to the development plan and regulation. The additions within the boundaries of the garden (outbuildings) are counted in the base area.

Base Area Ratio (TAKS)

It is the ratio of the base area of a building to the parcel area.

$$\text{TAKS} = \text{Base Area} / \text{Parcel Area}$$

In areas of block and detached building order, the base area ratio cannot exceed 40 %, if the development plan does not put forth any dimension or precedent.

Floor Area (KA)

It is the total of area of all usable storeys (involving closed projection '*çıkma*' and cellar, mezzanine and penthouse) where '*ışıklıklar*' are excluded.

Floor Area Ratio (KAKS)

It is ratio of total floor area to the parcel area. Uzun (1992) says, this ratio can be also referred as building usage ratio.

5.2 Design Elements in the Allotment Process

The allotment process is the application of division structure to the land as envisaged in the development plan. This is the process of transforming the cadastral parcels to development parcels. The important issue is the reallocation of properties to the landowners upon the deduction of public service areas. The reallocation is conducted with respect to the area method. In this system, the value of all the land within the adjustment area is accepted to be equal. However, there are drawbacks of this method, as the values appear not to be the same after the development plan depending on the varying densities and flat numbers.

Development parcels are formed through the unification and division of cadastral parcels according to plan and related regulations. Gök (1983) states, regular development lots are created with allotment process in accordance with those regulations.

In article 9 of the Regulation regarding Basis of Development Plan Preparation and Alterations '*imar planı yapılması ve değişikliklerine ait esaslara dair yönetmelik*', there is a phrase that "in implementation development plan, parcels are shown within a building block" and allotment plans are arranged in accordance with these plans. Therefore, allotment plans are inseparable parts of development plans" (TAU, 1996).

In an allotment process, it is important to obey the decisions taken in the development plan which defines the base area ratio 'TAKS', floor area ratio 'KAKS' and other building regulations. In a

developed area, existing regulations and building structures gain importance in the development.

Yıldız (1988) shows the ways of producing the site lots in two methods in land readjustment process. First one is shaping the site lots according to zoning plan drawn by planners and the other one is to determine the site parcels according the shares of the landowners (Uzun, 1992).

First method can lead to some land sharing problems upon the land reallocation while the second method minimises those problems (Uzun, 1992).

5.2.1 Provision of Development Parcels According to Zoning Plan

In most cases, allotment plans are arranged along with the development plans according to Regulations.

In this process, planners subdivide the blocks in the development plan. According to Yıldız (1988), this process is conducted without considering the property structure on land. So many standard development parcels are produced with a minimum front. The division structure of building block is displayed in the development plan and the development lots must be reallocated with respect to those defined shapes. This is called as reallocation according to defined parcel in a plan '*Parsele Göre Tahsis*' (Uzun, 1992).

This method is proposed with Application Regulation '*Uygulama Yönetmeliği*' of article 42 of Development Law in 1973. It is

defined that the development blocks are subdivided into temporary blocks and parcels (Uzun, 1992).

In article 18 of The Development Law issued 3194, allotment process is defined as the same as it is in article 42 of the previous Law (Uzun, 1992).

In this process, all of the development blocks are subdivided into development lots considering the building regulations and minimum front width of the lot. As far as possible, the maximum amounts of development lots are produced with a similar size.

5.2.2 Provision of Development Parcels According to Allocation

In this process, planners don't subdivide the blocks in the development plan although it is defined in the regulations. In this case, as Yıldız (1988) expresses, cartographers subdivide the development blocks considering the property structure. The structure is not homogenous and in most cases it exceeds the minimum front width. This is called as allotment according to allocation '*Tahsise Göre Parselasyon*' (Uzun, 1992).

Uzun (1992) states that this process minimise the problems that emerge because of the property structure on land and its transformation from cadastral to development parcel.

In 1985, development plan issued 3194 could not achieve solving the problems of shared plots in land readjustment. Cadastral parcels were in most cases subdivided with common shares, after the land readjustment this common shared subdivisions continued to exist.

Therefore, in 1987, a new addition is made to article 18 with the Law issued 3290 to overcome the problem of shared property structure on land. With this application, singular plots or parcels with a low number of shares are produced. However, this application required some prerequisites (Uzun, 1992).

5.2.3 Comparison of Methods for Parcel Development

It will be beneficial to examine the two methods of allotment process on an example.

Information on the adjustment area;

Total cadastral parcel area	: 5852.00 m ²
Development parcel area	: 4512.75 m ²
DOPO	: 0.228853
Min. area of produced development parcel	: 350.00 m ²
Building unit area	: 105.00 m ²

There were 7 cadastral parcels at the beginning that were transformed into 9 development parcels. The obtained parcels in this framework have common shared structures. The area of parcels before and after the adjustment are given below (*Table 5.1*):

Table 5.1 – Data on parcel sizes (source: Uzun, 1992)

Parcel No	Title deed area ' <i>senet alanı</i> '	Assignment ' <i>tahsis</i> '
1079	380	293.04
1080	900	694.03
1081	880	678.61
1082	882	680.15
1083	660	508.96
1084	675	520.52
1085	1475	1137.44

The constructions on the parcels within the adjustment area will be built according to the following conditions (*Table 5.2*):

Table 5.2 – Data on constructions (source: Uzun, 1992)

Building Regulation	Minimum Parcel Width		Minimum Building Width (m)
	Corner Parcel (m)	Interval Parcel (m)	
Separated – 6 storey	17	16	9
Separated – 4 storey	16	14	8

Note: Those values are determined with the Development Law issued 3194 and Trabzon Type (tip) Development Regulation.

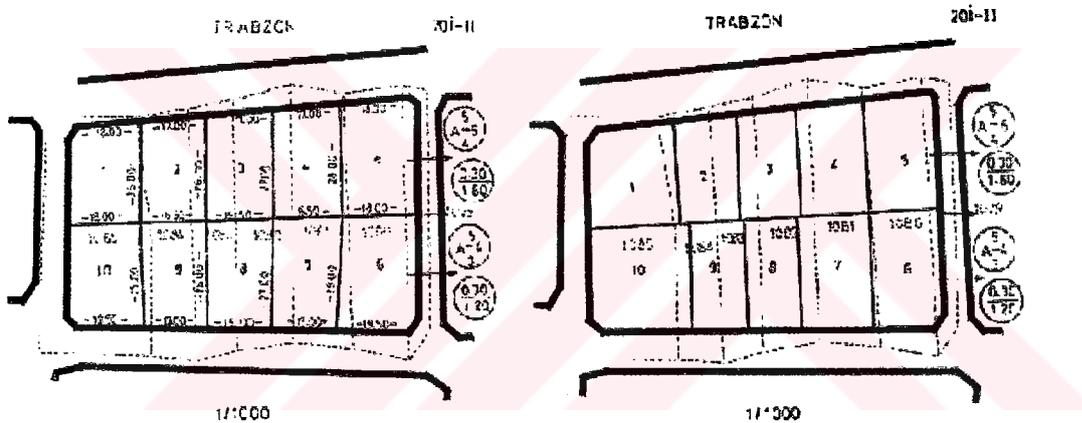


Figure 5.5 – on the left “the provision of development lots according to zoning plan”; on the right “the provision of development lots according to allocation” (source: Uzun, 1992)

In the first method, the allotment scheme in the development plan is followed which brings the parcel structure envisaged in the plan but leads the emergence of more shared parcels (*Table 5.3*). According to the second method, on the other hand, it is tried to form singular parcels as far as possible (*Table 5.4*), by adapting the minimum front conditions. The number of development parcels produces in each

method is 10. However, only 4 of these parcels are singular in the first method, while this number increased to 7 in the second. Although the second method is easier to implement as the number of singular parcels is high, the end structure is not the same with the foresights of the development plan (Figure 5.5).

Table 5.3, 5.4 – The shares on the development parcels upon the allotment plan.: on the left “the emergence of development lots according to zoning plan”; on the right “the emergence of development lots according to allocation” (source: Uzun, 1992)

development parcels											development parcels										
	1	2	3	4	5	6	7	8	9	10		1	2	3	4	5	6	7	8	9	10
1079				x							1079						x				
1080					x	x					1080					x	x				
1081				x		x	x				1081				x			x			
1082			x				x	x			1082			x				x	x		
1083			x						x	x	1083		x						x		
1084		x								x	1084								x	x	
1085	x									x	1085	x									x
share	1	1	2	2	1	2	2	2	3	1	share	1	1	1	1	1	2	2	3	1	1

As in the foreign examples, in order to reduce the number of common shared parcels, the method of compensation with cash is more suitable than the land exchange method.

5.3 Design Elements in Building Process

The construction permit in any block cannot be given unless the municipal council approves the allotment plan of the parcel and it is registered in the Cadastral Office (TAU, 1996).

In a parcel, more than one building can be constructed provided that the set back distances given in the article 18 of Type Development Regulation are obeyed.

Upon the demand of landowners, Cadastral Office can unify the development parcels in one building block and can set up horizontal flat ownership and flat shares on the newly obtained parcel.

No buildings can be constructed in front of the frontage line determined in the development plan.

Building Frontage

According to the Type Development Regulation, the maximum building frontage can be 30.00 m. in detached order. However, the municipalities have the power of constituting 2-3 apartment buildings which's total frontage does not exceed 30.00 m. by unifying two or more narrow parcels in accordance with the building characteristics of that area.

Building Depth

It is the distance right distance between the front and back frontage lines of the building. According to the Type Development Regulation, provided that the building depth does not exceed 40.00 m. and does not approach to the back set back wall more than 3.00 m., it is calculated with the following formula:

$$I = L - \left(K + \frac{H}{2} \right)$$

I = Building depth
L = Parcel depth
K = Front set back distance
H = Building height

The building depths that are calculated to be less than 10.00 m. can be increased to 10.00 m. with the condition that back set back distance will not be less than 2.00 m.

The municipality has the power of increasing the building depth to 40.00 m. if it provides H/2 back set back distance.

In detached order, in the parcels that have frontages to two streets (other than corner parcels), the condition of maximum 40.00 m. is not necessary provided that the base area ratio does not exceed 40%.

Building Heights

In the areas where number of storeys and building heights are not indicated in the development plans, they are determined by not exceeding the following figures (*Table 5.5*).

Table 5.5 – Building Heights

Street Width	Building Height (m)	Number of storeys (except cellar)
Up to 7.00 m	6.50	2
7.00 m. and wider	9.50	3
9.50 m. and wider	12.50	4
12.00 m. and wider	15.50	5
14.50 m. and wider	18.50	6
17.00 m and wider	21.50	7
19.50 m. and wider	24.50	8

Floor area ratio appears to be an instrument that facilitates the architectural design and enhance the flexibility of it against the pressures of landowners to gain larger usage area. As the total building area is determined, the architecture is free to form his building within

these limits. In the determination of TAKS and KAKS, it is generally assumed that the areas of all storeys will be the same. For example, in a four-storey building, if KAKS is 1.0, then TAKS is determined to be 0.25. In fact, a more flexible design can be developed, if TAKS is not indicated unless there are special conditions (Özbay, 1989).

5.4 Case Studies

In these case studies, some sample project areas that are developed with different land production methods are examined and the degree of their contribution to land readjustment process is searched. Within this framework, land production practices are categorised in two groups as the project practices where the land is gathered in the hand of either public or private entity and adjustments on the fragmented ownership pattern.

The aim of examining these practices is to reveal the instruments that provide design flexibility in the production of space. It is further intended to find out the necessary data that will contribute to the land readjustment process.

5.4.1 Land Consolidation Projects

The projects that are conducted by gathering the land in either public or private agent are examined in this category. The characteristics of this implementation which involve a unique ownership pattern is that planning, land adjustment and construction processes are carried out by the same agent. Ankara Koru Site is the example conducted by private firms.

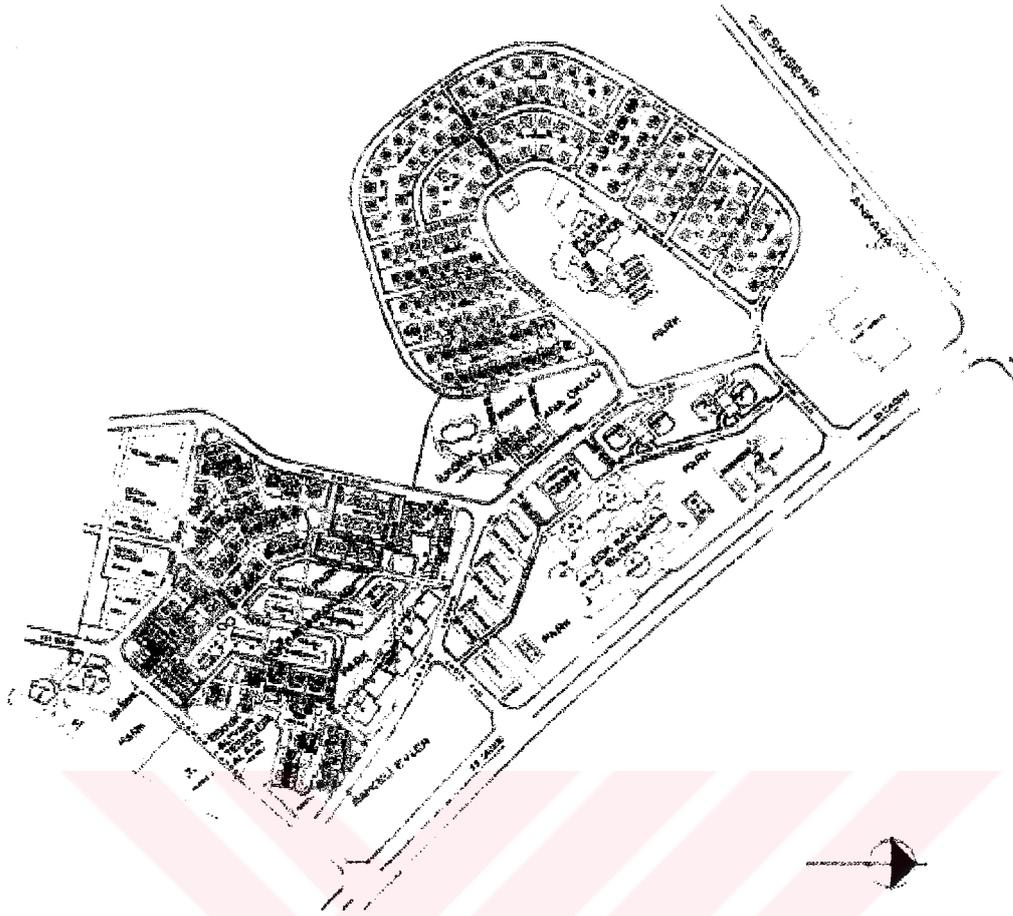


Figure 5.6 – Koru Site development plan (source: Mesa Housing Firm)

These cases are important in terms of showing the design flexibility of a development that does not include the process of ownership transformation. In such a practice, it is possible to make the mass analysis, to project the future development in second and third dimensions and to shape the space in the light of these studies (*Figure 5.6*). There is no need for producing standard space to achieve a certain level of density. Different densities and building orders can be presented in harmony together and large green areas that necessary for urban space can be provided (*Figure 5.7*). The larger the development area, the larger the common spaces and activities.

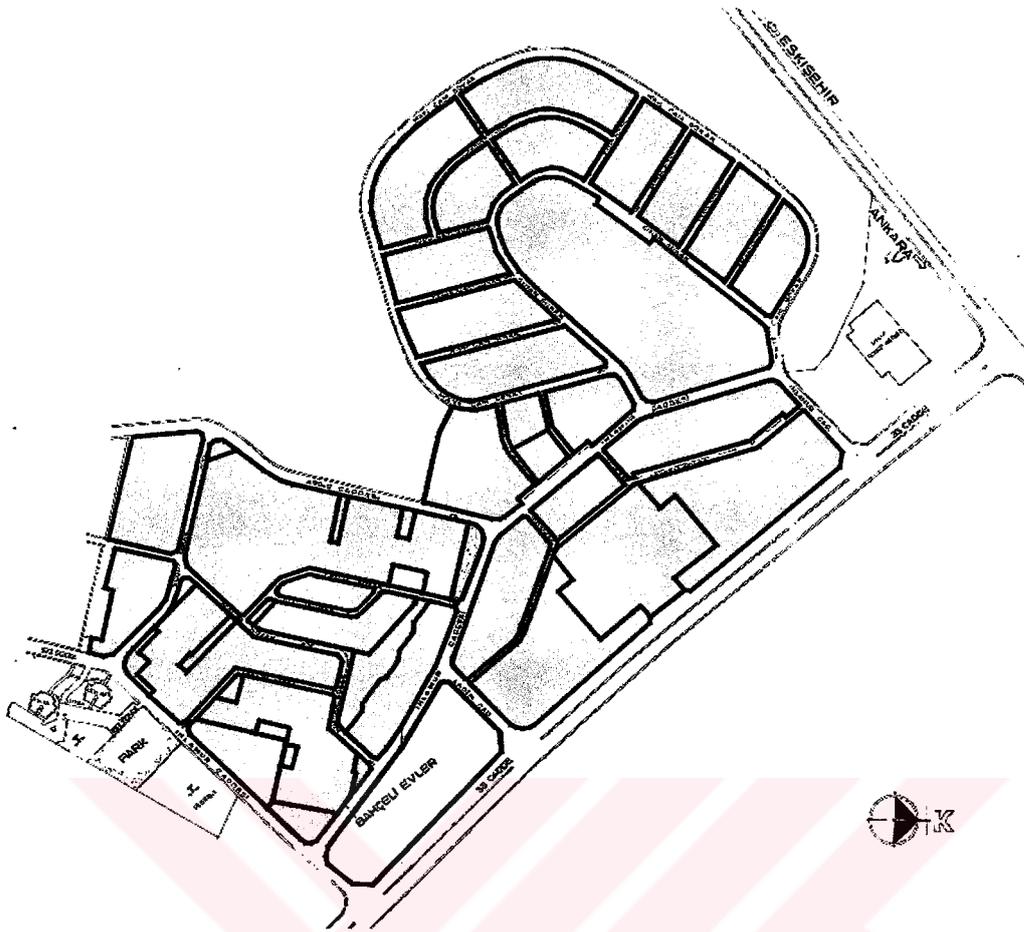


Figure 5.7 – Koru Site green area provision (source: Mesa Housing Firm)

When the case of Koru Site, which is developed by a private firm, is examined, it is seen that there are large common facilities and green areas; multi-storey and villa-type buildings with either detached or adjoining order exist together (*Figure 5.8*). We can observe the same success in other implementations made by private firm. In cases, as the development area is larger, the common facility areas are also larger.

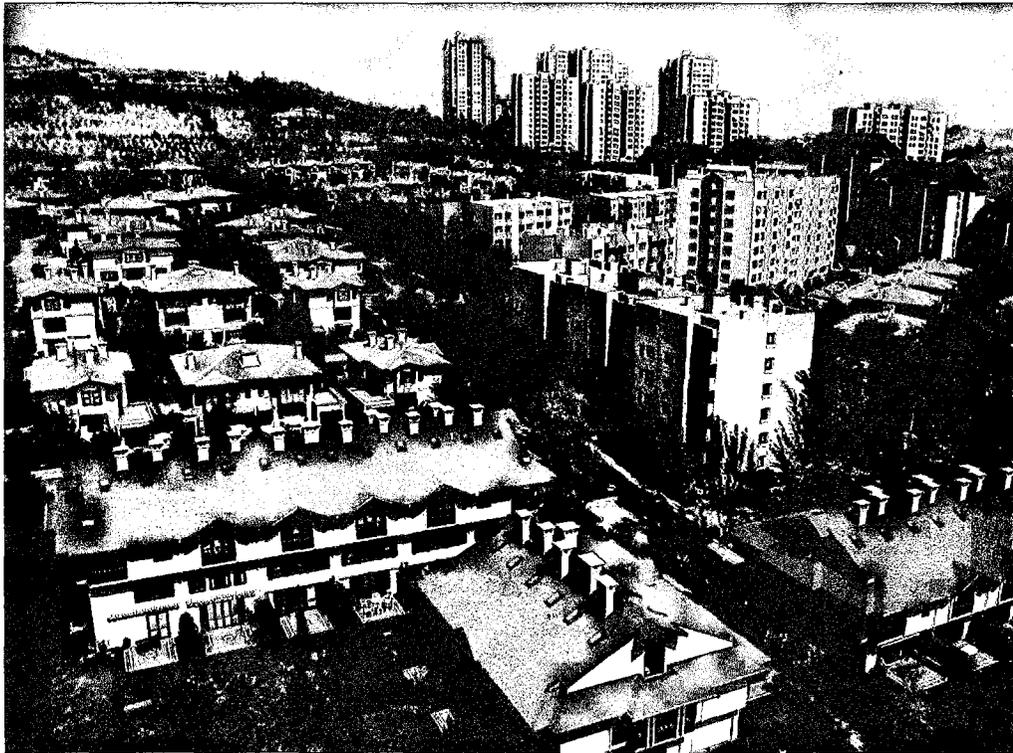


Figure 5.8 – A view from Ankara Koru Site (source: Mesa Housing Firm)

5.4.2 Land Division Projects

The projects that are implemented on fragmented ownership pattern are examined under this heading. In this process, planning, allotment and construction procedures are conducted separately with some exceptions. First the settlement land-use decisions are taken through planning, it is followed by the allotment of land and then the constructions are made on the parcels. The buildings that emerged as a result of this process generally present an ordinary pattern. Besides, the equality among the landowners cannot be achieved. To produce distinctive parcels with different densities and varying building dimensions and to propose altering building orders is hard within the framework of these projects. The larger the variations in the settlement

order, the larger the inequalities. Therefore, an ordinary parcel and construction pattern is preferred.

5.4.2.1 Land Readjustment Projects

5.4.2.1.a Case 1

When the plan notes of the adjustment area is examined, we can see that the proposed pattern is the constructions on parcels of 3000 m² with garden order '*bağ bahçe nizami*'. The base area ratio and Hmax is determined to be 0.10 and 6.50 m. respectively. In case that separate units are constructed in a parcel with respect to horizontal flat ownership, only one unit can exist in each 1500 m². If more than one building is constructed in a parcel, there must be at least 10 m. between them. Another requisites of the plan is that the minimum size must be 24.000 m² for one block-one parcel solutions and these implementations cannot be carried unless it is approved by Special Environmental Protection Institution. The search for increasing green within the blocks can be enhanced with twin and row dwelling solutions.

Total (title deed area)	: 303.650 m ²
Land subject to adjustment	: 265.820 m ²
Common share of adjustment	: 65.476 m ²
Land assigned to development parcels	: 200.344 m ²
Ratio of common share adjustment	: % 24.6320

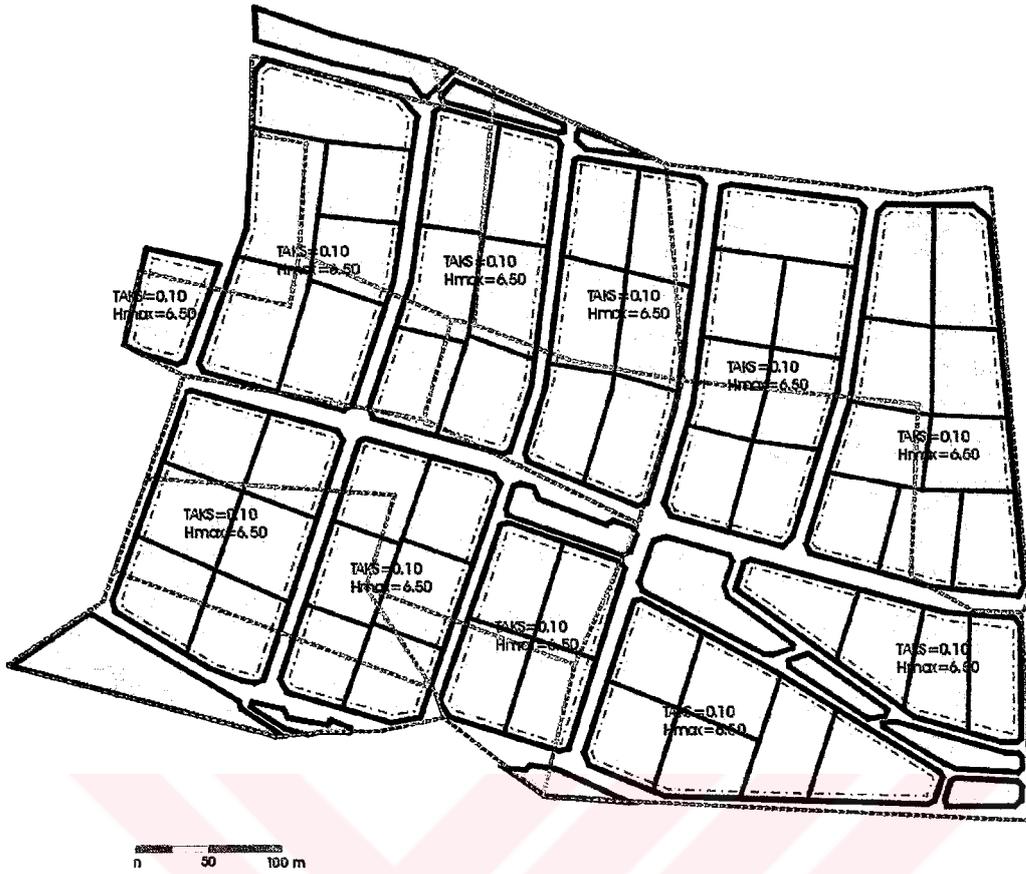


Figure 5.9 – Allotment Plan, Gölbaşı – Kızılcaşar, Ankara (Gölbaşı Municipality)

This is a typical land readjustment (article 18 implementation) project and as it is seen (Figure 5.9), the limitations of TAKS and Hmax and the proposal of a villa-type development directly lead to a standard subdivision. A positive aspect of the project is the ownership pattern: as the cadastral parcels are larger than development parcel, the emergence of a commonly shared lots is prevented. However, when we look at the production of green areas, we can conclude that there aren't sufficient common green areas, they are rather small and fragmented. Twin and row dwelling solutions do not exist as to increase the green area amount. Instead, as many parcels as possible are produced with the application of minimum

parcel needs. These figures together lead to the production of standard building blocks.

5.4.2.1.b Case 2

In this case, the land belongs to private landowners and co-operatives and the land is adjusted with respect to the article 18 (and readjustment) (*Figure 5.10*).

Planned area	: 619.480 m ²	
Common share of adjustment	: 205.234 m ²	(% 33.13)
Housing and service areas	: 414.246 m ²	(% 66.87)
K.O.P. Areas	: 36.471 m ²	(% 5.89)

(Commercial, administrative, health, primary education and cultural facilities, spot activities, technical infrastructure)

The parcel sizes within the adjustment area are determined so as to minimise the commonly shared lots. As it indicated in the plan notes, the aim is to protect development rights within the boundaries of the block and to prevent the emergence of commonly shared parcels.

When we look at the green areas, although the adjustment area is quite large with respect to the previous case, we again observe fragmented green areas all over the adjustment area instead of large common ones. One different issue from the other case is that, the blocks that are allotted to the co-operative are not subdivided into parcels. In these blocks, the floor area ratio '*emsa*' value is raised to 0.33 from 0.30. Depending on the observations, we can say that there isn't much difference in the shape and size of the blocks although the adjustment is made on block basis. Here, it is assumed that the divisions within these blocks will resemble the other ones.

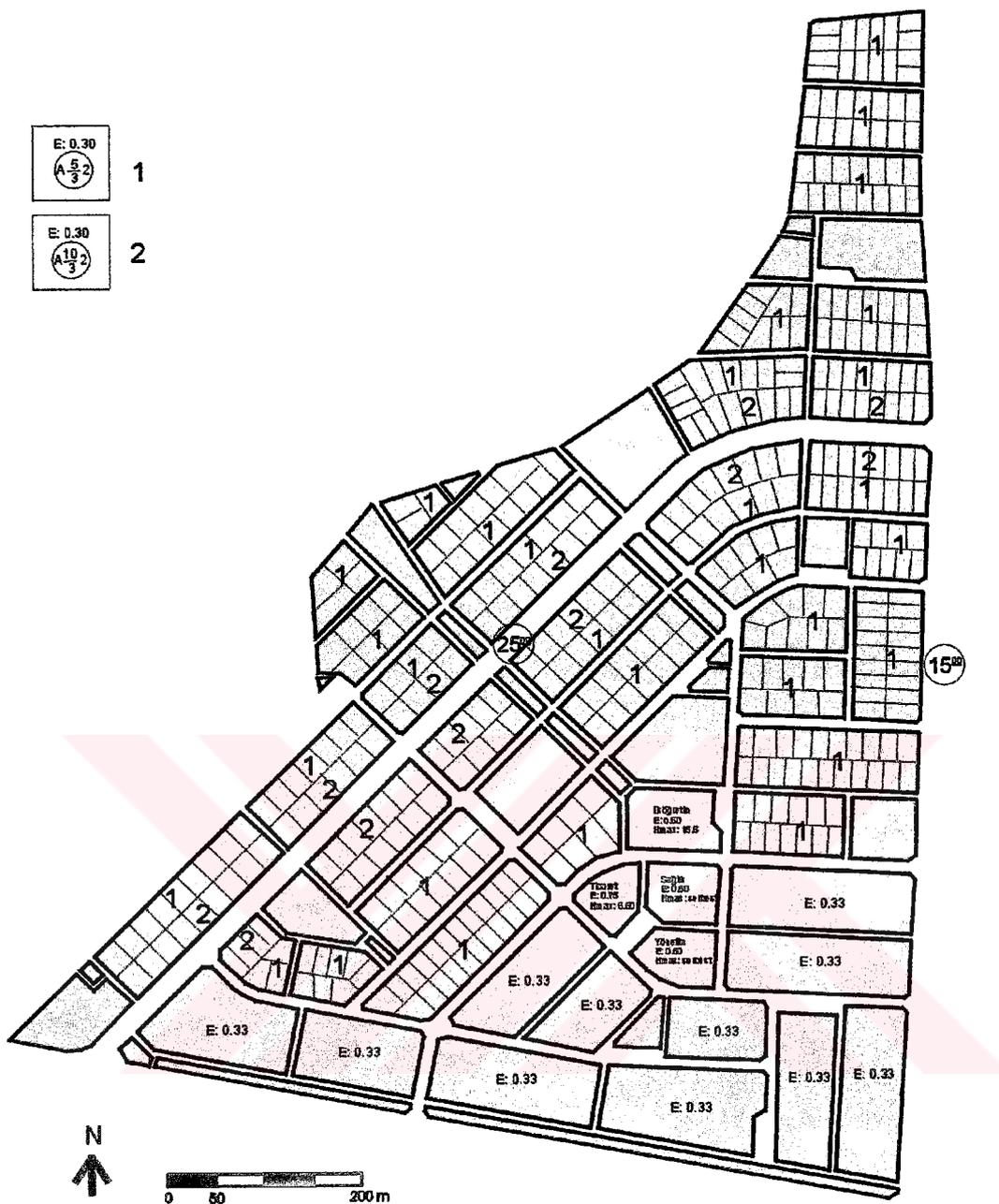


Figure 5.10 – Allotment Plan, Tuluntaş, Ankara (Ankara Metropolitan Municipality)

The settlement order in privately owned areas is determined as detached order while it is set free land allotted to the co-operative. Thus, provided that it does not exceed the given floor area ratio, any settlement order can be developed within the block which allows

differentiation in the height, dimensions and order of the building. However, this flexibility is limited with the existing block layout.

5.4.2.2 Improvement and Development Plan Project

This case is an example for Improvement and Development Plan implementations (*Figure 5.11*). The ownership pattern of the area is composed of highly fragmented, little divisions. When we look at the evolution of the area, we can see that it is developed with illegal housing process. Thus, the execution of such a project where there are existing buildings is extremely hard.

Upon the completion of the adjustment and the deduction of public service areas, the remaining land is divided into large parcels and a multi-storey, highly dense construction pattern with detached order is proposed on these parcels.

More than one building with 9-12 storeys is allowed in one single parcel. Besides, in the plan notes it is indicated that new subdivisions can be made within the parcel, but the Development Directorate must approve the size and building orders of them. In case more than one building is constructed, a distance of $H/2$ (H indicating the height of the building) must be left between the two masses. The distance of the constructions to the neighbouring parcel must also be as $H/2$ in case the block is subdivided.

In the land that is selected for expropriation, the architectural project will not be approved, unless this land is left to public worthless. In the case of completion of abandonment transactions, the total construction area will be increased for 10%.

Total Construction Area: TCA

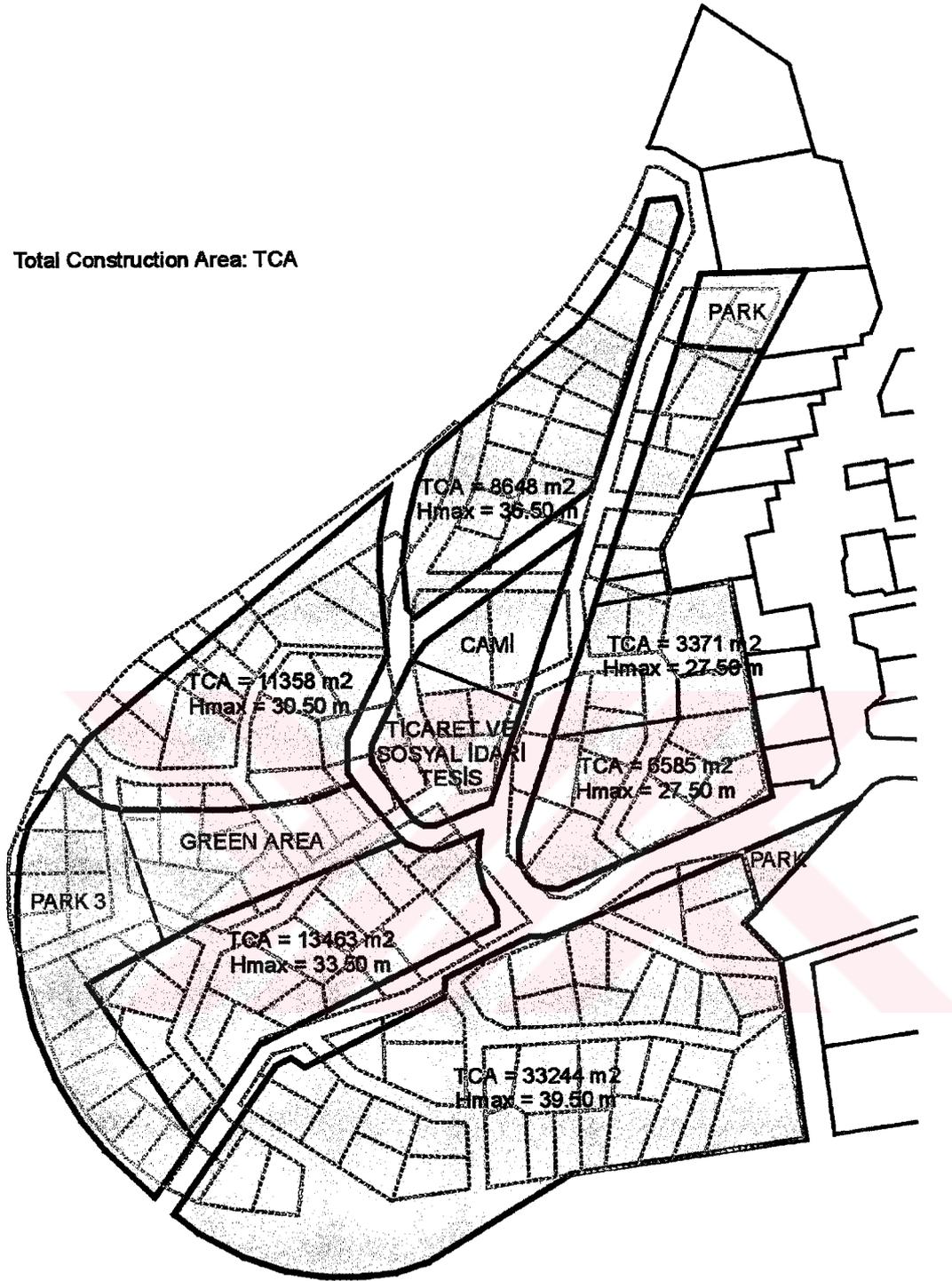


Figure 5.11 – Allotment plan (81157 no), Yıldız, Ankara (Çankaya Municipality)

As such an implementation process leads to the emergence of a lot of commonly shared lots, the constructions are hardly to be built

under normal circumstances. Either the implementation period will get longer or no constructions will be built. Therefore, some rewards and sanctions are put forth in the plan notes.

5.4.3 Negotiation Projects

The project that will be examined under this heading is developed as a result of a negotiation process between the municipality and the landowners. In such projects, there is no need for land readjustment. The fragmented ownership is unified with some agreements so that the design and the implementation can be conducted on the whole. The landowners get their properties back as apartments with respect to flat ownership in accordance with their previous shares.

In this case, the municipality conducts the whole process (*Figure 5.12*) and meets the financial costs. The implementation area is signed as 'special project area' on the plan. In the design process, the floor area ratio and maximum height are determined as 1.70 and 6 storeys respectively. Upon the deduction of public service areas, an apartment is submitted to the shareholders for each 350 m² land in the remaining area. If the size of the previous share is smaller than this amount, they have the right of unifying their land with others. In addition, if the parcel size is slightly under or below 350 m², the apartment is again submitted. With such an application, another valuation system is achieved which overcomes the problem of injustice that the same apartment is given for differing land sizes. If the parcel size of the landowner is less than this determined amount, a less worthy property can be allocated, or vice versa. As the municipality

conducts the whole process, it takes over some of the apartments in order to recover the costs and to generate income.

There are examples of this implementation where the process is carried out by private firms.



Figure 5.12 – Negotiation project, Karatay, Konya (Karatay Municipality)

CHAPTER 6

CONCLUSION

The thesis aims to find out the kind of an organisation that would provide a more flexible structure within an urban spatial development process. This thesis studies the provision of the essential organisational structure in order to create the desired solid-void relationships in the second and third dimensions. Therefore, the *raison d'être* of the study is not to find out what kind of a design is a better design or what kind of an architectural structure is necessary to evolve. Design has been considered as a matter of spatial organisation throughout this study.

This thesis has scrutinised the space formation and development processes and the organisational structures that have currently been occurring in Turkey along with the similar organisations in other countries. The spatial structure, which creates the organisational structure in Turkey, has been put forward; and a research was undertaken to arrive at a type of spatial organisation that is crucial to achieve a more flexible design structure.

There are four different processes and organisational structure with respect to the formation of urban space. The quality of these urban

spaces differs according to the different processes. We can list these four different spatial organisations with respect to the transformation in the ownership pattern:

1. Transformation from Consolidated to Consolidated Structure
2. Transformation from Consolidated to Fragmented Structure
3. Transformation from Fragmented to Fragmented Structure
4. Transformation from Fragmented to Consolidated Structure

These four processes result in various solid-void relationships. Furthermore, urban planning, land readjustment, and development processes differ from each other due to different organisational structure. As a result, these four transformations lead to the variations in land-uses, construction types of the areas entitled to development, the differences in the properties and the distribution of construction rights as well as the flexibility in the creation of spaces in the second and third dimensions.

Consolidated applications in public or private real estates provide the planner with a wide range of flexibility. These types of applications are expensive and they take longer time, as they require the land consolidation even before the application. Furthermore, these types of applications do not provide solutions to fill the urbanisation needs of countries such as Turkey where a fragmented ownership pattern is widespread. It would be essential to examine this type of organisations in order to:

- Interpret the organisational structure, which the consolidated applications have.
- Suggest methods to develop consolidated applications on fragmented properties.
- Comprehend the design possibilities and flexibility.

Transformation from Consolidated to Consolidated Structure

Consolidated space production is a process that is in which the land is accumulated in the hands of public or private sector. This type of development requires a collective process where planning, land readjustment, and construction would be undertaken altogether. A few examples of this application would be the projects by private construction firms and mass housing projects done through expropriation. There would not be any diversions from the desired construction form as the urban design and solid-void analyses had already been completed; may the actual construction take place as a separate process.

Public areas are not subject to separations with definite borders and areas within this method. As there is only one property owner, concepts or problems like ownership rights and redistribution of these are not applicable in this model. This system presents sufficient public use areas. Different density units can easily be offered within the project. The areas that are entitled to development would develop simultaneously within integrity. This system is useful to create the desired flexibility in three dimension.

Advantages of this space organisation is as follows:

- Achievement of the desired urban form
- The desired construction flexibility in second and third dimensions are attained.
- The absence of the problems related with value differences and spatial occurred from the redistribution of ownership rights.

Disadvantages of the system are that it is an expensive system and requires long period of time, especially for the rapid urbanisation needs of Turkey.

Transformation from Consolidated to Fragmented Structure

This is simply the subdivision of land owned by single owner into development parcels. In this case, the presence of design criteria and the analysis of solid-void would generate positive results in terms of design and form. It is much easier to go on with construction phase in comparison with the application of the fragmented structure even when there exists different density and sizes of the parcels. Although the design of the buildings are limited to the development parcels and the rights given, the presence of solid-void analysis calls for the strong possibility of meeting the desired form. As the parcels are sold for their market values instead of the redistribution of properties like in fragmented pattern, there would not be any problem in terms of distribution of value.

The processes such as design and assignment of public spaces in certain sizes and subdivision of development blocks into parcels should

be completed in this transformation organisation. It can be argued that this transformation organisation brings in the fragmented pattern; however there are no ownership problems and it enables the developer with a more flexible design.

Unlike the applications in fragmented structures, there won't be any problems such as increases in inequities or shared property structure within the parcel due to varying sizes of parcel subdivisions and densities. The possible differences or problems related to parcel values that may arise would easily be solved during the sale of the unit as the parcel values would be defined in accordance with the construction rights the parcel bears and the market competition.

Advantages of this space organisation is as follows:

- Achievement of the desired urban form compared to fragmented pattern
- The desired construction flexibility in second and third dimensions are attained.
- The absence of the problems related with value differences and spatial occurred from the redistribution of property rights.
- As the construction process is separated from the other processes, it would be much faster to start with the construction process in comparison with the consolidated method.

Disadvantages of this organisation are:

- It is an expensive process.
- The necessity of a land consolidation before the arrangement stands as the factor that slows down the process.

Transformation from Fragmented to Fragmented Structure

This transformation is currently used as the land readjustment method in which the fragmented ownership pattern is subject to change into another fragmented pattern. The same transformation is observed in the projects done through improvement and development plan applications. The public spaces are limited to 35% of the total area within this process. The rest is distributed to the individuals for the development. Public spaces and development areas are distinct and separated from each other. This surrender area is not enough to create necessary public and green areas per person. There are some suggestions to increase the common share of adjustments in order to obtain sufficient areas. Yıldız (1990) also point out that this would result in a value-drop due to decrease in the total area of development, which may not be covered with the value increase of the development. When we examine the foreign examples, we observe that local governments own land stocks, which eliminates these kinds of problems. In addition, another suggestion is that common share of adjustment would be taken in accordance with the density differences. In most foreign countries, there are no applications requiring a defined maximum amount for common share of adjustments. Instead of this defined ratio, public gives its decision about this amounts through participation.

Within this transformation method, the development areas are subdivided as development parcels with respect to the plan notes. These parcels are mostly uniform as there are neither solid-void analysis nor subdivision drawings in development plans. Although this pattern constitutes a major design disadvantage, there is no doubt that the applications done with this method are easy and fast.

The structure in which the ownership rights are distributed cannot be flexible. It is almost an obligation to distribute the rights as shared within a defined development parcel. The development rights are shared out in the second dimension. Within this type of subdivision, it is not possible to eliminate shared structure even if the subdivision is done based on value. The subdivision based on value would only help to create somewhat of a more equitable division with some cash transfers.

Again, it is not possible to obtain a flexible structure in second and third dimensions. Within uniform fragmented parcels, set back distances, the base area ratio (TAKS) and floor area ratio (KAKS) applications could not differentiate the buildings in them. Although, the introduction of variations by applying solid-void analysis and subdivision drawing definition would help bringing a more flexible pattern, it would also add to the inequality problems in ownership distribution done by existing area calculations. If the subdivisions are based on value, a more equitable and flexible structure may be possible. Nevertheless, the shared structure goes on and application problems still occur.

Transformation from Fragmented to Consolidated Structure

This process is an example of an urban spatial organisation that is a collective application achieved through the consolidation of parcels that have fragmented ownership patterns. Presently, this application is done by construction cooperatives. This method is the result of an organisational structure formed up by the landowners, voluntarily, as this type of organisation is not possible within the formal framework of land readjustment. In this case, it is possible to make common constructions within development blocks and make arrangements of flat ownership without splitting the land. This method provides the construction and development with a design flexibility and integrity by eliminating parcel dependency.

This type of transformation may not be pertained in every land arrangement circumstance. Therefore, it is crucial to include this type of transformation into the formal procedures. The studies and suggestions by Türkoğlu (1988) and Gülkan, Balamir, Sucuoğlu (1999) raise the change in the direction of the current system towards this type of transformation.

It is observed that an integral construction take place in this transformation system instead of an urban space formation that is achieved through the separation of public areas in some defined ratios followed by distribution of the rest of the development area as parcels. This integral organisation contributes to the formation of the desired public and green areas. Property rights can be distributed in third dimension in terms of either flat ownership right or construction right. Furthermore, it is possible to create open and spacious common areas by increasing

densities to a certain extent. These types of applications are common in foreign country examples especially in urban renewal projects. Gülkan, Balamir, Sucuoğlu (1999) have pointed out the necessity to apply the 35% ratio to the additional construction right obtained with the density increase by the suggestion referred above. In addition, Tekeli's (1991) suggestion of the restriction of ownership rights presents the idea of giving the landowner two flats and leaving the rest to the public area. The public spaces can easily be attained by the restriction of one's right of use. Existing construction cooperatives seem to be placed in this organisational structure. But, public spaces and development areas are distinct and separated from each other again like in fragmented pattern. The application of 35% ratio for the public areas in this organisation, just as the applications in the fragmented one, influences the continuation of the discrepancies in the proportions of public and privately owned areas. The collective construction is only possible within the areas entitled for development. So, it is an organisation between the consolidated and the fragmented ones.

It is likely to achieve collective application on land by the partnerships within the process, the urban design projects, and the solid-void analysis prepared. There are different issues such as, ownership right and the redistribution of this right that would rise quite differently than a pattern where one person or institution owns land. The distribution with respect to value or development rights could make a flexible spatial process possible. The concept of "three dimensional development right" by Türkoğlu (1988) and Gülkan, Balamir, Sucuoğlu (1999) and the transferability of this rights would offer great flexibility in the formation and creation of urban space.

Although some problems within the organisational structure may slow down the process, a substantially flexible structure is possible in terms of form and property rights in this organisation. As the construction should be started and completed collectively in this method, the process may not be as fast as the previous transformation organisation where parcels are subdivided and construction starts individually.

In the light of the analysis of these four transformation methods, it is observed that the consolidated land development processes create more flexible spatial organisations. It may be possible to reach the requirements to create better and more flexible urban spaces with these four processes. However, it would be much more process-efficient and design-considerate to suggest the transformation of urban production process from fragmented to consolidated structure, considering the fragmented ownership pattern in Turkey. So, some changes in legislation and legal arrangements are needed to achieve such an organisational structure in Turkey.

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