

## **LAND READJUSTMENT IMPLEMENTATIONS IN TURKEY**

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### **ABSTRACT**

One of the land development problems of developing countries is to provide readily available land for new urbanization demands. Compensation based procedures are mostly used land provision methods around the world in urban land development applications but it is both expensive and mandatory. To provide new settlements and built-up areas, there should be a more effective land redistribution process. Land readjustment is one of the land development tools in the developing world to help deal with urbanization requirements. It has great abilities in solving land-use problems in urban areas when new and redesigned urban settlements are needed. Providing regular urban land development process many land readjustment implementations have been practiced in Turkey. Particularly, municipalities are used the process to supply public-uses areas rather than land compensation. In this paper, first, land acquisition methods in Turkey are briefly reviewed, then land readjustment method and its applications are discussed with its current issues for regular urban developments.

### **Introduction**

As a result of rural-to-urban migration, urbanisation problems are created by rapid population growth around the world. In Turkey, like many other developing countries, these problems exert a negative influence in the fields of human settlement and regular urban development. In order to provide new settlements and built-up areas as rapidly as they are needed, land should be acquired and developed with respect to master plans, within a short period.

According to the Land Registration Act of 1934 in Turkey, all land parcels were registered with their existing layouts which were mostly irregularly shaped. Hence, when a zoning plan aims to apply to land, some technical and legal issues arise. The limitation of financial, human, and technical resources mostly restrict land development options for a certain project time as well. The government therefore has difficulty in controlling rural-to-urban land-use change to provide the appropriate land for both public and private sector requirements. As a result of these, many

squatters have established patterns of land use rights that operate outside of the national cadastral system. The land allocated for public-use has been partly occupied by squatters (1).

In order to provide sufficient new plots for urban needs, some land acquisition methods are practiced by the government in Turkey. The objectives of these methods include the provision of basic public services and other aspects of infrastructure to urban areas undergoing development. Most of the land related developments are performed by municipalities using master plans and zoning regulations (2). Controlling the urban land developments, three different land acquisition methods are basically performed by local authorities. These methods are;

- a) *Compensation method,*
- b) *Voluntary method,*
- c) *Land readjustment method,*

carried out by specific acts. In practice, there are some difficulties with the implementation of these methods. Land readjustment, for instance, is widely used in provision of a large new residential built-up areas. But some problems, such as inequitable land distribution and inefficient land information management, affect the effective and efficient use of the method.

### **Land Acquisition Methods In Turkey**

In Turkey, some land projects, such as a new highway, railway design, and other kinds of main infrastructure constructions, are carried out by the federal government only. On the other hand, provision of new settlement and public-use areas are carried out by municipalities. Using regional plans, zoning plans are prepared and implemented for local urban development.

The rapid urbanisation, especially, requires readily built-up areas in suburban areas. Hence, the provision of new sufficient lots, streets, roads, green areas, play gardens and parks are the main objectives of local land planning authorities. Three different land acquisition methods are generally used in land acquisition practices with respect to zoning regulations.

#### **Compensation Method**

When the government urgently needs the land for emergency public constructions, such as building a new highway, hospital, school, opening new green spaces, the compensation method is basically applied. All compensation procedures including land valuation are done by The Compensation Act, which was enacted in 1983.

The compensation method can be practiced by any government level. As long as they prove that land is needed for public use, they can make any compensation decisions. These decisions must be approved by the city council. Landowners who have any property in designated area are then informed about the compensation decision. These procedures are followed by other required steps which include land survey, assessment, payment and registration. At the end of the process, the determined value is directly deposited in the landowner's bank account. However, in many cases, landowners object to the amount of compensation that offered. They always argue that the determined value does not reflect the real value of their property. This has always resulted in prolonged litigation in courts of law (3).

From the government perspective, the compensation method provides a practical solution to land acquisition, because it is a short-cut method that is easy to implement by the force of the act. Although the compensation method has great advantages for government, there are also some disadvantages with the method.

#### *Advantages*

- Land compensation is a rapid land acquisition method for government in urgent land provision,
- The government has great power making decisions by the Act. This accelerates the land-acquisition process and project time positively,
- The method is more efficient in small land development projects.

#### *Disadvantages*

- Compensation is an expensive method for the government,
- A readily available budget is always required,
- It is a mandatory land-acquisition process which uses legal force. In many cases, landholders are not happy with the decision about the compensation for their land,
- The process causes land valuation disputes between government and landowners. This delays the implementation of project,
- Land speculation occurs in project areas.

### **Voluntary Method**

Voluntary land acquisition method is usually applied when a landowner wishes to obtain a construction permits, for example he wants to build an house. The basic principle with the method is to re-demarcate existing cadastral parcel boundaries according to the rules of zoning plans. In regard to zoning requirements, the suitability of a cadastral parcel is examined by the municipalities. If the checked land parcel does not provide the requirements, then the landowner should find out some alternative solutions to provide zoning requirements. In this case, there are a few options that can be followed by landowners in order to obtain have a construction permit. These options are as follows:

**i) Private subdivision:** If an existing cadastral parcel is adequately large, a special subdivision can be performed with respect to zoning requirements. A cadastral parcel is subdivided into two or more suitable new lots. During the subdivision, land which covers the public use area is contributed to public use. Subdivision procedures are carried out by a private surveyor. In order to register the new site lots, subdivision plans and all other related documents must be checked and approved by both the cadastral office and the municipality.

**ii) Consolidation of land portions:** When land parcels do not have sufficient area for the plan objectives, land holders can consolidate their parcels with adjoining land parcels. Before the consolidation of these parcels, an agreement between the interested landowners is required. It may not always necessary to consolidate all the adjoined parcels entirely because some portion of land may be satisfactory for the zoning requirements. It should also be considered that after the consolidation, the rest of the consolidated parcels should certainly allow for further development.

**iii) Boundary exchanging:** If an existing land parcel has an irregular shape, adjoining cadastral parcel boundaries can be re-demarcated or some land portions can be exchanged between landowners. The boundary demarcation and land exchange are done by the agreement of interested landholders only. Adjacent landowners make an agreement that their land parcel shapes can be modified, in order to give a regular shape to land parcels. If the agreement is satisfactory, then technical procedures are carried out only by the cadastral office, with no fee.

#### *Advantages*

- Voluntary method is inexpensive land-acquisition way for government,
- Instead of the government, individual landowners are more actively involved in the land development process,
- New site lots for housing purposes are produced,
- A cadastral parcel is transferred to a site lot so that the legal position of the parcel changes. This increases tax revenue,
- The government obtains required public use land freely, without any compensation.

#### *Disadvantages*

- It is a time-consuming approach to land development process for a large project area,
- The method works when a landowner needs a construction permit only,
- Landowners are under an obligation that if the existing parcel covers a public-use area, the covered portion of land should be dedicated to public use. This results to loss of revenue to landowners,
- Land exchanges between the owners, require a legal agreement.

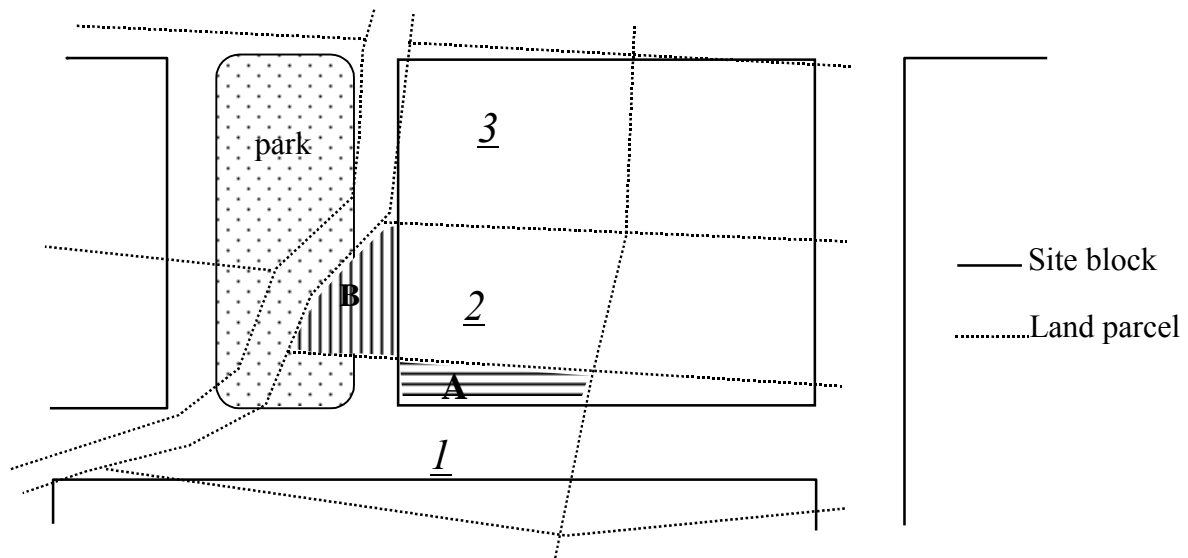
### **Land Readjustment Method**

Land readjustment (LR) is another land acquisition method that has more advantages when compared with the other land-acquisition methods. Because of the implementation difficulties with the other methods the government tried to set a more powerful and practical solution to the land development process by an act. In 1985, therefore, the Land Readjustment Act was passed in Turkey. It was the hope that, with this Act, the implementation of the zoning plans will be operated more effectively in the expanding project areas.

The basic principles of the Act is that the local government has complete authority to apply the zoning plans within their district without the consent of owners. The main statement of the Act, which is title no.18, is that landowners who have any parcel in a LR project area have to give up 35% of the total area of their land for public use. This percentage depends on the size of public area required including new roads, streets, green areas, play ground, parks and building area within the project area. More details about the LR application are given in later sections.

### **An example: comparison of the methods**

The comparison of the land acquisition methods is in fact a highly complex task. To understand the problems for the landholders, let us examine a small planning model illustrated in FIG:1. In this plan, a zoning plan is overlaid with a cadastral map. The main aim is to fit the cadastral parcels into the site block. So, each land parcel will be able to use for the housing purposes. At the same time, the public-use areas will be provided.



**FIG 1:**

a ) While parcel no.1 has sufficient size, it cannot be used entirely for an housing purpose. The parcel is also not suitable for subdivision because of the zoning restrictions. Part "A" is too small for any serviceable area. So, individually, the owner does not really have any prospect to develop his land. He must wait for compensation by the government or find some way to consolidate his land with another parcel. This can be given as an example of compensation method.

b) Even though the entire parcel no.2 has a regular shape and sufficient size, part "B" has to be dedicated to public use in order to be granted a housing permit. Its location is still better than that of parcel no.1 for an individual land development. Its uniform shape and the usable size has however been unfortunately reduced by the donation of part "B". An example of voluntary method is illustrated in here.

c) While the other parcels have zoning restrictions parcel no.3 is not really affected by the zoning plan. There is no strong zoning restriction for this parcel at all. Furthermore, parcel no.3 will obtain really valuable benefits from the project because of the compensation of its neighbours. While the others parcels are losing considerable value, this particular parcel is doing nothing but benefiting value with respect to unit cost in this area. In some ways, it could be said that there is a zoning lottery for a parcel.

d) If the land readjustment method is applied to our small model, all land parcels in the planning area are involved in LR projects and share its benefits in an equal way. Using the land readjustment, first all parcels are grouped together. Then, new site lots are created and given back to original landholders with respect to zoning formats.

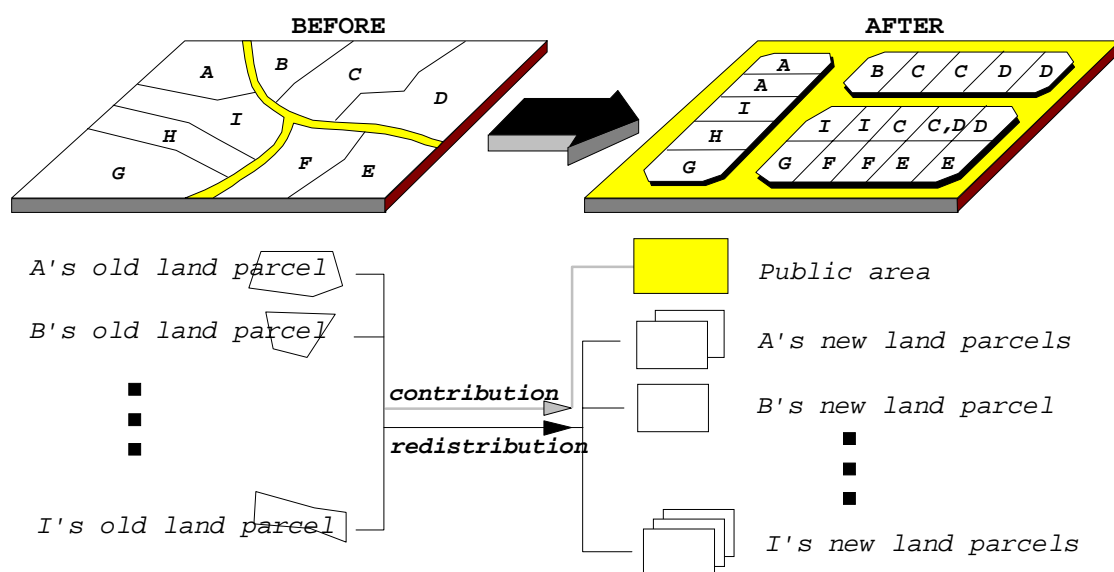
In Turkey, there are many cases like the above simple planning example (4). In practice, these methods provide the most valuable tools for government. However, the selection of an effective method for land acquisition is very important. In fact this depends on the land project objectives. But if large project areas are considered for an urban land development process, it seems that land readjustment provides more advantages than the other land acquisition methods.

## Land Readjustment Process

### What is land readjustment ?

LR basically is a land reform system. Conceptually, it aims to take rural or unplanned urban land, usually irregularly subdivided, and re-allocate it in the required balance for public and private use according to town planning requirements (5). LR is a crucial land management tool in urban planning when suitable reformation of private land is necessary for residential purposes (6). It is a method by which the city government, other designated public bodies, even private associations can participate directly in the process of urbanisation and thereby share in its profits (7).

The concept is a simple one. When there is a need to develop a suburban area, first, a site plan is prepared by the municipality. Then the area is subdivided into an appropriate pattern of streets, parks, schools, and sites for other uses. Within site blocks formed by the streets, new lots are allocated for private development. Public use areas are then determined by measuring the square meters in the planned streets, parks, and so forth and comparing it to the total area of the project (8). Each cadastral parcel is converted into building lots. After the project the city will be able to reorganise urban development, and at the same time, the private landholders will receive new lots which are as near to the same location as possible to their original land (*see* FIG 2).



**FIG 2:** Mechanism of land readjustment

### Process and procedures

The Land Readjustment Act and related regulations guide the implementation of LR process in Turkey. The LR process requirements are supplied by municipalities. Before the beginning of LR project, all cadastral works and zoning plans should be completed in the project area. The city council then makes the decision about the project that they would like to be implemented. After the council decision, all required technical and non-technical tasks are carried out by municipalities. The basic steps in a land readjustment process can be given as follow (*see* FIG 3).

**FIG 3: A Simplified Land Readjustment Procedures in Turkey**

***Decision of city council***

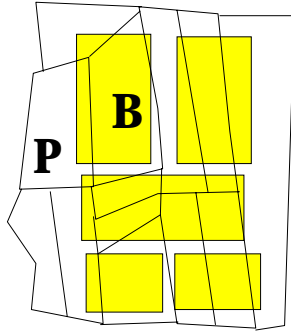
A LR project is designed and proposed to the city council by the land planning branch. The final project area is determined and voted by the council members. If the project is approved, the decision is announced. For a months period the plans are available to be examined by interested parties. The cadastral office is also informed about the project, so that any interested people are notified about the project during the cadastral transactions. No construction can take place within the project area until the laid rules have been fulfilled.

***Survey of the project area***

The basic cadastral works have to be completed before the project is began. All needed legal records and maps such as zoning, cadastral, and topographical maps are updated. Meanwhile, traverse densification is redesigned for further use. After updating the required documents, it has to be ensured that the cadastral and topographical maps reflect the final layout of the project area. All kinds of boundaries such as cadastral parcel, project area, zoning details and site block outlines must be shown precisely in a base map. Using this map, site blocks are demarcated in the field and fixed block corners are re-surveyed and new point coordinates are calculated.

### Method of calculation

The project area is determined in the base map by drawing a precise project boundary. According to this boundary, all cadastral parcels within the area are determined with legal records. This includes, basic property information such as parcel ID, owner name(s), legal size, and other land tenure related information. Regarding the project boundary, if a land parcel is entirely involved in the project, the parcels registered size is taken as an input area. Sometimes, a land parcel can be divided into two or more lots by the project boundary. In this case, only the area which is inside the project boundary is taken as an input area. The determination of participating land parcels is followed by the calculation of site block areas. Using these variables, a single contribution coefficient is determined with the formula [1]. This coefficient shows the contribution percentages (**CP**) of each land parcel to the LR project. The **CP** is then applied to each of land parcels to determine their individual contribution rates (**cr**) (see FIG 4). If the calculated **CP** is greater a 35%, some land parcels within the project area should be compensated by the government, in order to reduce the project **CP** to 35%. This is because, as stated by the LR Act, 35% is the maximum contribution limit for LR projects.



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

$$\mathbf{RP} = 1 - \mathbf{CP} \quad [2]$$

$$\mathbf{cr}_i = \mathbf{CP} * \mathbf{p}_i \quad [3]$$

$$\mathbf{np}_i = \mathbf{RP} * \mathbf{p}_i \quad \text{or} \quad \mathbf{np}_i = \mathbf{p}_i - \mathbf{cr}_i \quad [4]$$

where;

**[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<sub>i</sub>** = Land parcel area

**cr<sub>i</sub>** = The contribution area for a parcel

**np<sub>i</sub>** = Land area given back to owner

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

**FIG 4:** Fundamental calculations for determination of land parcel's contributions

### Land re-allocation

The land re-allocation task is the most complicated stage of an entire LR process. It is a kind of land exchange between the individuals and the community, and also among individuals. Often several pieces of fragmented lands are consolidated into one. In this stage, landholders receive new lots in a different size and location to their original parcel. LR, however, affects land tenure and changes the existing parcel structures in accordance with the town planning details. Therefore, distribution of the new lots is the most sensitive stage of the whole process, which requires a highly refined solution to the land distribution.



The main purpose of land reallocation is to create new housing lots by zoning standards. First, each site block is subdivided into suitable new lots, then land re-distribution is carried out. The basic principle in the distribution is to keep land in its original location, at least in the same block. Beside that, some subdivision standards are already given by zoning plans, such as minimum lot sizes, maximum number of floors, construction limits, etc. that planners should consider during the land subdivision.

### ***Final registration***

After the land distribution, a tentative subdivision plan is announced to the public. For a months duration, landholders can object to the layout plan by writing their objections to the municipality. These objections are mostly about the new location and re-distribution process. Landowners demands are submitted to the planning committee for a final decision, and possible corrections are made with regard to the planning committee recommendations. After all these, cadastral maps are drawn as a new legal records. Meanwhile, the new lot corner coordinates are calculated and submitted to the cadastral office to check and approve the documents. Then new lots are registered by the land title office. New land titles are prepared and distributed to the original landholders.

## **Review of Land Readjustment Implementations**

Since 1985, many LR projects have been implemented by local authorities in Turkey. In fact, there is no well documented sources that give the idea and size about the implemented projects in the country. In order to understand the LR project developments, a survey was carried out in 1993 and 1995. The main purpose of this survey was to figure out the areas that land readjustment has been used and to review the issues which have been faced during the projects. It has to mention here that, in Turkey, there are around 3000 municipalities that have authorities to implement the LR process. However, the survey was applied to some 50 selected local authorities across the country because of economical difficulties. These selected places actually represents big cities where rapid urbanization occur. When questionnaire forms were replied, even this number could not be reached. So, as a result of this survey, the places which land readjustment projects have been carried out in Turkey are illustrated in FIG 5. Besides, evaluating the survey results, the advantages and disadvantages of LR projects, including current issues for participants of LR have been summarized as follows.

### **The benefits and shortcomings of land readjustment**

As mentioned above, LR is a powerful tool in the urban land development process. Besides improving land utilisation for government, it is also a significant method for landowners to economically improve in land use. The benefits of LR, for both landholders and government, can be outlined as follows:

#### ***Benefits for landowners***

- After the project, land values increase very rapidly and land becomes more valuable. This provides an economical gain to the landowners,
- Because of LR project affects landowners in the same way, disputes about land planning are reduced, so that the problems which are created by the zoning plan are eliminated,

- A cadastral parcel is re-shaped and transformed into a sufficient site lot that can be used in an economic way,
- Boundary conflicts are also minimised between landowners, due to re-organisation of land parcel boundaries,
- Fragmented small parcels are consolidated into a new housing parcel. Landowners, therefore, can get an opportunity to use of their land more actively,
- At the end of the project, basic public services are supplied to new lots by municipalities, therefore LR project brings new social services to the project area,
- There is no extra charge to landowners for the project expenses, except that they forfeit part of their land. All project expenses are met by the municipalities.

#### ***Benefits for the government***

- The expanded urban land project areas can be achieved rapidly using LR,
- Compensation expenses are greatly reduced. This positively affects the use of the municipality budget in other land development activities,
- Provision of public land is accomplished economically,
- A zoning plan is realised in a short time,
- The existing cadastral records are updated, reorganised and cadastral administration is improved,
- A regular land development process is provided.

**FIG 5:** Land readjustment implementations in Turkey (*Source: KTU-Jeodezi, 1993&1995*)

Despite the great advantages LR has in solving the land-use problems in urban areas there are still some issues, such as inequitable land distribution and inefficient land information management, that affect the effective and efficient use of LR. In Turkey, since the LR program was enacted, some LR projects were found to be unsatisfactory or were not completed on schedule. The limitation of budgets, poor land information management, and lack of public support have prevented some projects from achieving their objectives. Significantly, there have been many objections from landowners about the reallocation process. They claim that equitable benefits were not obtained after the project because such factors as the number of floors, the land use, view, proximity to commercial areas, other public facilities, etc. are not taken into account during the land reallocation. However, current issues with LR applications can be given as follows:

#### **Issues for landowners**

In many cases, most landowners do not support the LR project. They are aware of the fact that some parts of their land will be forfeited for public use without any compensation. However, some of landowners whose land is already fragmented and more or less useless do support LR to gain from the project benefits. Another fundamental issue is the fact that the landowners are not consulted when the decision about public-use requirements are made about their land.

### **Issues for the municipalities**

The municipalities have the greatest responsibilities throughout a LR project. They provide all necessary requirements for urban land development. However, because the city council has power to allow the LR applications, some LR programs can be delayed or cancelled for political reasons. Because the large number of people whom are living in a project area can affect the local election results, therefore, the elected council members may not be positive about the implementation of LR. The land development objectives fail very often, especially in small and non-powerful municipalities for these reasons.

A part from the political reasons, the municipalities also have some technical issues with the LR applications. In most cases, available municipal resources such as technical persons, budget, and equipment are not sufficient to carry out a LR project. Because of the complexity of LR, the availability of professional people is very important in a LR project.

### **Technical issues**

*i) Land valuation:* Land value does not play a role in the calculation of the percentages to be contributed by each landowner for public areas. The only criterion is the parcel size, and the contribution factor is the public-use land area required in the zoning plan. This single coefficient is calculated and applied to all landholders in the project to derive their contribution to the public land. There is no parcel appraisal, before or after the project. The area method, instead of valuation, does not provide an equitable approach for the landowners, because many other factors which affect a parcel value, are ignored.

*ii) Decision-making in land re-allocation and re-distribution :* The planners often have difficulty in making a decision about the new parcel locations. The landowners are, therefore, at risk because different approaches provide different land locations and benefits to them. Re-allocation is a complex task which requires highly specialised expertise because there are many questions that should be analysed. In regard to the priorities of zoning plans the questions are, for example, who will receive the new parcels; how will land be evaluated; what criteria and land characteristics should be considered; how will landholdings be redistributed or be consolidated so that landowners will be satisfied, and so on.

*iii) Land information management :* The manual process used currently in LR is slow. Analysing the existing cadastral information, searching needed records and providing necessary outputs for LR applications are done with conventional manual methods which are time-consuming and error-prone. Sometimes, the information is not readily available for later use because of poor information management. Following the procedures is a difficult task that requires great responsibility and accuracy. If any small mistake happens, whether technical or non-technical, it can involve repeating all the LR processes. Sometimes unnecessary duplication

can occur too, meaning, information cannot be managed effectively and efficiently. The use of computer has not been introduced to the entire LR.

*iv) Standardisation of the entire LR process:* The entire LR process does not have a single standardised procedure. Some other related technical standards are followed just for their requirements such as the formation of cadastral records. The land reallocation process has especially not been standardised so that a guideline about new parcel creation and distribution of land procedures can be provided to all planners. Otherwise cadastral parcel boundary locations are changed and landholders are moved to new locations by the planner's judgement only, so that the planners make their own decision upon land distribution, as if they are the only ones responsible for the land reallocation and distribution.

### **Conclusions**

In Turkey, LR is a powerful and economical way to acquire land for urban land requirements. The method itself has a great ability assist in rural-to-urban land transformation. However, there are still some issues with the current LR implementations. Such the limitations of budget, poor land information management, and lack of public support have prevented projects from achieving their objectives. A non-standardised land distribution process provides different benefits to landowners from the project. As a result of these, since the LR program was enacted, some projects have proved unsatisfactory and not completed.

To deal with these problems, the LR process requires careful analysis of spatial characteristics of the land (notably economic, social, and planning dimensions) during the project. Land information management is also very important for data handling. With respect to these aspects, a new approach to LR, which particularly deals with land valuation process, is required. Some land valuation factors which can affect a land parcel value should be taken into account during land re-distribution. This will provide an equitable approach to landowners so that the original landholders will obtain same benefits from the project and the objections will be reduced.

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