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Requirements of implementation limited land readjustment tool in developing informal deteriorated areas (Case study: Daier el Nahea area - Dokki District – Giza governorate)

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Abstract

The development of informal areas depends on the support of the governments for reducing their appearance in cities and creating a better environment for living through set of policies such as total removal or development of these areas with limited removal to re-use of land plots and achieve greater economic value for them. Most of these policies use land expropriation tool to allocate some land plots for providing services and infrastructure but they faced some challenges, including the refusal of the population to sell their properties, the low value of compensation to the population and the decline in the financial support of government for development. Therefore many countries such as India, Taiwan , Korea and Japan have adopted new tool (land readjustment) which depends on the participatory approach between the government, the population and the investment authorities to re-adjust the boundaries of land plots with the approval of all parties and the preservation of the property rights. The Egyptian government has recently used this tool in developing the informal degraded areas which encountered a range of difficulties such as the population refusal to participate due to lack of satisfactory incentives for them, in addition to the difficulty in achieving justice in the distribution of properties after the development. Consequently, this paper aims to determine the main requirements for application the successful limited land readjustment tool in developing the informal deteriorated areas with the acceptance of all development partners. These requirements are come through a review of the theoretical background and international experiences in this field, in addition to solving the challenges of application this tool in the local level by selecting a case study (Daier el Nahea area- Dokki District - Giza governorate) to apply the results in the future development projects.

Keywords: Limited Land Readjustment; Informal Settelements; Public Participation; Land Division; Land Consolidation; Land Pooling; Daier el Nahea Area

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1. Introduction

The concept of land readjustment was introduced for first time in Germany in early 20th century with the aim of developing the old urban areas, commercial and industrial centers which suffer from lack of available land for development through the negotiation with the land owners to provide the necessary roads and services for these areas (Doebele, 1982). This concept was applied later in many countries such as Turkey, Japan, India, Taiwan and Korea to collect small plots of land and create large land plots for utilities by deduction of 30% to 40% from each plot without financial compensation for owners in exchange for the benefit from the increased economic value of their land after development. (Banerjee, 1999b; Minoru, and Chikashi, 2014)

Several International organizations such as the World Bank and the United Nations (UN Habitat), have prepared their reports in 2016 to support the implementation of this tool in many countries at the minimum adjustment in land plots and with the provision of appropriate incentives for encouragement the people to participate in the process of development (Seele, 1982).

The Egyptian government followed some policies to develop the informal areas, including (*resettlement site policy*) by the removal of degraded areas and relocating the residents to other alternative locations as shown in the projects of Arabs Al-Mohammadi and Asash al-Turgoman, but this policy didn't achieve success because the unwillingness of the population to live in the new areas which are far from the areas of work and the means of public transportation.

Therefore the government has developed this policy to (Clearance & Redevelopment policy) to deal with the areas which need development without any change in its landuse by relocation of their residents to temporary sites until the completion of the development process and returning them again to their old area to rent suitable new housing units as shown in the Project of Zhenham Hills , in this policy the government beared the costs of extending infrastructure networks , while the construction process is funded through the NGOs (such as Red Crescent Society) and the private sector. This type of policies faced some challenges like not taking the views of the population about the compatible needs with their characteristics. (Cairo Governorate, 2010)

Consequently, the government has tended to apply new policy for development informal areas through using the land readjustment tool with the participation of population and private sector to reduce the financial burden on the state and achieve actual needs of the population from housing , services and infrastructure as shown in the projects of Dayer el Nahia and El-Monib which faced some obstacles, particularly in the identification of new land plots with losing the property rights.

Thereupon, the paper aims to study some international studies and experiments to building a theoretical background on the requirements of implementing the limited land re-adjustment tool , in addition to reviewing the case study of Dayer El Nahia project to find the challenges of application this tool and try to solve it in the future projects.

2. Definition of land readjustment tool

Many countries use land expropriation tool for development old areas, but this tool causes high financial burden on the government for buying land plots and developing them, furthermore the population refuse to leave their property which led to the difficulty in implementation the process of expropriation besides it takes a long time to negotiate with the population and owners.

Therefore, the land readjustment is an alternative tool which solve the negatives of expropriation by the participation of each residents, government and private sector in developing informal area to reduce costs, preserve the property rights and achieve development returns without any burden on the state.(Schindman , 1988).

There are many terms of this tool such as (land readjustment – land pooling – land consolidation – land re-dividing - land plot boundary modification) as shown in Figure 1 which are used to express the process of readjustment of land plots. The first term (*land readjustment*) refers to an important tool in the field of urban planning which aims to re-divide the land for development old or new urban areas by supplying it with infrastructure and services according to the standards of planning and design (Doebele, 1982). While the other terms (*land pooling and consolidation*) are used to illustrate the tool in which the landowners participate in integrating their contiguous lands to serve their land plots with infrastructure, roads and services and they share the costs and the benefits of these developments. (Archer, 1987; Hong, 2007)

The *re-dividing* term reflects the process of changing old boundaries of land plots for development purposes by assembling small land plots or minimize the area of some land plots to create new residential buildings with more housing units and distribute these units to the indigenous population and sell the surplus to cover the project costs. (Doebele, 1982)

The final term (*land Modification*) means the regulation of land plots boundaries to meet the population needs and achieve the requirements of urban planning for better quality of life.(Archer, 1987)

Consequently, the land readjustment tool is considered an important tool in the field of urban renewal and the development of new areas which require the intervention of the state, approval of the population and the financial contribution of private sector to achieve a compatible new land plots division with the requirements of sustainable development.

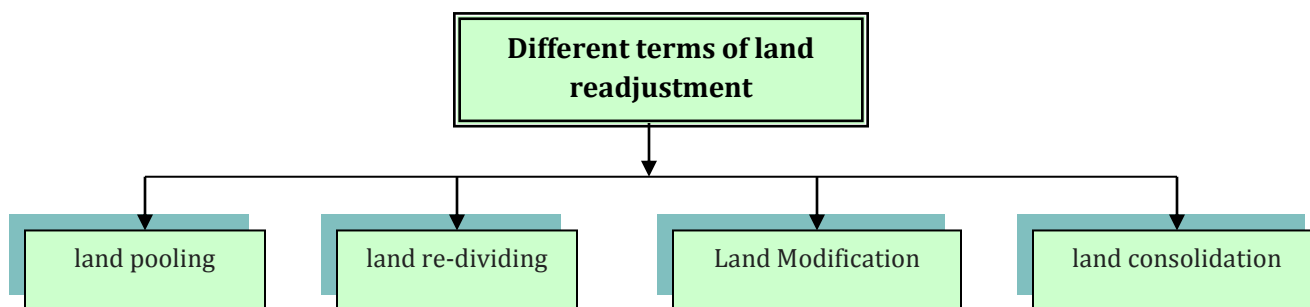


Figure 1. Different terms of land readjustment (source: Author)

3. The advantages and the challenges of land readjustment system

The adjustment tool has many advantages and some challenges that impede its application in some areas. This can be illustrated in the following points: (Schindman, 1988; Connellan, 2002; Whalen, 2006; Home, 2007; Hong, 2012):

3.1. The main advantages

- Reduce the costs of land development through limited adjustment in land properties instead of expropriation or total removal of areas.
- Reduce the financial burden on the government.
- Achieve optimal distribution of land plots as shown in Figure 2.
- Increase the economic value of areas which led to increase the price of land and achieve the level of profitability for economic activities as shown in Figure 3.
- Achieve positive returns for owners and residents after development.
- It is the mean for providing services, activities and infrastructure in informal area a shown in Figure 4.
- Encourage the partnership between different parties (eg. government, civil society and the private sector) for development purposes.
- Help in the process of property registration after the land plots modification.
- Coordinate between the requirements of each of government and population to achieve the balanced development.
- Increase the investment opportunities in the residential area compared to its old status.
- Integrate the small plots into a larger piece for large landuse as shown in Figure 5.
- Implement the development plans for the informal areas in the least time compared to the total removal of residential area.
- Increase tax revenues after the new land division and the registration process.
- Economic efficiency in land use to meet the needs of the population.
- Put a better division for land plots which achieves environmental, economic and social requirements.
- Include the participation of population in the development of their residential areas.

3.2. The main challenges

- Multiple ownership for land plots in the area.
- Lack of financial compensation to get the land plots for development.
- The re-adjustment process takes long time.
- Existence of small land plots which not adjacent with each other.
- The available land for development is not connected with roads and infrastructure, which led to increase the cost of land re-adjustment process.

- This approach requires clear registration of land ownership to facilitate the process of development.
- Some owners refuse to re-adjust their land.
- Difficulty in achieving the justice in land distribution to the owners after the readjustment process.
- Lack of efficient local administration or databases to implement the land readjustment tool.
- This tool neglects the social dimension as a result of new land division.
- High cost of implementation in the case of paying compensation to the land owners.
- Some owners of land plots get benefit from using this tool compared to others.
- Deduction of large area from land plots than what is permitted.

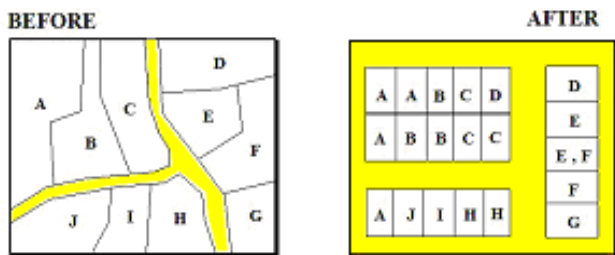


Figure 2. Better division of land plots (source Yomralioglu, 1993)

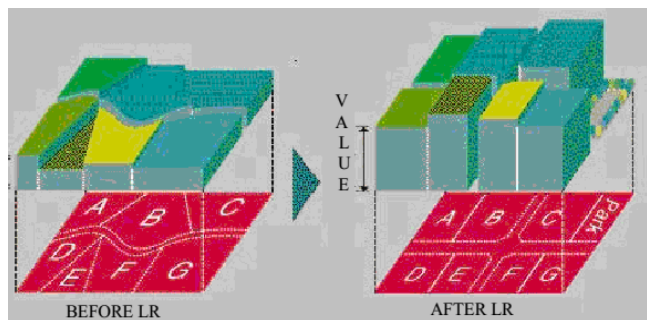


Figure 3. increase the land value (source: Home, 2007; El. Shimy, 2012)



Figure 4. Provision of services and infrastructure after development (source: Sorensen, 2000 ; El. Shimy, 2012)

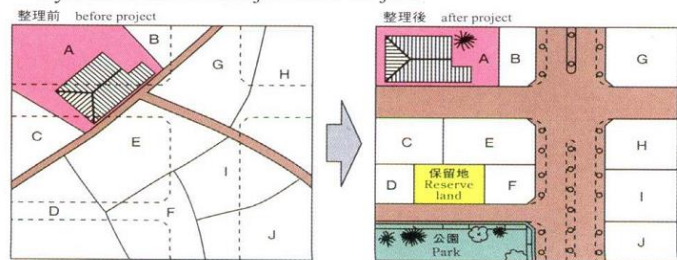


Figure 5. The integration of small plots for development (Source: Madbouly, 2000)

4. The different tools for dealing with land plots in the informal areas for development

Many countries use some tools to get land for development the informal areas, each tool differs from the other in its advantages and disadvantages according to the funding role of the government and the degree of population acceptance as shown in the following Table 1 and Figure 6.

Table 1. The different tools for dealing with land plots in the development informal areas

Tools of dealing with land in informal areas	Advantages	Disadvantages
4.1.The voluntary sale: The government buys all land plots from the owners for development purposes without return the indigenous population.	<ul style="list-style-type: none"> ▪ Help in the provision of public services and facilities. ▪ Achieve the proposed type of land use in accordance with the land value. 	<ul style="list-style-type: none"> ▪ high cost due to purchasing the landplots from owners. ▪ Increase the financial burden on the government. ▪ The refusing of some residents to sell their land.
4.2. sellback or leaseback: The government purchases some needed land for the development process and then sells or leases it to the population or the investment bodies.	<ul style="list-style-type: none"> ▪ Control the kind of land use for some land plots. ▪ Provision of services and infrastructure for the development informal areas. ▪ Achieve a financial return to the government as a result of selling or renting the new developed areas. 	<ul style="list-style-type: none"> ▪ High cost which the government bears to buy some land for development. ▪ The new rental value and land prices are not suitable for low-income.
4.3.Expropriation: The government expropriates some land plots for essential services and public utilities in exchange for financial compensation.	<ul style="list-style-type: none"> ▪ Get land for public services and infrastructure. ▪ Apply the proposed land use for informal areas without any obstacles. 	<ul style="list-style-type: none"> ▪ High cost as a result of payment the compensation to the population. ▪ There are social effects from the land expropriation. ▪ Low compensation values for owners.
4.4. Purchase the development rights: The government purchases the development rights only from the owners because the lack of government funding to buy the land plots.	<ul style="list-style-type: none"> ▪ Implement the development decisions for some areas at the lowest cost. ▪ Obtain the approval of owners to develop their land and get benefit from the revenues of development. 	<ul style="list-style-type: none"> ▪ The need for compatibility between the government plan and the requirements of the owners. ▪ landowners change land use after the development process as a result of retaining their land ownership.
4.5.Land banking: The investment of land in informal areas by private sector with government through purchasing the land plots at the lowest price to develop it and then sell it at the highest prices.	<ul style="list-style-type: none"> ▪ Assist the government in providing services and infrastructure. ▪ Achieve high economic values for the land plots after development process. ▪ Providing the investment activities and job opportunities in informal area. ▪ achieve a profit margin of investment for private sector. 	<ul style="list-style-type: none"> ▪ The decisions of Private sector affect on the development patterns and the price of land selling after the development process. ▪ The low supervisory role of the government.
4.6.Land readjustment : The Partnership between the government, the private sector and the owners through the integration of land plots or the deduction of some areas from each land plot for the provision of services and infrastructure, in addition to distribution the returns to all parties of participation	<ul style="list-style-type: none"> ▪ Provision of services and facilities in informal areas with owners' approval and their contribution with part of their land plot. ▪ The government bears low cost to complete the development projects. 	<ul style="list-style-type: none"> ▪ Lack of justice in the deduction of areas from land plots for the development. ▪ Some owners get benefit form the development compared to others.
4.7.Limited Land readjustment: Limited land deduction for development purposes with the participation of the owners, the private sector and the government through the provision of appropriate incentives and ensuring the benefit for all parties.	<ul style="list-style-type: none"> ▪ Use less area for development purposes. ▪ Achieve returns for all stakeholders. 	<ul style="list-style-type: none"> ▪ need to calculate the total requirements for development and determine the required areas for the deduction process. ▪ need for database about land and population characteristics in the informal area.

(source: Dowall and Giles, 1991; Larsson, 1991; Larsson, 1993; Ansari, 1998; Banerjee, 1999b; Hong, 2012)

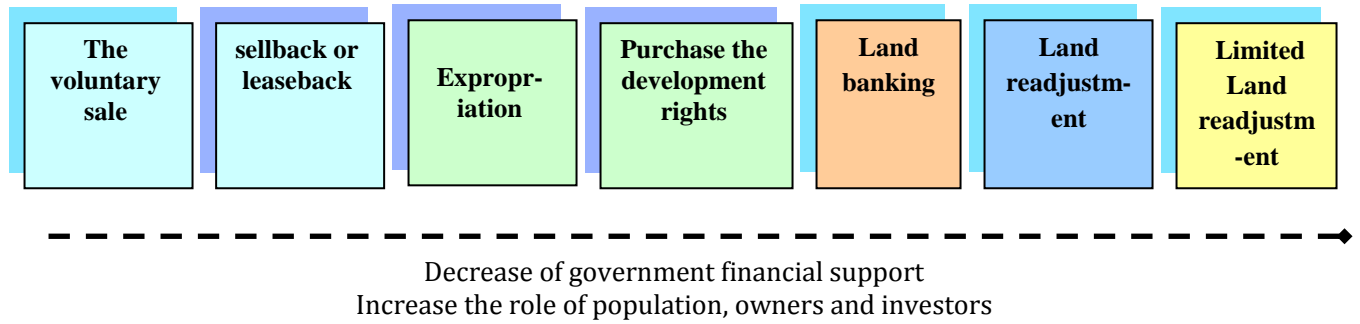


Figure 6. Tools of dealing with land for the informal settlement development (source: Author)

5. The process of implementation land readjustment tool in developing informal areas

Several studies have indicated to the necessary steps for applying the re-adjustment and achieving the development goals for different parties in informal areas, which can be summarized in Figure 7 and the following points: (Archer, 1987; Dowall and Giles, 1991; Home, 2007; Hong, 2012; UN-HABITAT & IUTC, 2016)

5.1. Identify the suitable informal areas for development:

The selection of informal areas depends on its priority for the development to provide it with services and infrastructure without removing it or moving its population to other areas.

5.2. Approval of all participants in the development project:

The land readjustment is used in putting development plans for informal area according to the approval of governmental authorities, residents, NGOs, the private sector and investors to avoid stopping any stage of development as a result of dissatisfaction of any parties.

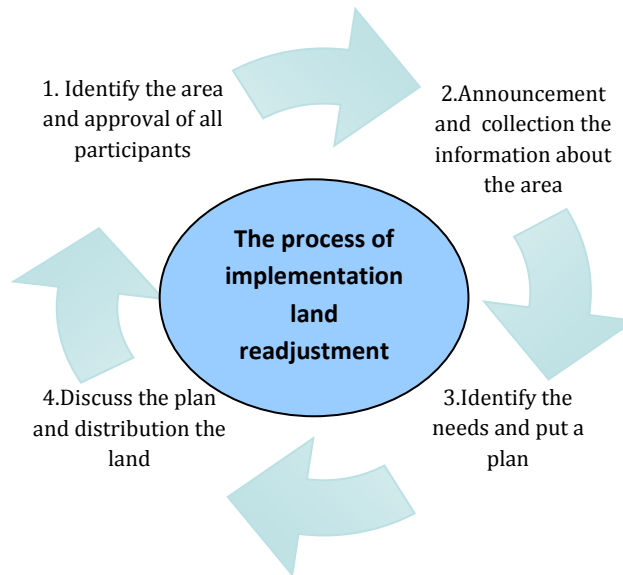


Figure 7. The steps of land readjustment project (source :Author)

5.3. Announcement for project starting

The announcement stage includes identifying (the actual participating parties and their roles – the total time for the project).

5.4. Collection the required information about the informal area

It is necessary to collect all the information of informal area related to land and population characteristics such as (land location - the boundaries of land plots – the total area of land plots - the current land use-property patterns –land price – population size - number of families in each land plot – densities – the housing units types - structural condition of buildings- the age of building...) to put an appropriate development plan with limited change.

5.5. Identify the main needs for development the informal area

The study of current situation of informal area helps in determining the total needs of land plots areas to provide services and facilities.

5.6. Putting a preliminary plan of land readjustment for informal area

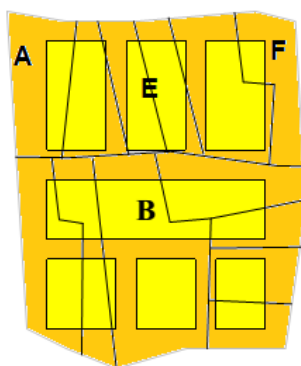
The preliminary plan of land readjustment is formulated according the current characteristics of the land and the requirements of the population. This plan shows the new division of land with making necessary changes such as (Identify appropriate land to meet needs - annexation of some land plots for large land uses - improvement land plots borders –deduction of areas from each land plot - determining the change in the economic values of land plots after readjustment process).The plan of land readjustment is more efficient when there is less deduction of land plots for the road network and utilities (not exceed one-third of total area) by conducting the following calculations as shown in the following points and Figure 8.

5.7. Discuss the plan

The government displays a detailed plan to the residents and participated parties for recording their observations and taking the final approval to start the implementation stage.

5.8. Distribution of new land plots

The land plots in new divisions are distributed to the population, owners and investors according to a set of criterias, including (the previous status for land plots - the location of land plots, the new needs and the purchasing power of the population.). This distribution must achieve the justice for owners to obtain the benefit from the returns of new land value.



Where
 A = Total area of old land plots.
 B = Total area of new land plots.
 SA = The percentage of total sharing land by owners in the development projects.
 RA= The Percentage of returned land areas to owners after development process.
 Ai = area of each old land plot.
 SRi = The percentage of sharing each land plot in the development projects.
 NAI = The Percentage of returned areas to each land plot after development process.
 I = Numbers of land plots in the project boundary.
 E= The area of new land plots after development.
 F = The total deducted area from old land plots.
 $SA = 1 - (B / A)$
 $RA = 1 - SA$
 $Sri = SA * Ai$
 $NAi = Ai - Sri$

- deducted areas from land plots for development.
- New land plots after development.

Figure 8. The calculations of land readjustment (source : Archer, 1987 ; Larsson, 1993; El. Shimy, 2012)

6. The main requirements for using land readjustment system in developing informal areas

Several international experiences in this field such as the experiences of Taiwan, Japan and India have pointed to a set of basic requirements for application the land readjustment tool in developing the informal areas ,as well as the recommendations of international bodies such as the World Bank and the United Nations in 2016 which determine the elements that should be taken in the process of development informal areas from the stage of policies formulation until the stage of implementation to achieve the development goals with the lowest government expenditure and the greatest returns for the population and investors as shown in the following Table 2 and Figure 9 (Sorensen, 2007; Yomralioglu, 1993; United Nation, 2016; World Bank, 2016; UN-HABITAT & IUTC, 2016).

Table 2. the requirements of application land readjustment tool in developing informal areas

The stages	The main requirements	The roles of the different participated parties				
		Govern-ment	owner s	population	Investor s	NGOs
Formulation the policies	Put legal framework					
	Identify the standards of new land division					
	Establish the land registration department					
Selection the informal area	Determine the appropriate kind of informal areas for application this tool					

	Provide basic data of ownership patterns and their characteristics					
Announce for starting the project	Publishing the time of project starting					
	Collect the participated parties					
	Identify the necessary expertise to prepare development plans					
Identificatio n the main needs of area	Collect the information of physical, social and economic characteristics					
	Taking the opinions of the population about their needs					
Develop a preliminary plan for the development the informal area	Achieve the requirements of population					
	Achieve the requirements of owners and investors					
	Suggest a new division for landplots					
Discuss the project	Finalize the project – discuss the plan - make the required adjustments					
Implement a development project by using land readjustment tool	the investors fund the new projects of housing and services					
	the participation of population in development process					
	Government funds the public services and utilities projects					
	The owners' consent to deduct parts from their land for achieving returns					
	Implementation of legal requirements and limited change in landplots.					

(source: Seele , 1982; Sorensen, 2000; Home , 2007; Hong, 2012; Minoru and Chikashi, 2014)

7. Dealing with land for developing informal areas in Egypt

7.1. The Problem of informal areas in Egyptian cities:

The informal areas in the Egyptian cities have emerged during the 1960s as a result of people migration from the countryside to the cities, in addition to the continuous increase in the population sizes and housing

demand especially for the low income groups in return for the scarcity in housing supply and its disproportionate economies with low income .This led to illegal construction of communities to find the adequate conditions for living.

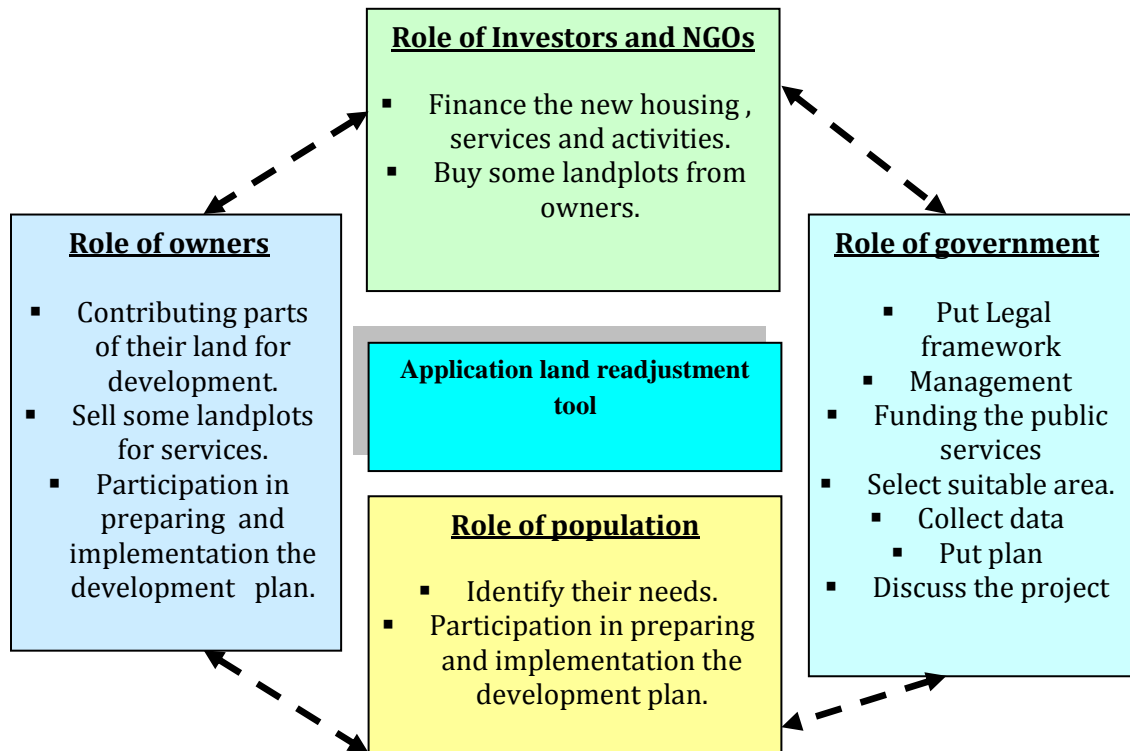


Figure 9. The roles of the participated parties in application land readjustment tool (source: Author)

These informal communities are generally defined as areas which were built on land of the state or others without implementation the laws of planning, building, health and public safety.(Kipper and Fischer,2009)

The informal Settlement Development Facility has classified these settlements in 2008 into two main groups (unplanned areas without application of the laws and regulations - unsafe areas which include different levels of danger from the high threat on the populion life to the degradation only in the Physical environment) (Sabry, 2009).

These communities suffer from the lack of (basic infrastructure - formal tenure - adequate housing and living spaces), as well as a high population density of more than 500 people / feddan. Thereupon they need to be renewed and redeveloped for improving their environment to make them suitable for people living (Kipper and Fischer, 2009).

The report of the Ministry of Local development indicated that the number of informal settlements in Egypt reached to 916 area in 2000 and increased to 1002 in 2003 and the same report estimated the number in 2014 at about 1105 area. While the annual report of the United Nations Population Fund indicates in 2008

that more than 15.5 million people or about 22% of the total population of Egypt live in 1221 informal settlements. The following Table 3 and the Figure 10 show the proportion of informal communities population from the total population of Egypt during the period from 1990 to 2014 (El-Batran and Arandel, 1998).

Table 3. The proportion of informal population during the period from 1990 to 2014.

years	the proportion of informal population from the total population of Egypt
1990	25.01%
2001	17.02%
2005	18.2
2008	22%
2014	24%

(source : Sabry , 2009)

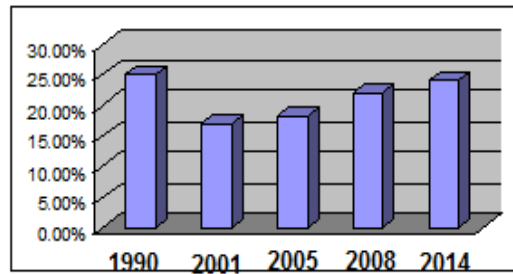


Figure 10. he proportion of informal population from 1990 to 2014. (source : Author)

7.2. Main polices and tools towards developing the informal areas in Egypt

The Egyptian government has ignored the problem of appearance the informal housing in which people were left to meet their needs by themselves with the absence of state control, in addition to ignoring the irregularities in planning and construction until the 1980s, then the government adopted some polices to address the problem of informal areas as shown in Figure 11 which are classified into two main approaches. The first approach is *the resistance of informal growth* through belting ,the urban growth management and new cities construction programs by the preparation of urban plans for cities and the implementation of laws to stop the informal urban growth on state-owned land or the encroachment on private agricultural land , as well as the provision of low-income housing at affordable prices during the 1980s and 1990s, but this approach has not been achieved its goals and the old informal settlements continued to grow, besides to emerge the new informal areas in most cities.

In the other side, the second approach is concerned with the *development of informal settlements and improving their urban*, social and economic environments through application of some programs, including the total removal program with transferring the population to other alternative sites in new cities or paying a financial compensation to them and reconstruction of their old location to other land uses according to the economic value of the place. This program was applied during the seventies and eighties in more than 70% of informality areas like Hukr Abu Domah and Assh al-Turgoman, (Cairo Governorate, 2010) although more than 80% of these areas are in good physical system but they only lack of some services and infrastructure , beside that the population face many social and economic problems in new location such as the far from the

work and services areas , furthermore the high transportation costs which is not appropriate for their low income.(Sabry, 2009).

The removal program is suitable for dealing with informal area which has environment not allow for living or development. Thus, the government has followed the new development program since the early nineties which called *on site development* through the National Program for slums development which uses some polices and tools such as:

- *The policy of removal and transferring of residents to temporary sites* until the completion of development and return them again in the same site, in addition to purchasing necessary land from owners by the government to supply the site with services and facilities. However this policy has been applied in nineties in some projects like Zhenhm and Aldweika which faced some problems such as (high cost – long time to complete the development steps – ignore the actual needs of the population due to lack of their participation in the development process). (Cairo Governorate, 2010)
- *Development without removing* the physical environment through upgrading the physical, social and economic characteristics of some informal areas during the period from 1990 to 2002 within the available land and resources, beside to purchasing or expropriation land from some owners to provide necessary services by the government.
- *The participatory policy* has emerged since 2002 as a result of the decline in government funding for implementation the development projects.This policy depends on the cooperation between the government, international organizations such as GTZ, the Ministry of Local Development, NGOs and population to develop the informal areas within the same site with the lowest government expenditure and better meet for the requirements of the population in less time. This policy was applied in some informal areas like Mansheyet Nasser and Bulaq El Dakrour, But it had a set of challenges such as difficult to provide services and infrastructure because of (the lack of land, the majority of land for private ownership and there is a refusal from the population to sell it). (Abdelhalim, 2009).
- *Land readjustment* according the requirements of Unified Building Law No. 119 (2008) and with the participation of the population to reduce the financial burden on the government and achieve returns for the land owners after their contribution with a part of their land plot in exchange for the extension of roads ,services and facilities in their lands. Nevertheless this policy did not achieve the justice in the distribution of returns between the land owners, in addition to the expropriation of large tracts of land for the development purposes (Sayeed, 2014).

These policies were implemented in about 24 governorates as shown in the following Table 4 which show that the most development projects for informal areas that using land re-adjustment with land owners participation within the same site and without the transfer of population has been appeared in Giza governorate (13 project), Therefore, the case study will be selected in Giza governorate (Giza Governorate, 2009).

Table 4. Distribution of application different policies for developing informal area in the Egyptian governorates

The Govern-orate	Number of informal areas	No of projects of removal and transferring the population	No of Developm-ent projects on site	The Govern-orate	Number of informal areas	No of projects of removal and transferring the population	No of Developm-ent projects on site
Cairo	81	8	0	Ismailia	15	0	2
Giza	41	0	13	Suez	2	0	0
Qalyubiya	67	0	15	Sharqia	83	0	0
Alexandria	54	5	5	Beni Suef	52	0	18
Beheira	81	0	13	Minya	31	0	0
Matrouh	24	0	0	Fayoum	28	0	0
Minufiya	53	0	12	Assiut	84	0	84
Gharbiya	47	0	0	Sohag	67	0	45
Kafr el-Sheikh	63	0	1	Qena	66	0	66
Damietta	90	0	30	Aswan	40	0	33
Dakahlia	61	0	0	Red Sea	9	0	0
North Sinai	38	1	0	Luxor	15	0	0
Port Said	7	0	0				

- Development through total removal and temporary population transfer
 - Development through Partial removal and temporary population transfer
 - Development without removal the physical environment
 - Development by using the re-adjustment of land with land owner participation
- (source: Author according to references of Sejourne, 2009 ; Sims , 2003; Sabry, 2009)

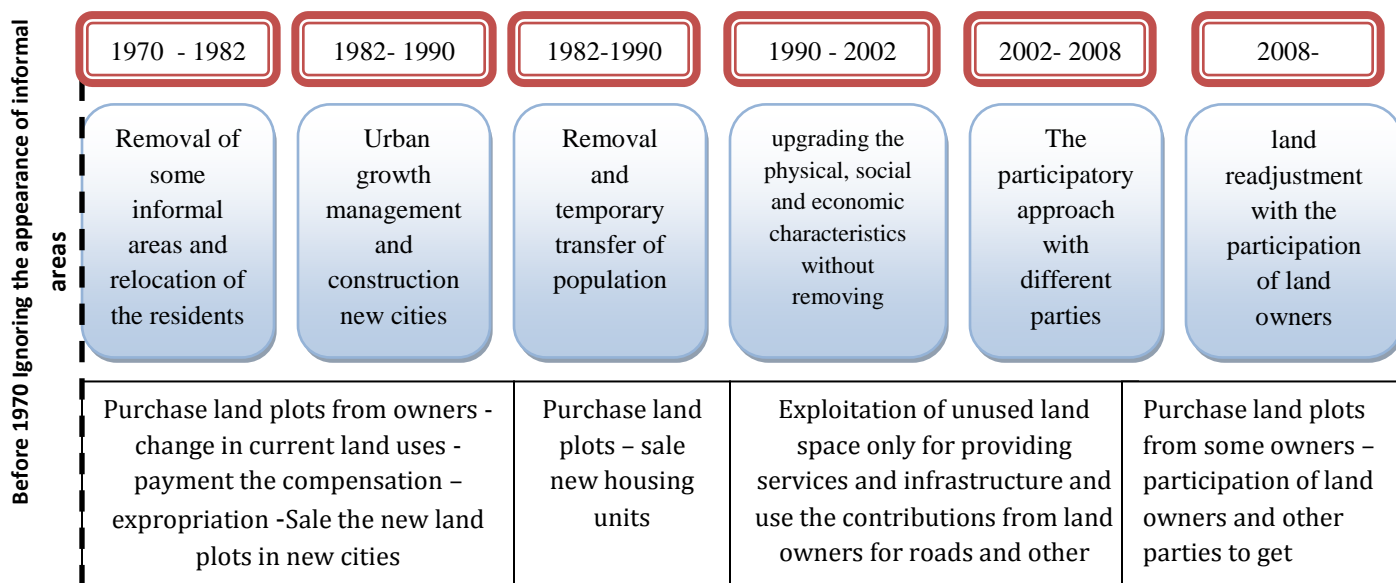


Figure 11. Main polices and tools towards informal areas development in Egypt (Source: Author)

7.3. The legal framework of applying land readjustment tool in development purposes

The executive regulations of Unified Building Law No.119 (2008) refers to a set of articles about the dealing with landplots in informal areas for development process such as the articles from (48- 50) that clarify the criterias for the new division of land plots as well as the articles from (60- 67) which determine the procedures of land readjustment projects as shown in the following points: (Law No 119, 2008):

7.3.1. *The stage of Identification the informal area*

The Supreme Council for Planning and Urban Development determines the informal areas with the governors according to a set of criteria such as:

- The priority areas for development in accordance with the recommendations of the city's strategic plan and the detailed plan.
- Land readjustment must achieve benefits for landowners , government , population and investment entities.
- Existence of the necessary land for the development.
- There are ingredients for implementing the readjustment process.

7.3.2. *The stage of negotiating with landowner and owners of real estates*

The inventory and negotiation committee forms from (head of the city or neighbourhood – representative from Egyptian Tax Authority – representative from Real Estate publicity – head of Local Council) , this committee is responsible for:

- Collect all the necessary data about (the properties, landuses of landplots and its areas – the types of ownerships for land and real estate- the contracts of properties).
- Obtain an agreement from owners for modification their land and redistribution the properties after development.
- Carry out the expropriation of some land plots which their owners refuse to participate in land readjustment process. (in return for financial compensation which is determined by the (Evaluation Committee).
- Provide alternative housing or activities for beneficiaries and non-owners inside or outside the informal area.
- Hold periodic meetings with different parties to obtain all approvals about the costs and revenues of the project.

7.3.3. *The stage of implementation*

The article no (50) in Law No.119 includes a set of requirements that must be taken in consideration when implement the land re-adjustment tool in the informal areas such as:

- One-third of the area is allocated for (roads, streets, squares, parks, services and facilities) which is deducted from the total area or from each land plot.

- The total area of the streets is not less than 20% of the total informal area.
- Each land plot contacts at least with one road.
- The lengths of each residential block should not exceed 250 meters.
- The smallest area of a residential land plot is not less than 150 m².
- The width of roads should not be less than 8 meters.

8. The mechanisms of implementation land readjustment tool in developing informal deteriorated areas in Giza governorate

8.1. Select the case study

Giza governorate includes (42) informal areas which are distributed in its various districts as shown in Figure 12, the number of deteriorated areas are (11) as shown in the Table 5 and Figure 13. These informal areas have emerged through building on privately owned agricultural land on the outskirts such as Al Moneeb and Saqiya Makki and some areas within the urban area such as Dokki and Agouza. (Giza Governorate, 2009; Giza Governorate, 2010).

Table 5. Distribution of informal areas and deteriorated areas in Giza Governorate

District	Informal areas	District	Informal areas	
North district	kafr el Shawam	El-Omrania	Laselki City	
	Al-Mounira El- Gharbia		Sakan El-Talebat	
Agouza	Meit Oqba		Ezbet Fakiha	
	El-Houtia		Church	
Dokki	Ezbet Wilad Allam		El-Zohor Club	
	Bin El Sarayat		El-Kom El-Akhdar	
	Dayer El Nahia		Hekr Abbas	
South district	El-Monib		El-Waraq	Kafr El-Salmania
	Saqia Mikki			Kafr El-Henadwa
	Gezira El-Dahab			Munshat El-Bakari
	Hadayek Gezira El-Dahab	Haram district	Kafr Ghatati	
	El-Qasabgi		Kom Bakar	
Ezbet El- Bekbashy	Kofra Nassar			
Boulaq El Dakror	Boulaq El- Dakror		Ezbet Gebril	
	Zenin		Nazlet El-Semman	
	El-Shorbagi	Nazlet El-Sisi		
	El-Maleka Road	Kafr El-Gabal		
	Qemisha			

	Abou El-Leil		Kafr El-Manfa
	Kafr Tohormos		Nazlet El-Batran
El-Omrانيا	Sidi Ammar		
	Zahraa		
	Lotus City		

Deteriorated areas in in Giza governorate.
 (source: Giza Governorate, 2009; Giza Governorate, 2010)

The area of Daier el Nahea is considered the first area where the project of limited land readjustment has been applied in 2010 with the partnership of owners and private sectors (Giza Governorate, 2010). This project has used a number of mechanisms to implement this tool and it achieved some positive and negative aspects, but it needs to be studied to reach a set of recommendations about how to apply the limited land readjustment tool with the consent of the various parties and without any impediments.

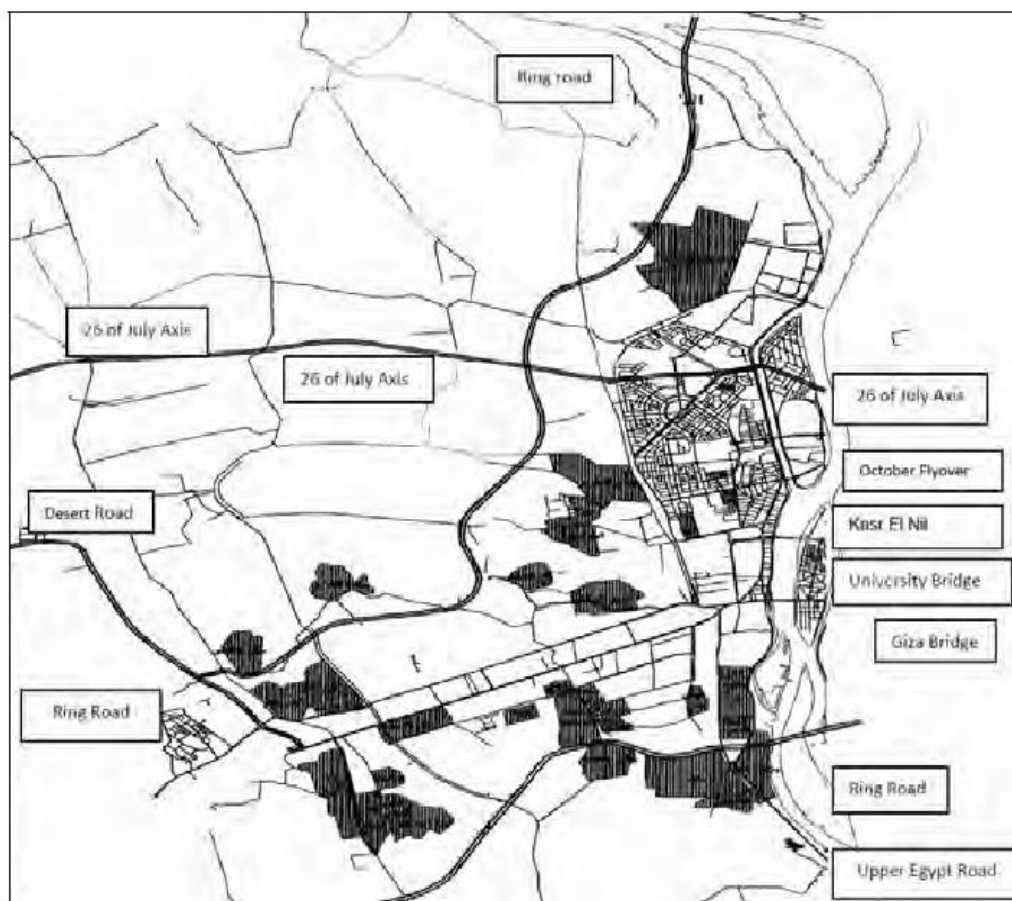


Figure 12. Location of informal areas in Giza governorate (Source: Giza Governorate, 2009)

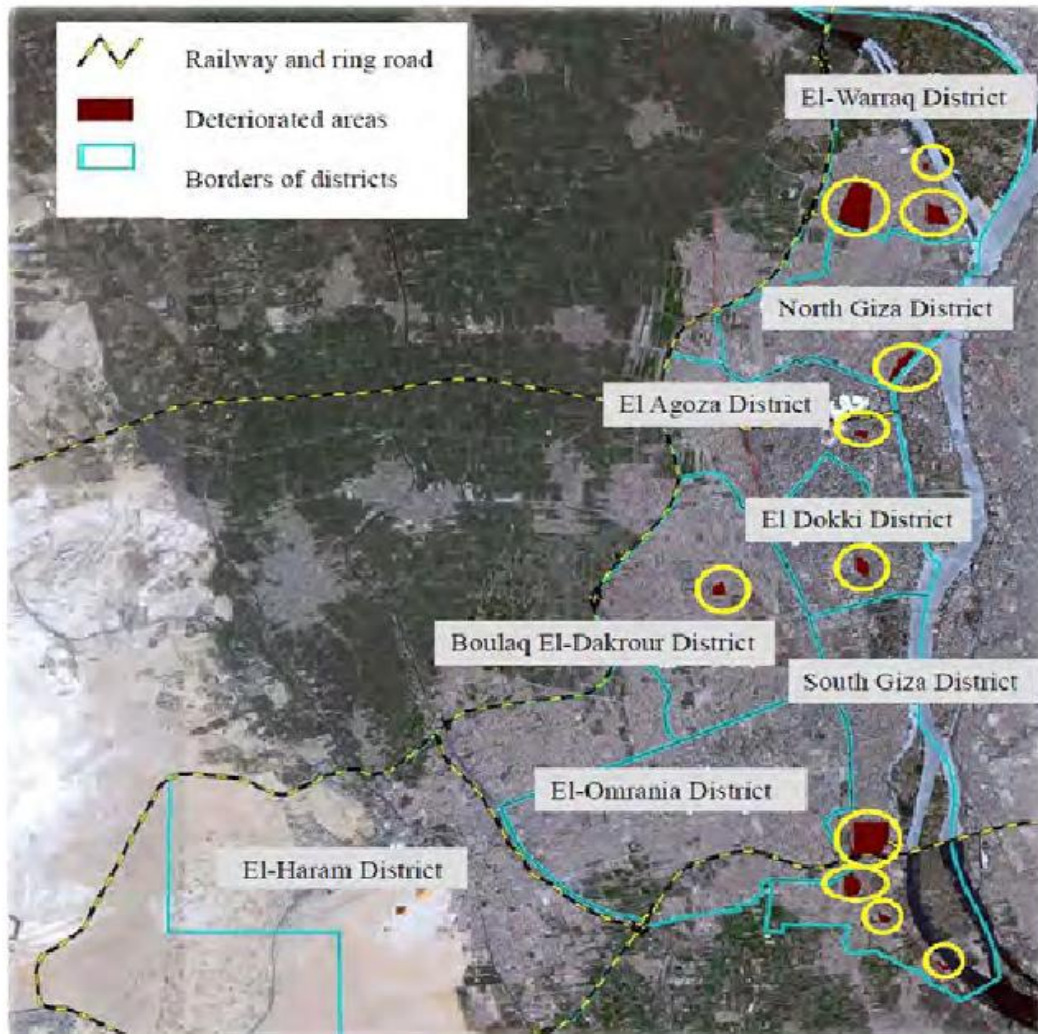


Figure 13. Location of deteriorated areas in Giza governorate (Source: Giza Governorate, 2009)

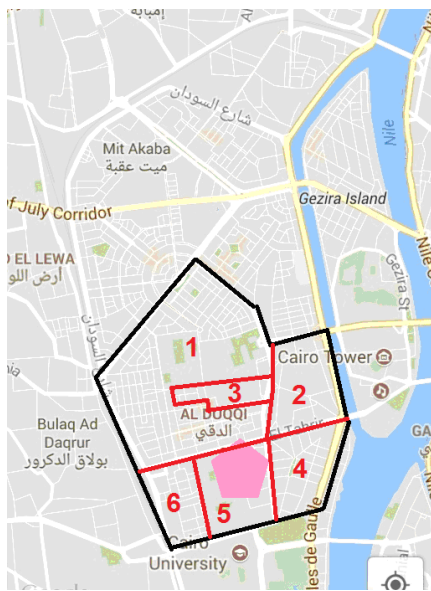
9. Land readjustment project in Daier el Nahea (Dokki District)

9.1. Location of Daier el Nahea area

Dokki district is one of residential and commercial districts in Giza city with an area of 5 km² , it are surrounded by the main streets (Gameat Al Dewal Al Arabeya in the North West – EL Batal Ahmed Abd EL-Aziz Street in the North East – Al Mathaf Al Zerai in the North- Abdel Salam Street in the in the South -Sudan Street in the west), it is divided into six Sheikhs as shown in Figure 14 which include five old urban areas (Been Elsarayat – Awlad Alaam – Old Dokki or Daier el Nahea – Almesha – Albohous).

Daier el Nahea is the oldest area in Dokki district which located in the Southern part with an area of about 48 acres. The location of this area is characterized by high economic value due to the existence of some important buildings like Housing & Building National Research Center in the west and the main streets in its

borders such as (Tahrir street in the north - Al-Sobki Street in the south – Dokki street in the east - Dr. Hasan or Al wabor Street in the west) as shown in Figure 15 (Giza Governorate, 2009).



Location of Daier el Nahea in Dokki district

Boundary of Dokki district

Boundary of Daier el Nahea

Figure 14. Location of Daier el Nahea in Dokki district (Source: Giza Governorate, 2009)

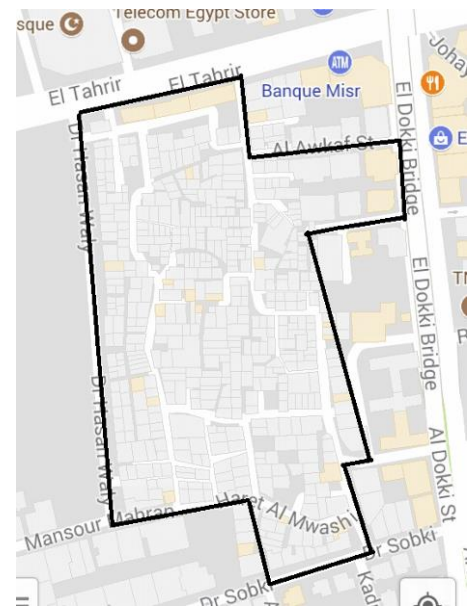


Figure 15. Boundary of case study (Daier el Nahea) (Source: Giza Governorate, 2009)

9.2. Main characteristics

This area appeared in the early 20th century as a result of the migration of some population from Northern Upper Egypt, who built their houses in informal way and worked in agricultural activity, then Daier el Nahea was developed into an urban community with different activities such as commercial and craft activities. The Informal Settlement Development Facility classified this area as informal deteriorated area which needs to develop it with providing basic services and facilities without the relocation of its inhabitants. The Slum Development Unit of Giza Governorate in 2010 showed the main urban, economic and social characteristics of this area which is represented in: (GTZ, 2009; Giza Governorate, 2010)

9.2.1. Physical characteristics

- Land uses in this area are mixed and include residential, commercial, and craft uses. The craft uses are cars repairing and carpentry works which occupy an area of about 20 acres and cause pollution to some residential buildings because of its proximity to them as shown in Figure 16.
- The most of buildings are characterized by good conditions (65%), which allow to develop the area in its site and with limited remove.

- The degraded buildings (35% of total buildings) spread across the middle of the area between some of good buildings, which were built with traditional building materials without any maintenance from the owners who live outside the area.
- Buildings are classified as unsafe buildings (35% of the total buildings in the area), safe buildings are located within the unsafe buildings (10%) and safe buildings with the percentage of 55% as shown in Figure 17.
- The area lacks from a suitable road network for residents and activities, but there is a possibility for development it through exploitation of available land.
- The width of internal roads are less than 8 meters.
- There is not enough available land (only 3 acres) to provide the necessary services and open spaces the residents. The empty land plots are used for crafts such as repairing cars, carpentry and selling the consumer goods.
- There are infrastructure sources of water, electricity and gas, but it is difficult to delivery them for some residential buildings due to the lack of suitable road network and inefficient physical condition of some buildings.
- There is no basic services which commensurate with the residents needs.
- There are different models and areas for current housing units which range between 60 m² inside the area to more than 100 m² in the outskirts.

9.2.2. Economic characteristics

- Cars repairing is the main activity in the area and integrates with some commercial shops that sell spare parts of cars.
- Craft and commercial activities have emerged in informal way without any licenses.
- The land plots are characterized by their high economic value, especially which located on the main roads and near the governmental institutions.
- Most economic activities are concentrated around degraded buildings, which are spatially converged with each other, that help to implement the land readjustment easily.
- The area is characterized by the existence of informal possession for some land and buildings, which allows to carry out the development process with the participation of the owners to legalize their situation.
- There are many types of tenure between (landowner - the owner of the building - a tenant-the owner of activity or investor), which must be involved in the development stages to meet their needs.
- The existence of one owner for more than one contiguous land plots in the area which facilitates the development decision.

9.2.3. Social characteristics

- Daier el Nahea area differs in its physically, economic and socially characteristics from the surrounding areas, which populated by low-income social classes.
- There is a socially homogenous (low income groups) because the inhabitants from the same areas (Upper Egypt and some areas in Sharkia governorate).
- The population is associated with the area because their works are beside the place of residence.
- Availability of civil society institutions and NGOs which support the projects of development.

9.3. Application of land readjustment tool for developing Daier el Nahea area

The paper uses the data of government agencies such as Informal Settlement Development Facility (ISDF), the Slum Development unit in Giza Governorate and GTZ in addition to the result of visit the area to answer the following questions (how was the area developed by using the readjustment tool? - what are the roles of different actors such as government , international organizations , owners , population and investors in the development process ? , what is the executive status of land readjustment plan in Daier el Nahea area? And what are the most challenges of implementation?

9.3.1. The stages of land readjustment project and its procedures

The development of Daier el Nahea area based on the Participatory development program in partnership with GTZ and Berlin University for Urban Studies to improve the urban area by using of land readjustment tool. This project followed a set of steps and mechanisms that faced some challenges , which are illustrated in the Table 6 and following points:

Table 6. The stages of application land readjustment tool for developing Daier el Nahea area

Stsges of project	The main procedures
a. Determine the case study and its area	<ul style="list-style-type: none"> ▪ Giza Governorate defined the area of Daier el Nahea for developing it according to a set of criteria, including: ▪ The existence of degraded and unsafe buildings that need to be removed. ▪ the area which lacks from necessary facilities and services for residents and business owners. ▪ The boundaries of area are represented by a major street network. ▪ The Social homogeneity for the area which different from the surrounding areas. ▪ The concentration of craft and commercial activities inside the area.
b. Meeting with owners, residents and other participated parties to identify their	<p>Dialogue sessions were held between NGOs, some investors, owners, residents, local authorities and government agencies to determine the total needs for developing the area and and achieving the objectives of participants, these requirements are:</p> <ul style="list-style-type: none"> ▪ Development the degraded buildings with an area of about 17 acres. ▪ Provide roads network with an area of 8 acres. ▪ Localization of necessary social and educational services with an area of 2 acre.

needs	<ul style="list-style-type: none"> ▪ Provide 1.5 acre for pedestrian streets, especially in commercial areas. ▪ Construction of new housing units on land with an area of 1.5 acres.
c. put the Proposed development plan by using land readjustment tool	<p>The development plan was based on the detailed data of the urban, economic and social characteristics such as: (types of ownership - distribution of current land uses – the percentage of owners participation – available funding from investors - available empty landplots..), and this plan was formulate by using the following mechanisms:</p> <ul style="list-style-type: none"> ▪ Removal of some unsafe buildings (1.5 acres) that threat the population life , in addition to paying the financial compensation by private sector to some landowners and residents who unwill to continue in the area. ▪ The private sector buys some empty landplots (1.5 acres) from owners to provide new housing units and commercial activities. ▪ The government purchases some empty landplots (1 acres) and some land plots of removed buildings (1 acres) to provide public services. ▪ The participation of some owners in providing a proportion of their land (20-40%) (4 acres) for roads, pedestrian streets and open areas that will raise the economic values of their land. ▪ Annexation of some empty landplots with landplots of removed buildings for creating open areas (1.5 acres). ▪ Collection the small landplots to larger landplots for large-scale uses, with the participation of owners, especially the owners of craft and commercial activities to achieve a higher level of profitability or enable them to sell their land with high price in the future. ▪ Complete the transporting process of some black and gray activities (repairing cars) which cause pollution for residential areas. ▪ Development of some degraded buildings that have not been removed (30% of all buildings in area) through participation with GTZ. ▪ The private sector finances the construction of new housing units in exchange of 25% from the total Selling value. <p>The Figures 18 and 19 show the proposed plan for land readjustment in Daier el Nahea area and its executive status.</p>

(Source: Abdelhalim., 2009., Abdelhalim, 2010., GTZ, 2009)

9.3.2. Main challenges of implementation

The paper reached to the challenges of implementing the project of land re-adjustment in the Daier el Nahea area through visit the area and meet with some officials in the Slum Development unit in Giza Governorate which show the following results:

- The original owners of real estate live outside the Daier el Nahea area.
- Multiple property patterns for the same land plot.
- Lack of accurate data about the land owners and the total area of each ownership to facilitate the dealing with it.

- Some residents refused to move outside the area (in the case of removing some degraded buildings).
- The owners of craft and commercial activities refused to move outside the area.
- Low value of provided compensation to owners.
- Some landowners have benefited from the new division of land without others.
- Deduction of a larger percentage form some landplots (40%) in exchange for a lower percentage (20%) for the others.
- Distribution of services irregularly according to available empty landplots.
- Some landplots are inappropriate for localization of services and facilities due to their small size.

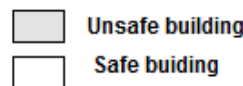
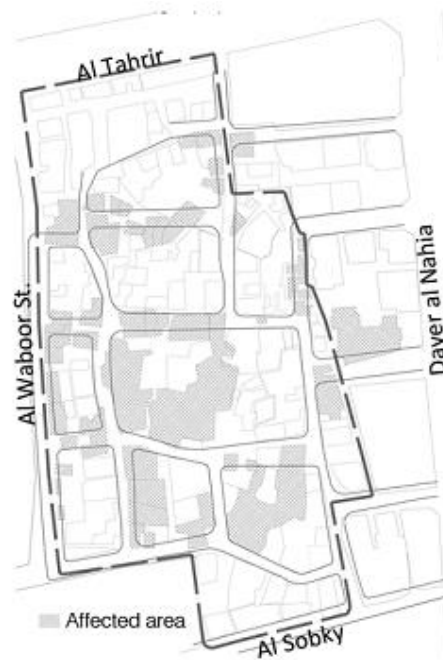
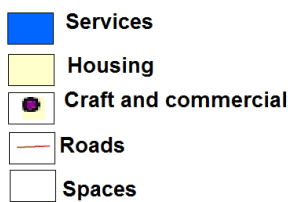
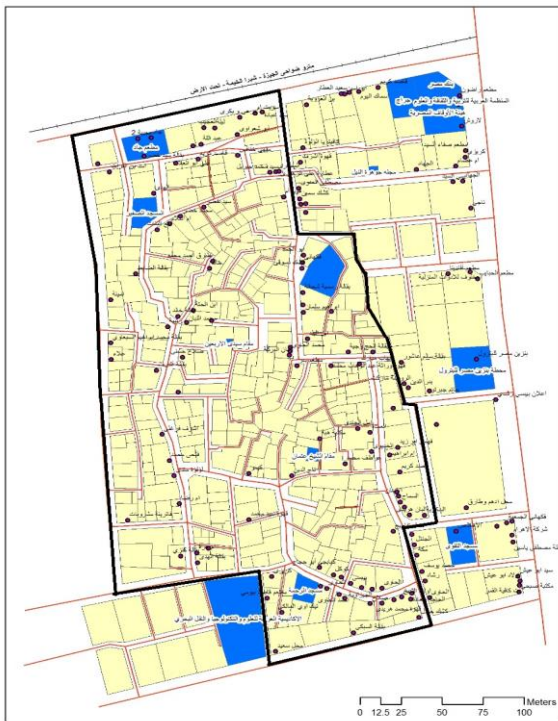
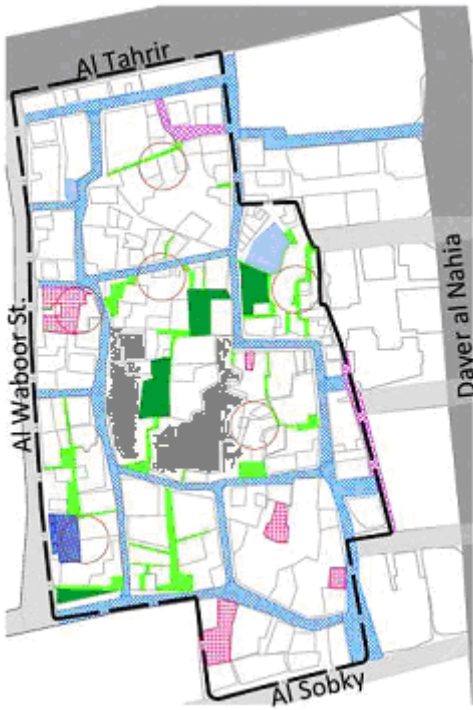
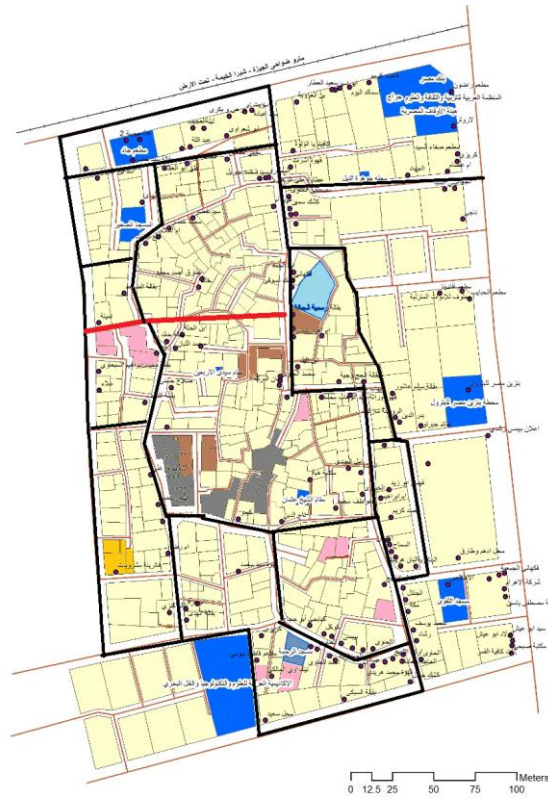


Figure 17. Safe and unsafe building in Daier el Nahea area(Source: GTZ, 2009)

Figure 16. Current Land use in Daier el Nahea area (Source: Author)



- Suggested roads
- Exploitation empty landplots for new housing projects
- Suggested open spaces
- Suggested Pedestrian steets
- Suggested services
- Upgrading services
- Removal of building for new housing units



- Implementation of upgrading services
- Existing services are not in the plan
- Implementation of new housing units
- improving the networks of roads
- implementation housing building instead of services
- implementation services instead of housing
- road is not implemented
- implementation housing building instead of open spaces
- remove old building and build new housing area
- Improving the current roads

Figure 18. The plan of land readjustment in Daier el Nahea area (Source: GTZ, 2009)

Figure 19. The executive status of land readjustment plan in Daier el Nahea (Source: Author)

10. Conclusion and recommendations

10.1. Conclusion

The paper discusses the main requirements for application the limited land readjustment tool in developing informal areas which need to be partially removed in addition to provision of services and facilities, these

requirements appear through the development stages from the selection of appropriate area to the implementation stage as shown in the following points:

The stage of selecting the appropriate informal areas: The limited land readjustment can be applied in which the degraded areas are located inside the informal area to remove old building and use their land plots or Part of it in providing roads, services and facilities through the contribution of owners, residents, investors and government with achieving less government spending and high return for all parties .This tool requires the existence of Database about (the ownership patterns , information about owners and residents, current land uses and the area of landplots) to facilitate the process of land dividing and redistribution it to the owners after development.

The Stage of Preparing the plan: This stage requires a set of element such as (existence of legislative framework – acceptance of participated parties such as population, owners and investors and NGOs – Identify the social, economic and physical characteristics of informal area - estimate the total needs of all parties - increase the economic value of land plots after land readjustment– deduction areas for services and roads in which are not exceed 30% from the total area or from each piece of landplots - deduction a fixed area from landplots which have equal economic values – collection small land plots to provide the large scale uses – presentation the development plan and record the notes to modify the plan).

The Stage of implementation: This stage needs to participate different parties and organize their roles to implement the plan through:

- Provide incentives to owners for contributing parts of their land in development process , these incentives are (Increasing the economic value of their landplots by extending a new network of roads, services and investment activities – provide adequate financial compensation – Allow to change the current land use for achieving better returns - Increasing the current building density for high land exploitation).
- The participation of investors in financing by purchasing the available land plots from some owners to provide economic activities, new housing units and services, or participation with land owners in return for a percentage of profitability.
- Limited government funding for public services and utilities projects only.
- Encourage the population to participate in the development by providing them some incentives such as (building new housing units with large area and high quality as alternative to old their units - Improving the living conditions - Introducing low rental value for the new housing units).
- Implementation the land readjustment tool in the least time.

10.2. Recommendations

The paper suggests some recommendations about the necessary requirements for improving the application of land readjustment tool in development the case study of Daier el Nahea area such as:

- Preparation the full database about the land and real estate ownership.

- Fair deduction of parts from all land plots to ensure that the owners will accept to participate in the development.
- Achieving a positive relationship between the ratio of land deductions and the economic value of land plots.
- Increasing the profit rate for the investors to be more than 25% in the partnership projects with owners or government.
- The redistribution of proposed public services location to be at the low economic value sites to reduce costs and achieve new economic value for these sites
- Reducing the rental values for new housing units.
- Limited removal for some degraded building to provide the needs of development because there is lacking of available empty land plots.

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