

# Land Acquisition and Land Pooling Project

Case Study of Kampung Melayu and Bukit Duri District,  
Jakarta, Indonesia

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## ACKNOWLEDGEMENT

*"The Author thanks above all, Allah, the Great Almighty, the source of all knowledge and wisdom. Special thanks to the Dean of Faculty of Environmental Design, Dr. Mohamed Aljufie, and Chairman of Department of Urban and Regional Planning, Dr. Emad Qurnfulah, for giving me the opportunity to study in this department and continuous support. The Author also would like to thank the lecturer of the Master Course - URP 614 Workshop in Land Use Planning, Dr. Hossam M.K. Aboulfotouh, for his guidance and encouragement in finishing this assignment and also for teaching me in this course."*

Valid Hasyimi  
Jeddah, 2017

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**Section**

**1**

**Introduction**

### 1.1 Overview of Jakarta Province.

Jakarta is the biggest capital city in Indonesia which has two important roles, which is as seat of government and center of businesses. Located in the Java Island as the most populated island in Indonesia, Jakarta has become a huge magnet for people around Indonesia to come and get better jobs. The original administration area of Jakarta is 661.5 km<sup>2</sup>, but because of its rapid development total Metropolitan Jakarta area today is 17,132 km<sup>2</sup>, including Depok, Bekasi, and Tangerang. Jakarta has high population growth, especially because of rapid immigration rate. In 1990, Jakarta was populated by 7.6 millions people, but in 2013 based on the census, it was populated by 10,6 millions people with the density 14,464 people/km<sup>2</sup>, see Fig. 1.

Jakarta consists of five administrative cities/municipalities, each headed by a mayor – and an administrative regency headed by a regent. The administrative cities/municipalities of Jakarta are Central Jakarta, South Jakarta, North Jakarta, West Jakarta, East Jakarta, and Thousand Islands.

The base income of Jakarta comes from business and commercial activities. It's supported with the good infrastructure and transportation. The rapid development and population growth in Jakarta cause some important challenges.

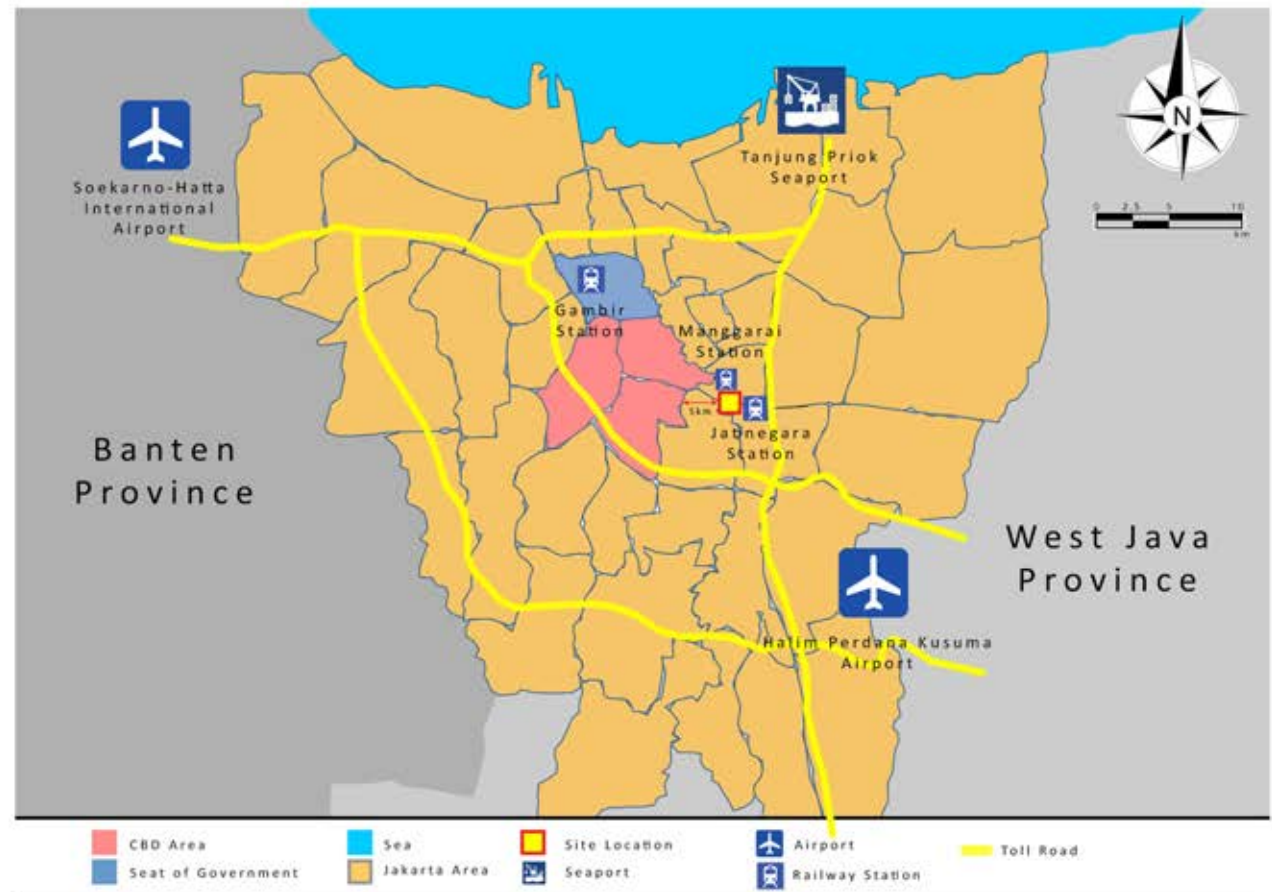


Figure 1 Study area position in the map of Jakarta Province.



## 1.2 Study Area Profile.

The location of study area is about 5 km from the Central Business District as the center of activities and amenities. The site plan lies between two districts, they are Kampung Melayu and Bukit Duri district. Kampung Melayu has higher population and more low income family than Bukit Duri, see Fig. 2. Kampung Melayu is populated by 10,039 families with 43,390 persons in total. The income rate is about US\$ 150 – 500 per month which is lower than Bukit Duri with US\$ 200 – 1000 per month. Bukit Duri is populated by 8,958 families with 13,966 persons in total.

The study area has good accessibility because it's surrounded by railway station and Bus Rapid Transit station (Trans Jakarta). Because of its distance from CBD and accessibility, this residential area is very suitable to be built as medium or high rise building for residential to support the CBD functions, see Fig. 3. On the contrary, this area isn't supported with proper area planning and controlling. The river banks which is supposed to be public recreational area and free from any development, on the contrary, become informal settlement for low income and poor families. They cannot afford to rent a house or apartment inside CBD area and cannot afford the traveling cost if they live in a suburban area. The live in informal settlement on riverbank to maintain the rent low and cheap traveling cost.

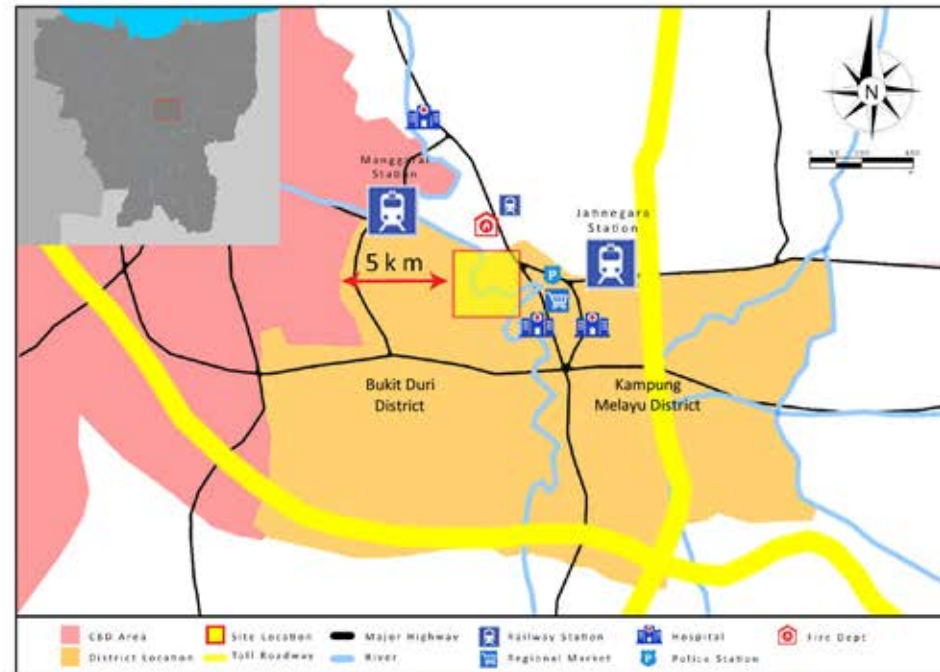


Figure 2 Study area location in district level.



Figure 3 Land use map of study area.

### 1.3 General Issue of Study Area.

There are several issues in the study area which need short and long term solutions.

#### 1.3.1 Flood.

Jakarta is suffered with annual flood because there are a lot of squatters were built on the riverbanks and there are a lot of garbage in the river which cause that water do not flow well. Other reason is the drainage system is not able to accommodate that very large inflow of water. The flood do not only impact the area adjacent to the river but also hits the CBD area which shutting down the activities inside that area.

Kampung Melayu and Bukit Duri districts are areas of Jakarta which suffered badly by annual flood. In the peak of rainy season, the flood could raise up to 2 – 2.5 meters. Fig. 4 shows the areas that suffer of annual flood.



Figure 4 Map of flood risk in study area.

#### 1.3.2 Lack of Housing Amenities.

Reports by the UN Human Settlements Program estimate that there are more than five million slum dwellers in Greater Jakarta. The first problems of these slums area is its physical dimensions. The dwellings lack of amenities that most people would consider, such as sanitation, clean water, and electricity. In our study area, the amenities problems do not cover the whole area, but only the area which is close to the river banks and that is dominated by illegal housing.

#### 1.3.3 Illegal Housing.

Many slum dwellers are actually squatting on public lands, which creates a hostile relationship between slum dwellers and authorities. Some of them build their dwellings in the public open spaces which supposed to be water absorption areas, see Fig. 5.



Figure 5 Image of Illegal Housing in Kampung Melayu District.

Strategies to curb or mitigate illegal housing include creating more affordable housing structures, securing the safety of illegal buildings, developing a plan of action for residents of shanties or illegal buildings, and policing the construction of illegal buildings.

#### 1.3.4 Low Standard Housing Construction.

Slums are self-constructed by the people with limited resources and low skills. Most of them do not meet the building standard, which are unsafe and unhealthy to live in, especially if there are disasters and epidemics.

Because this area is occupied by low income families whom do not have ability to pay rent or move to other places, the government should give them compensations or build for them new affordable houses.

#### 1.3.5 Very High Density Area.

Most of the houses size in the slum areas are very small and occupied by more than one family. Beside that, the paths between the houses are very narrow, thus the area is very vulnerable to fire and infectious diseases. There are no proper parks or playgrounds area or other recreational facilities for children in the area.

**Section**

**2**

**Literature  
Review**



The following literature review is summary of the Indian practice in Land Acquisition and Land Pooling (Angel et al., 1988). The basic knowledge related to its practices will be adopted to solve problems in the study area.

## 2.1 Land Acquisition in India.

Land acquisition is a process by which the union or a state government in India acquires private land for the purpose of industrialization, development of infrastructural facilities or urbanization of the private land, and provides compensation to the affected land owners and their rehabilitation and resettlement, see Fig. 6.

In this method, the public planning authorities/ development agencies acquire large areas of land from agricultural landholders (farmers) under the Land Acquisition Act of 1894. Land acquisition in India is governed by the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (LARR) and which came into force from 1 January 2014. The land owner / farmers will get the compensation usually in higher price than its agriculture land price to minimize the opposition.

### 2.1.1 Issue in Land Acquisition.

The major land acquisition and conflicts happen in the densely populated areas of the countryside. It's not easy for the society to adapt

with new life in the new place in short period. Some of the important issues surrounding the Land Acquisition are discussed here below :

#### a) Eminent Domain.

Eminent domain means the power of government to acquire private property in order to promote general public welfare. This doctrine empower the government to acquire private property for public, but the government should deprive them with fair compensation. In some cases, the people felt that they're not paid with fair compensation so it takes much effort for government to do win-win solution by good negotiation process.

#### b) Legislative Changes.

The 2013 Act focuses on providing not only compensation to the land owners, but also extend rehabilitation and resettlement benefits to livelihood looser from the land, which shall be in addition to the minimum compensation. The minimum compensation to be paid to the land owners is based on a multiple of market value and other factors laid down in the Act. The Act also introduced changes in the land acquisition process, including a compulsory social-impact study, which need to be conducted before an acquisition is made.



**Figure 6** Shantigram Township, (left) acquired land parcels; (right) final serviced land parcels for sale.

c) *Monetary Compensation.*

The compensation for the acquired land is based on the value of the agricultural land, however price increases have been ignored. The land value would increase many times, which the current buyer would not benefit from. Besides, if the prices are left for the market to determine, the small peasants could never influence the big corporate tycoons. Also it is mostly judiciary who has awarded higher compensation than bureaucracy.

d) *Delayed Projects.*

Delayed projects due to mass unrest have caused a damaging effect to the growth and development of companies and the economy as a whole.

e) *Consequences.*

The consequences of land acquisition in India are manifold. The empirical and theoretical studies on displacement through the acquisition of land by the government for development projects have so far focused on the direct and immediate adverse consequences of land acquisition. Most of the analytical as well as the descriptive accounts of the immediate consequences of land acquisition for development projects draws heavily from Michael Cernea's "impoverishment risk model", which broadly enumerated eight "risks" or "dimensions" of development-induced displacement.

These eight risks are very much direct and basic in nature which are:

- (i) landlessness,
- (ii) joblessness,
- (iii) marginalization,
- (iv) loss of access to common property resources,
- (v) increased morbidity and mortality,
- (vi) food insecurity,
- (vii) homelessness, and
- (viii) social disarticulation.

2.1.2 *Advantages.*

- (i) Adequate amounts of land can be generated with little opposition.
- (ii) Sometimes government engage private developers to make the process faster.
- (iii) Few constraints in preparing master plan.
- (iv) The determination of land value accrues to the development authority.

2.1.3 *Deficiencies.*

- (i) Literally, farmers throw off their farmland.
- (ii) Farmers could not wisely invest the compensation money and they have to join urban labor.
- (iii) Development process is slow because anyone who want to build on the land should

has approval from urban development authority.

- (iv) Big developer potentially controls urban resources.
- (v) This is likely to breed corruption, where government plays a facilitator's role.

## 2.2 Land Pooling

Land Pooling is a concept that where small chunks of land are owned by group of owners who assemble for the development of infrastructure as per the provisions of the Delhi Development Act 1957. As there is no acquisition or transfer of ownership involved, there is no case for paying compensation. Urban land pooling is a technique for carrying out the unified servicing and subdivision of separate landholdings for study urban development. It is also known as urban land consolidation, land readjustment, land replotting, and land redistribution in particular countries because it involves these processes, see Fig. 7.

A master plan of the area is prepared, laying out the roads and plots for social amenities. The remaining land is reconstituted into final plots for the original owners. The size of the final plot is in proportion to the size of the original plot, and its location is as close as possible to the original plot. A betterment charge based on the cost of the infrastructure proposed to be laid is levied on the



landowners. Infrastructure is then provided utilizing these funds.



**Figure 7** Land Pooling Implementation. (left) Original irregular land parcels; (right) Final regular land parcels with proposed road and amenity.

After the development of the land, the Land Pooling agency redistributed the land after deducting some portion as compensation towards infrastructure costs. This is done to develop and bring out the potential of housing and infrastructure to reduce the load on the existing congested and saturated areas, like core parts of the city.

The concept of land pooling is to assemble small rural land parcels into a large land parcel, provide it with infrastructure in a planned manner and return the reconstituted land to the owners, after deducting the cost of the provision of infrastructure and public spaces by the sale of some of serviced land. Land pooling can be used for:

- (i) Consolidating separate landholdings for their unified subdivision for the planned pattern of urban land uses.
- (ii) Achieving the timely servicing and subdivision of urban-fringe landholdings to a good standard
- (iii) Financing the cost of providing the road and public utility service networks out of the related land value increases.
- (iv) Ensuring an adequate supply of land for new housing development.

#### 2.2.1 Prerequisites.

There are several important prerequisites for the successful implementation of land pooling:

- (i) It must be supported by the national, regional and municipal governments. It is important that the national Government provides regulations and guidelines to ensure fairness in the system.
- (ii) The land readjustment agency must be given powers to coordinate and to get access to assistance from various government departments.
- (iii) The land registration and cadastral system needs to be efficient.
- (iv) There has to be a sufficient number of skilled and highly dedicated negotiators at the local level as well as objective and well-trained land speculators.

- (v) As the method is based on public/private cooperation, the majority of the landowners should support the use of the technique, and Forceful acquisition of land should be avoided.

#### 2.2.2 Advantages.

- (i) All the land still belong to the owners, they still enjoy access to the land resource.
- (ii) The incremental land value after development goes to original owner whenever the land is sold and developed for urban use.
- (iii) Negative impact of the process of urbanization is minimized.

#### 2.2.3 Deficiencies.

- (i) Time consuming, because the process is complicated and engage a lot of stakeholders.
- (ii) Sometimes the betterment charges did not match with the expectation because it's assessed at the beginning and did not meet the cost of the infrastructure provided.

It is quite evident that the land pooling and readjustment method is far more *equitable and democratic* when compared to the method of bulk land acquisition.



**Section**

**3**

**Analysis of  
Study Area**

### 3.1 Zoning Classification of the Study Area.

Based on the similarity of the land use, type of building and density, we can classify the site plan into six zones. The purpose of this classification is to make it easier to identify the site per zone and propose of specific solution per zone (Fig. 8). Those six zones are:

- Zone A – Offices and Commercial Activities.
- Zone B – Exclusive Housing Area.
- Zone C – Middle Density Residential Area I.
- Zone D – Middle Density Residential Area II.
- Zone E – High Density Residential Area.
- Zone F – Very High Density Residential Area.

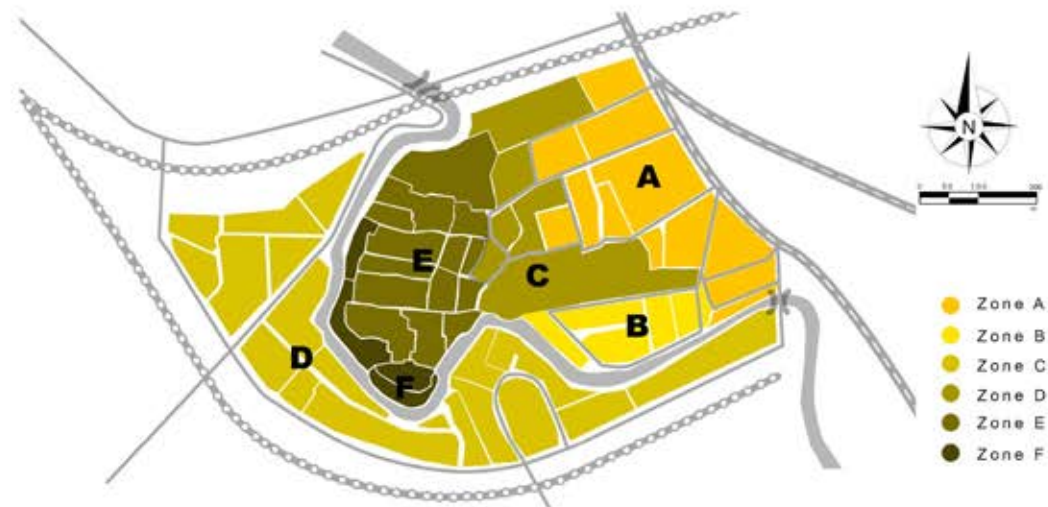


Figure 8 Zoning classification of the study area.

#### 3.1.1 Zone A – Offices and Commercial Activities.

All buildings in the Zone A are permanent and most of them are used as offices and commercial activities, see Fig. 9. Commonly, building size is about 160-800m<sup>2</sup> with 3-4 floors. there are 3 types of street hierarchy inside this zone. They are artery, collector, and local street. Streets condition is very good, paved with fine asphalt, with adequate width, signage, and parking spaces. The drainage system is in good condition and the rainwater can flow.



Figure 9 Images of offices and commercial buildings in Zone A; (A) Government buildings; (B) Medium size offices; (C) Commercial buildings adjacent to arterial road.

### 3.1.2 ZONE B – Exclusive Housing Area.

Zone B is a new residential area planned and built by a developer company (Fig. 10). This zone is called exclusive because only residents or guests can enter this area. There is a gate which is guarded by securities to ensure the residents' safety and prevent any suspicious people to enter this area.

This residential area is occupied by middle and high income families, where the majority of them work in CBD area. Because of their high income, they have ability to pay high rent or buy a house with high land, price close to the CBD to reduce daily travel time, if they do not live in the city center.

The buildings and streets condition are very good. Generally, the house size is about 160 – 800 m<sup>2</sup> which is occupied by 2 – 6 people. The local streets are 6 – 8 m in width, which are the main access to the area. The street width is enough for small cars and on street parking purpose in the same time. The drainage condition is very good and works well while raining. There is a good open public space and playground which can be accessed only by residents. In conclusion, this zone is very good, comfortable, and healthy to live in.



Figure 10 Images of residential buildings in Zone B.



### 3.1.3 ZONES C AND D – Medium Density Residential Area.

Zones C and D have similar housing, environment, and street characteristic. The main difference is only in the location, where Zone C lies in the Kampung Melayu District and Zone D lies in Bukit Duri District. Most of the buildings are permanent with 80 – 400 m<sup>2</sup> in size. Only few houses are semi-permanent which were built from board and iron sheet, see Fig. 11.

Generally, there are 1 – 2 families in one house, about 3 – 8 people. The local street and drainage condition are relatively good and paved. We can find few open public spaces and playgrounds in this area but it does not meet the people's need. The people usually gather around street edge and small shops. The ironic thing is inadequate playground make children play in the street and it's very dangerous. There are some small shops and services like barber, tailor, laundry, etc. This zone is still healthy and good enough as settlement area meets to the government standards.



Figure 11 Images of residential building in Zones C & D.

### 3.1.4 ZONE E - High Density Residential Area.

In the Zone E, the majority of house buildings are semi-permanent. The house size is about 36 – 100 m<sup>2</sup> in general which occupied by 2 – 4 families or 4 – 12 persons. There are some building which were built in three floors comprise some rooms which is occupied by small families, where room size are about 12 – 20 m<sup>2</sup> with communal bathroom in the outside, see Fig. 12.

The street network inside Zone E is mainly for pedestrians with 2 – 2.5 m in width, which can be accessed also by motorcycles and bicycles. Some of the street network do not have drainage system and other have it but in poor condition. The rainwater can not flow well because the size of drainage is small and there are garbage inside. There is no open public space in this zone, where people gathering beside street edges and small shops in the morning and evening.

People who live here, mostly work as carpenter, mechanic, and cleaning service. Some of them have small store or food stalls.

We can conclude that this zone is not healthy enough for living and require red-development.



Figure 12 Images of residential buildings in Zone E.



### 3.1.5 ZONE F – Very High Density Residential Area.

The last zone classification is Zone F, in this zone dwelling are built illegally on the river banks that was supposed to be green area. All buildings are built with semi-permanent materials like board, wood, and iron sheets. The size of each house is about 15 – 40 m<sup>2</sup> which is occupied by 4 – 8 persons, see Fig. 13.

The streets width inside this zone are 1.5 – 2m; some are paved with cement and in some area aren't paved yet. There is no drainage system so the rain water could not flow well directly to the river, even this informal dwellings block the water flow from zone A, B, and C to the river. In this area, we can not find any open public space and the services are insufficient.

There are many issues here like annual flood, poverty, and health problems. Most people here could not compete with other to get proper job with decent payment. They work informally as scavenger, maid, driver, etc. Unemployed people who could not get job, potentially become a criminal; theft or rob.

We can conclude that this zone is not livable and healthy and should be relocated to other places to return its function as precipitation area.



Figure 13 Images of illegal dwellings in Zone F.



### 3.2 Analysis per Aspects.

In this section, the analysis focus on comparison between existing condition with the social facilities provision standard from the government regulations.

#### 3.2.1 Housing.

There are various types of houses in this area. We can see the standard and analysis of housing based on the government regulation in Table 1 and Table 2.

Zones A-D are dominated by permanent building which built from bricks and other good material. Zone E consists of permanent and semi-permanent building, which is very high density area. The buildings are made from bricks, board/wood, and iron sheet. The size of a building is very small about 36 – 100 m<sup>2</sup> and one building is occupied by 2-5 families. The housing area in Zone F (Fig. 14) should be relocated because the land is supposed to be green open space.



Figure 14 Population Density Map.

Table 1 Density and High Rise Building Classification in Jakarta Province.

Classification	Low	Medium	High	Very High
Density	<150 people/ha	151-200 people/ha	200-400 people/ha	>400 people/ha
High Rise Building Need	Alternative (for certain area)	Suggested (for center of activity area or other certain area)	Prerequisite (urban renewal)	Prerequisite (urban renewal)

Source : Government Regulation, 2017.

Table 2 Housing aspect analysis based on zoning classification.

Zone	Housing Status	Housing Material	Size (m <sup>2</sup> )	Occupants (persons)	Problem
Zone A – Office & Commercial	Permanent building	Bricks, cement	160-800	-	-
Zone B – Exclusive Housing Area	Permanent housing	Bricks, cement	100-400	2-6	-
Zone C & D – Middle Density Area	Permanent housing	Bricks, cement	80-400	3-8	-
Zone E – High Density Area	Semi-permanent housing	Bricks, board, iron sheet	36-100	6-15	<ul style="list-style-type: none"> <li>Some building materials do not meet building standard</li> <li>Some of them are over occupied</li> </ul>
Zone F – Very High Density Area	Non-permanent housing	Board, iron sheet	15-90	4-12	<ul style="list-style-type: none"> <li>Built on government land,</li> <li>Building material does not meet building standard,</li> <li>Over occupied</li> </ul>

Source : Student Analysis, 2017.

### 3.2.2 Street Network.

The street and drainage condition in the Zones A – C are good and fulfill the standards in majority. The street and drainage in the zone E is dominated with pedestrian street which is not accessible by, see Fig. 15. It's very crucial, for example fire truck and ambulance cannot enter the area for emergency situation. The standard of street development and the analysis are provided in the Table 3 and Table 4. Zone E is not accessible from the area across the river, whereas most of the closest public service located, like drugstore, clinic, open public space, and school. Zone E is a potential rebuild with better access, in order to connect the Zones A-E to the closest rail station and to other services near the study area.



Figure 15 Existing street network in study area.

Table 3 Standard of street network in Jakarta Province.

Hierarchy	Width	Material	User
Collector Roads	10 m	Asphalt or Cement Block	Truck, Car, motorcycle, public transport
Local Street	3 - 7 m	Asphalt or Cement Block	Car, motorcycle
Pedestrianized Street / Alley	1.5 – 2 m	Asphalt or Cement Block	Pedestrian

Source : Government Regulation, 2017.

Table 4 Analysis of street network based on zoning classification.

Zone	Existing	Quality	Problem
A – Office & Commercial	Local Street	Good, adequate width and parking space	There is some street that need re-hardened
B – Exclusive Housing Area	Local Street	Good, adequate width and parking space Only occupants can enter this area	-
C & D – Middle Density Area	Local Street	Good, adequate width not for on street parking Drainage is good	Street access become disturbed if there is car park on the street
E – High Density Area	Pedestrian Street	Hardened by asphalt and cement Some drainage system are poor	Not accessible by car Rain water doesn't flow well
F – Very High Density Area	Pedestrian Street	Very Poor No drainage system	Not accessible by car Rain water doesn't flow well

Source : Student Analysis, 2017.



### 3.2.3 Public Open Spaces.

The open spaces are not provided well in terms of the numbers and qualities. The people usually use street edge to gather and meet with the other neighbors, see Fig. 16 and Fig. 17. Children always play in the street because there is no proper parks or playgrounds, and it's very dangerous. Sometimes the children use school fields to play if the school gate remained opened for some time.

Based on the standard and analysis in Table 5 and Table 6, we can conclude that the study area needs more public open spaces (parks and playground) in order to meet the needs in every zone with adequate quality and good facilities.

*Table 5 Public Open Space Standard in Jakarta Province.*

Type	Number of people	Radius	Location Criteria
Parks & Playground	2,500	1,000 m	In the center of neighborhood
Sports Field	30,000	1,500 m	Adjacent to School

Source : Government Regulation, 2017.

*Table 6 Analysis of existing public open space in planned area.*

Type	Availability	Standard	Problems	Proposal
Parks & Playground	6 public, 1 private	12	Not enough in quantity	<ul style="list-style-type: none"> <li>Build more parks and playgrounds focus on Zones C and E</li> <li>Zone F can be used as green public open space</li> </ul>
Sports Field	1	1	Accessibility to Zones C, D, and E are very poor	Improve accessibility by building street network

Source : Student Analysis, 2017.



*Figure 16 Location of existing public open spaces in the study area.*



*Figure 17 people gather around in street edge because there is no public open space.*



### 3.2.4 Healthcare Facilities.

There is one neighborhood clinic, and one drugstore inside the study area. There are 2 district clinics located near the study area. Based on the standards, the number of clinic is adequate, only the accessibility should be considered, see Table 7 and Table 8. In the center of zones E and F, there is no healthcare facilities (Fig. 18 and Fig. 19). The people in these zones need to go to zone D or go to outside of the study area to find healthcare facilities.



Figure 19 Location of existing healthcare facilities in the study area.



Figure 18 Images of healthcare facilities in study area; top= neighborhood clinic; bottom= district clinic.

Table 7 Healthcare facilities standard in Jakarta Province.

Hierarchy	Number of people	Radius of Services	Location Criteria
Neighborhood	30,000	1,500 m	Accessible by public transport network
District	120,000	3,000 m	Accessible by public transport network
Drugstore	30,000	1,500 m	Accessible by public transport network

Source : Government Regulation, 2017.

Table 8 Analysis of existing healthcare facilities in the study area.

Hierarchy	Availability	Standard	Location	Problem
Neighborhood	1	1	Zone D	It's far and not accessibility enough from Zone B, C, D, and F
District	2	1	Outside, about 200-300m from site area	People will go to neighborhood clinic first, instead of district clinic
Drugstore	1	1	Zone D	It's far and not accessibility enough from Zone B, C, D, and F

Source : Student Analysis, 2017.

### 3.2.5 Education Facilities.

The number of kindergarten, elementary, junior, and senior high school has been adequate based on the standard. The concern is about its distribution and accessibility, especially in Zone E which is inhabited by numerous people but there are only 2 public elementary school and 1 public junior high school adjacent to the area. There are two more elementary schools but they are private schools. It's important to open new access / street to connect the Zones B, C, and E to Zone D which has elementary, junior and senior high schools.

We can see the analysis of existing education facilities in Table 9 and Table 10 and its location in Fig. 20 and Fig. 21 respectively.



Figure 20 Location of existing education facilities.



Figure 21 Education facilities inside the study area; (A) Junior high school; (B) Elementary school; (C) Senior high school; (D) Kindergarten.

Table 9 Education facilities standards in Jakarta Province.

Education Level	Number of people	Service Radius	Location Criteria
Kindergarten	1,250	500 m	Inside neighborhood, no need to cross arterial roads
Elementary	1,600	1,000 m	Inside neighborhood, no need to cross arterial roads
Junior High school	4,800	1,000 m	Accessible by public transport network
Senior High school	4,800	3,000 m	Accessible by public transport network

Source : Government Regulation, 2017.

Table 10 Analysis of existing education facilities in planned area.

Education Level	Availability	Standard	Problem
Kindergarten	1 public, 1 private	5	Not enough in quantity
Elementary	4 public, 2 private	4	The number is enough, but need improvement in accessibility
Junior High school	2 public	2	The number is enough, but need improvement in accessibility
Senior High school	1 public	1	The number is enough, but need improvement in accessibility

Source : Student Analysis, 2017.

**Section**

# **4**

**Redevelopment  
Policies and  
Implementation**



After conducting analysis about the existing condition of study area, in this section we will discuss the solution and consolidation plan in order to implement urban redevelopment actions in the study area.

#### 4.1 Description of Framework Plan.

The study area is divided into six zones, that namely Zone A - office and commercial, Zone B - exclusive housing area, Zones C & D - middle density area, Zone E - high density area, and Zone F - very high density area. Based on the analysis, we can conclude that Zones E and F need more focus to be redeveloped.

Protection from annual flood, housing, and internal accessibility aspects are the main issues in the study area, followed by social services/amenities, like providing healthcare facilities, education facilities, and open public spaces.

##### 4.1.1 Potentials.

The study area has good locational potential where it is located close to the Central Business District (CBD). With the distance about 5 km from CBD, the area is considered as a strategic location for living for people who work in CBD. Mostly, they have ability to pay high rent or high land price and live in small houses, in order to minimize daily travel time, instead of living far from CBD and have

to pay more and spend more time for daily traveling.

The study area is strategic because it's accessible by many public transportation modes. Such as Bus Rapid Transit (TransJakarta), railway station, and *angkot*.

Based on its location where it connect some districts to the Manggarai Station that is central station in Jakarta, this area should be supported with good accessibility and road systems. Accessibility improvement like street widening, will ease the traffic flow and potentially promote commercial area development and land value.

##### 4.1.2 Threats.

High demand of land in the city to center causes people with low income forcefully live illegally in public land of the river banks because of inability to buy or rent decent houses. Illegal housings keep are increase and today generate new problems, like threats by annual flood, environmental degradation, and social disparity.

Other essential issue is distribution of social services inside the study area. There is a condition that the number of social service is enough based on the government standard but it's not distributed well.

Moreover, the internal accessibility is very poor, especially in the Zones E and F. The street

width is only 2 – 2.5 m, which hinder the accessibility by cars. The river that crosses study area divides it into two parts, which hinders peoples of Zones E and F to access some amenities in Zone D. It is essential to improve internal accessibility by building bridges so people of Zones E and F can easily reach public amenities.

##### 4.1.3 General solutions policies.

There are several essential actions to promote the better living environment in the study area, in order to accomplish the following:

- i. Internal accessibility Improvement.
- ii. Annual flood prevention.
- iii. Improving housing standard.
- iv. Distribution of social service.

To achieve those conditions, we address policies and the related implementation actions using land acquisition and land pooling mechanisms. Land acquisition is a process by which the government acquires private land for public purpose development. Whereas, land Pooling is a concept that where small chunks of land are owned by group of owners who reassemble for providing infrastructure and better accessibility. We divide the study area into several semantic units. After that, we shall choose some samples as a pilot project to implement these policies, see Table 11.

**Table 11** Proposal of study area redevelopment policies' action projects.

Problems		Policies		Actions Consideration
Aspect	Description	High Cost	Low Cost	
Zone A				
Street Network	In the peak hour, there are traffic jam because of too much cars park on the street.	Built communal parking.	Prevent on street parking beside the parking area.	Applying parking regulation is more feasible than building new parking area because the land price is very high in this zone.
Zone C				
Public open space	There is no parks or playground.	Build more parks and playground.	Open school gate for some time so the children can play inside the school field.	It's necessary to build new parks or playground because there no one available.
Zone D				
Drainage	This zone suffers of annual flood.	Raise up the canal side surface.	Clean the river from any garbage and remove the sedimentation from riverbed.	Raising the canal side could prevent the water to enter the dwellings in the ground floor.
Zone E				
Housing	Some suffers of annual flood.	Raise the canal side surface.	Clean the river from any garbage and remove the sedimentation from riverbed.	Raising the canal side could prevent the water to enter the dwellings in the ground floor.
Street & drainage Network	The majority of this zone is serviced narrow street by pedestrian path which do not allow car to enter this area.	Widen some existing streets so can be accessed by car.	-	It's important to increase the status of street from pedestrian to local street where cars can enter this area, especially for emergency purpose.
	Drainage condition is not good in majority of the area because of garbage.	Redevelop drainage system, make it wider and hardened with cement.	Clean the drainage system from any garbage	Drainage system should be rebuild to reduce flood risk especially in the raining season.
Public open space	There is no parks or playground.	Build more parks and playgrounds.	Open school gate for some time so the children can play inside the school field.	New playground and park should be built as basic public service for people to enhance the stronger social cohesion.
		Built new street crossing the river in order to connect Zone E to Zone D.		This new access is important because most social services are located in Zone D.
Healthcare facilities	The existing drugstore & neighborhood clinic is in Zone D; it's far and not accessible from Zones E and F.	Built new drugstore and neighborhood clinic in Zone E.	Encourage the building of pharmacy inside Zone E to sell medicine.	Neighborhood clinic should be provided in Zone E because of high demand (high density area).



Problems		Policies		Actions Consideration
Aspect	Description	High Cost	Low Cost	
		Built new street crossing the river in order to connect Zone E to Zone D.	Using a room inside the district office as a temporary clinic room.	This new access is important because most social services are located in Zone D.
Education Facilities	The number of schools is enough, but the geographic distribution is not equitable.	Build more kindergarten school in this area.	-	Kindergarten should be provided close to the settlement area as basic social service and can be reach by feet.
		Built new bridge crossing the river in order to connect Zone E with Zone D.	-	This new access is important because most social services are located in Zone D.
<b>ZONE F</b>				
Housing	Illegal dwelling built on the river banks.	Relocate illegal housing to another areas.	Redevelop building by improving building structure and material.	All building activities be relocation to another area to maintain this area main function as precipitation area.
Street & drainage network	The streets are narrow and not accessible by cars.	Widen some existing streets.	Improve floors of existing street path with better hardened material.	New access (local street) connecting Zone D with Zones E and F is necessary
	There is no drainage system.	Build drainage system.	-	-
Public open space	There is no public open space.	Relocate the buildings adjacent to the river and build parks & playgrounds instead.	-	It's necessary to build new green parks or playground in this area to maintain its function as precipitation area.
Healthcare facilities	There is no drugstore and neighborhood clinic.	Built new street crossing the river in order to connect Zone E with Zone D.	-	This new access is important because most social services are located in Zone D.
Education facilities	There is no kindergarten and elementary school.	Build more kindergarten school in this area.	-	Kindergarten should be provided close to the settlement area as basic social service and could be reach by feet.
		Built new street crossing the river in order to connect Zone E with Zone D.	-	This new access is important because most social services are located in Zone D.



a) *The Proposed Streets.*

New street network to connect Zone D with Zones C, E, and F is very essential. Based on the analysis, we can see that most of the social service facilities lie in Zone D. Besides that, there are some important facilities in outside of the study area, like railway station, bus rapid transit, and district clinic, which there is only one street access for people who live in Zones C, E, and F if they want to go there. They have to go through that street, close to Zones A and B. The study area needs two new bridges to the river as we can see in the Fig. 22. Based on this plan, we also can see that the proposed street surrounds the Zone E where in the same time connects Zone D with Zones E and F directly in the east and south sides.



**Figure 22** Proposed new street network.

b) *The Proposed Public Open Spaces.*

Public open spaces have important role in a neighborhood as basic social needs. The main purpose is to function as a gathering space. Besides, it also has a function as precipitation area. Based on the regulation, Zone F should be functioned as green open space. That area should be returned to its main function so the water storm can flow directly from Zones A, B, C, and E to the river. It's essential plan to reduce the annual flood risk. The people of informal settlement in Zone F should be relocated to other area to rebuild a public open space. As shown in Fig. 23, by considering its distribution, we should build one parks & playground in Zone D, one parks & playground in Zone E, and three parks & playgrounds in Zone F.



**Figure 23** Locations of the proposed new parks & playgrounds.

c) *The Proposed Healthcare Facilities.*

It's very important to consider the development of accessible and proper healthcare facilities as basic needs for every people. The existing conditions shows that the healthcare facilities in the area is not distributed according to planning standard. Drugstore and neighborhood clinic lie in Zone D and too far from Zones C, E, and F. As we know that the majority populations live in Zones C, E, and F which the demand of healthcare facilities are very essential in those area. Building new street connecting those area with Zone D is essential, but it should be considered to build inside those zones, especially neighborhood clinic where can be easily accessed. As shown in Fig. 24, we can see the location of the proposed neighborhood clinic in Zone C, adjacent to the local district office, local market, and wide local street.



**Figure 24** Locations of the proposed new neighborhood clinic.

d) *The Proposed Education Facilities.*

Based on the analysis of education facilities' need, we can conclude that the number of schools are adequate in every level except kindergartens. The concern here is school distribution which do not cover Zone E. As shown in Fig. 25, there are three kindergartens that should be build inside Zones C and E. Other concern is connecting junior and senior high schools in the Zone D with Zones C and E by building new street crossing the river so the students do not need to walk in long distance because the only bridge crossing the river is adjacent to Zones A and B. Beside considering the distribution of school, it's also important to make sure that the streets where the children use to go to school are safe and are accessed by pedestrians.



**Figure 25** Locations of the proposed new kindergartens.

## 4.2. Proposed Area for Land Acquisition and Land Pooling Programs



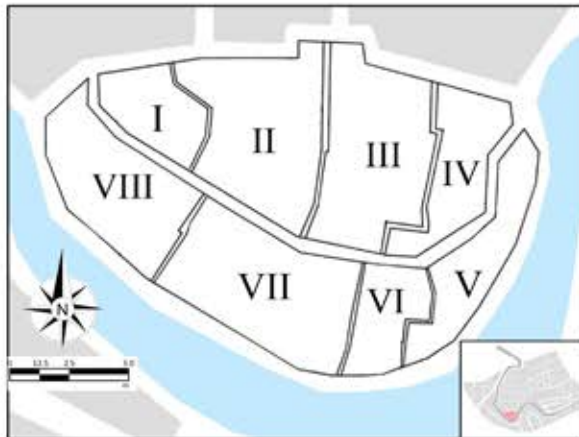
**Figure 26** Land treatment.

Based on the analysis of all proposed plan in the study area, we will select certain semantic units in neighborhood as pilot project for land acquisition and land pooling. In Fig. 26, there are one semantic unit in Zone F that is chosen to be pilot project of land acquisition and there are three semantic units in Zone E that are chosen to be pilot projects of land pooling.



#### 4.2.1 Land Acquisition Project.

In this section, we will discuss the process of land acquisition in the two semantic units that we choose as a pilot project, see Fig. 27. We divide it into two areas, and the name it north lot-entity (Unit I – IV) and south lot-entity (Unit V – VIII). The size of north lot-entity is 3020 m<sup>2</sup> and south lot-entity is 3055 m<sup>2</sup>. For compensation, average land price in this area is about US\$ 500 – 700 per m<sup>2</sup>.



**Figure 27** Original Land Parcel.

In Table 12, we can see the list of 8 units, average parcel area, and number of houses inside our pilot project area.

##### a) The proposed housing.

Based on the government regulation in table 1 section “Housing Analysis”, for area with high density, it should be redeveloped.

**Table 12** List of current land parcels.

Unit Area Number	Average Parcel Area (m <sup>2</sup> )	Number of houses
I	93	9
II	78	22
III	88	21
IV	95	9
V	52	22
VI	63	14
VII	96	18
VIII	72	16

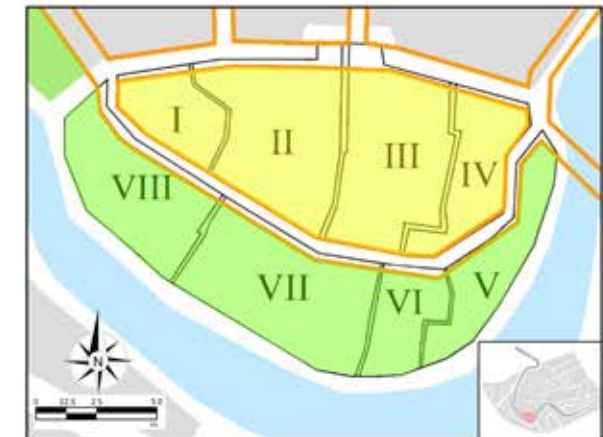
Here, we will build some middle high rise building with 4-5 floors to accommodate the people who lived illegally in Zone F. Considerably, it's difficult to accommodate all people from zone F. So, the government should apply some sort of criteria to filter any families who are eligible and can afford to live in the new subsidized house. The families who do not eligible to live in the new proposed housing will get compensation to find new house outside the study area.

##### b) The proposed streets.

Street widening in the pilot project area would be conducted by make its width from 2 – 2.5 m to 4 – 5 m. In this area, we will build new bridge to connect Zone E and F to Zone D. This is very essential to promote the development of commercial and services within this zone.

##### c) The proposed open green spaces.

In Master Plan of Jakarta Province, the land on the river bank must be used as open green space for water precipitation and flood prevention. Areas V – VIII are forbidden to be used as buildings and all illegal housing, thus it should be relocated. Open Public space should be built with parks, playgrounds, and sport field as a place for recreation and gathering, see Fig. 28.



- Proposed Mid-Rise Housing Area
- Proposed Open Public Spaces Area
- Proposed New Streets

**Figure 28** The proposed use of land acquisition.



#### d) Design proposal

Based on the analysis results, the acquisition area will be replaced by subsidize mid-rise housing for some families whom eligible to occupy these units. In this area, the street will be widened to improve the accessibility, also the bridge is built to connect Zones E and F to zone D.

On the other side, south land entity will be developed with parks and playgrounds to provide open public spaces and recreational area for people who live around this area, especially people who live in subsidized mid-rise housing. The parks will be filled with sand boxes, jogging track, park benches, fountains, etc. (see Fig. 29)



Figure 29 Proposed redevelopment design of land acquisition area.

#### 4.2.2 Land Pooling Project.

In this section, we will explain about the development process of some amenities as it needs. They are kindergarten, parks, and street widening. A shown in the Fig. 30, we can see the original land parcel of two semantic units that we did select for the pilot project, which consists of 66 land parcels. The average land price in this area is about US\$ 900 – 1,200 per m<sup>2</sup>.



Figure 30 Original land parcel of land pooling area.

Using land pooling scheme, we propose some actions, as following :

##### a) Proposed street.

The main issue in this study area is internal accessibility improvement. The existing street width is 2 - 2.5 m; we propose to make it wider to 4 – 5 m. This widening development requires part of land parcel as 2.5 m from the north semantic unit area, in the land parcels number 11, 12, 13, 18, 19, 20, and 24. Whereas, south semantic unit is not included. The main reason is to minimize cost. Also, the consolidation will be easier so it take shorter time to plan and develop. Further, average land parcel size in the north semantic unit is bigger than in south semantic unit.

##### b) Proposed education facilities.

This area has inadequate kindergarten facilities, so we will build one kindergarten in the north semantic unit. The size of kindergarten is about 95 m<sup>2</sup>, which will take land parcel no. 10 and some of land parcel no. 8.

##### c) Proposed Open Public Space.

It's essential to build parks and playground especially for children. Here we will build playground adjacent to the proposed kindergarten.

The size of the proposed parks and playground is about 163 m<sup>2</sup> and it will be built in the land parcels no. 11, 12, and 13.

d) *Land Pooling Procedures.*

The main steps and stages in carrying out a typical land pooling project can be listed as follows:

- i. Identification of the group of adjoining landholdings for pooling which is then designated as the land pooling area;
- ii. Assessment of the value of each landholding in order to calculate each landowner's share in the project;
- iii. Preparation of a draft pooling scheme (and supporting financial plan) in consultation with the landowners and the relevant government authorities (the highway, public utility, etc. authorities);
- iv. Public exhibition, review and amendment of the draft scheme followed by central government approval of the final scheme and its publication;
- v. Preparation of engineering works designs;
- vi. Compulsory acquisition and consolidation of the landholdings, roads, etc. in the designated pooling area;
- vii. Raising of short-term loan for working capital;
- viii. Carrying out of land servicing and subdivision works by contractors and relevant government authorities;



**Figure 31** Final regular land parcels with proposed roads and amenities.



- ix. Physical and legal subdivision of land into streets, parkland and sites for buildings;
- x. Sale of some of the building sites to recover costs and repay the loan;
- xi. Distribution of the other sites to the landowners; and
- xii. Final cash adjustments to achieve each landowner's precise share of the project, see Table 13.

**Table 13** Final regular land parcels with proposed roads and amenities.

Parcel Number	Original Parcel Area (m <sup>2</sup> )	Dedication	Final Parcel (m <sup>2</sup> )
8	167	86	81
10	45	45	0
11	71	71	0
12	42	42	0
13	68	68	0
18	210	58	152
19	81	33	48
20	79	35	44
24	196	67	129
<b>Total</b>	<b>959</b>	<b>505</b>	<b>454</b>
<b>Proposed Street</b>	<b>325</b>		<b>380</b>
<b>Kindergarten</b>	<b>95</b>		<b>95</b>
<b>Park</b>	<b>85</b>		<b>85</b>
<b>Total</b>	<b>505</b>		<b>505</b>

#### e) Design Proposal.

As the results of final analysis and solutions, in the land pooling area, there are some treatments. They are street widening, parks and playgrounds, and kindergarten development, see Fig. 32.

The location of this park & playground is adjacent to the kindergarten. The main purpose is to provide the closest place for children to play and place for their parents to meet each other while they pick their children to the kindergarten and wait for them until the class over.

This park and playground is facilitated with sandbox, park benches, walking stone path for foot reflection, etc. Encouraging food stall development around this area will attract more people to come to this park, so further, this park can become the center of social cohesion in this area.



**Figure 32** Park and playground design in land pooling area.

#### MAIN REFERENCES.

- Ballaney, Shirley. (2008). The Town Planning Mechanism in Gujarat, India. Washington DC : The World Bank Institute.
- Board of National Standardization. Procedures of Housing Development in Urban Areas. SNI-03-1733-2004.
- Board of National Standardization. Procedures of Modula Flats Planning. SNI-03-2845-1992.
- Board of National Standardization. Procedures of Building Density Plans for Occupying Flats. SNI-03-2846-1992.

#### GENERAL REFERENCES.

- Angel, Shlomo and Samsook Boonyabancha. 1998. Land Sharing as an Alternative to Eviction. In Third World Planning Review, 10 (2). Massachusetts.
- Marulanda, Liliana and Florian Steinberg. 1991. Land Management and Guided Land Development in Jakarta. Rotterdam : Institute for Housing and Urban Development Studies.
- Niented, Peter. (1988). The Housing Research Process : Design and Research Problem. New Delhi.
- Aboufotouh, Hossam et al. (1997). Framework Plan for Rehabilitation of Historic Cairo : Final Report. UNDP, Cairo.