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### **Thesis title**

The role and impacts of subsidy in land readjustment:

A case study on financial feasibility of land readjustment projects in Thailand

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Specialization: Urban Land Development

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## **MASTER'S PROGRAMME IN URBAN MANAGEMENT AND DEVELOPMENT**

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The role and effectiveness of subsidy in land readjustment;  
A case study on financial feasibility of  
land readjustment projects in Thailand

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## **Summary**

This research mainly focused on the relationship between financial effectiveness and the use of government subsidy in Land Readjustment (hereafter referred to as ‘LR’) in Thailand. The introduction of LR method in Thailand started in 1980s and finally established by the LR Act in 2004. As for the financial characteristic of LR in general, the result of literature review implies that self-finance principle can be achieved by selling the land called “reserved land”, which is contributed from the participants of the LR project. Since the existence of government subsidy in the LR project in Thailand is contradictory on this principle, the research tried to find out the role of the subsidy and its effectiveness by analysing the LR pilot projects implemented in Thailand.

Research method utilized in this thesis is a case study by comparing three different pilot projects as well as the individual interviews with key persons in charge of the pilot projects. Two of the analysed pilot projects were applied for the government subsidy by means of loans and grant, and the other pilot project did not apply for the subsidy.

Major findings in this research are the absence of potential investors of the reserved land negatively affected the financial effectiveness of the project, and locational factors should be given a high priority in order to attract the investors as a potential buyer of reserved land. Even if the land value is substantially increased through the LR project, there is no possibility to achieve the self-finance principle without selling the reserved land. Keeping the reserved land in a long term period instead of selling it at the time of project implementation will be another strategy to achieve the self-finance principle in the LR project. However, it should be noted that this strategy might deteriorate the financial condition of LR implementing body.

At the same time, the subsidy is still required even in case the project cannot achieve the self-finance principle, in order to satisfy the needs of social equality between the projects implemented in different locations. Because it is difficult to provide an equal treatment between one project which can sell the reserved land in a good price and the other project which cannot sell the reserved land in a reasonable price or find the potential buyers of the reserved land in the worst case. It means, the role of subsidy is not only for enhancing the financial feasibility of project but also for fulfilling the gap of different conditions they are facing.

Therefore, Central government has to consider the actual necessity of providing the subsidy in the LR project by taking a careful consideration of various factors analysed in this research. Besides that, as the Thai government has taken an initiative to expand the LR projects to all provinces, it is strongly recommended to secure the necessary budget so that the future demands can be covered accordingly.

Keywords: Effectiveness, Subsidies; Land Readjustment

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## Abbreviations

<b>BEP</b>	Break Even Point
<b>BMA</b>	Bangkok Metropolitan Agency, Thailand
<b>CBD</b>	Central Business District
<b>CPs</b>	Counterparts
<b>DPT</b>	Department of Public Works and Town and Country Planning, Thailand
<b>FIRR</b>	Financial Internal Rate of Return
<b>IHS</b>	Institute of Housing and Urban Development Studies
<b>JICA</b>	Japan International Cooperation Agency
<b>LR</b>	Land Readjustment
<b>LVC</b>	Land Value Capture
<b>MLIT</b>	Ministry of Land Infrastructure, Transport and Tourism, Japan
<b>MLR</b>	Minimum Lending Rate
<b>NHA</b>	National Housing Authority
<b>USD</b>	US Dollar
<b>THB</b>	Thai Baht (Exchange rate (13/8/2015) = 1USD ≈ 35.2 THB)

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# Chapter 1: Introduction

## 1.1 Background

In recent years, urbanization has become one of the most significant global issues as the world population is expected to reach 9 billion in total by 2050. Currently urban areas accommodate more than half of the world's population and the ratio will extend to 66 % by 2050, most of which will be covered by dramatic population increase in cities in Asia and Africa. As transport networks grows, these demographic shifts will emerge not only internationally but also domestically by a surge of migration inflow from rural to urban areas with a significant spatial change to accommodate new residents in the city (United Nations, 2014).

Along with the global development trend of population concentration, expectations towards the government of each country for providing adequate land and infrastructure for everyone cannot be satisfied especially in developing countries due to severe fiscal conditions and lack of management capacities. Not only that, most of them are still struggling to mitigate the negative impacts of urban growth such as the creation of informal settlement, destruction of natural and historical important places, and lack of job opportunities for new immigrants.

Bangkok, the capital city of Thailand, categorized as a world mega-city which will have more than 10 million population in its jurisdiction area by 2030, have achieved dramatic improvement in economy within the past decades. The stable economic growth brings more job opportunities as an international hub city in the Southeast Asia region (European Association of National Metrology Institutes, 2013). Then it attracted people who seek for the better working conditions with higher income level from rural area, which eventually caused severe density and dramatic increase of land value in the city centre. In order to facilitate the sustainable growth together with the hasty pace of urban development, the Thai government launched the 11<sup>th</sup> national economic and social development plan in 2011 for the period from 2012 to 2016 and committed to effectively distribute the infrastructure investment between rural and urban areas (The 11th national economic and social development plan, 2011).

However, despite the numerous benefits created by rapid economic growth, the city is also required to cope with the downsides of the growth such as severe traffic congestion and environmental pollution which imposed significant social costs to the entire nation. Therefore, integration of appropriate land use and transport management is always positioned as a prioritized urban issue, just as is done in other emerging cities, to achieve the stable economic growth for the capital city of Thailand. In order to achieve this, the Bangkok Comprehensive Plan was developed in 2013 as a legal framework to guide the growing direction of future development of the city as well as the harmonization between transport and land use development (Bangkok Comprehensive Plan, 2013).

With regards to the land use management in Thailand, there are several methods historically utilized for both growth management and the prevention of urban sprawl. As one of these urban controlling instruments, eminent domain called 'compulsory takings' was allowed as stipulated in the law of 1987 (Immovable Property Expropriation Act, B.E. 2530) and actually it had been utilized to upgrade the city for public purposes. However, with the increase of social awareness towards the risks concerning the abuse of public power, the government also became more careful to utilize this tool. At the same time, financial costs to compensate for evicted land owners summed up to a huge amount as rising competition for land, and the potential risks to attract speculations to receive higher compensation also made

the government hesitant to rely on the public power (Callies and Kotaka, 2001). That is why there was a need to find out an alternative solution which is financially more viable.

In this context, the concept of land readjustment (hereafter referred to as LR) attracted an attention of those who engage in urban development projects as an alternative technique. Unlike the conventional instruments such as compulsory takings, LR is recognized as a less controversial and more financially viable tool for the government side, because it does not require replacement of land owners. Rather it allows them to become stakeholders who voluntarily contribute their land parcel for improving of public infrastructure inside and surrounding their land area, through selling a part of contributed parcel in the land market. In that sense, LR does not require the upfront capital to purchase land or exercising the government intervention for compulsory acquisition to install public infrastructure. Therefore, it becomes popular not only for urban planning officers but also for national/regional leaders who prefer to avoid unnecessary political disputes. Moreover, most of land owners who participated in the process also supported this new concept since they can expect the potential land value increase as explained in later chapter (Mittal, 2014, Hong, 2007).

In Thailand, the LR Act (Land Readjustment Act, B.E. 2547) was introduced in 2004 through international cooperation with the Japanese government, in order to achieve the harmonized urban development together with preventing urban sprawl, as well as enhancing the planning capacity of the urban engineers. Introduction of LR concept in Thailand dates back in early 1980s following the 1<sup>st</sup> UN-habitat conference held in Vancouver, Canada in 1976. Responding to the official request of the Thai government, Japan International Cooperation Agency (hereafter referred to as JICA) conducted the study of application for LR in Thailand named 'The Study on Application Scheme of Land Readjustment in National Urban Development Thrust' during the period from 1987 to 1991 (Japan International Cooperation Agency, 1993). Subsequent to the support by JICA, the Thai government launched a national council to establish the framework of LR. However, it takes more than a decade to enforce the LR Act as a legal backbone for the implementation, because of the complexity of application of LR concept and the long term process to acquire the political support from the cabinet in Thailand.

Based on the establishment of LR Act as a legal back-up for the implementation of LR, several pilot projects which were started in the early first decades of 2000s have been completed or reached final phase just recently (Japan International Cooperation Agency, 2014). However, detailed analysis on its organizational and economic effects is still underway and less examined. Therefore, it is worth to analyse problems associated with the LR project in Thailand. Especially, this thesis focused on the use of financial support from the government through a comparative case study between three pilot projects called Naratiwas LR project, Tharhat LR project and Rama 9 Park LR project.

## 1.2 Problem Statement

In contrast to the increase of public awareness towards the usefulness of LR method in recent years, intrinsic disadvantages are sometimes overlooked such as accumulated cost by long-term project implementation and direct/indirect financial assistance, which may need the intervention from the government (Home, 2007).

As for the period of implementation, the LR projects generally require getting major consensus from land owners in a project area, and therefore, it may take unexpected amount of time. Furthermore, it may result in a waste of time and administrative costs if the negotiation

with land owners eventually fail. There are several countries with the principle that LR for public purposes do not require the consent of land owners. However, the definition of public purposes is sometimes unclear and it has the potential risks to make the case as a court matter, which eventually takes infinite time period to finalize the argument (Hong, 2007). Spending a lot of time on negotiations means the increase of administrative cost, and therefore, extra budget might be required to prepare for any unexpected event occurred in project design stage. In the case that most of the LR projects require extra fiscal assistance from the central government, local governments which initially planned to utilize the LR method may reconsider to join the process, because of the fear to shoulder the future financial burden to repay the debt borrowed from the central government.

The LR Act in Thailand stipulates the possibility of financial support from the government (hereafter we call it as “government subsidy”) in Section 79. The concept of subsidy in LR projects might be influenced by the Japanese LR system, which was transferred by JICA technical cooperation project. As mentioned in the background, the Japanese government has supported the Thai government for establishing the LR system through the invitation of Thai counterparts as trainees on LR system in Japan, as well as dispatching Japanese experts to provide advises and consultations for the establishment of the LR regulations and manuals. It covered not only for land evaluation method but also the LR subsidiary system in Japan. Therefore, it can be assumed that the LR subsidiary mechanism in Thailand was greatly influenced by the Japanese system.

However, at the same time, it cannot be ignored that the LR subsidiary system in Japan was based on a high financial capacity of Japanese government through the rapid economic growth after the end of World War II. In general, it is quite difficult to maintain a specific subsidiary system without a sustainable financial basis in their government. In addition, it has not been long since the establishment of the LR subsidiary system in Thailand which was officially introduced in 2012 as a LR fund. Moreover, local municipality can also expect a financial support from the government when the LR project includes a portion of public infrastructure such as city planning road. In this regard, it can be said that the LR system in Thailand still heavily relies on the financial support from the government.

Basically, self-financing can be achieved when the revenue from a project is higher or equal to the amount of project cost. Therefore, it is required to minimize the project costs or increase the amount of revenue, otherwise, the implementing body needs to find additional funds to compensate the deficit of the project budget. (Details of the LR fund and self-financing nature of LR are to be discussed in a later chapter). According to Mittal (2014), the LR project can achieve its self-financing principle through the measures of establishing the land bank system, or putting betterment charges. In Thailand, local governments are allowed to apply for the financial support from the LR fund as mentioned above. However, if the number of the projects applying for government subsidy increase rapidly, it will eventually be a future financial burden for the central government in case of providing a grant to the local government, and for the local government in case of borrowing loans from the central government. Therefore, considering the possibilities of replication of the LR method for the entire cities in Thailand, it is critical to ensure the financial sustainability in order to successfully expand its concept nationwide.

### **1.3 Research Objective**

In order to analyse the role and effectiveness of the government subsidy in the LR projects in Thailand, the research objective on this thesis is to identify the circumstances requiring the government subsidy for the implementation of the LR project.

### **1.4 Research Question(s)**

The main research question is “What are the main factors that had influenced the use of government subsidy in implementing land readjustment projects in Thailand?” In order to find out the appropriate answers to this main question, following sub-questions are to be examined.

Sub-questions;

- 1) Which factors affected on the efficiency of cost recovery measures?
- 2) Which factors influenced on the efficiency of value capturing measures?
- 3) What kind of other factors should be taken into account for the use of government subsidy?
- 4) What is the major difference among the LR pilot projects with and without government subsidy?

### **1.5 Significance of the Study**

LR is considered as one of the important techniques to restore the sprawled area into well-structured one without putting additional financial burden for the government, by creating a new fund resource through the disposal of the reserved land. However, it is sometimes overlooked the fact that there still needs to prepare financial support from the government (government subsidy) to complement the deficit of project budget, in the case where the fund created by selling the reserved plots cannot satisfy all the necessary cost of the project. Therefore, it is important to distinguish the case which requires the financial assistance to complete the project, and the case without relying on the government subsidy. Despite the existence of many researches explaining the LR technique as one of the sophisticated urban development methods, there are few of them discussing the financial effectiveness especially in related with the government subsidy.

As described in the background, Thailand have been received a series of cooperation from the Japanese government for almost twenty years to establish the sustainable LR system with reliable legal backgrounds. This is because drafting of new laws and regulations took a long process until the experience formulating new legal documents was sufficiently accumulated among the staff in the Thai government. Besides that, adjustment and modification of legal documents were also required through the implementation of pilot projects currently underway. Therefore, there are few academic literatures so far which addressed the performance of newly introduced LR system as well as the investigation of formulation process of LR Act in Thailand.

In this research, the author tried to find out the factors which affected the use of government subsidy through case study research concerning the pilot projects implemented in Thailand. The findings from this research will provide broader viewpoint in considering future project formulation and help both policy makers and urban engineers to filter the proposals of new LR projects according to the financial situations of their governments, especially those

who try to introduce the method for investing urban development in their countries as a breakthrough of chronic financial constraints they are facing.

## **1.6 Scope and limitations**

Considering the time constraint and the analysed targets were focused on limited number of pilot projects as other projects are still undergoing the implementation, it would be difficult to strongly argue that the research results can be applicable to overall LR projects in the world. In addition, due to the time constraint of field survey, the number and target of interviewees were limited. The author could hear the opinions only from the administrative officers responsible for the LR pilot projects, and therefore, it might have subjective opinions from specific respondents. Then, in order to keep the objectivity of the research, Questionnaire Survey was conducted as attached in Annex 2. In addition, the author utilized the result of Satisfactory Survey conducted by JICA technical cooperation team.

However, one of the most difficult questions to find an effective answer was the relationship between political support and the government subsidy. Most interviewees tried to explain the influence of the political support in the case of Naratiwat project, which applied for the LR fund for the first time in Thailand, but the author could not reach the valid answer to reveal the relationship.

Actually, as Karki (2004) and Mittal (2014) argued, there are a lot of successful LR projects in the world which did not require government subsidy for the purpose of cost recovery. In these cases, implemented projects can be categorized as financially viable and do not need further improvements in terms of financial sustainability under the LR scheme. Hence, major findings of this study should be referred only in the countries where government subsidy are generally required and actually stipulated in the laws or other relevant regulations in order to improve the financial feasibility of LR projects.

In addition, as is often the case, pilot projects tend to be financially subsidized for the purpose of creating successful models in order to extend the implementation experiences to other areas. Therefore, the result of this study which focused on the result of pilot projects cannot be too much generalized as comprehensive models of all the succeeding LR projects in the future. However, lessons through this study will be still effective in order to formulate effective LR projects' proposal in the future with more financial sustainability.

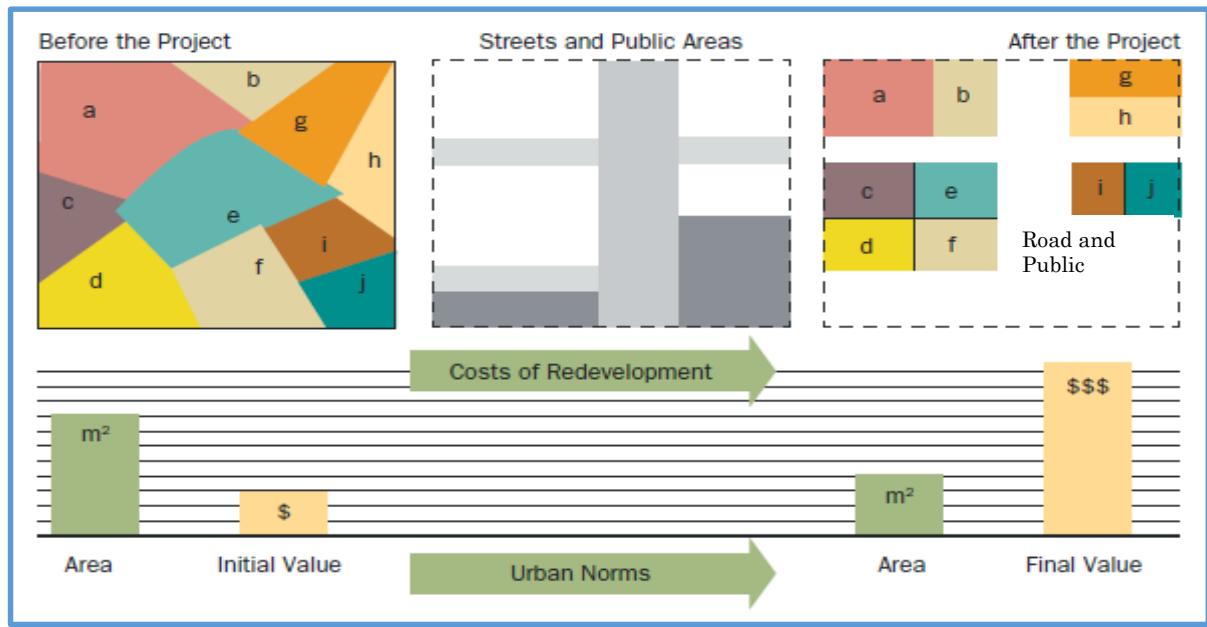
# Chapter 2: Literature Review

## 2.1 Overview of land readjustment instrument

LR is a practical instrument to consolidate the irregular land parcel to redesign its shape and to enhance the connectivity with the public infrastructure as well as the public amenities such as parks and open spaces. This instrument was originally developed in Germany as shown in the Addickes law which was enforced in 1902. In the United States, we can also observe the first attempt of applying for a similar method of LR in Washington, DC, as an early version of this instrument in the late eighteenth century. (Home, 2007) In the Asian society, this scheme was historically utilized in Japan, South Korea, Taiwan to overcome the challenges of dealing with the small and fragmented land holdings and also adopted in Malaysia, Indonesia, and Nepal accordingly. (Archer, 1992)

Land owners who are willing to join the process are required to contribute their land for reshaping and then installing the public infrastructure. The contribution is also necessary for the cost recovery to execute the LR project which includes the cost of planning, construction and administrative expenses (Sorensen, 1999). After completing all the works involved in the land readjustment, each well-shaped parcels are redistributed to the original land owners based on the shares they contributed. Although the newly distributed land parcels are generally smaller than the original space, one can expect the increase of land value through the entire readjustment process, with the legal protection of their title over the new parcels. In addition, if the increased value of reserved land <sup>1</sup> is higher than the cost necessary for the project implementation, there is no need to ask for government subsidy. Participating owners can also sell the new parcels with connecting to public services and ready for building. General image of LR project is shown in the following Figure 1.

Figure 1: General image of LR project



Source: Rojas, Eberhard (2013)

<sup>1</sup> "Reserved land" is a land parcel collected from LR participants which be sold at the project's end to pay for planning, administration and construction costs.(Udom, 2010) Details are explained in the chapter of cost recovery.

Land readjustment can be implemented either by public and private initiatives. In the case of project started by public initiative, the decision of LR project by the government generally has a dominant power without having the adequate/full consent of land owners. On the other hand, LR project handled by private initiative requires consensus of all land owners or partial consent of them to implement the project. A variety of ways to get land owner's consensus for LR project applied in the world is shown in the following Table 1 (Turk, 2008).

**Table 1: Consent ratio requiring to implement LR project in the world**

Country	Contents
Japan	Compulsory for LR with public initiative At least two-thirds of both landowners and lessees (by number and area) must consent to an application for private initiative
Germany	Compulsory for the LR with public initiative
Sweden	Voluntary participation (people who are not willing to join LR projects will be left out)
South Korea	Compulsory for LR with public initiative At least two-thirds of both landowners and lessees (by number and area) must consent to an application
India	Voluntary participation (people who are not willing to join LR projects will be left out)
Indonesia	Landowner consent (100 percent landowner agreement)

Source: Prepared by author based on Turk (2008, P230)

## 2.2 Comparison with expropriation

Comparison between LR and expropriation might show the substantial advantage of LR technique in various aspects. According to Hong and Brain (2012) , land readjustment has several merits to overcome the difficulty of expropriation as summarised in the Table 2.

For example, although there is no concerns for the (1) holdout problem in the case of compulsory acquisition while land readjustment sometimes faces difficulty to persuade reluctant owners, it has a potential risk of causing (2) long term legal conflict between the government and expropriated land owners. When it comes to LR implementation, the risk of legal challenge from the land owner side can be mitigated through the continuous negotiation within the community basis. Although the time necessary for negotiation is a potential risk of land readjustment, it would be easier to solve the problem compared with the long term legal conflict for expropriation. At the same time, “free rider problem<sup>2</sup>” or (3) equity issue can also be prevented since all the land owners should participate in the LR process and benefits are equally distributed in accordance with the contribution rate among them, whereas the reluctant owners can sell their portion in the land market.

Regarding the issue of (4) subsidy, expropriation has a potential risk of making arbitrary decision for setting compensation price, hence no one could estimate the accurate cost of expropriation. Or rather, the compensation value might be below of its market value. In this

<sup>2</sup> “free riders” is people who contributes less than socially optimal amount (Ertan, Page, et al., 2009) In this paper, free riders are defined as those who try to receive the benefit of land value increase without contributing their land parcel.

regard, expropriation can save the cost for those who take the land from evicted owners, which means the government inputs implicit subsidy for the land plunders. Moreover, as for the (5) financial burden on the government side, expropriation tends to take the land larger than its necessary amount, then it leads to inefficient use of limited amount of government budget while land adjustment can save the required cost from the government by pursuing the self-finance principle based on the cost saving technique which will be explained following section. In this sense, those who get benefit from expropriation will have a competitive advantage to develop the land than others, and therefore expropriation would distort the fair competitiveness of free market and it would be far from “highest and best use<sup>3</sup>” of the development of target area. Compared with this serious potential risk of expropriation, the issue of subsidy in LR project is relatively less controversial as it will be discussed in the later chapter.

Table 2: Comparison between LR and expropriation<sup>4</sup>

	Land readjustment	Compulsory acquisition	Financial Advantage of LR
<b>(1) Holdout</b>	Holdout issue might occur by the reluctant owners. However, implementing body can purchase their land or they are obliged to sell in the land auction by expropriation.	None. (Government side is eligible to evict the unwilling owners as long as all the processes are complied with legal requests)	—
<b>(2) Legal issues (time necessary to solve the issue)</b>	Less frequent or problems can be solved by the negotiation within the community. (But sometimes negotiation period is bottleneck)	High possibility to cause the long time legal conflict.	(+)
<b>(3) Equity concerns</b>	Benefits are equally shared among participants (deficits should also be distributed among them).	Potential risk of abuse of public power. Some owners might be forcefully evicted while others could get benefit by the development.	+
<b>(4) Possibility of subsidy</b>	Depends on the characteristic of projects. (the amount of subsidy should be lower than that of expropriation)	It will benefit for those who take the land from evicted owners and therefore distort the fair competition.	(+)
<b>(5) Fiscal burden on the government</b>	Zero or minimum amount by selling the contributed area in the land market, which one can expect the self-finance settlement between costs and benefit balance.	Government side needs to prepare adequate fund for the compensation (or, the costs can be distributed by collecting the betterment charge from beneficiaries.)	(+)

Source: Prepared by author based on Hong and Brain (2012, P4)

## 2.3 Land Value Capture (LVC) aspect of LR method

According to der Krabben and Needham (2008), there are two elements which will bring the increase of land value. One is the change of land use and the other is installment of

<sup>3</sup> “highest and best use” is a principle to provide an optimal allocation of resources in an efficient way which can also be socially acceptable in real estate market. (Dotzour, Grissom, et al., 1990) In this research, it is defined as the land use which can achieve the maximum economic productivity within the conditions of legally permissible and physically and financially possible for the development in the specific area.

<sup>4</sup> “Expropriation” is also called as “Compulsory acquisition”

public infrastructure, especially for the improvement of existing transport condition. Land readjustment project also contributes to increase the land value, as similar to those elements. Although there are discussions on the rationale of value capturing by the government, it should be justified because it is betterment or development gain brought by the government intervention. It makes possible to finance urban development project through capturing the value increase and it is also possible to recover the cost spent for the development.

LR can be categorized as one of the most effective instruments to capture the incremented land value through its development process. Different from the conventional land value capture (LVC) instruments such as land and property tax or betterment charges, known as special assessment tax which is levied by the government side, the incremented value within the LR project can be shared among the participated owners, and public side can also expect the increase of tax base after the completion of LR process. Regarding the process of budget expenditure of public facilities, conventional LVC techniques takes long way around to finance the specific project takes or requires to utilize political power to ensure the instalment, because the amount of government fund for infrastructure is generally limited whereas the demand for infrastructure provision are always strong. Therefore, in the case land of conventional LVC, the need might not be satisfied timely because of the long queue waiting for the infrastructure. In contrast to this, land readjustment can generate infrastructure cost along with the readjustment process at the same time. Yilmaz, Çağdaş, et al., (2015) explains the efficiency of value capturing on LR method as following:

*“LR appears to be better than other value capture tools (such as land banking or special assessments) since it theoretically provides funding for infrastructure, and since the infrastructure is built during the LR process, the public does not have to make a large investment in infrastructure. Therefore, if cost recovery and value capture tools are implemented with LR, the results obtained with these tools will be more efficient. (Yilmaz, Çağdaş, et al., 2015, p160)”*

The authors also points out another advantage of LR for capturing land value increase. In the case of other LVC instruments, it is unclear that what part of the land value increase are generated by the public intervention or by the external economic conditions such as population growth. However, in the case of LR, the value increase comes from public actions can be clearly determined and incremented value can be captured appropriately before it is distributed to the participated land owners to prevent the future delay of project or holdout issue by the owners.

In the article arguing the application of LR method in developing countries, Hong and Brain (2012) also admit that compared with other conventional land instruments, land readjustment is an ideal method to provide public facilities with more financial feasibility for developing countries which suffer from serious budget constraint to finance necessary public infrastructure and amenities.

## 2.4 Cost recovery perspective in the LR projects

“Cost recovery” in land readjustment means that the costs spent for installing public infrastructure in the project area are recovered from land owners participated in the process or implementation body. No one can expect that the value increase by the public works is always equal to the costs of public works. It may happen the costs is higher than the sale value of reserved land, or the other way around. Therefore, it is important to have careful planning with good cost recovery method before starting implementation. (der Krabben and Needham, 2008)

According to Turk (2008), self-financing characteristic of LR is one of the potential strengths compared with other land acquisition instruments. With the method of land deduction, various costs of LR projects can be covered without shouldering additional financial burden for the government. The percentage of land deduction varies according to the laws applied in each country. In order to achieve the cost recovery principle under the LR projects, the author introduces different approaches to reduce the overall cost of LR projects in the world. For example, construction of infrastructure in LR project is generally responsible for the land owners to bear the cost, and therefore the construction cost is included in the total project cost in many countries except for Germany and Turkey. In these two countries, local or central government is the responsible agency to cover the cost as well as the administrative cost for project implementation. This arrangement will mitigate the financial burden of the land owners engaging in the project and it can be said that government side undertakes bigger risks than the land owners to encourage LR project implementation. Other approach is observed in South Korea, where the quality of public services can be lowered in order to keep the deduction rate at reasonable levels for the participants.

Concerning the financial feasibility of LR project, Mathur (2013) argues that following conditions are necessary to make the project more financially viable;

- 1) *Rapid increase in the value of developed urban land (which) enables local governments to generate substantial revenue from the sale of reserved land.*
- 2) *Local governments retain the reserved land for a significant amount of time before selling it, thereby benefiting significantly from increases in land prices.*
- 3) *Revolving fund system, wherein the revenues from older LR projects fund infrastructure in new projects, helps to finance the up-front infrastructure costs and eliminates the need to sell the land early or to seek loans. (Mathur, 2013, P308)*

In order to incentivise land owners to join the LR activity, Mittal (2014) explains that the existence of ‘robust and rising’ land and real estate market is essential for the success of LR project. In the case of Ahmadabad in India, surrounding economic environment which includes rapid growth of economy, population, housing/land demand with active market and fragmented land parcel built up favourable conditions for the successful application of land readjustment.

According to Yilmaz, Çağdaş, et al. (2015), LR can contribute to enhance the efficiency of urbanization without preparing the large amount of financial resources because the government side do not have to purchase or exercise the compulsory acquisition in order to ensure the project site or right of way for installing the infrastructure. The cost constructing infrastructure and subdivisions can be covered by the short-term loan and it can be recovered by selling the contributed plots. That means the costs of LR project can be covered by the funds generated from the project itself. In addition, LR can contribute for capturing incremented value to subsidize various kinds of public activities such as construction of housing for low income households. As far as the costs are within the total amount of value increase, cost recovery can be achieved. In case the cost exceeds the value increase, the deficit should be distributed among the participants in accordance with the contribution ratio.

## 2.5 Issues related with financial subsidies in LR projects

Triest (2011) explains the definition of subsidy as “*A form of assistance provided by the government to a subset of the public that lowers the cost of producing a good or the price that a consumer pays for a good.*” (Triest, 2011, p10)

Hong (2007) points out the significance of economic incentives for the land owners to accomplish the LR project successfully. Even though this is different from the government subsidy to cover or compensate for a deficit of project cost, putting a positive incentive is essential for the smooth implementation of LR project. It will increase better financial outcomes when the project is organized during the real estate market continues upward trend and/or change the zoning plan which allows higher densities. He also argues that infrastructure investment with the careful LR plan could be self-financing theoretically as argued by Karki (2004), Mathur (2013) and Mittal (2014). On the other hand, one may consider that there are cases where it is difficult to fully recover the cost of infrastructure from internal financing alone. Therefore, sometimes it requires direct subsidy for making the projects more feasible from the financial aspect. It means there is a trade-off relationship between self-financing of public goods and the level of owner's contribution in LR projects. For example, if land owners are required to contribute most of their land parcel for covering the public facilities and other administrative costs, the benefit of land owners will eventually become smaller than they contributed despite the land value increment after the readjustment process. Therefore, he concluded as following;

*“Land readjustment projects can be self-financing only if the responsible agency can resolve the inherent trade-off between encouraging property owners’ participation by reducing their land contributions to the project and recovering the full costs of local infrastructure by reserving more land for public uses and sale. (Hong, 2007, P23)”*

Karki (2004) argues that LR technique is generally understood as a self-financing scheme to compensate all the necessary costs including infrastructure and administrative cost during its implementation period. Under the LR project, the government does not have to spend their own budget for the compensation of land acquisition and construction of infrastructure. This LR characteristic brings positive condition for creating new urban lands and redeveloping existing urban areas as well as the increase of tax base after the completion of project. Actually, Nayabazar Land Pooling project recorded highest Financial Internal Rate of Return (FIRR) among the other types of urban development project implemented in Nepal. However, at the same time, the author admitted the necessity of government support for obtaining low interest credit. The shortage of sufficient fund or delays in arranging it will negatively affect the cooperation from the owners and deteriorate the financial feasibility of the project. In the Gopikrishna LR project, for instance, land owners suffered from the interest payments on relatively higher credit from the private banks because of the unavailability of low-interest credit at the initial stage.

Regarding the necessity of financial support from the government, Hayashi (2002) argued against the conventional view towards LR scheme as self-financing technique without public subsidies. He evaluated the significant role of public financing especially in case the development in the built up area or when it requires major infrastructure which will bring comprehensive benefit for the entire community. Furthermore, he emphasized the importance of public loan with low or zero interest for the smooth implementation in the initial stage of LR project as well as the public guarantee for the implementing body to borrow the loan from private financial entities.

As for the equal distribution of outcome from the project, there are two types of the method on how to divide the adjusted land area. Some countries have a criteria based on the area size prior to the readjustment. This method is effective when it is applied to new urban development areas with homogeneous characteristic of land use. However, in case the implementation in the built-up areas, it is advisable to put additional measures to compensate

for the difference of land price among owners. The other method of distribution is based on the market value of the contributed land parcel. This technique is still effective even in the case of implementation in built-up areas. However, it cannot work well without having skilful, experienced appraisers for determining the land value. (Turk, 2008)

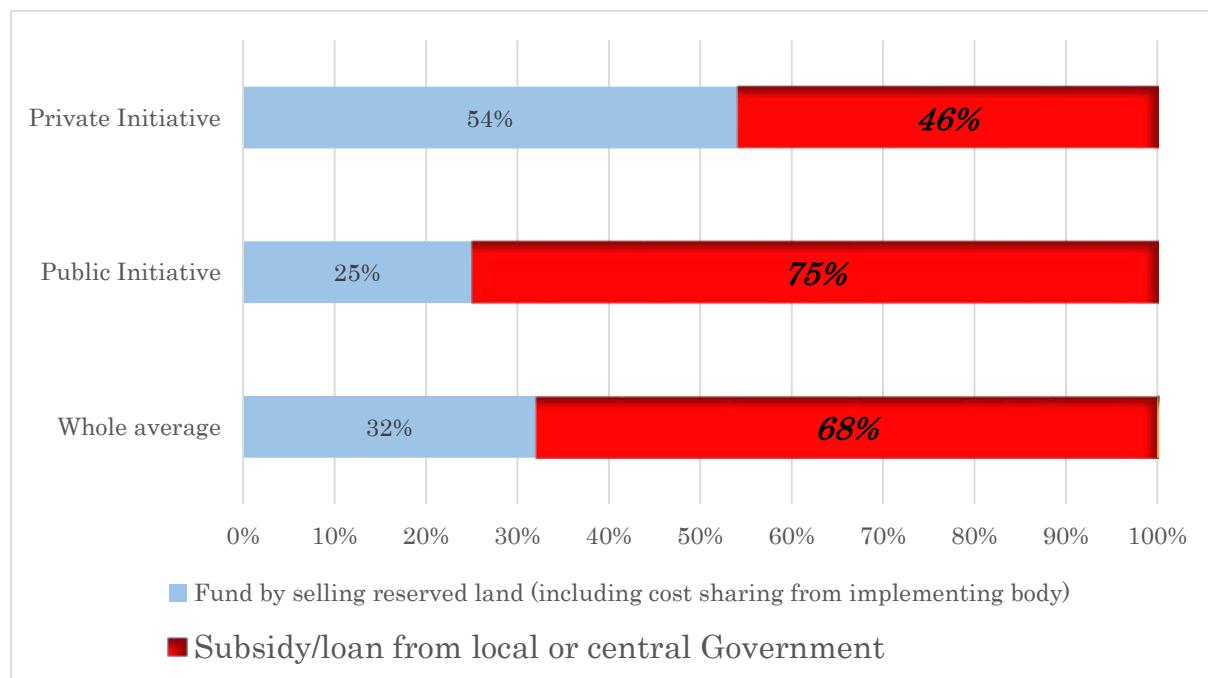
## 2.6 Subsidiary system for LR projects in Japan and other countries

Since the Thailand LR system is developed by the strong support from Japanese government, it is worth to carefully examine the overall structure of subsidiary system in Japan. According to Agrawal (1999), subsidies for Japanese LR projects are given when city planning roads and other primary public infrastructure are included in a project area. The amount of subsidies is limited up to 50 % of total project cost and rest of the costs should be covered by the implementation body in case the project is implemented by the local government, and by the local government in case the project is implemented by cooperative. Even in the case of the project initiated by the private sector, subsidies are provided from central/local government up to 50 % of overall project costs.

In this regard, it should be noted that in Japan, known as one of the successful countries for applying to land readjustment, most of local governments rely on the government subsidy to complement the project cost including administrative expenses for the land readjustment (Agrawal, 1999). According to the following figure 2, a significant percentage of project cost was covered by subsidy or loan from the central/local government.

Figure 1: Financial Structure of LR projects applied for subsidy in Japan<sup>5</sup>

(Average of subsidy provided to the LR projects in 2005)



Source; Prepared by based on the information from MLIT (2015)

<sup>5</sup> “Private initiative” indicates project implementation by cooperative organized privately, while “Public initiative” is implemented by local authorities.

Regarding the rest of 50 % of project cost, implementing body needs to generate the budget through selling the reserved land contributed from participants. Government subsidy can be utilized to finance the cost for compensation and relocation, infrastructure development, and other relevant cost for the project implementation. As the key financial resources for effective implementation of LR projects, there are various subsidies used to finance LR projects; such as government bonds, national subsidy, funds from disposition of reserved land, shared payment of public facility by management authority, subsidies by public organizations, interest-free loans, tax exemptions on profits and land transfer tax as shown in the table 3. (Agrawal, 1999)

Table 3: Subsidiary system for LR project in Japan

Resources	Description
(a) Disposition of Reserve Land:	Where subsidies in a land consolidation project are not available, all project costs are covered by disposition of reserve land. However, to derive development benefits fully, the disposition of land can only take place after the development, it is necessary to find other sources to finance the project. In such cases, interest free loans from central government, local governments or from financial institutions are available to finance the projects until the reserve land can be sold.
(b) Shared defrayment of public facilities by management authority	Where the objective of a land readjustment project is to develop major roads, important public parks, canals, public open spaces and recreational facilities, managers of such facilities are required to share cost of the project to finance such facilities. This is to ensure equitable distribution of cost and benefits as well as to comply with the legal provisions.
(c) Tax:	Tax preferential systems are also available to promote LR projects whereby tax exemption are provided for advance purchase of land, compensation for affected structures and their location, re-plotted land, land transfers and on transfer of developed land to a person who builds a house.

Source: Agrawal (1999, P319)

Generally, land owners are required to contribute 10 % of their land for covering administrative cost and 20 % for installing public facilities. Contribution ratio depends on the characteristic of the project. For example, the ratio will be lowered when the project receives government subsidy or it is implemented in the developed areas. In Japan, government subsidy are provided when the project includes major public infrastructure which will benefit beyond the target area. These subsidies which come from revenue of fuel and automobile tax are financed as a grant or loan from the local or central government.

In addition to the Japanese system, following Table 4 shows the overview of subsidiary situation in other countries.

Table 4: Summary of LR subsidiary system in the world

Country	Contents
Japan	National and local subsidy/Low, zero interest loan/ Tax exemption
Germany	All procedural costs
Sweden	Preparatory investigation loans at the initial Stage
South Korea	Deficits are covered from general city budget in public initiative Projects
India	Extra costs (outside of half of the increment value) are borne by local Authority
Indonesia	All procedural costs (outside of land contribution) are borne by local Authority

Source: Prepared by author based on Turk (2008, P230)

## 2.7 Evaluation criteria of financial effectiveness of LR project

Yilmaz, Çağdaş, et al. (2015) argues that nonetheless of common recognition of LR effectiveness as an urban development tool, there are few countries where LR concept is appropriately applied and receive the successful result. Therefore, he established fundamental criteria to commonly evaluate the effectiveness of LR project. He argues that ensuring a self-financing implementation is the most crucial point in the financial aspect of LR project. By utilizing cost recovery or value capture tools, the cost for infrastructure can be covered and speculation activities will be prevented in order to ensure the social justice among stakeholders. Although the application of these tools is varied based on the social background of the countries, there are three tools/processes as follows; (1) land deduction for the infrastructure areas, (2) land deduction for the cost of the projects (reserve or cost-equivalent land) and (3) collecting the value increase generated with the projects (as land or value). Based on these tools, land deduction for the infrastructure areas and for the reserved land can be defined as the main cost recovery technique in LR. This tool/process is the main option to capture the increased value and if the land value after the project becomes higher than it used to be, then the all or part of earned increment need to be shared with implementing body to share the benefit with other participants contributed to realize the project. It can be said that implementation process is efficient when the output becomes positive. Therefore, self-financial principle in LR project means that the procedure should realize cost recovery.

In addition, the efficiency of tools can be assessed by defining the percentage of maximum, average and minimum value capture and cost recovery in the projects. By utilizing these indicators, it is possible to evaluate and compare the degree of success in the LR projects' financial results. In addition to that, he explains a list of the cost payers and the maximum, average and minimum percentage of the costs paid by each actor should be evaluated with the same platform. Agrawal (1999) suggests same criteria to analyse the distribution of the project cost and benefit between government and other stakeholders. This can illustrate the landowner's role in financing, and cost sharing in large projects with benefits expands over the target area. Moreover, Yilmaz, Çağdaş, et al., (2015) also emphasized the role of subsidies to improve the financial effectiveness of LR projects. This is because, despite the high possibility to achieve the positive financial outcomes in LR, in some projects, the value increase may not be high enough to cover all the costs of the development. Even though the self-financing

principle can be achieved through the sale of reserved lands, it is possible only after the project completion. Therefore, establishing the various financial sources of subsidy is another key element to improve the financial effectiveness in LR projects. According to Agrawal (1999), financial support for LR projects includes interest free loans from the central and local governments, by tax exemptions, and government bonds. Subsidies if any, are only considered a secondary source of finance.

## 2.8 Factors influencing on the use of subsidies from literature review

As a result of careful exploration of previous literature, following factors are extracted as key elements affecting on the use of government subsidies in LR project.

### 1) Land distribution plan

As Hayashi (2002) explained, from the government perspective, putting subsidy into the LR projects with large components of non-profitable land use which will provide social benefit for the entire community in the future can be justifiable in order to achieve the purpose of public good. However, from the perspective of financial sustainability, it should be carefully decided whether subsidy is actually required in the particular project. It means, the priority is seeking for alternative ways to achieve the self-financing principle by selling the reserved land.

### 2) Quality and Quantity of infrastructure

Turk (2008) explained through the example of Korean case, it requires to reduce the quality of installing facility in order to balance between income and expenditure of the project, or contribution ratio needs to be increased accordingly in order to satisfy the standards of quality agreed among stakeholders.

### 3) Topographic condition

There is no literature which clearly argues the relation between project cost and topographic conditions, because it is obvious that project cost would increase when the project is implemented in more difficult place/location than other area. In addition, although the condition is slightly different from the topographic in its original meaning, total cost for implementing the project in the built up area would be higher than the case of implementation in undeveloped area. Therefore, utilization of government subsidies should also be accepted in this specific situation.

### 4) Coordination among stakeholders

The implementation of LR project involves a lot of stakeholders, not only public entities but also the association of eligible land owners. Therefore, as Sorensen (1999) explained in Japanese case, it sometimes takes longer time than expected to complete the project until the end of equal distribution of cost and benefits of the project. In this regard, lack of coordination leads to extend the project period, and overhead cost increases accordingly. This may be another factor to require the financial support from the government.

### 5) Educational cost for technical staff

Sorensen (1999) explained how Japan had accumulated successful LR projects so far. According to his explanation, skilful staff of local government in charge of LR project contributed a lot to persuade the land owners effectively. This was a result of

continuous effort of Japanese government to provide training of the staff, and therefore other countries which try to replicate the Japanese successful model might need financial support to educate the staff to deepen their knowledge and experience on land readjustment.

6) Land market condition

As Turk (2008) discussed in the issue of cost recovery, economic conditions are quite important in order to make LR projects financially viable. Therefore, it will require the government subsidies to financially support the project implemented during economic recession.

7) Contribution ratio

Turk (2008) also explained the importance of setting an appropriate contribution ratio. In the LR project, cost recovery can be realized through the selling of reserved land contributed from the participants. Hence, contribution ratio is the fundamental factor to achieve self-finance principle. In other words, if the ratio is intentionally settled low percentage, government subsidies need to be considered as a supplemental financial source.

8) Financial condition of implementing agency

As Karki (2004) explained, even in the case where self-finance principle is achieved, it may require the additional financial support especially for the initial stage of project. Therefore, putting subsidy (or guaranteeing the appropriate project implementation) should be accepted in the beginning of the project.

9) Difference of implementing agency

As Turk (2008) explained, in most of countries applying for financial support system to complement LR project, government subsidies are provided in the case where implementing body is public agency rather than private entity.

10) Political support

It should be noted that in addition to these 9 factors discussed above, political willingness always plays a key role not only to accelerate the project implementation but also to follow-up the disadvantage of unexperienced events occurred during the implementation of pilot projects. Accumulated experiences from the pilot projects will contribute to develop other successful projects in the future.

## 2.9 Conceptual Framework

The following diagram shows the relationship between the needs of government subsidy and factors which may have influenced on the use of them. As closely discussed in the literature review, the factors can be categorized into four criteria as (1) Factors affecting on higher project cost, (2) Factors affecting on low revenue generation, (3) Extra factors making the project cost high, (4) Other factors to influence the use of subsidy.

As repeatedly emphasized in various occasions in the theory, two important key concepts of land readjustment are land value capture (LVC) and cost recovery through which self-finance principle can be achieved. Provided that both techniques are effectively utilized, there is no need to put government subsidy additionally in the LR procedure. However,

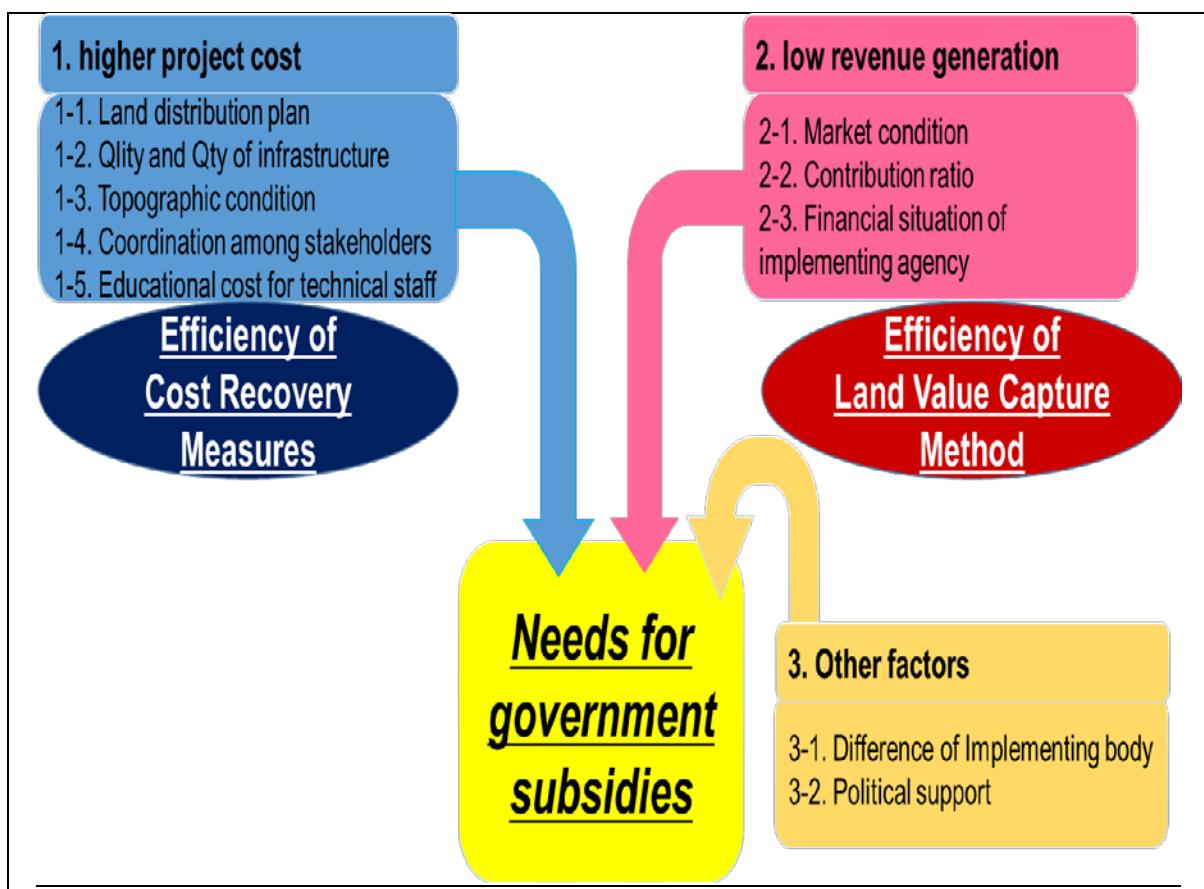
regardless of careful planning and utilization of key concepts, there may be several cases where self-finance characteristic is not satisfied by the influence of factors discussed so far.

Firstly, when the project cost becomes higher than originally expected, it may require to add more budget to cover the deficit or ask for financial support from the government, which is subsidy. At the same, implementing body needs to consider the possibility to utilize government subsidy when it fails to generate sufficient budget to implement the project, for example, due to negative land market conditions in the project area.

In addition, as Sorensen (2000) and Turk (2008) argued, coordination among stakeholders and capacity of project staff are also key criteria to successfully complete the project. When the staff of implementing agency failed to coordinate various participants, especially to persuade reluctant land owners, original project period needs be extended and therefore it will require additional overhead cost to resolve the stagnated situation. Finally, political intervention and the characteristic of implementing body would be another criteria to attract government subsidy.

Then, the following chapter will discuss on the actual application of those hypothetical factors in the pilot projects in Thailand, and verify the financial effectiveness of both cases.

Figure 3: Conceptual framework



Source; Prepared by author (2015)

## Chapter 3: Research Design and Methods

### 3.1 Introduction

The research focused on how the government subsidy are utilized in the LR pilot projects in Thailand, and through the whole research process, it tried to evaluate the financial effectiveness of both projects at the end of research. As introduced in the chapter 1, the concept of LR itself was introduced more than 20 years ago in Thailand, but the actual implementation took long time before establishing the necessary laws and regulations to start off the pilot projects. The main objective of this research is to explore the implementation process in a specific context in Thailand, hence the nature of this research can be categorized as exploratory. However, the research was also aimed to identify the appropriate answer among various factors to justify the use of government subsidy in land readjustment project. In that sense, the research has the characteristic of explanatory as well. Based on the comparison case study between the case of “with subsidy” and “without subsidy”, the unique implementation process in a different context can be illustrated, and the answer should also be found out accordingly. In this chapter, the following paragraph will explain the methodology applied in the research as well as the way of collecting necessary dataset from the target projects.

### 3.2 Definitions of key concepts

The definitions of key concepts employed in this research are shown in the following table 5.

Table 5: Definitions of key concepts

Concepts	Definition
Land readjustment	Land readjustment is a practical instrument to consolidate the irregular land parcels to redesign their shapes and to enhance the connectivity with the public infrastructure as well as the public amenities such as parks and open spaces. (Home, 2007)
Government subsidies	“A form of assistance provided by the government to a subset of the public that lowers the cost of producing a good or the price that a consumer pays for a good.” (Triest, 2011, p10) In this research, government subsidies have broader range of financial assistance from central government, including grant and loans with lower rate than market interest rate.
Cost recovery	Cost recovery means the costs spent for installing public infrastructure or any statutory exaction in the project area are recovered from land owners participated in the process or implementation body. (der Krabben and Needham, 2008)
Land Value Capture (LVC)	Land value capture is the process for the government to cream off the benefit gained by the instalment of public infrastructure, or change of the land use by the public decision. (der Krabben and Needham, 2008)

Source: Prepared by author (2015)

### 3.3 Operationalization of variables and indicators

The following table 6 shows the operationalization of key concepts and factors which may determine the use of government subsidy in the LR project. It also includes indicators to effectively measure the influence of each factor on the application of government subsidy. In this regard, potential factors can be defined as independent variables while the use (application) of subsidy is dependant variable.

Table 6: Variables and indicators

Research questions	Category of factors	Variables	Indicators	Nature of data source	Data source
1) Which factors affected on making the project cost high?	Efficiency of cost recovery measures	1-1. Land distribution plan	Percentage between non-profitable and profitable land use	Quantitative and Qualitative	
		1-2. Quality and Quantity of infrastructure	Characteristic and conditions of Infrastructure installed by the Project	Qualitative	
		1-3. Topographic condition	Topographic condition of project site	Qualitative	
		1-4. Coordination among stakeholders	Time spent for solving the problem related with human relationship	Qualitative and Quantitative	
		1-5. Educational cost for technical staff	Number of experienced or skilful staff	Qualitative and Quantitative	
2) Which factors influenced on saving the project cost?	Efficiency of value capturing measures	2-1. Land market condition	Price of land	Quantitative	
		2-2. Contribution ratio	Rate of contribution	Quantitative	
		2-3. Financial conditons of implementing agency	Scale of budget available for LR project	Quantitative and Qualitative	
3) What kind of other factors should be taken into account for the use of government subsidies?	Other factors taken into account on the use of government subsidy	3-1. Difference of implementing body	Nature of implementing agency	Qualitative	
		3-2. Political support	Existence of political supporters accelerating the approval process	Qualitative	

Source; Prepared by author (2015)

### 3.4 Research methods and strategies

The strategy applied in this research is multiple holistic case study between “with government subsidy” and “without government subsidy” case of the land readjustment. This is because the number of pilot projects is still limited and there are only several cases which come to end of the process, while the Thai government started to expand the experience of LR project to the entire region just recently. Another reason to utilize the case study approach is because it is impossible to control the situation and isolate the specific phenomenon from the context. In addition, it is important to compare different cases in order to objectively evaluate the actual role of government subsidy in LR project, and therefore, comparison research is applied together with case study strategy. According to Yin (2003), the characteristic and advantage of case study was described as follows,

*“Case is applicable when the investigator cannot control over events, and when the focus is on an interrelationship of phenomenon within a real life.”* (Yin, 2003, P1)

Based on this understanding, case study approach should be the most appropriate strategies among others in order to come up with the best answers towards the research question raised in the chapter 1.

Since the number of applied sample in this research is limited due to the slow progress of pilot projects, the conclusion cannot be applicable to every single LR project in the future. However, in order to increase the validity of the research, triangulation (cross-check) of data was tested through conducting in-depth interview with both Japanese and Thailand expert concerned in this sector. In addition, the author had analysed the various source of secondary data, such as financial statement of the pilot projects as well as the contents of the Thai LR Act which was enacted in 2004.

### 3.5 Sample size and selection

As explained in the above chapter, this research was focused on the comparative case study between the LR projects with and without the government subsidy in Thailand. There are more than 20 LR pilot projects currently being implemented to verify the effectiveness of the LR method in Thailand. From those projects, Naratiwat, Rama 9 Park and Tharahat project were selected as sample cases because the progress of these projects is relatively faster, and thus it would be easier to evaluate the impacts of the LR rather than the other ongoing projects. Although the installation of public infrastructure was not completed due to the insufficient budget in both Naratiwat and Tharahat project, provision of title deed was already finished for these project. Therefore, Thai counterparts categorized these projects as completed one. The project areas are ranging from 8 ha to 31 ha and total number of participated owners were about 200 land owners. Besides that, as for the project of Rama 9 Park and Tharahat, Satisfactory Survey was conducted in 2013 by the consultants hired by JICA technical cooperation team, in order to understand the perceptions of land owners towards the LR method.

Another selection criteria is the financial conditions of three different projects. For example, Naratiwat project was selected as an important sample case because it applied for the low-interest loan from the LR fund in order to install road infrastructure in the target area. Until now, Naratiwat is the only case which applied for the LR fund. On the other hand, Rama 9 Park project was solely dependent upon the self-finance fund raised by selling the reserved land, without relying on any financial support from the government. In the case of Tharahat project,

they didn't apply for loans or grant from LR fund but received financial support from the government to install the city planning road. By comparing these three projects, it is expected to derive the possible elements which affected on the use of financial support and its effectiveness in LR project.

### 3.6 Data collection methods

Since the main subject of this research is to identify the role and impacts of government subsidy, it requires professional background based on the profound knowledge about the development history of Thai LR as well as the practical experience of LR operation in order to appropriately respond to the various research questions described in chapter 1. Therefore, based on interviews and questionnaire survey as attached in Annex 2, purposive sampling (data collection) was applied as a more effective method than other techniques. In addition, interviews with the key personnel who spent more than 10 years for the establishment of Thai LR system as a JICA senior advisor and also Thai experts responsible for implementation of LR pilot projects enables the author to draw reasonable conclusions. In addition, direct observation is conducted in Rama-9 Park and Tharahat pilot project in order to investigate the result and impact of the LR project. Moreover, through the cross-check process between in-depth interview with these experts and desk work based on the secondary data provided by responsible counterparts, the validity and reliability of this research can be increased accordingly.

Since the author is not a native speaker of Thai language and it might occur the misunderstanding by using English as a communication language, supports from reliable interpreters<sup>6</sup> who had studied and currently study at IHS contributed a lot to avoid the miscommunication with counterparts. In addition, secondary data verified by the careful translation also helped to deepen the understanding of LR development process and challenges now they are facing as well. The list of sampling and data source is shown as follows.

#### 1) Primary data

Table 7: List of Interviewee

Name of expert	Institution	Position	Project in charge
Mr.Takeo OCHI	JICA	Senior advisor for Urban Development, JICA	(1) Rama 9 Park (2) Tharahat (3) Naratiwat
Mr.Shunsaku SAWADA	Urban Renaissance Agency	JICA expert for Thai LR project	(1) Rama 9 Park (2) Tharahat (3) Naratiwat
Mr. Ittipong Tanmanee	Department of Public Works and Town & Country Planning (DPT), LR Bureau	Director of LR Bureau	(2) Tharahat, (3) Naratiwat

<sup>6</sup> Ms. Kittima Leeruttanawisut, UMD 7 student at IHS in 2010, PhD Candidate

Ms. Siriwan Beebee, Doctor student at IHS in 2015

Mr. Thuanthong Sirimongkolvichaya	DPT, LR Fund	Director of LR Fund	(2) Tharathat, (3) Naratiwat
Mr. Sunirun Thumyim	DPT, LR fund	City planner	(3) Naratiwat
Mr. Urint Hutasingh	DPT, LR fund	Urban Architect	(3) Naratiwat
Ms. Pattaraporn Goolprasoot	DPT, LR fund	Town Planning Analyst,	(3) Naratiwat
Ms. Soontaree Sernsuksamrit	Bangkok Metropolitan Administration (BMA)	Director of Land Readjustment and Urban Renewal Division	(1) Rama 9 Park
Ms. Urai Aramwongthakul	Bangkok Metropolitan Administration (BMA)	Director of Land Readjustment and Urban Renewal Division	(1) Rama 9 Park

Source: Prepared by Author (2015)

## 2) Secondary data

Table 8: List of Secondary data

Data	Source
Summary of the terminal evaluation on the Project for Self-Sustainability and Dissemination of Land Readjustment System (2014)	JICA
Research on the Degree of Satisfaction of the Stake Holders in the District for Land Readjustment in Thailand (Satisfactory Survey) (2013)	JICA
LR Act, Thailand (Land Readjustment Act B.E. 2547)	Ministry of Interior
Thailand's self-identity development in the urban land readjustment pattern: History & Evolution (2014)	Ministry of Interior BMA National Housing Authority (NHA)
Project management sheet for the pilot projects (2015)	JICA
Naratiwat project report (2014)	DPT
Project MAP of 3 pilot projects (before and after the project implementation)	DPT, BMA

Source: Prepared by author (2015)

### 3) Direct observation

The author had an opportunity to participate in the seminar on “Land Readjustment in Thailand program” held in the Bangkok city, Thailand, which is supported by JICA as a part of international training course named “JICA Training Program on Land Readjustment”. Taking that occasion, direct observation during the field visit was conducted as follows.

(1) Rama 9 Park project  
In the morning of July 7<sup>th</sup> (Tuesday)

(2) Tharahat Project  
In the afternoon of July 6<sup>th</sup> (Monday)

Direct observation was conducted only for Rama-9 Park and Tharahat project, because Naratiwat project was located far from the other two projects next to the border of Malaysia, and thus the author could not arrange the field visit on this project. Also, visiting to Naratiwat area was warned by the Japanese government because of the history of South Thailand insurgency. However, the result of Naratiwat project was carefully analysed through interviewing the staff in charge of this project in DPT, and careful observation of pictures and cadastral maps after the implementation of project was successfully completed by the cooperation of DPT staff.

## 3.7 Validity and reliability of the research

### 1) Validity

The potential problem on this research is how to ensure the validity of the study result in order to utilize the lessons & learnt to other similar projects. Considering the number of sample case and the qualitative nature of research method, it might be difficult to generalize the conclusion for the entire LR project in other countries. In addition to that, the use of pilot projects as case studies might bias the overall results because of their exceptional financing nature and innovative status.

However, it is also true that the distortion of result may occur by putting a lot of ongoing pilot projects which do not have sufficient information. In addition, the interview result not only from Thai experts but also from Japanese advisors who have the sufficient knowledge and experiences of the LR projects in Japan contributed to increase the objectivity as well as the validity of the study. Through this triangulation process between primary and secondary data, it also enabled to verify whether the hypothesis brought by the literature review is valid for the practical cases in Thailand.

Furthermore, given the fact that the Thai government has been encouraging to introduce LR concept throughout the nation, the problem of validity in this research will be modified by conducting an additional study on the ongoing projects.

### 2) Reliability

As for the reliability, in addition to the triangulation through semi-structured and in-depth interview, the author tried to analyse the financial statement of each pilot project in order to conduct the research in an objective manner and to eliminate the bias by the subjective opinions from interviewees. Analysis based on the objective data will ensure the reproducibility of research and thus increase the reliability of the research result accordingly.

Not only for the interviews with administrative officers in DPT and BMA, the author utilized to analyse the result of Satisfactory Survey named “Research on the Degree of Satisfaction of the Stake Holders in the District for Land Readjustment in Thailand”. The survey was conducted in 2013 by JICA technical cooperation team, in order to deeply understand the perceptions of participants involved in the 5 LR projects. As Rama 9 Park and Tharahat LR project were included in the satisfactory survey, it enabled to enhance the reliability of this research by taking participants’ opinions into consideration.

In addition, Questionnaire Survey based on the provisional factors from literature review as attached in Annex 2 helped to avoid leading questions which may undermine the reliability of the research itself. At the same time, open style interviews also contributed to find out the effective answers in order to overcome the existing challenges in Thailand.

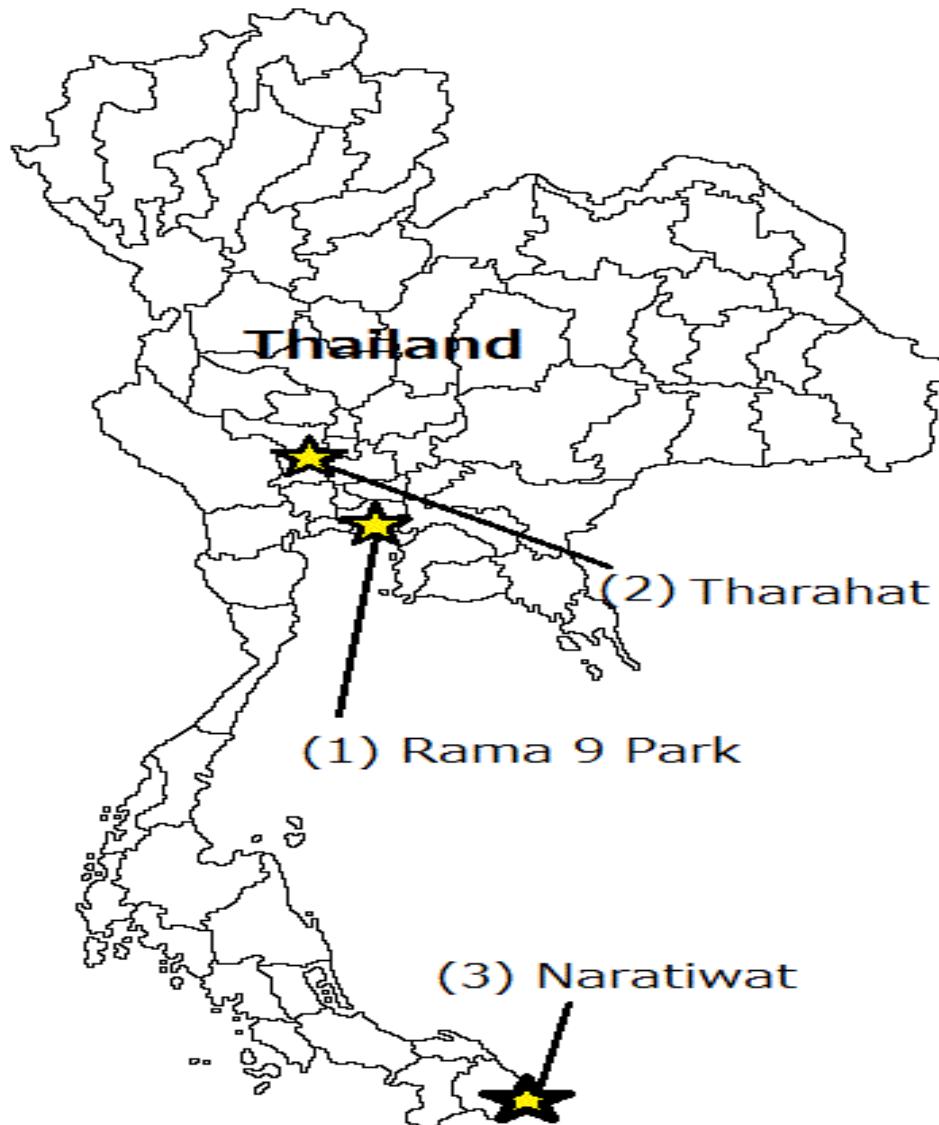
## Chapter 4: Research Findings

### 4-1. Introduction

In this chapter, analysis on the series of interviews and secondary data was conducted based on the variables which is structured in the previous chapter 3. The strategies applied in this research are Case study and Survey among three different LR projects in Thailand, namely (1) Rama 9 Park, (2) Tharahat, (3) Naratiwat pilot project.

Figure 4 shows the location of each project. (1) Rama 9 park project is located in the suburban area of Bangkok city, and (2) Tharahat project is implemented in Supan Buri province, approximately 100 km away from Bangkok. As for the (3) Naratiwat project, project location is about 850 km far from Bangkok, sharing the border with Malaysia. Figure 5 illustrates before and after the project implementation.

Figure 4: Location of Pilot Projects



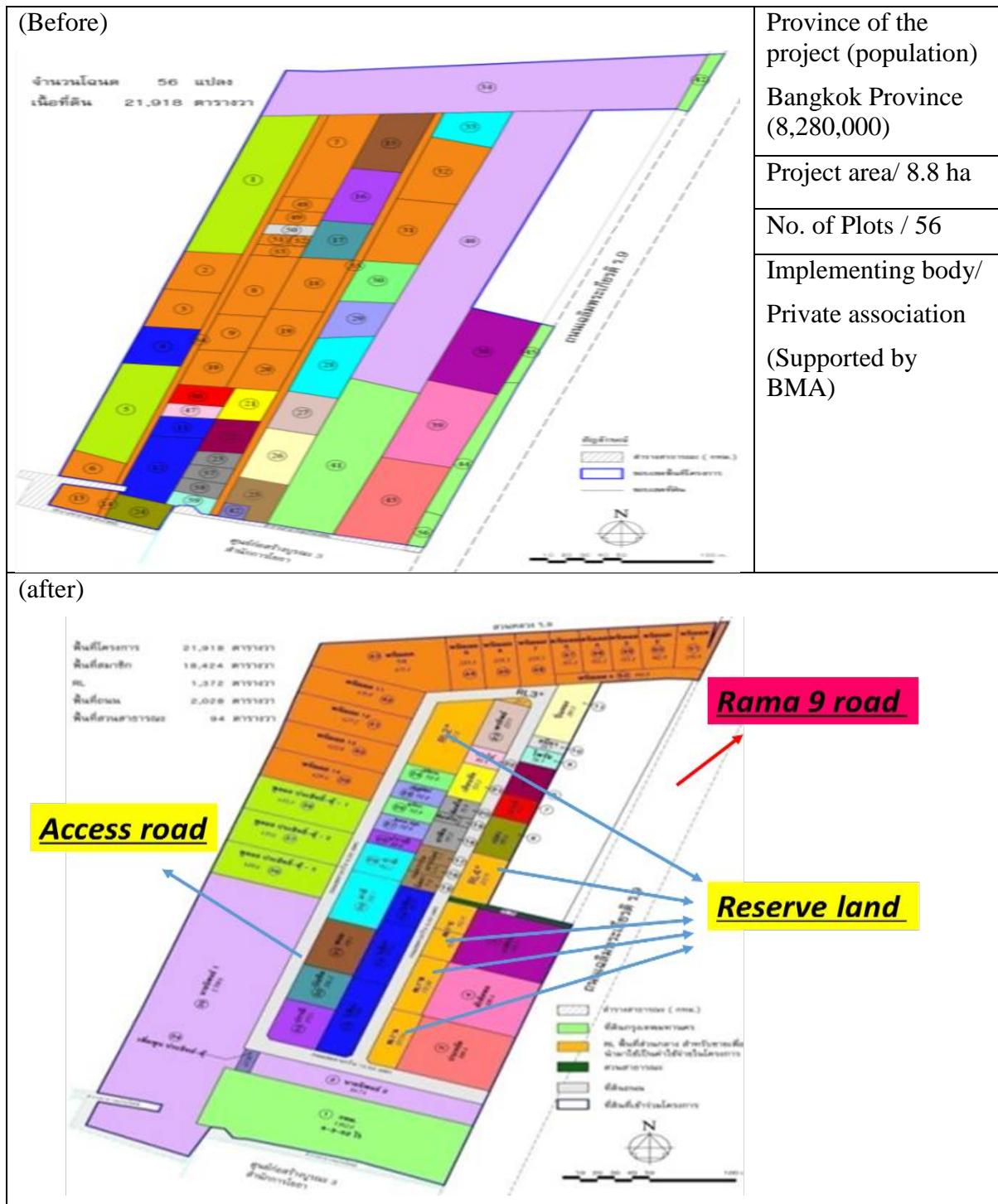
Source; Prepared by author (2015)

◆ General overview of three pilot projects

General overview of three pilot project is described as shown in Figure 5. Detailed comparison among those projects will be described in the following sections, according to the different variables established in the process of operationalization in chapter 3.

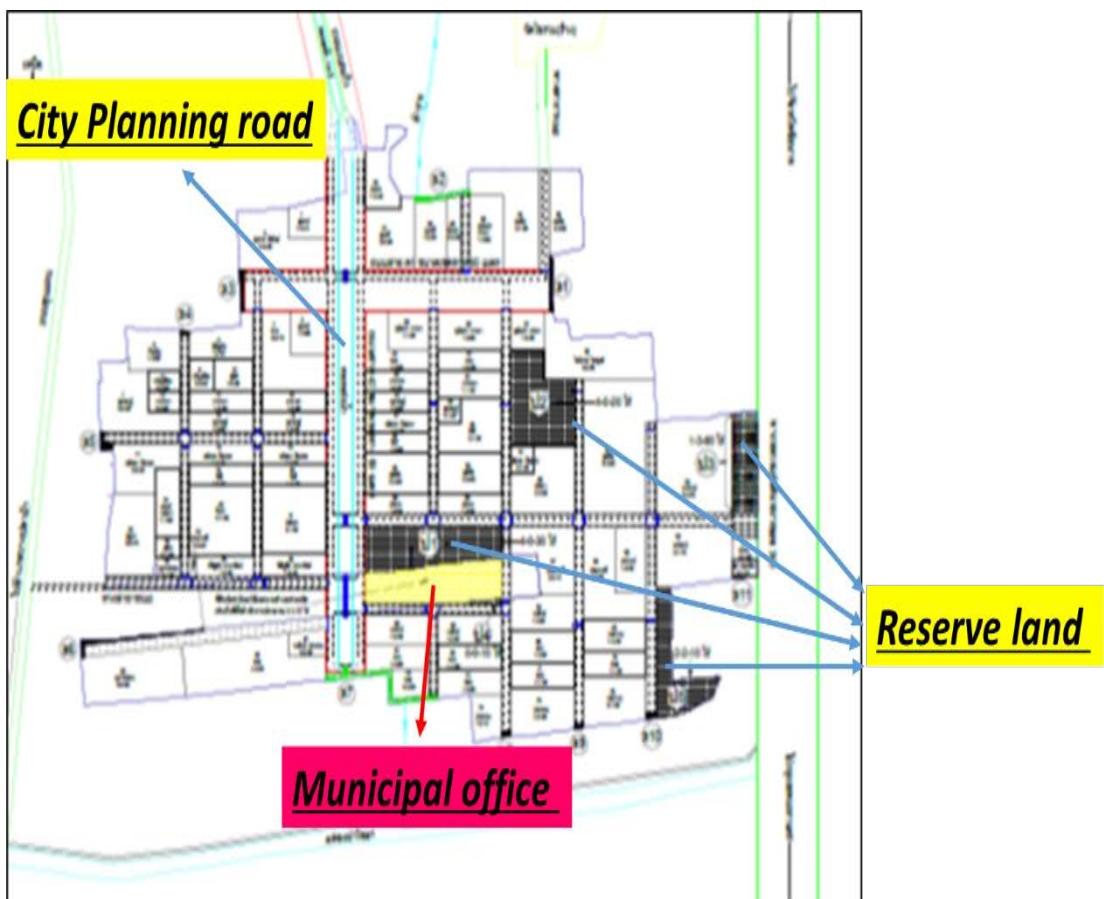
Figure 5: Project area map on before and after of pilot project

(1) Rama 9 Park



Source: Outline of Thail LR (2014)

(2) Tharahat

(Before)		Province of the project (population) Supan Buri Province (850,000)
		Project area/ 31.3 ha
		No. of Plots/ 36
		Implementing body/ Public initiative (Managed by DPT)
(after)		

Source: Outline of Thail LR (2014)

(3) Naratiwat

(Before)



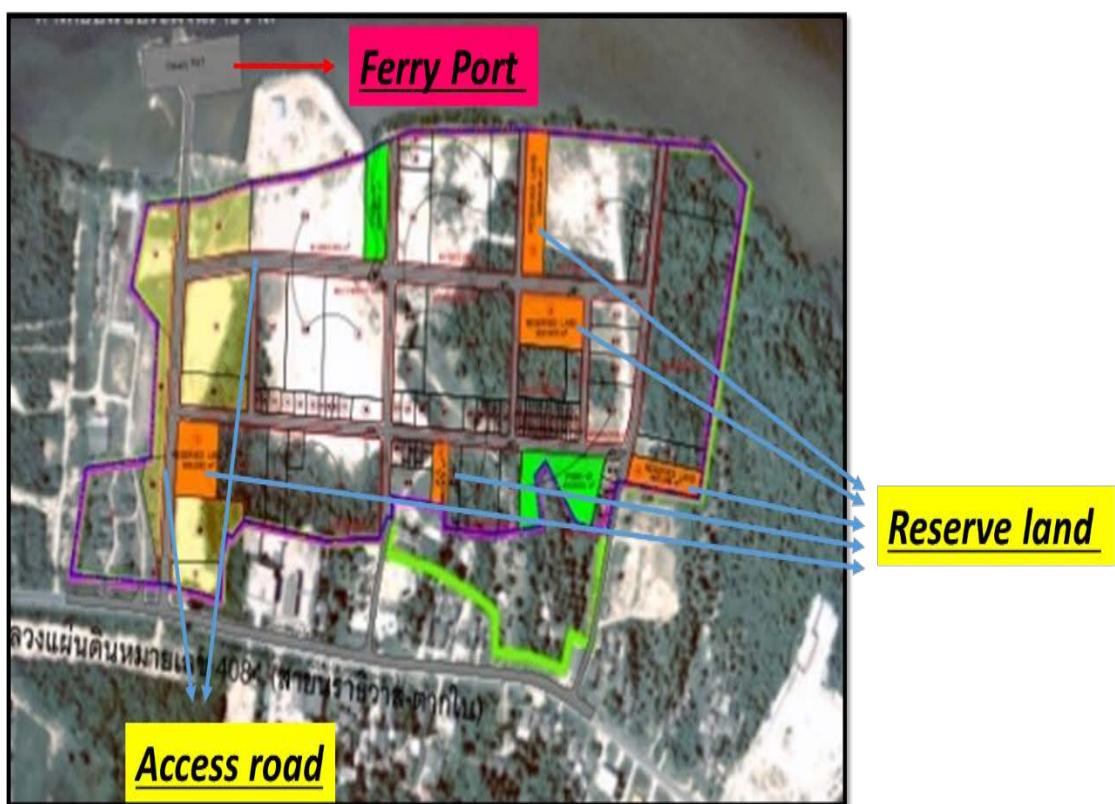
Province of the project (population)  
Naratiwat Province  
(775,000)

Project area /21.8 ha

No. of Plots/ 77

Implementing body  
Public initiative  
(Managed by DPT)

(after)



Source; Outline of Thail LR (2014)

◆ Determination of LR project area

Before starting the LR project implementation, each province has to formulate “provincial LR master plan” and “Target area of land readjustment”. Based on the proposal of provincial office of DPT, LR committee investigates the validity of proposal and provides the approval after investigation process. Once the area is designated as “LR target area”, the project implemented within the boundary of target area can receive the benefit of 1 % lower interest rate when the implementing body will apply for loans from LR fund. The procedure for deciding the Master plan and Target area is shown in the following figure 6.

Figure 6: Procedure on determining LR project area



Source: Prepared by author (2015)

◆ Associated law and budgets of LR fund in Thailand

Formulating a sound legal structure is the prerequisite basis to ensure the sustainable development of LR concept. Thai LR Act is consisted of 8 chapters, in which subsidy related articles are written in the section from 75 to 83. In principle, project budget of LR should be raised by selling the reserved land, but LR Act in Thailand allows to utilize the subsidies (the Fund) for the following purposes as shown in Section 79.

◆ Section 79: Monies from the Fund shall be spent for the following activities:

- (1) To be a loan to the Land Readjustment Project Implementer
- (2) To be a subsidy or a loan to government agencies, local administrative organizations, state enterprises, or other state agencies, for the purpose of constructing or making improvements to public utilities or public facilities as infrastructure to support Land Readjustment;
- (3) To support research, training, public relations and dissemination of information about the Land Readjustment;
- (4) To be advances for compensation or damages in the implementation of the Land Readjustment Project pursuant to this Act;
- (5) To be spent as expenses in management of the Fund.

Source: LR Act (2004)

As shown in Table 9, overall budget for LR fund is gradually increasing. However, considering the fact that number of municipalities applying for LR fund will grow up

accordingly, DPT needs to make effort continuously for securing the additional budget to strengthen the budget sustainability of LR fund.

Table 9: Total budget of LR fund

Fiscal Year	2013	2014	2015 (※Requested amount)
Secured budget (US\$) <sup>7</sup>	72Mil THB (2.04Mil US\$)	210Mil THB (5.96 Mil US\$)	1Bil THB (28.41 Mil US\$)

Source: Outline of Thail LR (2014)

As for the “self-finance principle” of LR method, there are no clear articles which indicates the principle as a prerequisite one. Section 3 of LR Act defines the land readjustment as follows: According to this definition, the law evaluates the importance of LR technique for equitable distribution of cost and benefit among participants, rather than pursuing self-finance through the project implementation. Therefore, it added the clause of LR fund to cover the lack of budget in LR project.

**Section 3 In this Act,-**

“Land Readjustment” means the implementation of development of many plots of land by land replotting, improving or constructing infrastructure, and jointly bearing the burdens and equitably distributing the returns.

Source: LR Act (2004)

#### 4-2. Efficiency of cost recovery measures

◆ Variable 1-1: Land use plan on the project site

From the social perspective, putting subsidy for non-profitable land use (such as low income housing) will provide the benefit for entire community. However, from the perspective of financial sustainability, it should be carefully decided whether the subsidy is actually required in a particular project. It means, a priority should be put on achieving the self-financing principle by selling the reserved land in high price enough to compensate the project cost.

By comparing the following Table 10, showing land use distribution among three pilot projects, it is obvious that the allocation of spaces for public road and park in Naratiwat and Tharahat project are much higher than the one for Rama 9 Park project. It means that both projects allocated more spaces for the portion of “Public Land”, which can be seen as a non-profitable land use. Therefore, it might be required the additional fund (grant and loans) to complement the financial deficit caused by the LR project. It is also clear that the government subsidy is required when the local government kept the reserved land for their own sake. According to the explanation of staff in charge of Tharahat project, they utilized part of reserved land to build the new government facility without paying the necessary price of the reserved land. They also preserved the rest of the reserved land for the future nursing facility in the community. The purpose of keeping reserved land in Tharahat project is feasible from the viewpoint of social benefit in the entire community, but they faced with serious budget deficit because the reserved land was not sold privately to cover

<sup>7</sup> Exchange rate (13/8/2015) = 1USD ≈ 35.2 THB

the project cost. At the end, they had no choice but reduce the quality and quantity of infrastructure as discussed in the following section.

Average ha of those pilot projects is different each other, two pilot projects needs to install additional infrastructure or subdivision which requires additional budget (and therefore, the price of each parcel was much lower than Rama 9 pilot project as described in the following section).

Table 10: land use plan before and after the pilot projects

(1) Rama 9 Park

Before LR	Acreage(ha)	Percentage	After LR	Acreage(ha)	Percentage
Public Land		0.0%	Public Land	0.8	9.7%
(Public road)		0.0%	(Public road)	0.8	9.3%
(Public waterway)		0.0%	(Public waterway)		0.0%
(Park)			(Park)	0.0	0.4%
Private Land	8.8	100.0%	Private Land	7.4	84.1%
			Reserve Land	0.5	6.2%
Total	8.8	100.0%	Total	8.8	100.0%

Source: Project management sheet (2014)

(2) Tharhat

Before LR	Acreage(ha)	Percentage	After LR	Acreage(ha)	Percentage
Public Land		0.1%	Public Land	7.7	24.61%
(Public road)		0.0%	(Public road)		0.00%
(Public waterway)		0.0%	(Public waterway)		0.00%
(Park)		0.0%	(Park)		0.00%
Private Land	31.3	99.9%	Private Land	22.0	70.17%
			Reserve Land	1.6	5.07%
Total	31.3	100.0%	Total	31.3	100.0%

Source: Project management sheet (2014)

(3) Naratiwat

Before LR	Acreage(ha)	Percentage	After LR	Acreage(ha)	Percentage	
Public Land		5.57	4.08%	Public Land	23.24	17.05%
(Public road)		4.94	-3.62%	(Public road)	19.16	-14.05%
(Public waterway)		0.63	-0.46%	(Public waterway)		0.00%
(Park)				(Park)	4.08	-3.00%
Private Land	130.74	95.92%	Private Land	105.42	77.34%	
			Reserve Land	7.65	5.61%	
Total	136.31	100.00%	Total	136.31	100.00%	

Source: Project management sheet (2014)

◆ Variable 1-2: Type and quality of public infrastructure

When it comes to the type of installed public infrastructure, development of public road was the main purpose of the LR projects. However, the category (or characteristic) of road was different. In the case of Tharahat project, city planning road was constructed with the support of DPT grant fund, and connecting road was left as a responsibility of municipal government. The benefit from constructing a city planning road is not only for project participants but also for people living in the surrounding area. Therefore, the development of city planning road in Tharahat project was financially supported from the government as their responsibility. On the other hand, the category of public road installed in the Rama 9 Park project was an access road within the community, and the benefit from this development was limited only for the sake of land owners within the project area. Therefore, they had to generate the budget for project implementation by selling the reserved land. By comparing both cases above, it becomes clear that the responsibility of national government is only limited for the development of city planning road, and that's why the implementing body (private association) of Rama 9 Park Project had to conduct the LR project without relying on the government support.

In terms of the quality of public infrastructure, there are clear differences among three pilot projects according to the budget generated from LR pilot projects. For example, Rama 9 Park project had achieved to generate the necessary fund to install full package of infrastructure including electricity, underground water/sewage pipeline and road infrastructure with concrete pavement as shown in the Picture 1 below.

Picture 1: Situation of project site after implementation (Rama 9 Park)



Source: Prepared by author (2015)

In contrast to that, Naratiwat project could provide road infrastructure with pavement in some part as shown in the Picture 2, and Tharahat project could only prepare the road basis without any pavement or other infrastructure. In this regard, the results from three different projects showed clear distinction in terms of provision of infrastructure facilities.

This result was attributed to the severe constraint of project budget in the municipal government because they failed to sell the reserved land with an appropriate price. For example, the reserved land of Tharahat Project was utilized as areas for new municipal building and nursing school in the future. However, the municipal government did not make any payment of the price of the reserved land and thus there was no available budget for the project except for the budget (subsidy) from DPT.

The problem observed in the Tharahat project was mismanagement of public resources. It means, the fund for purchasing the reserved land and the budget of LR project had same financial basis as a comprehensive municipal budget. However, these transactions should be clearly separated, because the nature of both budget was different. At the end, the project budget prepared by the municipal government was far from satisfying all the necessary cost of public infrastructure.

Picture 2: Situation of project site after implementation (Naratiwat)<sup>8</sup>



Source: Naratiwat project report (2014)

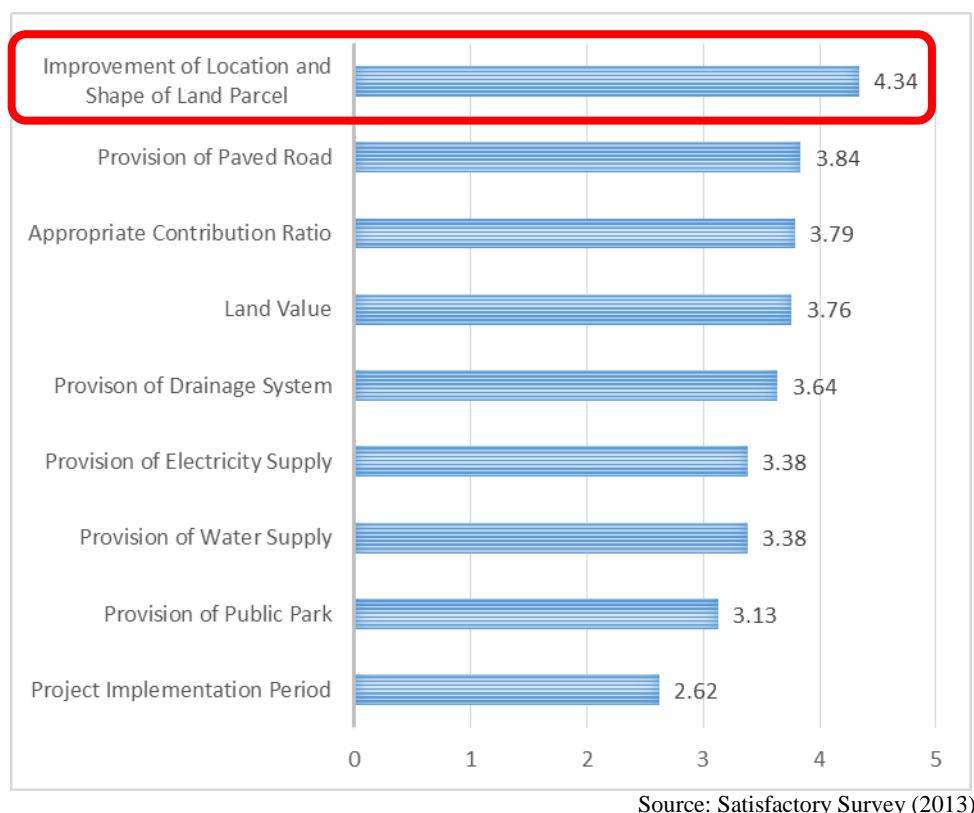
As a conclusion of three different pilot projects, the quality and quantity of public infrastructure was only maintained in Rama 9 Park project as originally expected, whereas the two other projects had to give up to install the infrastructure as originally planned because of the lack of project budget. According to the interview with the staff responsible for both Tharahat and Naratiwat project, they explained that the improvement of installed public infrastructure will be facilitated after securing the additional budget

<sup>8</sup> The left picture shows the road area was left unpaved, waiting for an additional budget for the pavement. The right picture indicates that the road area was paved by concrete but electricity was not provided yet. (Therefore), the development of surrounding area was also stuck.

from the government. Participants can expect higher land value increase once additional budget will be allocated for the improvement of infrastructure in the future.

However, as shown in the Figure 7, the result of Satisfactory Survey (2013) which was carried out by JICA technical cooperation team indicated an interesting perception of participants involved in the LR projects. They were satisfied with the fact that the land parcel became well shaped compared with the previous conditions. The score of 4.34 (Maximum rate is 5.0) marked the highest among other different evaluation criteria such as “Contribution Ratio” and “Duration of project implementation”.

Figure 7: Factors encouraging the participation in the LR project



◆ Variable 1-3: Topographic difficulty to install public infrastructure

One of the most important topographic characteristics of Thai LR system is the necessity to prepare large amount of soils to fill the land for the purpose of flood prevention. In the case of Tharahat project, around 50 % of project cost is spent by the land filling cost. As shown in Picture 3, installed road is located approximately 0.5m higher than surrounding land area in order to prevent the flood damage. According to the explanation of LR fund director Mr.Thuantong, the price includes the transportation cost of land soil and therefore it requires to prepare a lot of project budget just for complementing the land filling cost. In this regard, topographic difficulty is assumed as one of the key criteria for achieving the financial viability of LR project. This view is already confirmed from the hearing of each counterpart, and thus it is important to find out the appropriate land in terms of topographic condition and it requires for the careful selection of project site well in advance before approving LR project proposal in the specific area.

In addition, the target areas of three pilot project were not redevelopment area, which do not require the demolition or relocation of existing facility, and therefore, the implementation body did not have to prepare many of compensation cost for the effected

owners. Considering that the calculation of compensation cost for relocation is always the controversial part between the government and land owners, then it would be preferable to select the area which doesn't affect by the existing condition from the project. Therefore, according to Ms. Sontaliee of BMA, they are looking for the new candidate of project site in the suburban area rather than developed area in order to minimize the required cost for compensation.

According to the interview result with counterparts in DPT and BMA, most of them agreed the topographic condition is critical element to achieve the financial viability of LR project among other potential factors.

Picture 3: Topographic condition after project implementation (Tharahat)



Source: Prepared by author (2015)

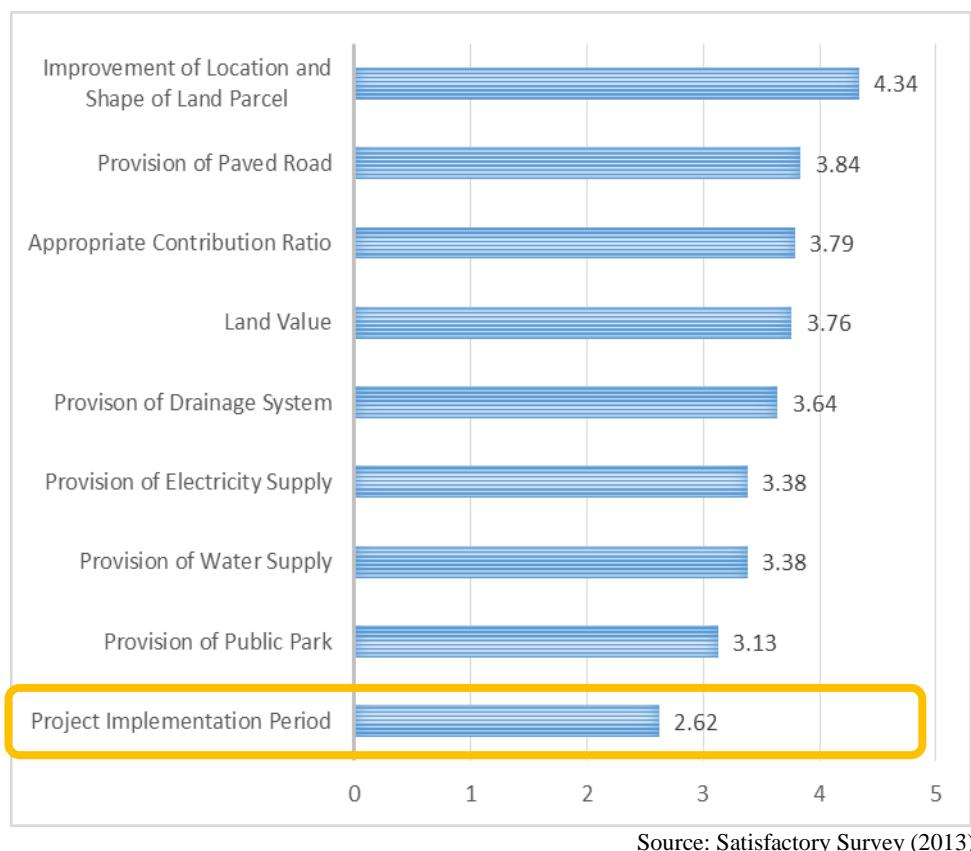
◆ Variable 1-4 : Coordination among stakeholders

All of the pilot projects in this research had experienced a difficulty to coordinate among different stakeholders. The common conflict occurred during the project period was the exclusion of specific land owners who were not willing to contribute their land for the project. In the case of Rama 9 Park project, some land owners could not recognize the advantage of land readjustment by contributing their parcel to the LR project, because they already had land parcels with an access road before the project implementation. In order to solve the conflict among participants, these reluctant owners were excluded from the project through a series of discussion with other owners who were willing to join the project. In the case of Tharahat Project, there were areas protected by religious reason, and therefore, municipal government decided to implement the project without touching the areas. Other reason for withdrawing from the project was that land owners are emotionally attached to the area and reluctant to be relocated by the project. Therefore, they finally moved out from the activities of LR project.

When it comes to the influence on the financial feasibility of LR project, individual interviews with counterparts of DPT and BMA revealed the fact that this factor had less impact for them as other factors. This is because the coordination work was conducted along with other tasks of the LR project, and finally reluctant owners were peacefully excluded from the LR project. In addition, it can be assumed that it is generally difficult for administrative officers to recognize the individual cost of their coordination work compared with other project's expenditures.

At the same time, it is important to evaluate the perception of LR participants on the same factor. As shown in the Figure 8, the score 2.62 was the lowest compared with other items. It means that participants take less attention on the period of project implementation. According to Mr. Thuanthong of DPT, this is because most the participants on the Pilot Projects were land owners who have alternative land parcel to live there. That is why they did not take care of project duration itself.

Figure 8: Factors encouraging the participation in the LR project



However, it should be noted that the actual project implementation period was much longer than the period announced in the public, because the official implementation period of the LR project did not take into account the preparation period before receiving the official announcement of the project. For example, in the case of Rama 9 Park project, the project officially started from 2012 as shown in the Table 11. However, discussions of implementing the LR project were started from the year of 2000. It took more than ten years to get the project approval due to the lack of legal background and coordination among participants.

Given the fact that number of participated owners in these pilot projects was less than 100 people, it will be much harder to coordinate the LR project with larger number of participants. In this regard, the factor “coordination of different stakeholders” will influence on the satisfaction of participants as well as the financial effectiveness of the LR project in the future.

Table 11: Official implementation period of pilot projects

	(1)Rama 9 Park	(2) Tharahat	(3) Naratiwat
Implementation period	2012-2015	2009-2014	2009-2015

Prepared by author (2015)

◆ Variable 1-5 : Educational cost of technical staff

As explained in the introduction, technical cooperation from JICA had greatly influenced to enhance the overall capacity of urban engineers involved in the LR project. According to the explanation of Mr. SAWADA, who engaged in the work for chief advisor of JICA technical cooperation project, 26 long term Japanese LR experts in total have been dispatched so far in order to support the establishment of Thai LR system, and more than 100 Thai counterparts have been accepted as official trainees in Japan.

Interviews with both DPT and BMA counterparts showed that technical staff involved in the LR pilot project contributed a lot to coordinate the owners who had different opinions and interests towards newly introduced LR method. In order to persuade reluctant owners to join the project, they collaborated with chairperson of LR project and organized several community meetings before getting the official approval of project. Although the amount of cost requiring for the education of staff is relatively smaller than the project cost, the needs of technical staff will increase as the number of LR projects grows up in the near future. In this regard, the connection between government subsidy and educational budget for technical staff will be stronger than current situation and government side needs to consider how to consolidate the training program to meet the demands from less-experienced municipal governments or private associations which plan to start the LR project.

The difference between DPT and BMA on the quality and quantity of staff was seen in the demarcation of role in handling the LR project. In the case of BMA, they need to take an initiative or directly support the management of the LR project as a coordinating agency. On the other hand, DPT is responsible for overall management of the LR project implemented in local municipalities and also responsible for providing training with them. In addition to these roles, DPT is the core department to handle comprehensive LR regulations such as the LR fund and evaluation of land parcel. Based on the above understanding, the scope of work in DPT is wider than that of BMA, and therefore, the fund requirement for education will be much larger as well. As Mr. Ittipong, director of DPT explained, there is a strong need to enhance the capacity of staff in the local municipality so that the LR projects can be expanded to the entire nation.

The necessity to increase the number of technical staff with enough knowledge of LR project was raised during the interview of both BMA and DPT. As LR covers various technical skills such as land evaluation, re-plotting, coordination of participants, they will need to further elaborate the individual training program according to the expertise of technical staff in the future. Those educational costs for technical staff tend to be treated as a hidden cost in the project administration sheet, but Section 79 (3) of LR Act allows to

use the LR fund (grant) for the purpose of training. This can be utilized to fulfil the educational demands from various stakeholders.

### 4-3. Efficiency of value capturing measures

#### ◆ Variable 2-1: Land market condition

Land market condition, in other words, selling price of the reserved land is a key to generate the necessary budget for the LR project. In this regard, there was a clear distinction between Naratiwat and Rama 9 Park project as shown in the Table 12. In contrast to the low selling price of reserved land in Naratiwat project, Rama 9 Park project successfully sold the land with good price to cover the necessary cost for public infrastructure. One of the reasons of different selling price in both cases might come from the locational factor of the project site. It means, Rama 9 Park project is located in the suburban area of Bangkok, the capital city of Thailand, with the high expectation of future land price increase as a convenient bed-town area for commuting to city centre, whereas Naratiwat is far from the capital city and still less developed to attract many investors as potential buyers of the reserved land. Therefore, the price of the reserved land in Naratiwat was much lower than that of Rama 9 Park. Therefore, the amount of selling price in Naratiwat project was insufficient to cover the cost of infrastructure.

As for the selling price of the reserve land in Rama 9 Park project, the price was same as the amount of expenditure for infrastructure and other operational costs. According to the explanation of Ms. Soontaree of BMA, the purpose of the LR project was not making a profit from this method but to provide the necessary infrastructure within the community. Therefore, they calculated the necessary cost in advance, and prepared the selling price afterwards.

The same logic was applied to the case of compensation in Naratiwat project as well. 1 out of 5 reserved land was sold in the same price as a compensation cost, which was paid for the land owner who had to relocate to other place by the LR project. Considering the situation that there are still a lot of works to improve the project area in the Naratiwat case, it seems that the selling price did not have to be same as the compensation cost. However, according to Ms. Pattaraporn, staff in charge of Naratiwat Project in DPT, they still keep the rest of the reserved land for the future disposition and do not have to pursue the profit. For the repayment of lending money from the LR fund, municipal government intends to develop the remained 4 reserved parcels for housing, as surrounding area of the reserved land will be developed as a fishery base in future. The revenue from the tenants of those housing project will be used as a financial source of refund for the loans from the LR fund. In the Naratiwat case, interest rate of borrowed money from LR fund was around 3.5%, 3 % less than MLR<sup>9</sup> (about 6.5% at the time of project implementation). The Naratiwat municipality will repay the loan within 10 years with two years' grace period.

In the case of Tharahat project, most of the revenue came from the National government (DPT). This was because the installed road was city planning road, which was responsible for the central government. At the same time, the municipal government could not sell the reserve land due to the lack of potential buyers, and therefore, they could not install the other necessary facilities by the project.

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<sup>9</sup> MLR (Minimum Lending Rate) means the interest rate utilized when the central bank provides at which loans to member banks.

Table 12: Financial result of each pilot project

(1) Rama 9 park

Expenditure	USD	%	Revenue	USD	%
Road	965,909	77.9	National government (DPT)		
Electricity/ water supply	75,682	6.1	Municipality		
Compensation	73,864	6.0	LR Fund		
Survey cost	30,625	2.4	Disposal of reserve land	1,240,455	100.0
Operation cost	96,591	7.6		0	
Total	1,240,455	100.0	Total	1,240,455	100.0

Source: Prepared by author based on project management sheet (2015)

(2) Tharahat

Expenditure	USD	%	Revenue	USD	%
Road	2,965,909	94.5	National government (DPT)	2,562,500	84.1
Electricity & Water Supply	82,386	2.6	Municipality	284,091	9.3
Compensation	0		Electricity Authority	119,318	3.9
Survey cost	0		Water Supply Authority	82,386	2.7
Operation cost	90,909	2.9	Disposal of reserve land	0	
Total	3,139,205	100.0	Total	3,048,295	100.0

Source: Prepared by author based on project management sheet (2015)

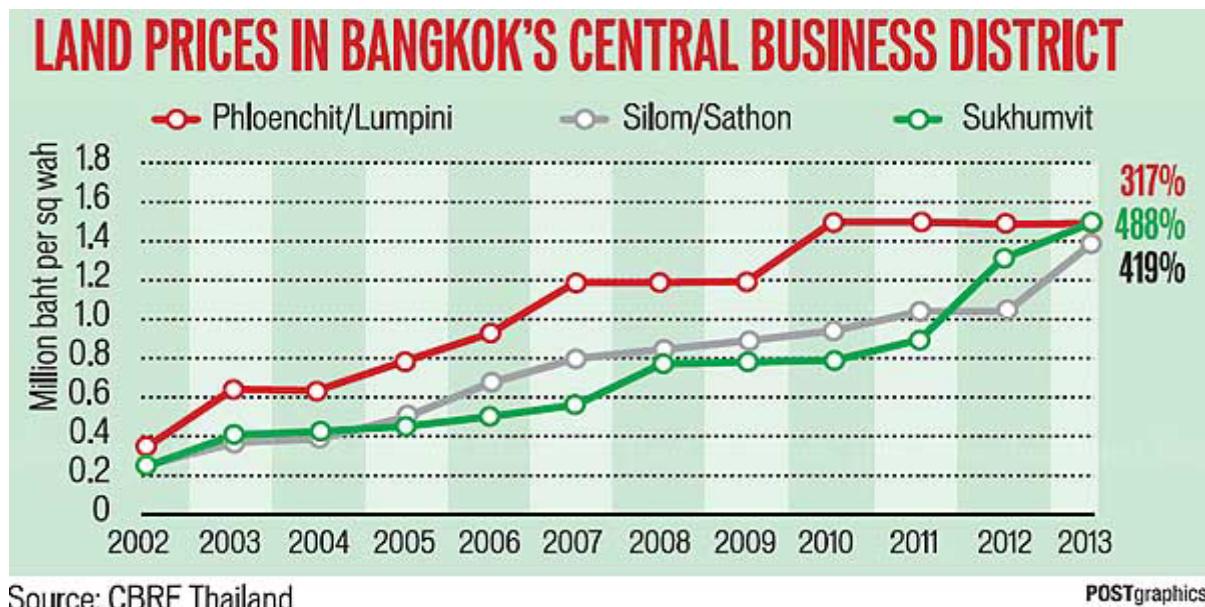
(3) Naratiwat

Expenditure(budget plan)	USD	%	Revenue	USD	%
Road	1,277,472	90.4	National government (DPT)	735,938	52.1
Electricity/water supply	0		Municipality	595,653	42.2
Compensation	80,966	5.7	- Loan (LR fund)	539,773	38.2
Survey cost	0		- Municipality Budget	55,881	4.0
Operation cost	54,119	3.8	Disposal of reserve land	80,966	5.7
Total	1,412,557	100.0	Total	1,412,557	100.0

Source: Prepared by author based on project management sheet (2015)

Based on the Figure 9, showing the land price change from 2002 to 2014, it indicates robust demand that housing market in Bangkok area had achieved over 400% growth in average during this period. Actually, land use on Rama 9 Park project site was designated as residential area to fulfil the rapid growing demand of housing. On the contrary, the location of Naratiwat municipality is far from the capital city, about more than 800 km distance in a straight line and thus it is easy to assume that the project area is less attractive compared with Rama 9 Park project in the urban land market. The comparison of Table 13 shows that even though the average price was doubled after Naratiwat project implementation, the price was still one-fifth of the price in Rama 9 Park project.

Figure 9: Land value increase of Central Business District (CBD) in Bangkok City from 2002-2013<sup>10</sup>



Source: CBRE Thailand

POSTgraphics

Source: (Bangkok Post, 2014)

The potential benefit of selling the reserved land is significantly important as observed in comparison between Rama 9 Park and Tharahat project. According to the Table 13, in Tharahat case, even though the land price was dramatically increased as almost eight times higher than the price before implementing the project, they failed to find the buyer of their reserved land. Comparing the price after the project with Rama 9 park project, it is also true that the price of Tharahat project is approximately only one-tenth, and it may not be sufficient to cover the cost of infrastructure. However, the municipal government should have made an effort to prepare the project budget by themselves through the disposal of the reserved land, in order to improve the other areas except for the city planning road.

Table 13: Land value change before and after the pilot projects

	(1)Rama 9 Park	(2) Tharahat	(3) Naratiwat
Before the project (US\$/m <sup>2</sup> )	109.83	3.38	25.28
After the project (US\$/m <sup>2</sup> )	272.30	28.41	49.72
Increase <sup>11</sup>	248% (2012-2015)	840% (2009-2014)	197% (2009-2015)

Source: Prepared by Author based on project management sheet (2015)

<sup>10</sup> It should be noted that the data shows the increase of land price in CBD in Bangkok city. The land price in CBD may behave differently from prices in periphery.

<sup>11</sup> Since the location of each project and implementation period were different, the increase is simply calculated before and after the project, without taking into account the inflation.

As a conclusion of the variable on land market condition, although the land price in general in Thailand has achieved the stable growth in recent years, local areas are facing unfavourable condition by the lack of potential buyers of the reserved land. Even though the price itself in three pilot projects had dramatically increased after the project implementation, both Naratiwat and Tharahat project had to give up some of the installation of public infrastructure because there was no buyers of their reserved land, whereas the Rama 9 Park project could enjoy their locational benefit in Bangkok city by selling the reserved land to the buyer among their community. Especially in the case of Tharahat pilot project, despite the dramatic price increase almost 8.4 times from the previous price 5 years ago, it cannot help saying that the increase did not contribute at all for the financial feasibility of LR project without investors for the reserved land. In this regard, it can be argued that the existence of potential buyers of reserved land greatly influenced on the use of government subsidy which had to complement the budget deficit by the lack of buyers of the reserved land.

◆ Variable 2-2: Contribution ratio among stakeholders

As for the contribution ratio, there was an interesting result through the comparison of between Naratiwat and Rama 9 park cases. Regardless of larger extracted area from the participants than Rama 9 Park project, municipal government of Naratiwat had to rely on the grant and loans from the central government (DPT). Another reason for this high contribution ratio is that large amount of public land was required to construct the city planning road which requires 40m width by the law. Although the rate of contribution for public land in Rama 9 Park project was much smaller than Naratiwat project, the portion of reserved land is about 0.6 % higher to Naratiwat case.

In addition to that, the calculation of contribution ratio applied in three pilot projects had unique variations to simplify the complicated formula which usually applied for the LR projects in developed countries. For example, in the case of Rama 9 park project, all the private land owners had to equally contribute 17.5% of their original land plot regardless the difference of locational factor in each parcel whereas the BMA itself had no obligations to contribute of their land. According to Ms. Soontaree, director of pilot project in Rama 9 Park pilot project, this is mainly because the participants prefers simplified calculation rather than complicated one and putting equal percentage seems equal distribution of obligations in LR project for them. Therefore, they prioritised the opinions from participants of project and decided to apply the same percentage with all land owners.

In the case of Tharahat project, they applied different percentage from 15% to 30% every 5% each according to the locational factors of participants. For example, those who lived in the area without access road had to contribute 30 % whereas the people who lived in the area with accessibility had to contribute 15 % of their land parcel.

Mr. Ittipong, director of DPT explains that applying simplified calculation is a better approach than strict percentage based on the standard calculation formula<sup>12</sup> especially for those who did not have experience of joining LR project in the past. In the case of Naratiwat project, they tried to apply the standard method for calculating contribution ratio learned from Japanese case, but they slightly modified calculation according to the local context of evaluating land area in Thailand. Mr. Ochi, JICA senior advisor of urban development explains that the principle of LR “equal distribution of cost and benefit among participants” can be achieved not only by the accurate calculation based on the

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<sup>12</sup> Street Value Method (Index) =Street co-efficient+ Accessibility co-efficient+ Land co-efficient

strict formula but also satisfying the participants emotionally that they contributed the LR project as a member of project and fairly shared the cost and benefit of LR project.

It is also true that the government subsidy was not necessary given the contribution ratio much higher than the original rate. However, requiring higher ratio may attract the serious opposition of participants, and it may take more time and costs to coordinate the stakeholders as discussed in the previous section. Besides that, as described in the case of Tharahat project, higher contribution ratio cannot result in the reduction of government subsidy if there is no potential buyers of the reserved land.

Table 14: Comparison of contribution ratio among three pilot projects<sup>13</sup>

	(1)Rama 9 Park	(2)Tharahat	(3)Naratiwat
For public land	9.7%	24.5%	17.05%
For reserved land	6.2%	5.1%	5.61%
Total contribution ratio	15.9%	29.7%	22.06%

Source: Project management sheet (2015)

◆ Variable 2-3: Financial condition of implementing body

Study result shows that all the pilot projects had financial difficulties to arrange the necessary budget of project implementation. As discussed in the above, both Tharahat and Naratiwat mainly relied on the DPT budget and loans from LR fund, but it could not cover the necessary cost for planned public infrastructure because of the vulnerable financial condition of municipal government.

Even in the case of Rama 9 Park project which successfully finished with maintaining the self-finance principle of LR, they had to ask the chairman of LR committee to shoulder the initial cost of project implementation at the beginning. According to Ms. Soontaree of BMA, there was a need to utilize loans from LR fund but they could not use it because the system was not established when they started for the discussion of the LR project in 2000. In addition, the requirement of LR funds may bind the flexible application of LR fund which prohibits the proposal that does not contribute outside of project area. These examples illustrate the financial vulnerabilities of implementing body to initiate LR projects in Thailand, and also the significant role of LR fund especially in the initial stage of project to smoothly conduct the implementation process.

According to Mr. SAWADA, who engaged in the JICA technical cooperation project as a chief advisor, the problem lies in the fact that many of local municipalities in Thailand do not have sustainable financial basis. They are suffered from the problem of insufficient administrative capacity of tax collection. Therefore, it is difficult for them to decide to borrow the loans from the LR fund without having a sustainable income base except for the grant budget from the central government.

In this regard, it is important to separately evaluate the financial situations which individual municipality faces for the implementation of LR project. As Mr. Ittiporn of DPT clearly stated in the interview, they cannot simply compare the project which was implemented in Bangkok city (Rama 9 Park) and other project implemented in local area (Tharahat and Naratiwat). Because, the provincial areas far from Bangkok city are not

<sup>13</sup> The ratio shows the average contribution ratio in the whole project area. Since the land parcel belonged to public authority did not have to contribute for reserved land, the average ratio is smaller than designated percentage.

developed enough to attract private investors, and therefore, basic demands for the land is still lower than that of Bangkok city. However, apart from the financial feasibility, LR method is enough effective to accommodate the demands for land re-organization even if it requires subsidies to complete the process.

#### 4-4. Other factors taken into account on the use of government subsidy

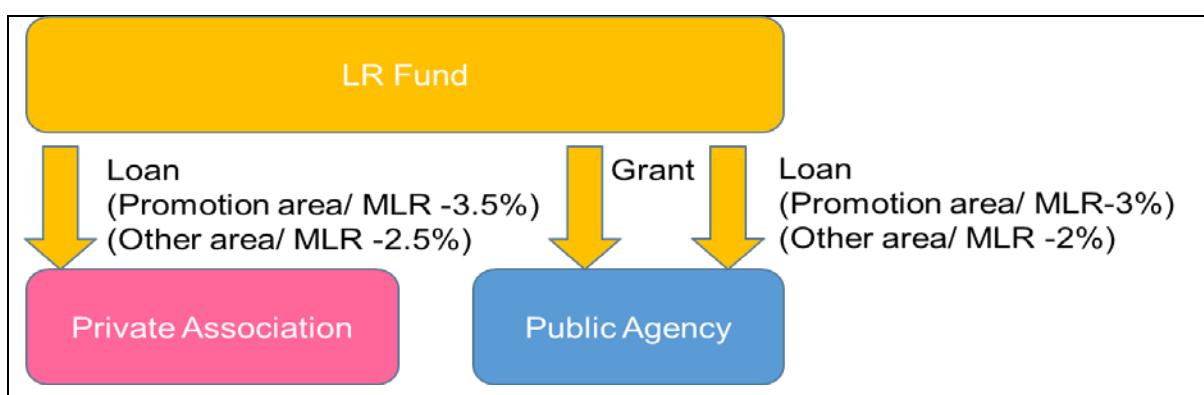
- ◆ Variable 3-1: Difference of implementing body

According to the LR Act, various stakeholders can become the implementing body. For example, even the private association can propose the LR project for their own sake as investigated in the case of Rama 9 pilot project. However, there is no example that state enterprises have implemented the LR project so far. This might be simply because they do not have any experiences and it is nearly impossible to independently conduct the project without having a technical support from the government. In addition, there are a lot of opportunities to gain the economic benefit especially in the project implemented in Bangkok city rather than depending on the complicated procedure to acquire LR fund. Therefore, from now on, it may need to show success models by the implementation of LR project in order to extend the influence throughout various urban development stakeholders.

Comparing the cases between the projects initiated by DPT (Naratiwat, Tharathat) or BMA (Rama 9 Park), BMA achieved the project keeping the “self-finance principle”, whereas the Naratiwat had to rely on the financial support from the government. According to Ms. Soontaree in BMA, they found no discrimination for applying the LR fund. However, LR Act Section 79 indicates private association can only apply LR fund for loan purpose but cannot receive grant from it. Therefore, it can be said that main target of LR fund is how to improve the public infrastructure rather than encouraging private development.

Therefore, local governments suffering from the insufficient budget to implement LR project can utilize the budget as complementing budget. According to the item No. 2 of section 79, it is obvious that private association is excluded from the category of eligible agency to receive a grant from LR fund. In this regard, public agency has preferable conditions in terms of variety of financial resources for LR project implementation. However, private association can also apply loans as a responsible agency of the LR project. Difference on the use of subsidies from LR fund including interest rate between public agency and private association is illustrated in the Figure 10.

Figure 10: Difference between private association and public agency



Source: Prepared by author (2015)

◆ Variable 3-2: Political support to apply for government subsidy

From the study result in Thailand, there was no significant clues which indicate the political support was utilized behind the scene to apply for government subsidy. Different from the numerical facts collected for analysing other variables, it was quite hard to accurately evaluate the influence of political support because analysing politics has qualitative nature and therefore necessary information can only be collected from the subjective opinions of related counterparts. However, asking questions related with politics is always difficult especially to those who work as administrative staff in the government. They tried to give comments on this variable same as other variables, but the author cannot reach effective answer to the questions such as “why Naratiwat was selected at first place to apply for LR fund?” and “who actually initiated to persuade high ranking officials who could make a decision in providing subsidies?”

Instead, there were many opinions that influential person including politicians and chairperson of LR committee in local area had contributed a lot to actively promote the implementation process by initiating the meeting with land owners and persuade them to join the LR project in order to solve the problem they had been facing. In addition to the role of negotiator, as mentioned in Rama 9 pilot project, chairperson personally provided loans with zero present interest as a financial source of initial project budget and it worked well for the smooth set up of LR project. In this regard, it can be concluded that political support was not explicitly utilized in the analysed pilot projects for the use of government subsidy, but it played significant roles to accelerate the LR project implementation as a chief negotiator and a private financier.

#### 4-5. Result of Questionnaire Survey<sup>14</sup>

In order to respond to the research question “What are the main factors that had influenced the use of government subsidy in implementing land readjustment projects in Thailand?”, the author conducted interview research with interviewees and the result is shown in the Table 15. Since perceptions towards each variable is distorted according to the understanding of counterparts, overall ranking was calculated by taking average of each variable. Analysis on these variable are as follows.

1) Most important

Variable 1-2 Rate of contribution

Variable 1-3 Type and quality of public infrastructure

Based on this result, counterparts considers the element of “rate of contribution” and “type and quality of public infrastructure” is the most significant among other variables. It is obvious that pursuing the quality of infrastructure by land readjustment requires sufficient budget and therefore it requires additional budget from the government. At the same time, they recognize the importance of “rate of contribution”. However, it should be noted that even though the reserved land is enough spared, it will be useless potential buyers will emerge.

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<sup>14</sup> As some of the respondents hesitated to answer this type of questionnaire research, the author summarized the result of valid answers from 4 respondents. Therefore, the name of respondents are described as anonymous so that they can express their opinions freely.

2) Important

Variable 1-4 Coordination among stakeholders

Variable 3-2 political support

These variables are considered important among stakeholders, despite that they did not clearly mention about the relationship between financial feasibility and the variables. Regarding the variable of “coordination among stakeholders”, they told that it must have taken more time to finalize the agreement of LR without having the support of chairperson in the community. In this regard, they recognized importance of coordination by using political power regardless of using subsidies or not.

3) Relatively important

Variable 1-5 Quality and quantity of trained staff

Variable 2-3 Financial condition of implementing body

Respondents considers “financial condition of implementing body” is important as well as the variable “quality and quantity of trained staff”. As the staff of Tharahat municipality explained, they have been faced with financial difficulties to mobilize the budget of public infrastructure, and therefore, they wait for additional budget from the government to improve the installed infrastructure.

4) Less important

Variable 1-1 Land use plan

Variable 1-3 Topographic difficulty to install public infrastructure

Variable 3-1 Difference of implementing body

As explained in the previous chapter, these conditions except for topographic difficulty are less relevant with the financial feasibility of LR project. Regarding the topographic condition in the project area, it is contradictory with the result of open-interview with each respondent. Even though all of them agreed it is one of the critical issues on LR project, the result shows this variable as less important compared with other variables

5) Not important

Variable 2-1 Land market condition

Based on the result of Questionnaire Survey, respondents considers the price of land itself does not affect the necessity of financial feasibility, which is opposite to the result of individual interviews. This can be assumed that regardless of land price increase by project, the cost cannot be covered unless the demands for the reserved land is sufficient. By implementing the LR project by themselves, the officers became aware of the importance of buyers of the reserved land rather than the nominal increase of land price. In addition, as repeatedly explained from DPT staff, the objective of LR project is not pursuing the profit from it but fulfilling the needs of participants such as provision of road network and reorganizing the scattered land parcel in the project area. Based on this statement, it can be said that financial feasibility is only one of the aspects of land readjustment technique for the Thai officers.

Table 15: Questionnaire results with Counterparts (interviewees)

Category of factors	Variables	Response from CPs (*)				overall ranking
		A	B	C	D	
factors for higher project cost	1-1. Land use plan on the project site	2	1	3	2	<b>4</b>
	1-2. Type and quality of public infrastructure	1	2	1	1	<b>1</b>
	1-3. Topographic difficulty to install public infrastructure	2	3	2	1	<b>4</b>
	1-4. Coordination among stakeholders	2	1	2	1	<b>2</b>
	1-5. Quality and quantity of trained staff	1	3	1	2	<b>3</b>
factors for low income generation	2-1. Land market condition	2	3	1	3	<b>5</b>
	2-2. Contribution ratio among stakeholders	1	1	2	1	<b>1</b>
	2-3. Financial conditons of implementing body	1	1	3	2	<b>3</b>
Other factors to affect the financial feasibility of LR projects	3-1. Difference of implementing body	2	1	2	3	<b>4</b>
	3-2. Political support to apply for government subsidies	1	1	1	3	<b>2</b>

(\*) 1 Most important

2 Relatively important

3 Not so much related with the financial feasibility

Source: Prepared by author (2015)

## Chapter 5: Conclusions and recommendations

### 5-1. Answers to Sub-questions

#### ◆ Which factors affected on the efficiency of cost recovery measures?

In order to increase the efficiency of cost recovery, one important factor to take into account is how to reduce the necessary cost for the implementation of project. As Hayashi (2002) discussed in the literature review, it is significant to carefully select project target area as well as appropriate quality and quality of infrastructure according to the income (revenue) level of the LR projects. Otherwise, some of the portions of expected infrastructure have to cancel or wait for the additional budget as seen in the Tharathat and Naratiwat project. Even in case the government subsidy is available to cover the deficit, it affects negatively on the efficiency of cost recovery measures as well as the self-effort of the LR project team.

Topographic difficulty was also the important factor to increase the efficiency of cost recovery, especially in Thailand case. In addition, the proportion between non-profitable land use and profitable one is the fundamental element to recover the cost efficiently. It means, if the amount of non-profitable land use significantly increased by the project, it is difficult to achieve the cost recovery in an efficient manner.

Although the exact cost of staff education and coordination of stakeholders was not confirmed clearly in the research, the influence of both factors would be less relevant in terms of cost recovery, as they were much smaller than other expenditures. Therefore, the factors would not be so significant compared with other factors.

At the same time, the key principle of land readjustment should be maintained, which is “fair distribution of benefit and cost among the stakeholders”. If the distribution plan is unfair to the group of specific participants, it might become a future trigger to cause disputes among stakeholders.

#### ◆ Which factors influenced on the efficiency of value capturing measures?

As Turk (2008) argued, in terms of efficiency of value capturing out of the LR project, favourable land market conditions will be one of the significant key factors to complete the project with maintaining the financial viability. The selling price of reserved land can be higher under the condition of active land market. In order to set out the reasonable price in the reserved land, evaluation system is also the key for improving the value capture process in LR project.

However, the research result showed the different aspect of land market condition. Even if the land value is significantly increased by the LR project, efficient value capturing cannot be realized without the potential buyers of the reserved land. In that case, the implementing body needs the government subsidy to compensate the deficit. Therefore, it is required to carefully check the condition whether the project is enough attractive to draw the attention of investors, before implementing the LR project.

On the other hand, even in the depression, the implementing body can move the break-even point (BEP) downwards by putting higher contribution ratio onto the participants. In addition to that, as Karki (2004) discussed in the case of Nepal in chapter 3, the difficulty within LR implementation exists in the financial arrangement of initial stage of the LR project. That was true even in the project of Rama 9 Park project, which eventually achieved the self-finance principle. Therefore, in case that implementing body would not have enough financial capacity, there is no choice but to ask for the support from government.

◆ What kind of other factors should be taken into account for the use of government subsidy?

Based on the research result, the factor of “difference of implementing body” was not significant on the use of government subsidy. In terms of the financial effectiveness related with this factor, the result shows that private association can achieve more efficient project implementation rather than the public initiative projects. However, the number of samples was not sufficient to lead the persuasive conclusion. Therefore, it is necessary to further study on the relationship between the category of implementing body and the financial effectiveness of the LR project.

As explained in the scope and limitations in chapter 1, the author could not find the effective answer on the influence of political support for the use of government subsidy. At least, the research showed the fact that implementing body utilized the power of the leader in the community in order to smoothly implement the project.

In addition to the factors explained above, the research showed the importance of locational factor on the use of government subsidy. Mr. Ittipong of DPT clearly stated in the interview that the situation of Bangkok city and other smaller provinces are totally different in terms of market condition they are facing, and therefore, putting the government subsidy for smaller provinces should be justified especially at an initial stage of application of LR concept in Thailand.

◆ What is the major difference among the LR pilot projects with and without government subsidy?

The comparison between the case “with subsidy (Tharathat, Naratiwat)” and “without subsidy (Rama 9 Park)” revealed the fact that relationship between financial effectiveness and government subsidy was not as strong as expected before implementing the research in Thailand. As discussed in the chapter 4, Rama 9 Park project could satisfy the self-finance principle without the support of government subsidy, whereas the other two pilot project could not achieve the principle. This shows that government subsidy is not necessarily effective to achieve the self-finance principle of the LR but rather discourage the self-reliant attitude of stakeholders.

Although there are a lot of factors to be considered in comparing three projects, it can be said that the government subsidy may negatively affect the result of financial effectiveness of the LR project. It means, people may rely on the subsidy when it is available. According to the interview with Ms. Soontaree of BMA, she explained that BMA had realized the importance to achieve the self-finance principle from the beginning, because they could not expect any financial support from the government. This comment indicates that the sense of responsibility was significantly enhanced among participants under the limited condition of financial arrangement.

## 5-2. Other findings from the research

As shown in table 16, there was a distinctive difference between the representative of BMA and that of central government (DPT) towards the understanding of application for LR method in Thailand. Based on the observation through the result of interviews from both sides, this may be attributed to the difference of expected role as administrative authorities in Thai government. In the case of BMA, they are expected to initiate LR project as an implementing and management body responsible for creating financially viable projects which are applicable in the Bangkok metropolitan area. On the other hand, DPT has a characteristic not only as a management body of LR project but also as a policy agency responsible for extending the

knowledge and experience nationwide by creating a lot of variations which can be adopted to different situations according to the local context of each municipality.

Table 16: Summary of financial arrangement of three pilot projects

	(1) Rama 9 park	(2) Tharahat	(3) Naratiwat
Financial Resource	Budget from disposal of reserved land	DPT Budget	DPT Budget + LR Fund + Disposal of Reserved land
Public or Private	Private(Association among land owners)	Public (DPT)	Public (DPT)
Installed facility	Road(full pavement), Electricity, Water, Sewage	Road (Unpaved)	Road(partially paved)
Selling of reserved land	Successfully sold to private person (land owner in the project)	Not sold at all (Acquired by municipality)	Partially sold (only one of five parcel was sold)
Contribution ratio	17.5 %	15% 25% 30%	Calculated based on Proportional Evaluation Replotting Method
Application of LR fund	Not applied	Not applied	Applied (Loan from LR fund)
Self-finance	◎	×	△

Source: Prepared by Author

In addition to the evaluation criteria of cost effectiveness in the LR project, Mr. Ittipong of DPT explained the importance of fulfilling the satisfaction of participants in the LR project. He said, it is obvious that achieving self-finance principle is much better than relying on government subsidy. However, at the same time, satisfaction of participants should also be pursued as an important element to evaluate the LR project. In the case of Tharahat project, land owners are satisfied with the fact that their land parcel was re-plotted with the access roads and then they can expect future land value increase as urban development continues in the surrounding area.

Different from the case in developed countries where significant number of successful projects were already accumulated, LR projects in Thailand need to show the effectiveness and flexibility of LR concept to satisfy different needs from many stakeholders involved in LR projects. In this sense, the role of DPT is wider than that of BMA, and therefore, they need to accept the different variations as experimental cases, apart from the fundamental requirement of LR concept, which seeks for financially feasibility by selling the reserved land.

The comparison among three different LR pilot project clearly illustrated unique variations of LR method in Thailand according to the cultural and legal background in Thai context. As described in the case of Naratiwat project, the application of LR concept might have a possibility to go beyond the “self-finance principle” in case the value of reserved land

held by the municipality would further increase than the necessary cost required for project implementation. Although the result cannot be confirmed because the future price of reserved land is unknown at this stage, there might be possibility of receiving extra benefit which might assist a limited amount of local government budget when the price would exceed the required cost of past project implementation. In this regard, LR pilot project in Thailand holds significant possibilities as an experimental sample of LR application.

By considering the Thailand case as a front runner project of LR application among other developing countries, the notice of various applications shown in the three different pilot projects should be accepted as a new style of LR application which might be more suitable for developing countries than the original concept of LR applied in developed countries. As economy in developing countries shows a clear sign of continuous progress, land related problem such as the area left behind the development due to a lack of accessibility to public infrastructure would increase accordingly from now on, and thus the necessity to apply for LR concept as an effective solution to tackle those problems would also progress accordingly. Therefore, the application of LR concept can be differentiated from the original concept according to the local context in each country. In this regard, the comparison study conducted in this thesis has a potential value showing the unique application of LR concept which might also be developed from other developing countries as in the near future.

### **5-3. Recommendations**

- ◆ Financial sustainability of the government

Although the unique application in Thai LR system should be accepted as one of the variations of LR concept as shown in the case of Naratiwat that municipal government holds the reserved land as a seed for future financial resources, it seems risky to speculate the possibility of future value increase of the reserved land in the hopes of covering necessary cost with some of profit. According to the result of interviews, none of the respondents recognized this as a kind of speculative activity by utilizing the land readjustment method. The result is yet to be known in the future whether the speculation is proven correct or it will end up in the increase of subsidized project to cover the deficit of project budget.

As discussed several times, from the viewpoint of financial sustainability of the central government, it should be noted that the balance between self-finance LR project and speculative LR project will be the key for achieving the long term financial success. If the number of speculative LR project continuously increases by receiving the government subsidy, it might deteriorate the financial sustainability of the central government. As Ms. Soontaree emphasized in her interview, municipal governments should prioritize the financial effectiveness of LR project rather than relying on the subsidies from central government.

- ◆ The way for stepping forward to standard LR system

As discussed in the conclusion, the author does not deny the effectiveness of unique adaptation of LR method as a way of flexible application to fully digest the essence of LR technique in developing countries during transition period. It is true that it takes a long time for local people to recognize the LR method as an effective instrument. During this period, there will be a lot of alternative ways to simplify the basic procedure as shown in the case of contribution ratio in Rama 9 park project without utilizing complicated formula which is usually applied in developed countries. This will contribute to ease the anxiety or doubt of unexperienced land owners towards the effectiveness of LR method as they can understand what is actually going on and how it can be solved in the LR implementation process.

However, sticking to the simplified model will raise future concerns that there's a possibility of unequal contribution or treatment among participants in the simplified method that can be avoided if the standard calculation method will be used instead. Therefore, it is recommended to introduce the standard method step by step as people get used to the concept of LR project. This concern is fully recognized by the respondents both in BMA and DPT but reaching concrete strategies on how to apply new method seems still unclear for them.

By considering the comment from Mr.Ochi, senior advisor of urban development in JICA, many of Japanese LR projects which have been implemented currently cannot achieve the financial effectiveness anymore because the trend of land value increase slowed down after Japanese bubble economy collapsed in 1990s. Therefore, Thailand should implement as many LR projects as possible while the trend of land value increase is still stable. In order to do so, it is important to prepare the strategies to develop LR projects which are more financially viable during the early stage of development.

#### **5-4. Further Study**

Based on the result of a series of interviews with key counterparts, it revealed that locational factor which were not taken into account as significant variables in this research actually played important role in determining the use of government subsidy. However, picked-up pilot projects were implemented in different locations throughout Thailand. In addition, as in the case of Naratiwat Project, they still keep some of reserved land for the speculative purpose with the expectation of higher value increase in the future in order to cover the necessary cost of LR project. Therefore, it was difficult to treat them equally in terms of financial feasibility of LR project. In this regard, it may require to compare the cases with similar locational conditions to analyse the financial feasibility more accurately as the number of LR projects increases in the near future. By analysing various types of LR projects with different or similar conditions, the result can be utilized as a comprehensive analysis on the role and impacts of government subsidy in Thailand.

Besides that, due to the time constraint of tight schedule of field research, this thesis utilized the result of satisfaction survey conducted in 2013 to analyse the opinions of participants in Tharahat and Rama 9 Park project as a secondary data. Therefore, the primary data on the effectiveness of LR project is only from administrative staff in BMA and DPT, or advisory team from Japanese experts. As discussed in the variable of contribution ratio in Rama 9 Park, it is required to investigate what kind of argument will happen among participants in the future. This is because the equal contribution ratio among participants without taking account of the locational factors of each land owner may increase the sense of inequality afterwards, especially those who had contributed their land regardless of preferable land parcel in the previous condition. Through the interview research with land owners over time, the effectiveness and popularity of LR from the land owners' perspective can be analysed as well.

END

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## ■ ANNEX 1: Sample of Interview questions (to DPT)

### **Interview questions for land readjustment procedure in Thailand**

Followings are the interview questions for the study purpose of my research related with land readjustment method in Thailand. All the respondents during the interview are solely utilized for the academic purpose and confidentiality guaranteed if necessary.

#### **Information of Interviewee**

Name: Mr. Ittipong Tanmanee

Position title: Director of LR bureau

Organization: DPT, Ministry of Internal Affairs

Date and time: July 8<sup>th</sup> (Wed) 9:30~

#### **Interview questions for DPT LR Bureau**

- What will be the main difficulties to extend the LR concept to entire nation?
- Do you think the LR fund system (especially loans) is attractive for LR implementing bodies? If not, what should be improved to draw more attention from them?
- How did you compensate the loss of land owners who contributed their land for LR pilot project?

(Following questions are intended to ask the situations on both Naratiwat and Nan pilot projects)

- ◆ Variable 1-1: Land use plan on the project site
  - Were there any changes of land use before and after LR pilot project? If any, please explain the proportion between non-profitable (public) and profitable (private) land use?
  - Did the change intend to increase the profitability by LR project?
- ◆ Variable 1-2: Type and quality of public infrastructure
  - Are there any criteria to decide the type and quality of infrastructure installed by DPT finance?
  - What kind of infrastructures are excluded from public support?
- ◆ Variable 1-3: Topographic difficulty to install the public infrastructure
  - Do you think the topographic condition of your project site was suitable for LR projects in terms of financial viewpoint? Did it affect the site selection of pilot projects?

- ◆ Variable 1-4 : Coordination among stakeholders
  - How did you ensure the equal distribution of cost and benefit among participants?
  - Are there any complaints from participants regarding the land distribution plan? If any, how did you manage to solve the problem?
- ◆ Variable 1-5: Quality & Quantity of trained staff
  - How many staff are there with enough knowledge and experience to implement LR project in your department? How about the CPOs in Naratiwat and Nan?
  - What kind of educational system do you have in order to improve the capacity of staff?
- ◆ Variable 2-1: Land market condition
  - How do you evaluate the influence of land market conditions in implementing LR project? Did it affect the decision making of implementation?
- ◆ Variable 2-2: Contribution ratio among stakeholders
  - Do you think the contribution ratio is enough to achieve the sustainability of LR pilot project? Or, should it be higher or lower than the original rate?
  - How did you decide the rate of contribution? (Discussion with all stakeholders? Or top-down approach to decide it?)
  - Did you already sell the reserved land in private land market? (If yes) Is the price satisfiable for your department? (If not) How did you dispose the reserved land?
- ◆ Variable 2-3: Financial condition of implementing body
  - How was the financial conditions of implementation body? Were there any financial challenges during the implementation of LR project?
  - In average, how much can you actually spend for the implementation of every pilot project?
  - Is the following budget data of DPT is correct?

Year	2012	2013	2014	2015
DPT Budget	11,295	16,122	18,498	24,511
DPT LR Division's Budget	49 (0.4%)	70 (0.4%)	206 (1.1%)	582 (2%)

- ◆ Variable 3-1: Difference of implementing body
  - Are there any differences for the application of government subsidy according to the nature of implementing body? What kind of criteria do you usually check for the application of LR subsidies?
- ◆ Variable 3-2: Political support to apply for government subsidy
  - Do you think political support is necessary for the approval of government subsidy? What kind of support is the most important for acquiring the subsidies?

Thank you so much for the corporation

## ■ ANNEX 2: Sample of Questionnaire Survey

Please select your answer for the factors influencing on financial feasibility in the "Importance" column.

Category of factors	Variables	Indicators	Importance (1 or 2 or 3*)
factors for higher project cost	1-1. Land use plan on the project site	Percentage between non-profitable and profitable land use	
	1-2. Type and quality of public infrastructure	Type and conditions of Infrastructure installed by the Project	
	1-3. Topographic difficulty to install public infrastructure	Topographic condition of project site	
	1-4. Coordination among stakeholders	Time spent for solving the problem related with human relationship	
	1-5. Quality and quantity of trained staff	Number of experienced or skilful staff	
factors for low income generation	2-1. Land market condition	Price of land	
	2-2. Contribution ratio among stakeholders	Rate of contribution	
	2-3. Financial conditons of implementing body	Scale of budget available for LR project	
Other factors to affect the financial feasibility of LR projects	3-1. Difference of implementing body	Category of implementing agency	
	3-2. Political support to apply for government subsidies	Existence of political supporters accelerating the approval process	

(\*) 1 Most important

2 Relatively important

3 Not so much related with the financial feasibility

Name:

Organization:

*Thank you very much for your kind cooperation*