7.02 Results of Economic Analysis

The calculation of EIRR and NPV was done by comparing project benefits and costs, both expressed in terms of economic prices over the project life. As is conventional practice, calculation of EIRR, NPV and B/C ratio was done by calculating only the stock effect (long term impact of the economic surplus to be generated by the completed urban area) and excluding the flow effect (short term impact of the construction investment). The estimate of the benefits herein, is limited to the increase in value added to be generated by the local enterprises' economic activities and the economic surplus of values generated in response to population growth. Various economic impacts arising from the Lat Krabang Subcenter development will reach beyond the direct boost that the Thai economy will receive. For instance, the attractiveness of the new urban space, reduced commuting cost and travel time by decentralization from the Bangkok CBD, tax revenue impacts etc. however, these economic impacts are broad and difficult to measure. Being based on the objective of the project, calculation of benefits shall be, herein, confined to direct user benefits; enterprises (employees) and inhabitants (population).

In terms of the discount rate to calculate NPV and B/C, 10% is used herein. Japan Bank of International Cooperation (JBIC) uses 10% as a common practice for projects for all countries. Likewise, the Asian Development Bank (ADB) uses 10 to 12%. The economic rate of return (EIRR) of this project is 26. 6% and the project is evaluated as viable in the economic aspect.

The NPV and B/C are as follows:

- Using the common practice of JBIC /ADB

NPV and B/C ratio @ 10% are 79 billion Baht and 1. 97, respectively.

- Using the weighted average of the Thai Government Bond and Bangkok Inter-bank Offered Rate

NPV and B/C @ 5. 3% are 192 billion Baht and 2. 94, respectively.

Table 7.01: Index for Economic Evaluation

EIRR	NPV @10%	B/C @ 10%	NPV @ 5. 3%	B/C@5. 3%
26. 3%	79 billion Baht	2. 2	191 billion Baht	2. 92

(Source): Calculated and prepared by JICA Study Team

8. PRE-FEASIBILITY STUDY FOR PILOT PROJECT

8.01 Objectives and Selected Area for Pilot Project

The objective of carrying out the pre-feasibility study on an area selected as a pilot project area is to fuel the momentum of the Lat Krabang subcenter development by providing key information based on more detailed planning and analysis. Another important objective is to enhance the capability of BMA in terms of planning and implementing land readjustment projects, for which Japan has provided technical assistance for more than a decade.

The pilot project area was selected from three super-block development areas indicated in the strategic development plan discussed above. Through a preliminary analysis of the land

readjustment scheme on each candidate site, the Lat Kraban station area was selected as the pilot project area. The location of the selected area is depicted in the following figure.

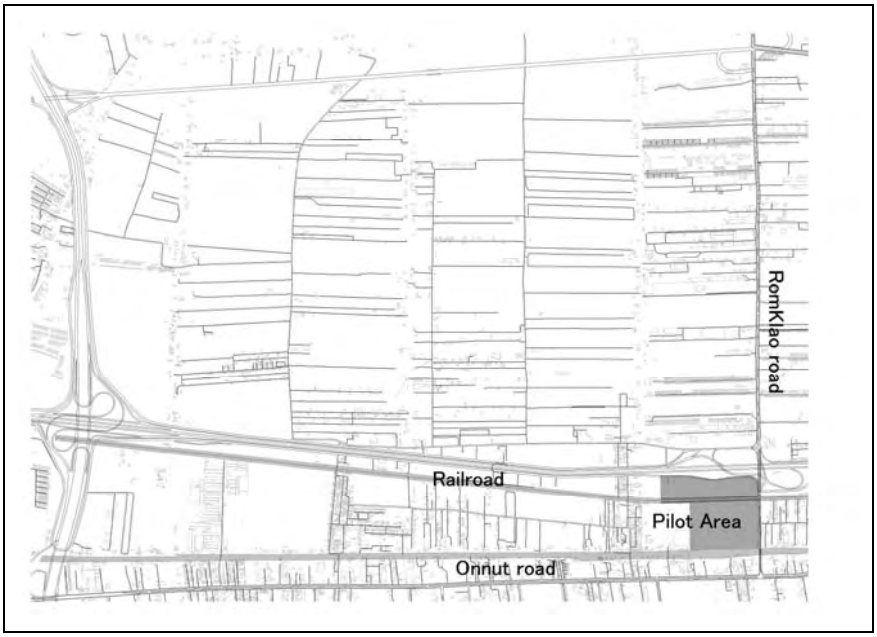

Figure 8.01: Location of Pilot Area

8.02 Existing Conditions

The pilot area is located in the south-east portion of the Study Area which is adjacent to Lat Krabang station and is 22 ha in size. Major characteristics of the area are as follows.

1) Very limited accessibility:
The north side of the area is adjacent to the motorway service road which is one-way traffic westward to the center of Bangkok. The east side of the area has access to Romklao road, an arterial road, but difficult to access directly due to the overpass structure between the canal and the railway. On the south side of the area, the canal and On-nut road are located in parallel, but there is no direct access to On-Nut road from the site. Meanwhile NS-2 road, which shall be a major arterial road, is planned to be located in the west side of the area. Regarding public transportation, an SRT line runs through the Subcenter area from west to east and divides the study area into the north and south parts, although an at-grade structure shall allow for passengers to cross the railway. The Airport Link Rail station will be located on the west side of Rom Klao road and have no access from the site by car.

2) Vacant land with small number of owners:
Currently, the entire area of the pilot project is vacant. The land consists of six parcels, each of which is comparatively large in size.

Table 8.01: Land Ownership of the Pilot Area

Land No	Registered Area (㎡)	Owner	Remark
45	149,604.00	A	South side from railroad
1526	7,892.00	B	North side from railroad
1527	14,640.00	C	
1528	15,156.00	D	
1529	15,484.00	E	
2475	16,528.00	F	
Total	219,304.00		

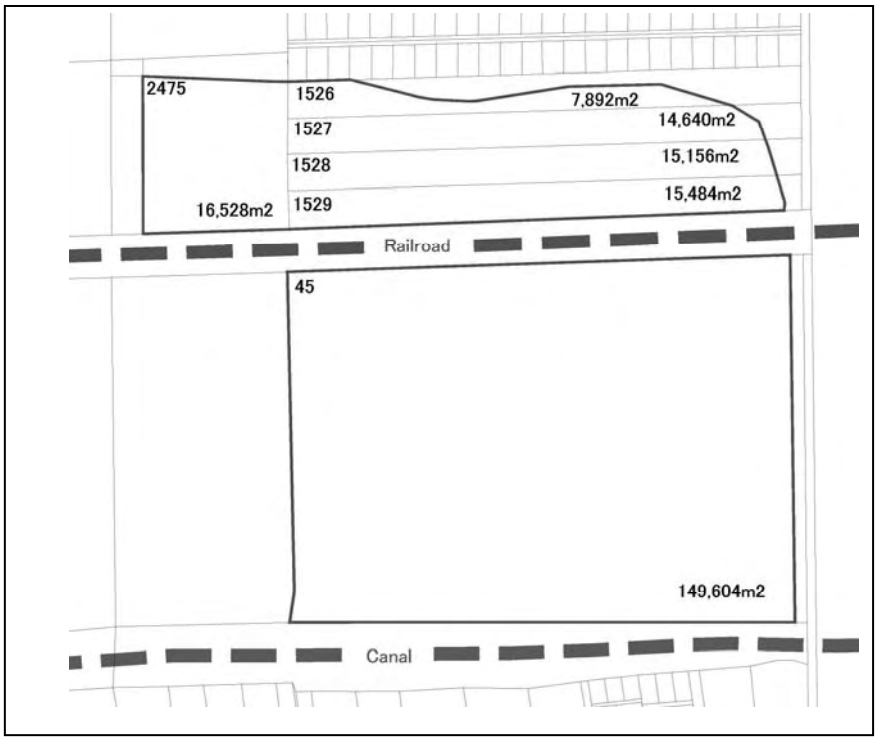

Figure 8.02: Land Ownership of the Pilot Area

8.03 General Directions for Development

(1) Urban Functions

The pilot area is located east of the culture town and is planed for commercial use as an air-gate plaza. The future land use for the pilot area needs to be suitable for the gateway to the entire subcenter area, considering the high development potential. Directions for development are as follows:

- Commercial and business uses will be the primary functions in consideration of the location characteristics and high connectivity to major transportation facilities after development.
- Condominiums and serviced apartments will be the only suitable residential types of use as the area is close to the flight path of the new airport and a certain level of noise pollution is expected.

- Industrial and logistics uses will not be considered as the area is a primary starting point for the day tourism activities.

(2) Conceptual Spatial Development Plan

A station plaza will be introduced at the east side of the area neighboring Lat Krabang station connected by pedestrian walkway. The station plaza on both sides of the SRT will be connected to regional trunk roads; On-nut road to the south and planned NS-2 to the west. Regarding the distribution of land use, the area immediately surrounding the station plaza will be used mainly for commercial and business purposes. The west side of the area will be for residential use considering the greater distance from the station plaza. In the south side of the area, a park and small-size commercial facilities will be installed along the canal to provide a better pedestrian environment and scene of Bangkok like activities targeting those day tourists.

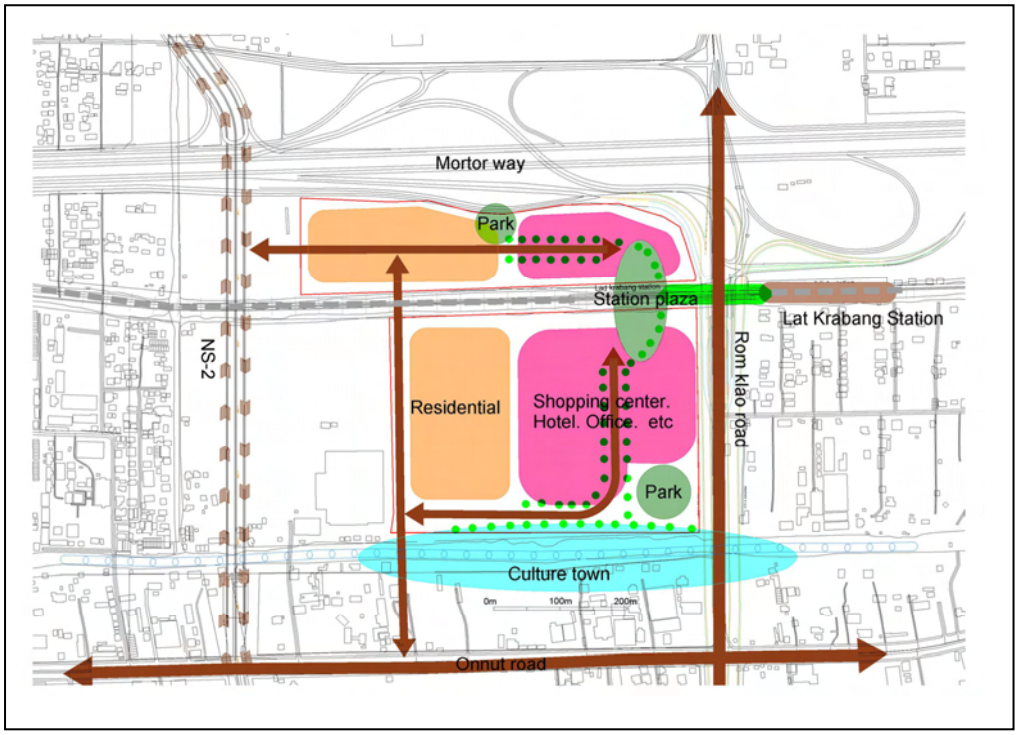

Figure 8.03: Basic Plan of the Pilot Area

8.04 Physical Development Plan

In accordance with the conceptual plan shown on the previous page, the planning of land use and infrastructures was carried out. The major considerations on the physical development planning are summarized below. Some of the key drawings follow.

(1) Transport Facilities

- The size of the station plazas was set based on a guide line provided by a separate JICA study named the "Study on Formulation of Guideline of Station Plaza Development and on Station Plaza Development Method, March 2005". The north side plaza will have an area of 4,000 m2 and the south side, 5,000 m2. Functionally, the north side station plaza will accommodate the feeder transit system and park and

ride connection, while the south plaza will support rail to vehicle inter-modal functions by providing bus bays and a taxi pool.

- The main road connection from the north side station plaza to the NS-2 road will have a 25-meter width. This road will have an intersection with NS-2 at an elevated level and run down to the station plaza. The main road connection from the south station plaza will also have the same road width of 25 m, joining to the NS-3 road which connects between On-Nut road and the northern arterial road.
- Local roads with widths of 9-15 m will be introduced to provide better access to land plots.

(2) Parks

By the Land Subdivision Law of Thailand, land for parks has to be allocated within the project area with a minimum size of 5% of the total project area. In the pilot project, two parks will be introduced; one in the north side and the other in the south side of the SRT. The park in the northern part will be situated between the station plaza and the residential area. The park in the south side will be set along the canal and serve as the departing point for the water market to be developed for day-tourism activities.

(3) Land Use and Expected Building Facilities

A land use plan was formulated in order to obtain necessary indices, though in Thailand there is no legal infrastructure available to ensure the plan. Based on the land use plan, together with existing and foreseeable regulations applicable to the project area, the probable type of buildings to be constructed after the project implementation was assumed. The assumed building facilities are as follows:

1) Shopping Center
   A large scale shopping center is likely to be located in the center of the south part of the area since the area has good connectivity to the station plaza and arterial road, with a single plot which is large enough to accommodate a large-scale shopping mall.
2) Hotel & Serviced Apartments
   Accommodation facilities such as hotels and serviced apartments are likely to be located in the south part of the area directly facing the station plaza.
3) Middle-Low-density Commercial Buildings
   Small-scale shops will be located along the canal on the south side of arterial road. This will be a result of strategic locating efforts to formulate a symbolic space for the culture town, which shall provide very Thai-like scenery and an atmosphere of traditional Bangkok life.
4) Office Buildings
   Office buildings are likely to be located in the north part of the area which is adjacent to the station plaza.
5) Parking Building
   A parking building will be located adjacent to the north side station plaza to support the park-and-ride inter-modal connection.

6) Middle-rise Residential Buildings
Middle-rise residential buildings will be located in the other area which is comparatively far from the station plaza.

Figure 8.04: Artist's View of Pilot Project

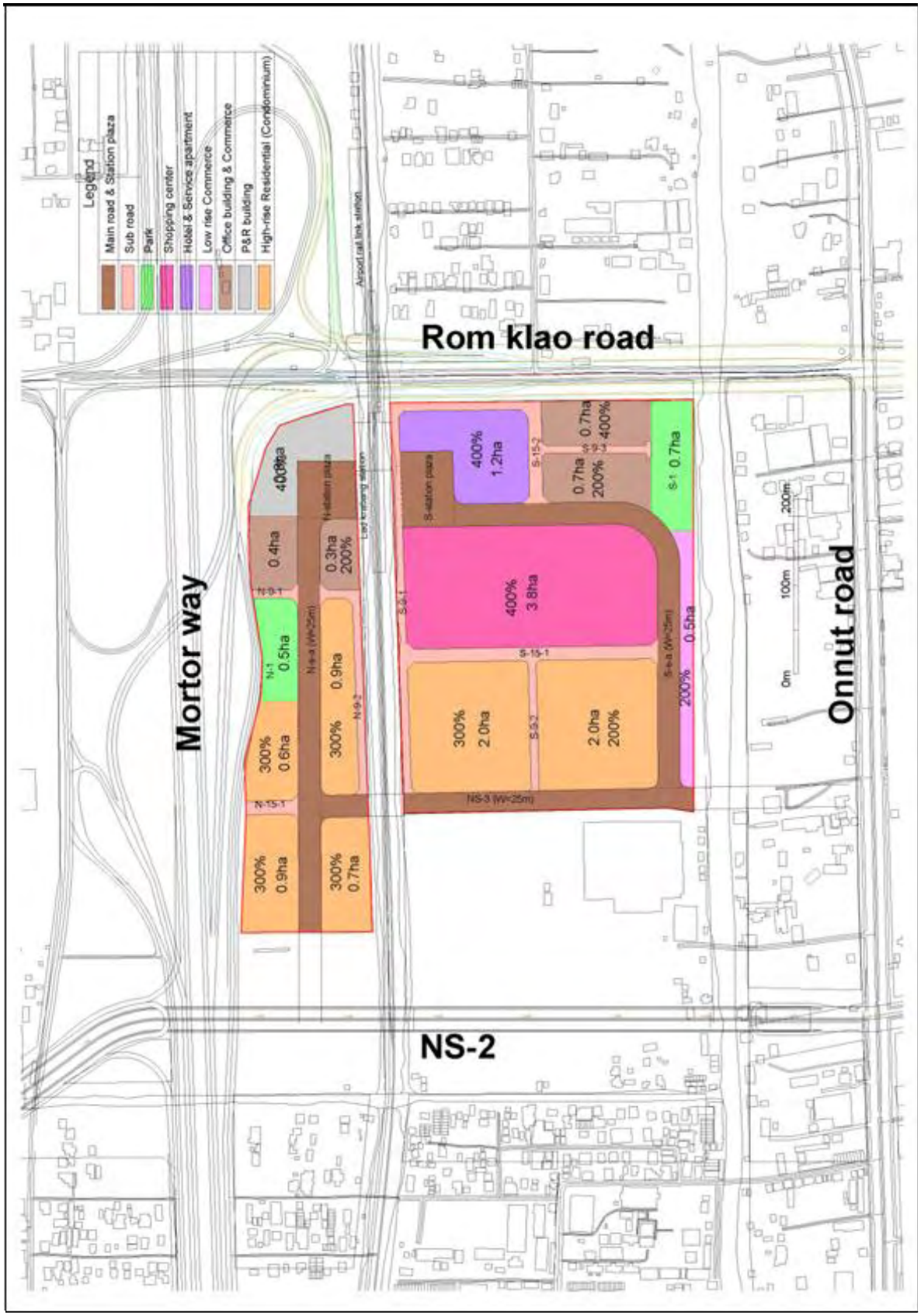

Figure 8.05: Development Plan

Figure 8.06: Street Network

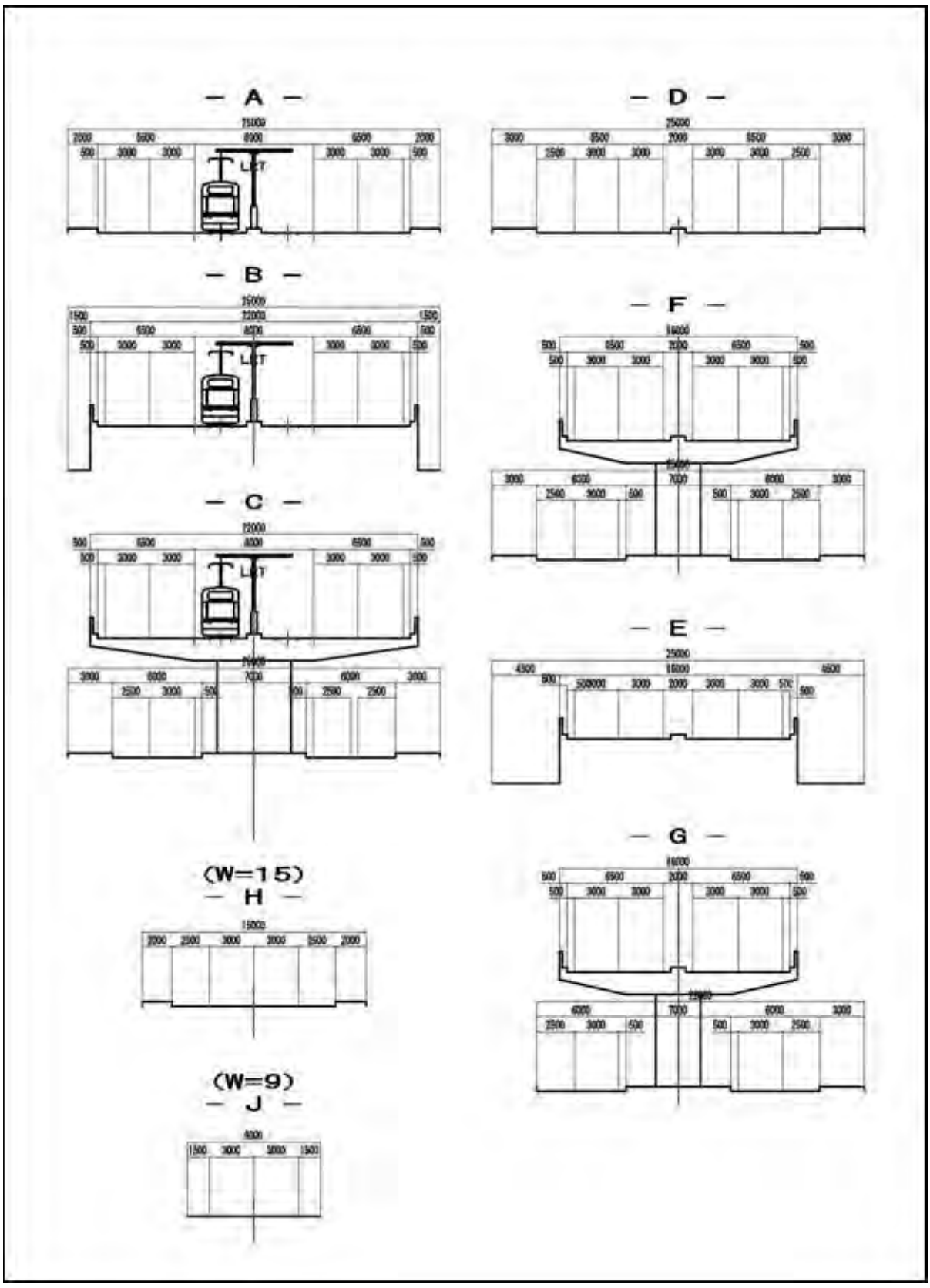

Figure 8.07: Road Section

(4) Cost Estimate

The total cost for the implementation of the pilot project is estimated as shown in the following table.

Table 8.02: Total Cost for Expenditure

Item				Cost(THB)		
				Government	Association	Total
Construction	Road	Main road	W＝25m	42,555,365		42,555,365
			Over head	175,031,355		175,031,355
		Access road	W＝15m		10,200,912	10,200,912
			W＝9m		18,059,018	18,059,018
	Pedestrian bridge			19,040,000		19,040,000
	Traffic safety facility			9,590,000		9,590,000
	Station Plaza			11,526,318		11,526,318
	Green & Park				11,660,000	11,660,000
	Sub total			257,743,038	39,919,930	297,662,968
Relocation	Building move			0	0	0
	Water supply			0	0	0
	Drainage			0	0	0
	Electricity			0	0	0
	Communication			0	0	0
	Sub total			0	0	0
Supply and processing	Water supply			4,825,630	2,647,300	7,472,930
	Drainage			55,457,295	13,920,166	69,377,461
	Waste water			0	0	0
	Electricity			88,666,445	4,516,875	93,183,320
	Communication			118,050,083	1,871,793	119,921,876
	Sub total			266,999,453	22,956,134	289,955,587
Earth work				0	18,761,384	18,761,384
Contingency				0	18,191,398	18,191,398
Survey and design				0	42,446,596	42,446,596
Construction cost total				524,742,491	142,275,442	667,017,933
Interest to a debt				0	6,000,000	6,000,000
Administration				0	6,670,179	6,670,179
Others				0	1,888	1,888
Total				524,742,491	154,947,509	679,690,000

8.05 Planning of Land Readjustment Project Scheme

The development scheme was analyzed based upon the draft development plan discussed in the previous sections.

(1) Implementation Body

Among several types of implementation bodies stated in the Land Readjustment Law of Thailand, the BMA is definitely the most suitable implementation body for the pilot project, as the project is positioned in the strategic context of the entire development of the Lat Krabang subcenter. However, the land readjustment association is assumed for the implementation body of the pilot project because of the given time framework; the establishment of a public implementation body has to wait for promulgation of related ministerial regulations, which will require several more years.

(2) Financial Plan

1) Increase of Land Value

The land value for the pilot project area is estimated from the appraisal survey conducted in the Study. In the case of the pilot project area, the increase ratio (Z) is calculated as 2.05, as shown below.

Land value before development 5,600 (THB/m2)

Land value after development 11,500 (THB/m2)

Increase Ratio 2.05

The following shows area specific estimated land prices before and after the project.

Before the development

Table 8.03: Land Value Before the Development

Zone	Unit land price (B/m2)	Area (m2)	Land value (1000B)
a	6,006	153,100	919,519
b	4,767	72,200	344,177
Total	5,600	225,300	1,263,696

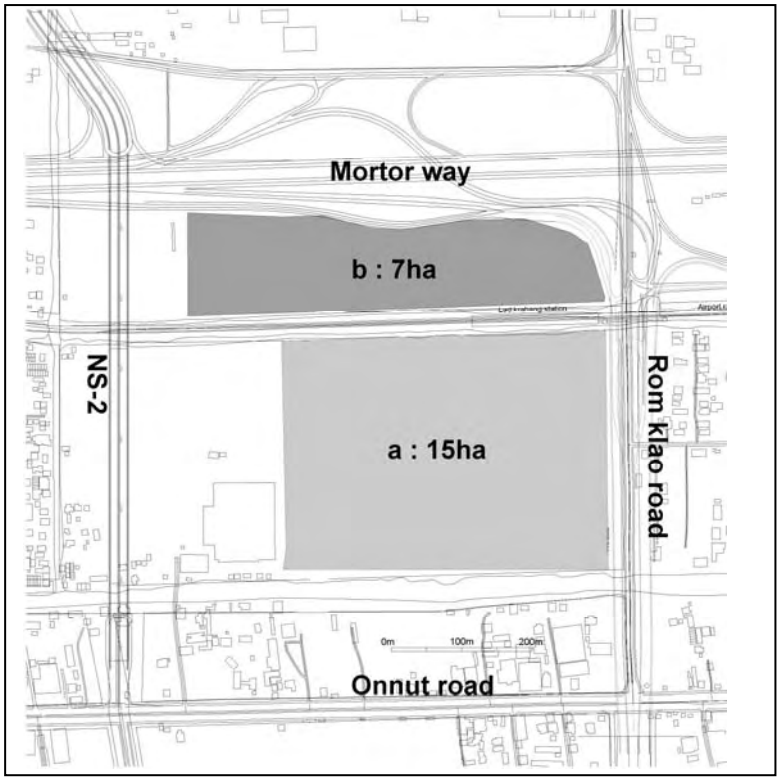

Figure 8.08: Location of Zones of Land Values before the Development

After the development

Table 8.04: Land Value After the Development

Zone	Unit land price (B/m2)	Area (m2)	Land value (1000B)	land use	Remark
A	15,100	57,959	875,181	Shopping center.Hotel.P&R	Hybrid town center
B	13,600	25,307	344,175	Middle-low CM Office	Culture town
C	7,700	69,514	535,258	Condominium	Residential
Total	11,500	152,780	1,754,614		

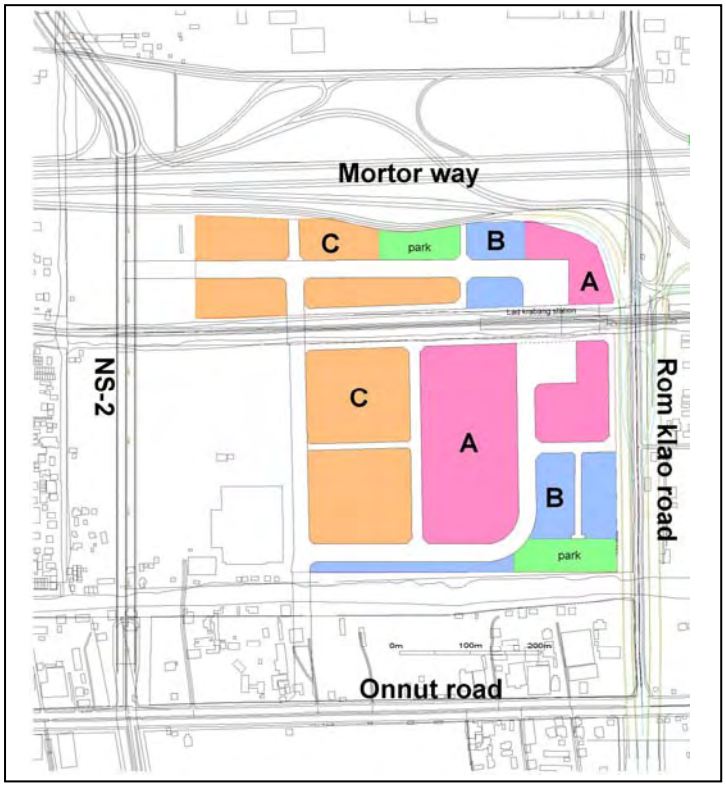

Figure 8.09: Location of Zones of Land Values after the Development

2) Contribution Ratio for Public Land

The composition of land use in the pilot project area will change in accordance with the planned land use. The expected change in land use is summarized in the table below.

As there are no public facilities existing in the area, the contribution ratio for public land is equal to the total area of public land.

Table 8.05: Calculation of Contribution Ratio for Public Land

	Private land		Contributed	
	Before implementation	After implementation	Area (m2)	Ratio(%)
North side	71,600	45,986	25,614	35.77%
South side	153,700	106,794	46,906	30.52%
Total	225,300	152,780	72,520	32.19%

Among the public lands after the project implementation, some will be used for regional infrastructures which serve for the benefits of population in larger areas beyond the pilot project area. In case of the pilot project, these areas consist of land for the Main Roads. A rule of cost allocation was set based on discussion with BMA staff, in which land for the width of 9m inside the 25m-wide main road is contributed by the implementation body of the land readjustment and the remaining area with 16m width will be considered as the reserved land for regional infrastructure. The latter category of land is subject to land acquisition by the government by applying the approved unit price that is usually significantly lower than the market price. The contribution area for the regional infrastructures is calculated as shown in the following table.

Table 8.06: Summary of Contribution Land Areas for Public Land

Category of Public Land	Area (ha)	Composition (%)
Contribution rate for Public Land	53,033	23.53
Contribution rate for Reserved Land for Regional Infrastfuctures	19,487	8.65
Total Contributin rate for Public Use	72,520	32.19

3) Cost Allocation

The following table shows the cost sharing among the central and/or local governments, utilities service providers supported by government subsidies, and the land readjustment association, whose primary revenue source is the sale of reserved land. As indicated in the table, the required land area for the contribution for reserve land is estimated at 2,808 m^2.

Table 8.07: Project Cost Allocation Scheme

Items	Income(THB)	Remarks
Government Investment	112,552,200	Cost for land acquisition for station plaza and arterial road
	318,025,800	Construction Cost for station plaza, pedestrian deck, arterial road, and utility in underground
Sub total	430,578,000	
Reserve land sales	42,395,472	2,808 m2 × 15,100 B/m2
Government or Utilltles Service Providers Investment	206,716,528	For Electricity,Communication
Grand Total	679,690,000	

4) Breakdown of Income generation by relevant organizations

The expected income source for each of the responsible organizations is summarized in the following table.

Table 8.08: Total Income and the share

Items	Income (ThB)	Responsible Body
Reserve land sales	42,395,472	Association
Land acquisition for the reserved land for regional	112,552,200	Association and government
Government investment for construction of regional infrastructures	318,025,800	Government
Investment by Utilltles Service Providers	206,716,528	Government or Service provider
Total	679,690,000	

(3) Calculation of Aggregate Contribution Ratio

The following tables indicate the estimated aggregate contribution ratio and overview of reserve land.

Table 8.09: Calculation of Aggregate Contribution Ratio

Private land before implementation	Private land before implementation (Including Gap)	Private land after implementation		Contributed area			Contribution ratio		
		Including reserve land	Excluding reserveeland	For public	For reserve land	total	For public (incl. reserve for regional infrastructures)	For reserve land	Total
㎡ 219,304	㎡ 225,300	㎡ 152,780	㎡ 149,972	㎡ 72,520	2,808	㎡ 75,328	% 32.19	1.25	% 33.43

Table 8.10: Overview of Reserve Land

Total land value		Increase of land value	Unit land price After project	Maximum amount of reserve land	Amount of planned reserve land	R/Rmax	Unit land price before project
Before	After						
1,000B 1,261,680	1,000B 1,756,970	1,000B 495,290	B／㎡ 11,500	㎡ 43,068.70	㎡ 2,808.00	% 6.52	B／㎡ 5,600

(4) Investment Schedule

The investment schedule for the project is planned to ensure the financial viability of the project, as indicated in the table below.

Table 8.11: Project Investment Schedule

Items		Fisrt Year	Second Year	Third Year	Forth Year	Fifth Year	Total
Income	LR fund	5,000,000	5,000,000	5,000,000			15,000,000
	Income from reserve land sales	0	0	0	30,000,000	22,850,000	52,850,000
	Government investment	8,000,000	100,000,000	130,000,000	120,000,000	37,706,000	395,706,000
	Other government's subsidy	50,000,000	50,000,000	50,000,000	50,000,000	31,134,000	231,134,000
	Total	63,000,000	155,000,000	185,000,000	200,000,000	91,690,000	694,690,000
Private Loan		16,000,000	15,000,000	5,000,000			36,000,000
Total		79,000,000	170,000,000	190,000,000	200,000,000	91,690,000	730,690,000
Expenditure	Development cost for roads & Parks	30,000,000	70,000,000	90,000,000	70,000,000	37,662,968	297,662,968
	Development cost for utilities	30,000,000	80,000,000	80,000,000	70,000,000	29,955,587	289,955,587
	Cost for land leveling	3,000,000	4,000,000	4,000,000	4,000,000	3,761,384	18,761,384
	Design/office expenses	14,000,000	14,000,000	14,000,000	14,000,000	11,310,061	67,310,061
	Interest on loan	2,000,000	2,000,000	2,000,000	0	0	6,000,000
	Total	79,000,000	170,000,000	190,000,000	158,000,000	82,690,000	679,690,000
Repayment for LR fund					10,000,000	5,000,000	15,000,000
Repayment for private sectors					32,000,000	4,000,000	36,000,000
Total		79,000,000	170,000,000	190,000,000	200,000,000	91,690,000	730,690,000

Single year's excess and deficiency	0	0	0	0	0	0

8.06 Model Replotting Plan

Although it is impossible to formulate a final shape for the replotting plan, a model plan was formulated in order to verify the applicability of the financial plan mentioned above. Another important reason to generate a model replotting plan is to foresee the most balanced shape of replotting by using the proportional valuation method, which is well developed in Japan. In Thailand, the proportional valuation method is not immediately adoptable due to limited supporting regulations in related fields, such as urban management and taxation systems. Thus the replotting plan for the pilot project will be finalized by the Thai counterparts employing the area based method, for which the process and the results of the model replotting work will be helpful. The following figure shows the result of the model replotting plan.

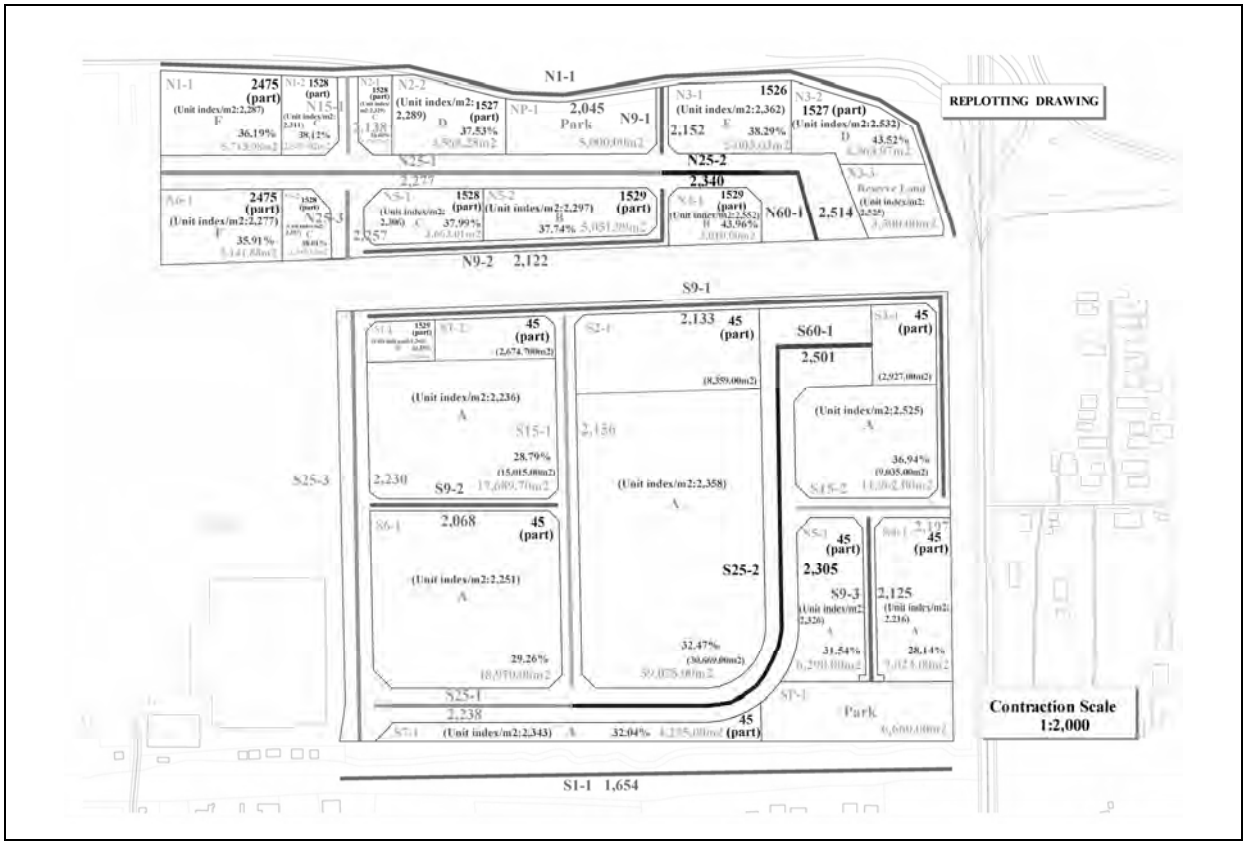

Figure 8.10: Tentative Replotting Plan for Pilot Area

9. ENVIRONMENTAL CONSIDERATIONS AND PUBLIC CONSULTATIONS

9.01 Environmental Considerations

Based on the examination of existing environmental policies for the Bangkok metropolitan development, the following approaches were adopted from the environmental and social consideration viewpoints when the strategic development plan was formulated.

- The canal network should have a function for, not only flood control, but also amenity or tourism resources from the local cultural viewpoint.
- Wastewater management and solid waste management should be developed and expanded to avoid an increase in environmental pollution.
- Allocation of new green areas should be promoted for development of amenity spaces for local residents and the new urban ecosystem.
- In order to avoid occurrence of illegal settlements with non-registered populations or slums due to the increasing population, implementation of well-balanced land use planning will be necessary.
- An environmental monitoring information disclosure system should be developed to enhance the people's awareness on environmental conservation.

- The Suvarnabhumi airport is under construction and planned to start operation in 2006. Under the 100 million annual passengers (MAP) scenario, a part of the strategic development planning area will be affected by aircraft noise, so it is necessary to examine mitigation measures as shown in Table 9.01

Table 9.01: Examination of Accumulative Impacts from Suvarnabhumi Airport

Parameter	Summary of Predicted Impact	Relationship between Predicted Impacts and the Subcenter	Examination Results
Noise	- Aircraft noise impact should be considered around the airport. Mainly, predicted noise level is from 30 to 40 NEF, which indicates that adoption of soundproof measures should be considered as necessary.	- Under 45 MAP condition, most of the subcenter area will not be affected by aircraft noise. - Under 100 MAP condition, a part of the south-eastern area will be affected by aircraft noise. Predicted aircraft noise level will be from 30 to 40 NEF.	- When the subcenter is developed, it is recommended that BMA will discuss the runway operation scenario with NBIA. - Aircraft noise monitoring and adoption of soundproof measures will be implemented under cooperation with NBIA.

Source : JICA Study Team

9.02 Public Consultation and Public Relations Activities

The framework designed for stakeholder meetings undertaken in the Study is summarized in Table 9.02, and an outline of stakeholder meetings that have been held is shown in Table 9.03. Additionally, to disseminate information about the Study to stakeholders, a web-site was operated and maintained by BMA, and Information Dissemination Bulletins were distributed to provide simple illustrations of general knowledge and concepts about city planning and land readjustment for the stakeholders.

Table 9.02: Framework Designed for Stakeholder Meetings Undertaken in the Study

Items	Contents of Items	
Phasing	Phase I: Strategic Development Planning - 3 Times Phase II: Pre-Feasibility Study - 3 Times	
Overall Objectives	To get stakeholders involved in the planning process of the Study, in order to consider environmental and social factors in the way most suitable to local situations, and To reach an appropriate consensus with the stakeholders.	
Specific Objectives and Planned Schedule	Phase I	1st Meeting: Outline of Study (November 2004) Outline of the Study and concepts of land readjustment were discussed. 2nd Meeting: Subcenter Development Framework (February 2005) The direction of the development framework of the strategic development plan was discussed. 3rd Meeting: Subcenter Implementation Plan (July 2005) A draft land use plan and an implementation plan for the strategic development plan were discussed.
	Phase II	4th Meeting on the Subcenter Master Plan (November 2005) An outline of the Pre-F/S with land readjustment schemes was discussed. 5th Meeting: Land Readjustment Implementation Plan (February 2006) Outline of the land readjustment plan, including replotting, construction and financial plans was discussed. 6th Meeting: Land Readjustment Project Evaluation (May 2006)

Source : JICA Study Team

Table 9.03: Stakeholders Meetings

	Date of Meeting	Title of Meeting	Number of Sessions Conducted	Number of Participants Attended
1st Stakeholders Meeting	November 13-14, 2004	1st Small Group Meeting	3	92
2nd Stakeholders Meeting	February 16, 2005	1st Open Seminar	1	75
	February 19-20, 2005	2nd Small Group Meeting	4	143
3rd Stakeholders Meeting	July 5, 2005	2nd Open Seminar	1	71
	July 9, 2005	1st Local Community Meeting	1	84
4th Stakeholders Meeting	December 1, 2005	3rd Open Seminar	1	79
5th Stakeholders Meeting	February 16, 2006	4th Open Seminar	1	66
6th Stakeholders Meeting	May 25, 2006	5th Open Seminar	1	80

Source : JICA Study Team

10. ENVIRONMENTAL EVALUATION

10.01 Initial Environmental Examination on the Strategic Development Plan

The predicted potential impacts were compared between the "Without Project Case" and the "With Project Case". Comparing the "without project case", it is expected that the strategic development plan proposed will rise or increase positive impacts related to economic activities, local society, land use condition, traffic, public services, cultural property, religious activities, waste management, and decrease the risks of hazards, and land and water pollution. The strategic plan will also contribute to mitigation of adverse impacts related to land acquisition and relocation, and air pollution.

10.02 Initial Environmental Examination on the Pilot Project

The predicted potential impacts were compared between the "Without Project Case" and the "With Project Case". Comparing the "without project case", it is expected that the pilot project proposed will rise or increase positive impacts related to economic activities, local society, land use condition, public services, waste management, and decrease the risk of hazards and water pollution. The Pilot Project will also contribute to mitigation of adverse impacts related to land acquisition and relocation, and water pollution.

10.03 Pre-Environmental Impact Assessment on the Pilot Project

As mentioned above, the pilot project will have overall benefits, but also will have localized adverse impacts. It is necessary to adopt mitigation measures for such adverse impacts as shown in Table 10.01.

Table 10.01: Suggested Mitigation Measures for Adverse Impacts

Item	Issues to be Considered	Suggested Mitigating Measures
Land acquisition and relocation	- When connection roads are constructed, land acquisition and relocation will occur.	- It is necessary to consider how to provide compensation to the people who do not officially own their property, such as residents living on the governmental land along the existing canals.
Air pollution	- With the increase in vehicle traffic, the air pollution load will increase.	- It is recommended that measures to increase the attractiveness of public transportation systems be examined when a station plaza is developed.
Water pollution	- With encouragement of economic activities in the pilot project area, the water pollution load will be increased.	- Individual wastewater treatment facilities should be installed based on Thai legislation.
Noise and vibration	- A part of the pilot project area may be affected by aircraft noise when the 100 MAP scenario is actualized.	- Aircraft noise should be monitored, and soundproofing measures should be adopted based on the monitoring results and the Suvarnabhumi airport operation plan.

11. Recommendations

11.01 Recommendations

The shifting of the Metropolis from the mono-centric urban structure to a poly-centric one is a long contemplated city planning vision for Bangkok. Nonetheless, actually building a sub-center involves various facets of public works and private development combined with an overall management. In the case of the sub-center development in Shinjuku, Tokyo, the development process took more than 30 years to mature.

It is thus important to set the clear target, and control the allocation of various resources correctly to proceed to the target of sub-center development.

(1) BMA's Roles in the Sub-center Development

1) Development Initiatives

Policy coherence:
The development of Lat Krabang Sub-Center needs to be clearly adopted in the urban development and management policy of BMA as well as in the planning context of the Aerotropolis development plan, as will be discussed later.

Public consultation:
The Lat Krabang Sub-center development has been discussed openly in public consultation meetings for this Study in six occasions, and the opinions of the local people have been reflected in the planning as much as possible. It is thus essential to proceed with the concrete projects that follow the master planning in the same spirit of public involvement.

Consensus building:
As the project approaches the implementation phase, it will be increasingly inevitable to proceed with the consensus of the stakeholders. The land

readjustment, in particular, involves the changes in individual real estate properties, and the consensus is thus imperative.

2) Coordination for Development

BMA Lat Krabang Development Committee:
The development of the sub-center involve various facets of urban development and services, and thus within BMA, coordination of various activities over different departments and divisions need to be made. The coordination body may be called BMA Lat Krabang Development Committee. The City Planning Department will be in the center of the BMA coordination, which shall involve divisions of Department as well as Department of Public Works, Department of Drainage and Sewerage, and other departments as needed.

Coordination outside BMA:
The Lat Krabang Sub-center development also involves other organizations and agencies outside of BMA on the national and regional levels. The organizations that need to be involved in this coordination will include the departments and agencies that formed the Steering Committee for this Study, as well as other organizations and agency as needed. The coordination meetings shall need to be chaired by BMA.

3) Organizational Development

Public Corporation for Lat Krabang Sub-Center Development:
In order for the Lat Krabang Sub-Center development to grow momentum for implementation and promote participation from the private sector, it will be desirable to set up a development body that is flexible and active. For this purpose, a public corporation shall be established under the initiative of BMA with the mandate of Lat Krabang Sub-center development, including 1) coordination of physical development, 2)operation and provision of services for RD&D estate, and 3) financial arrangement to promote and enhance PPP. This public company, tentatively called Public Corporation for Lat Krabang Sub-Center Development shall act as the project manager company (PMC) for the overall sub-center development. This company could be formulated either as a new public corporation, or by expanding the existing functions of the Krungthep Thanakom company, which is a public corporation under BMA for land development.

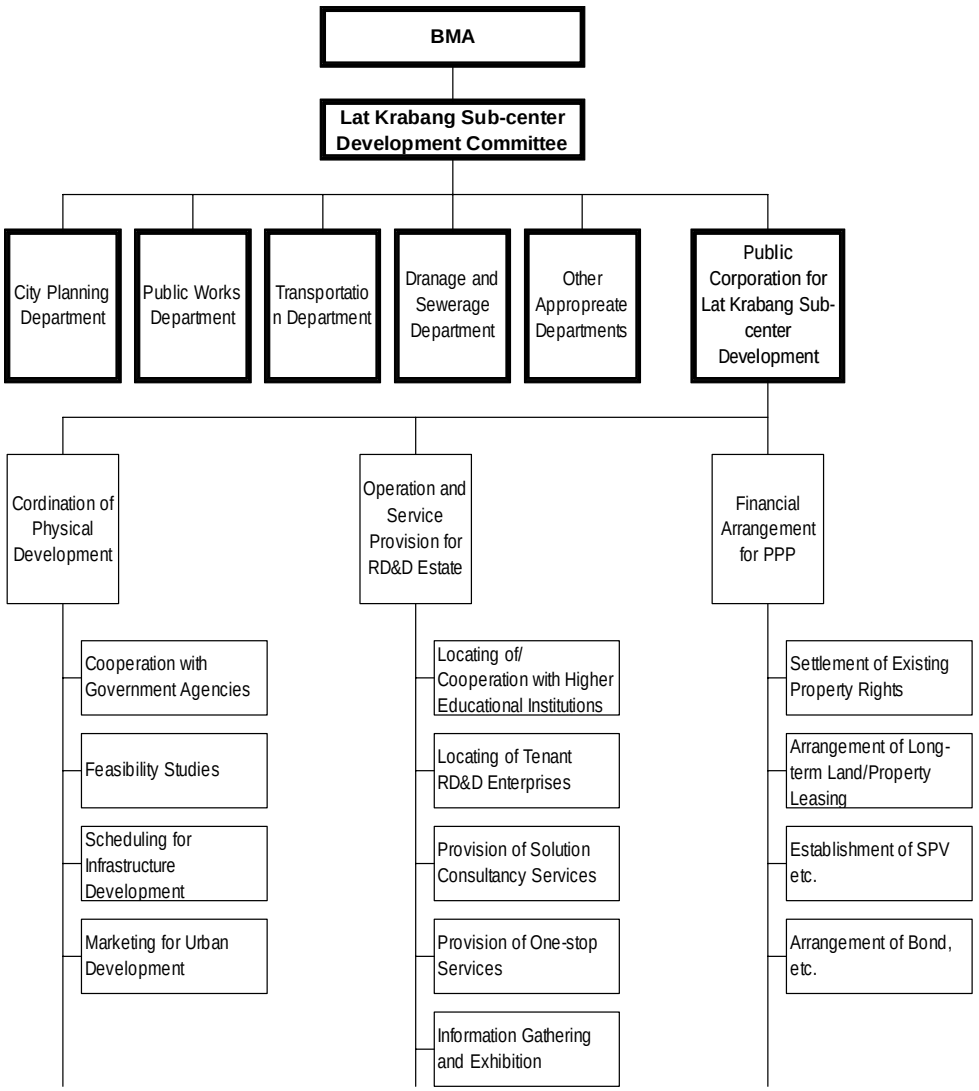

Figure 11.1: Implementation Arrangement under BMA

Public Private Partnership Program:

As the substantial part of the sub-center development shall involve land development for commercial purposes, it will be important to arrange a method for facilitating a Public Private Partnership Program. (PPP). The public sector and the private sector shall put in their respective resources where they have strength, and combine them to make a overall urban development.

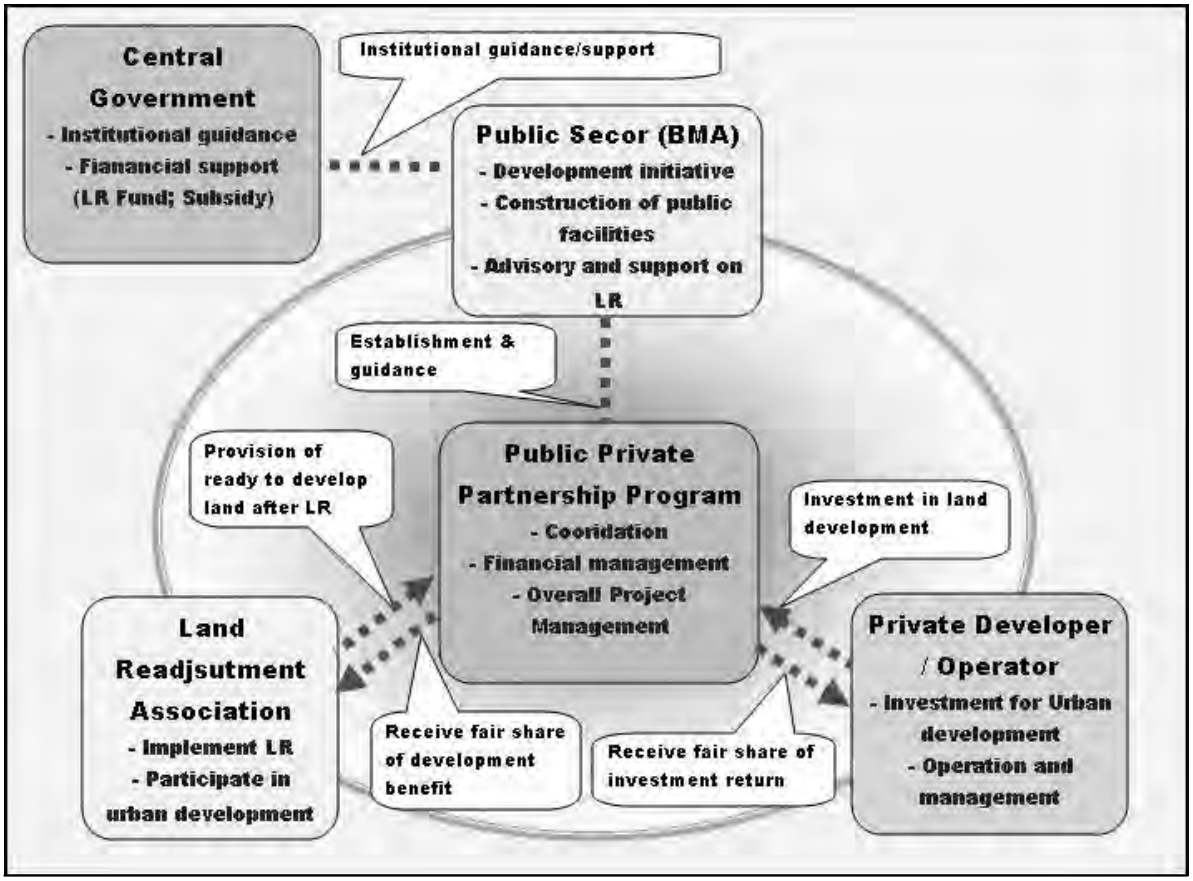

Figure 11.2: Public Private Partnership Program for Sub-Center Development

11.02 Action Plan

In implementing the Lat Krabang Sub-Center project, the essential factor is to keep up the momentum for development by continuously carrying out necessary actions as necessary. The following depicts some of the major tasks to be undertaken by BMA for the implementation of the Lat Krabang Sub-center development in the next 5 years.

(1) Critical Developments in the Next Five Years

1) Completion of land readjustment, or the first step development, at the site of the Sub-Center (Area-C),

2) Completion of Urban Development including building facilities at the Pilot Project Area as the gateway for both the Sub-Center and the Culture Town,

3) Completion of trunk roads projects (NS-1, NS-2, and EW-1)

4) Certain level of development in Culture Town as a day-tourism destination

(2) Immediate Actions

1) Committee

- Establishing BMA Lat Krabang Development Committee which will act as the advocate of the Sub-Center Development

2) Development Company

- Establishing Public Corporation for Lat Krabang Sub-Center Development, either anew or using Krungthep Thanakom as the parent
- The company shall have the capacity for 1) urban development and urban design, 2) operation of RD&D city including the locating of a value creation facility such as world class university laboratory etc., 3) support for operation of firms located in estates including providing business solutions

3) Further survey and planning for Sub-center Development (Area C)

- Detail scheme for 2-step land readjustment in Area C
- Contact land owners and conduct a survey of their intention of their land for development
- Commence the 1st step land readjustment

4) Pilot Project (Area A)

- Contact land owners and achieve agreement for land readjustment
- Detail considerations of cost sharing – subsidy from Central government, utilities etc.
- Revision of the replotting plan and financial scheme as per reflecting the various conditions and requests from the stakeholders,
- Formation of LR association and commence the land readjustment

5) Thai Culture Town Development

- Master plan for Thai Culture Town Development
- Research on similar projects overseas (such as Narita Airport Day Tourism Project)
- Facilitation and assistance to local people groups for the implementation of their projects

6) Road Development

- Basic design and construction of NS-1, NS-2 and EW1 roads
- Basic design and construction of an interchange on OBR at BMA New Krungthep Kreeta Road

7) Transportation Facilities

- Conduct a Feasibility Study for public transport for Lat Krabang area including Light Rail Transit (LRT) and Bus Rapid Transit (BRT)

11.03 Issues for Further Considerations

(1) Coordination with Aerotropolis Development

The Government of Thailand has been initiating the Aerotropolis project, which intends to develop the areas surrounding the New Bangkok International Airport as one new city, including the Lat Krabang Sub-center area, to which concept BMA has been opposing. The final settlement is not yet reached.

The implementing scheme of the Aerotropolis should be area-wise, and the Lat Krabang sub-center which in under the BMA jurisdiction shall be developed and managed by BMA, unless otherwise determined officially. If the area of Lat Krabang Sub-center is shifted to the new administrative body, such as Aerotropolis City, the public investment by BMA that would have been made at the time of transfer shall be counted as the input for development, and should be duly considered in reallocating the development benefits duly.

Throughout this Study the concept of organizational structure for the Lat Krabang Sub-center Development has been sought for 1) an immediate commencement and 2) a flexible scheme that could easily be integrated into the planned organizational scheme of Aerotropolis Development. It is very likely that the Lat Krabang Sub-center will be the first project to be initiated among those designated project components in the Aerotropolis Development. The organizational structure for the Lat Krabang Sub-center Development should coordinate with the foreseeable organizations of Aerotropolis Development from the beginning, and should be regarded as a preceding model for other area-wise developments. The following figure illustrates the recommended coordinating structure among the major organizations related to the Aerotropolis Development.

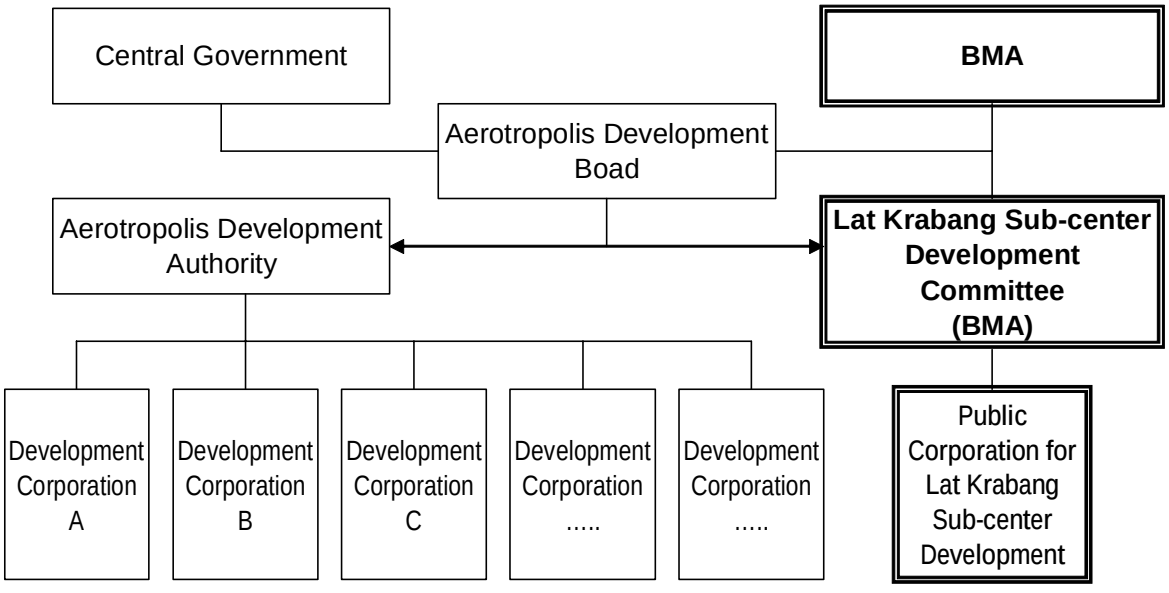

Figure 11.3: Coordination with Aerotropolis Development

(2) Capacity Building for Implementation Body

The land development using the land readjustment method is a new concept for Thailand. As the law on land readjustment was enacted and the related regulations and guidelines are in

preparation, the real experience of land readjustment has not been attained by the Thai side. Until the first real experience is achieved, assistance and support from Japan will be very precious.

The areas where the capacity building shall be necessary area in the following

- Land Readjustment; Capacity for formulating replotting plans as per reflecting the requirements of the land owners, and adjusting the financial plan accordingly, which will be essential for implementing a land readjustment project
- Urban development and urban design; Capacity for land development and designing involving the private sector developers and investors, which is essential for materializing the urban development after the land readjustment

(3) Collaboration with DPT in Advancing Land Readjustment

JICA has been assisting Thailand in the field of urban planning and land readjustment in the last ten years or so, where the major counterpart agencies are DPT under the Ministry of Interior, and BMA. One of the outcrops of the assistance was the establishment of the Land Readjustment Law which has taken effect in December 2004. Nonetheless, there has not been a concrete example of urban development using the land readjustment method yet in Thailand. As a new tool for urban development, producing concrete examples for development is crucial for dispersing the method.

The Pilot Project for land readjustment in Lat Krabang is an important stepping stone for establishing the land readjustment method in Thailand. DPT is in the center of establishing and disseminating the land readjustment and BMA has been active in promoting some earlier projects in the past with high potential for development. It is thus necessary for BMA and DPT to collaborate on this front in establishing regulations and guidelines for implementation of land readjustment in Thailand, and advancing the pilot project by land readjustment.


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