

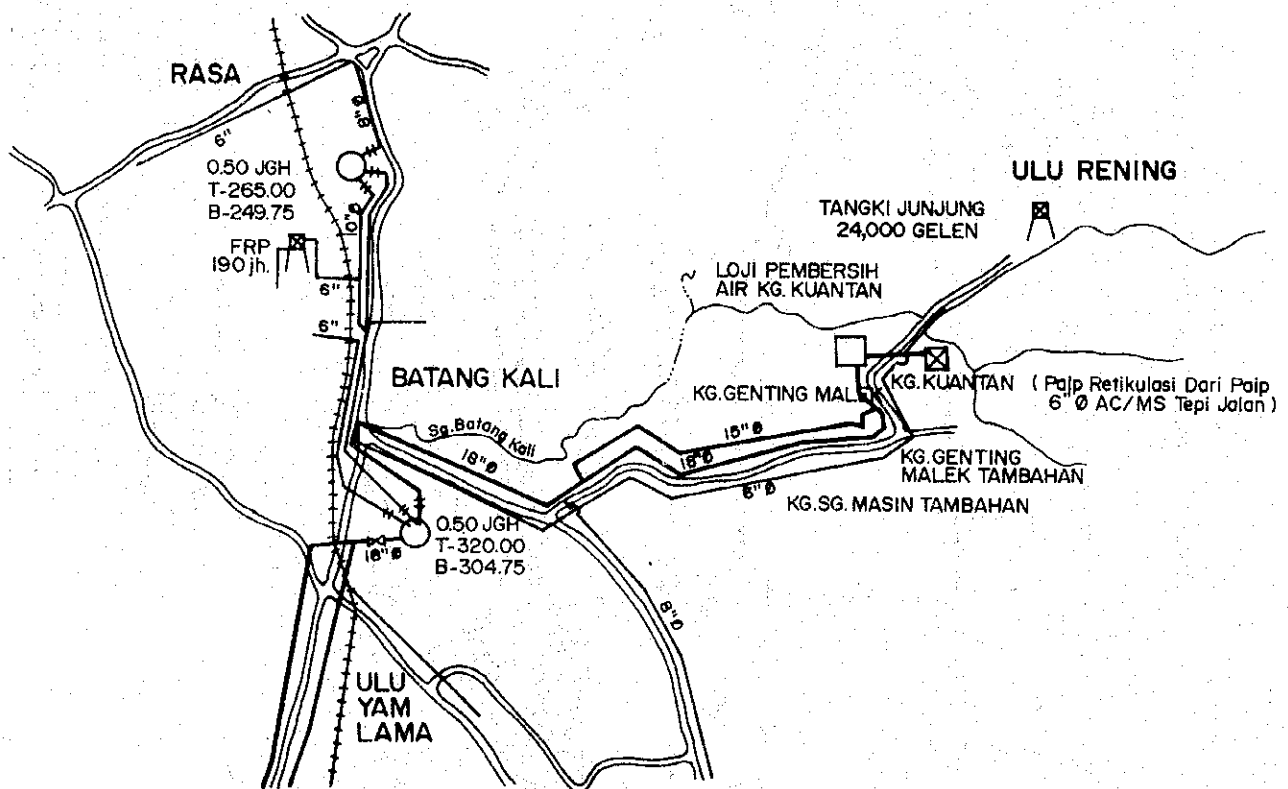
### 3.5 Water Supply and Disposal System Plan

#### A. Water Supply System

##### (1) Present Condition

There is one water intake station and one water treatment plant both being managed by JBA at Kg. Kuantan. Water from these facilities are conveyed to the water distribution reservoir at Bukit Chendang Kechil, Batang Kali through an aqueduct of 18 inches in diameter. The reservoir accommodates half a million gallons or  $2,273\text{m}^3$  and supplies water to Rawang, Ulu Yam, Batang Kali and the project area. The current water supply network is depicted in Figure 3.7.

Figure 3.7  
Current Water Supply Around Kg. Kuantan



##### (2) Water Demand Forecast

In accordance with the land use plan and the demographic framework proposed in the previous section, daily water demand was projected at  $398\text{m}^3$  for the area as shown in Table 3.6.

**Table 3.6**  
**Estimation of Daily Average Water Consumption**

Estimation by Equivalent Population : A <sup>1</sup>			
Type of Premise	Equivalent Population	Quantity	Water Demand (m <sup>3</sup> )
Residential	5 per unit	200 (unit)	273
Commercial	3 per 100 <sup>2</sup> gross area	5,300 (m <sup>2</sup> )	43
Total			316
Estimation by Unit Volume : B			
Type of Premise	Unit Volume	Quantity	Water Demand (m <sup>3</sup> )
School	23 litres per student	1,000 (student)	23
Community Hall	22.8 m <sup>3</sup> per unit	1	23
Total			46
Estimation of Water Loss : C			
Equation for Water Loss : C = (A + B) x 10%		Quantity	Water Demand (m <sup>3</sup> )
		362	36
Daily Average Water Consumption (m <sup>3</sup> /day) : (A + B + C)			398

**(3) Designed Flow Capacity by Pipe Size**

To determine the size of a water supply pipe, daily maximum water consumption (m<sup>3</sup>/day), hourly maximum water consumption (m<sup>3</sup>/hr) and areal maximum water consumption (m<sup>3</sup>/ha/sec) must be estimated with consideration of the supplemental room for surcharge.

The results obtained were as follows:

$$\begin{aligned} \text{Daily Maximum Water Consumption} &= 398 * 1.3 \\ &= 517 \text{ (m}^3\text{/day)} \end{aligned}$$

$$\begin{aligned} \text{Hourly Maximum Water Consumption} &= 517/24 * 2.0 \\ &= 43 \text{ (m}^3\text{/hr)} \end{aligned}$$

$$\begin{aligned} \text{Areal Maximum Water Consumption} &= 43/3,600/45.2 * 1.2 \\ &= 0.000396 \text{ (m}^3\text{/sec/ha)} \end{aligned}$$

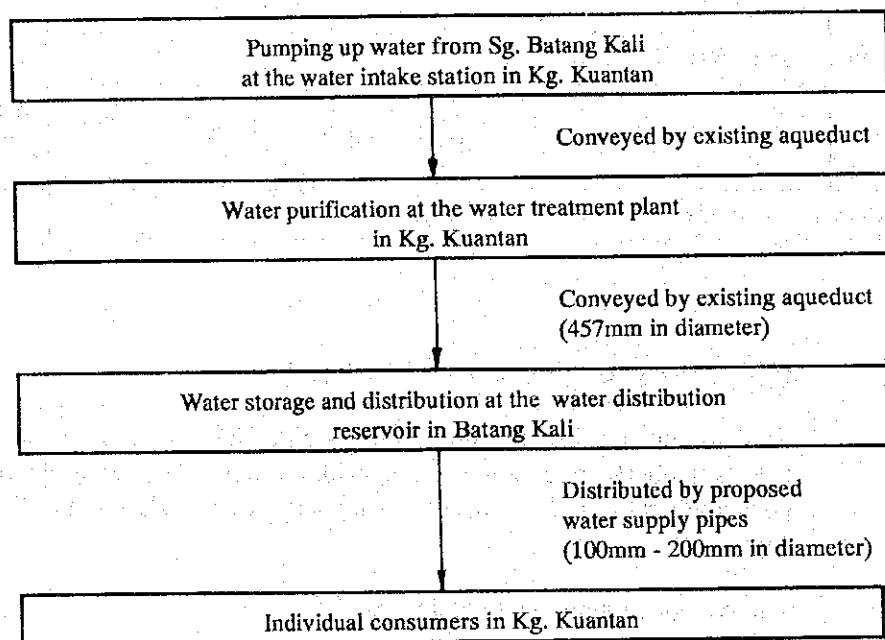
The designed flow capacity by pipe was estimated using the Williams Formula. The results are indicated in Table 3.7.

Table 3.7  
Designed Water Flow Capacity by Pipe

Pipe Size (diameter in mm)	Slope (%)	Velocity Coefficient	Designed Flow Capacity (m <sup>3</sup> /sec)	Designed Service Area (ha)
100	1	100	0.005430	13.7
150	1	100	0.015775	39.8
200	1	100	0.033618	84.9

(4) Water Supply System Plan

Basically, the existing water supply system will be retained for the future and only the water supply pipes will be replaced with new ones. The diagrammed system is shown below:

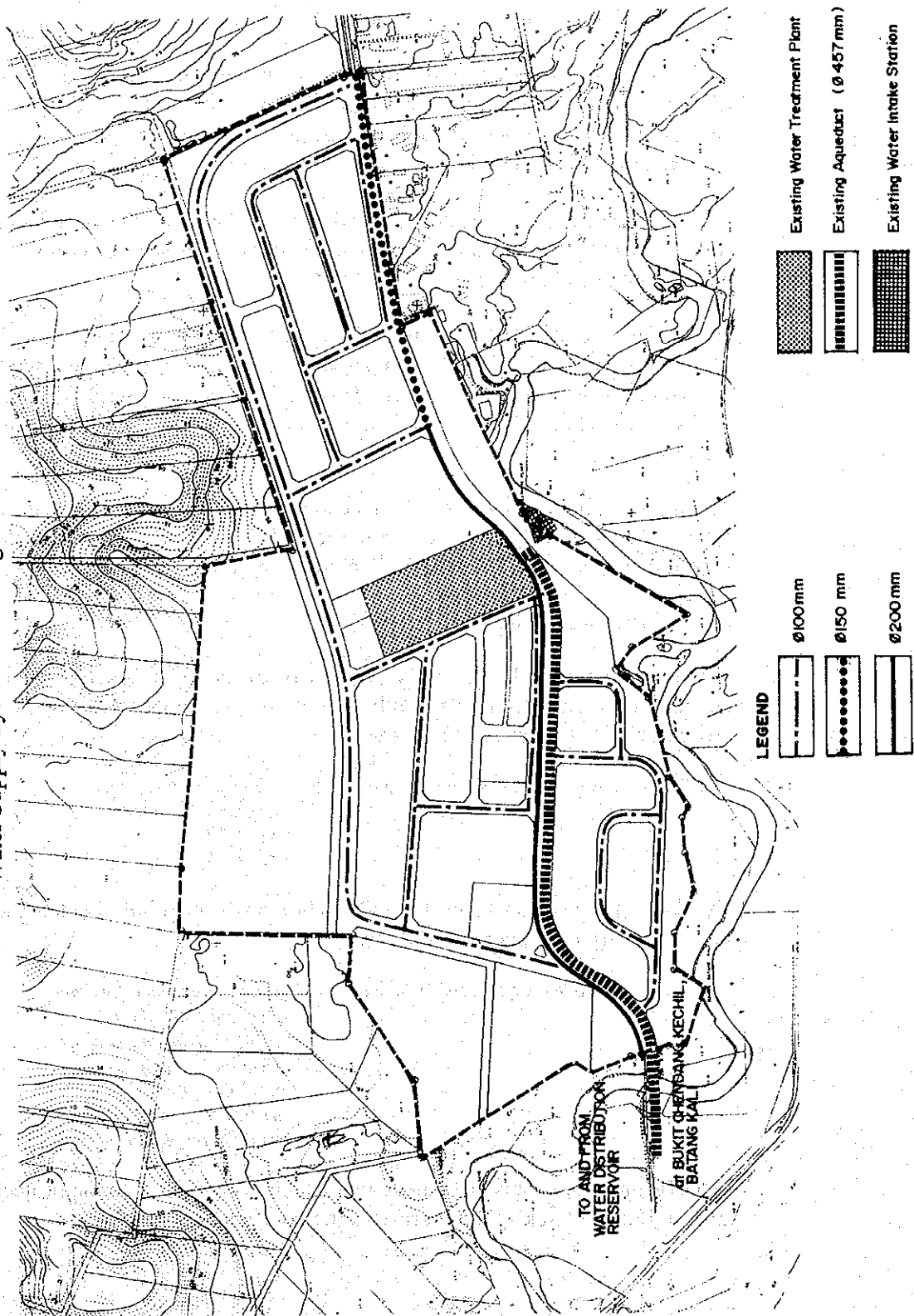


The proposed water supply system is physically depicted in Figure 3.8. The necessary water supply pipes for the area were measured as summarized in Table 3.8

Table 3.8  
Necessary Quantity of Water Supply Pipes

Type (diameter in mm)	Length (m)
100	4,406
150	425
200	870

Figure 3.8  
Water Supply System Plan in Kg. Kuantan



## B. Sewerage Disposal System

### (1) Policy Setting

Sewerage generated in the area will not be discharged into the roadside drains or the artificial waterway or Sg. Batang Kali directly. Exclusive sewers will be installed instead. In installing sewers, adequate size and smooth circulation should be considered based on quantitative analysis.

The discharged effluent will be conveyed to an oxidation pond and retained for a sufficient period of time whereby micro-organisms will break up into a more stable end product.

An oxidation pond is an economical form of liquid waste treatment but it needs a relatively large land as compared to a mechanical treatment plant. In the area, there is an abundance of idle land, particularly along Sg. Batang Kali where land price is low. In addition, population is not large even after the project.

Taking the above conditions into account, oxidation pond system is recommended in the area. According to JPBD's planning standard, the required site size should be 0.4 ha, including the pond and embankment.

### (2) Sewerage Demand Analysis

Sewerage demand is generally supposed to be 80% of the water consumption. Accordingly, daily maximum sewerage demand was estimated at 414 m<sup>3</sup> as shown below:

$$\begin{aligned}\text{Daily Maximum Sewerage Demand} &= \text{Daily Maximum Water Consumption} * 80\% \\ &= 517 * 0.8 \\ &= 414 \text{ (m}^3\text{)}\end{aligned}$$

The daily maximum sewerage demand can be transformed into the demand per hectare for one second as follows:

$$\begin{aligned}\text{Areal Maximum Sewerage Demand} &= \frac{\text{Hourly Maximum Sewerage Demand}}{60 * 60 / A * S} \\ &= \frac{\text{Daily Maximum Sewerage Demand}}{24 * 1.5} \\ &= \frac{414}{60 * 60 / A * S} \\ &= \frac{414 / 24 * 1.5}{3,600 / 45.2 * 2.0} \\ &= 0.00032 \text{ (m}^3\text{/sec/ha)}\end{aligned}$$

In the formula, A means catchment area which is equivalent to the project area of 45.2 hectares, and S represents the coefficient of surcharge.

### (3) Designed Flow Capacity by Sewer

By using the Manning formula, which is commonly employed to determine the size of conduits, the results are indicated in Table 3.9.

As a result, the minimum standardized sewer in Malaysia for the designed service area (200mm in diameter) is more than sufficient. Hence, the minimum sewer size is considered big enough for the project area.

Table 3.9  
Designed Sewer Flow Capacity by Pipe

Pipe Size (diameter in mm)	Slope (%)	Velocity (m <sup>3</sup> /sec)	Designed Flow Capacity (m <sup>3</sup> /sec)	Designed Service Area (ha)
200	0.5	0.738	0.023	71.9
250	0.5	0.861	0.042	131.3

### (4) Sewerage Disposal System

The proposed sewerage disposal system for the project area is depicted in Figure 3.9. The necessary length of the 200mm sewer is 4,823mm.

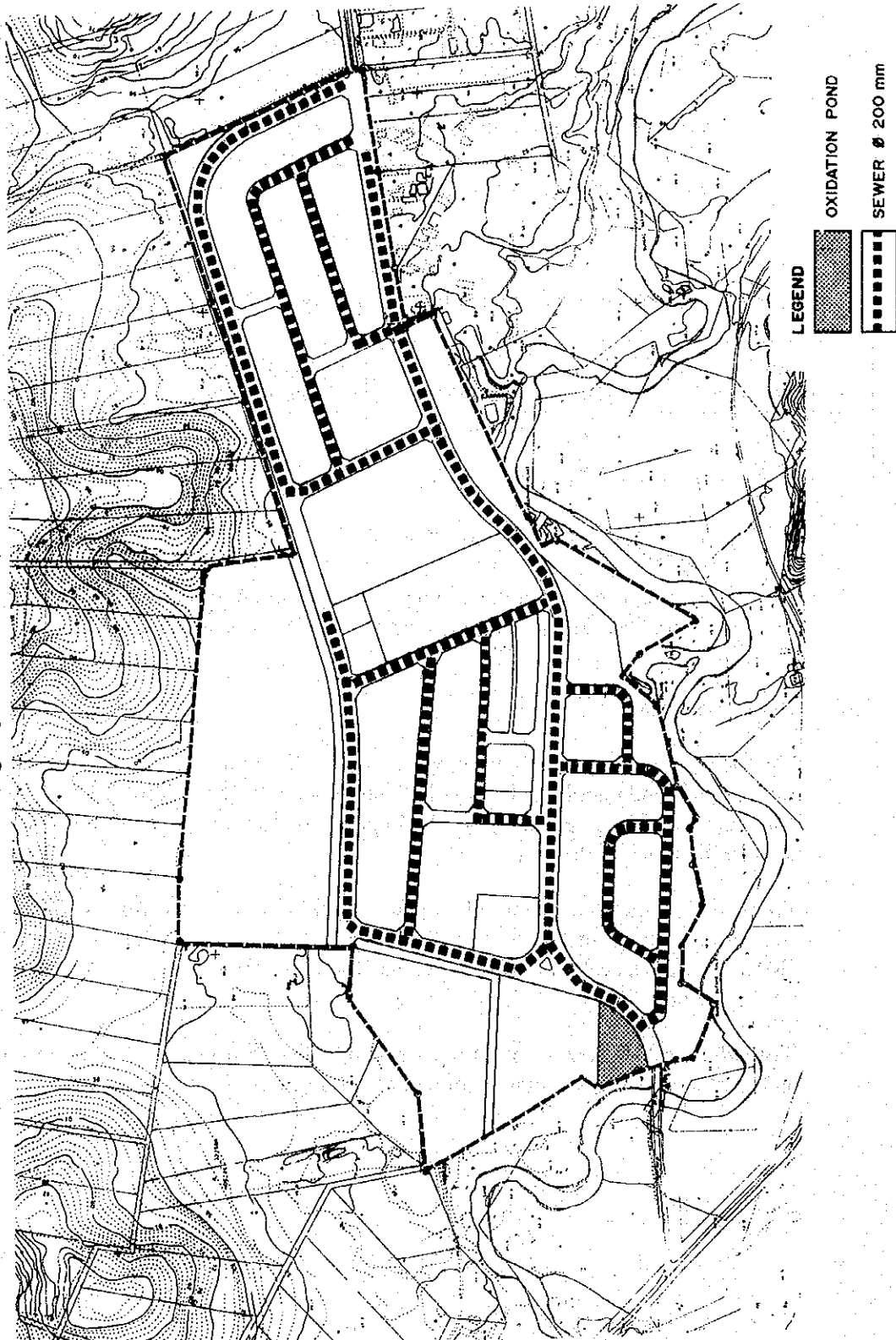
## 3.6 Other Utilities

Electricity and telecommunication will be provided in the same manner as before. Both electric and telephone lines will be stretched overhead along the roads. The wire length is 6,965m each. Around 140 poles for common use will be necessary to hold the wires in the area.

To meet the increase in population and facilitate electrification, one electric substation will be installed in the proposed rural center. It has a capacity of 1MVA, which can cater to about 400 households, and will require a lot size of 4.6 by 7.7 meters (35m<sup>2</sup>).

Similarly, for the spread of private phones, one distribution point will be installed on the road reserve. It can accommodate 750 lines in one bundle.

Figure 3.9  
Sewerage System Plan in Kg. Kuantan



### 3.7 Estimation of Construction Cost

The estimated construction cost for Kuantan area is shown in Table 3.10.

Table 3.10  
Estimated Construction Cost for Kuantan Area

(CIVIL INFRASTRUCTURE)

WORK ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT (RM)	REMARKS
1.1 Site Clearance					
1) General Site Clearance	ha	23	7,122	163,806	
Sub-total				163,806	
1.2 Earthwork					
1) Cut to Fill (200m)	m <sup>3</sup>	202,075	3.75	757,781	
2) Cut to Fill (600m)	m <sup>3</sup>	35,925	4.28	153,759	
3) Spread, Level & Compact Fill	m <sup>2</sup>	286,000	1.15	328,900	
4) Grading of Slope	m <sup>2</sup>	10,000	0.24	2,400	
5) Turfing Work on Slope	m <sup>2</sup>	10,000	2.79	27,900	
Sub-total				1,270,740	
1.3 Stormwater Drainage					
1) River Improvement Works					
- Riverwall Revetment Work	m <sup>2</sup>	5,870	128	751,360	
(200mm Con.Block)					
- Riverbed (200mm)	m <sup>2</sup>	3,770	78	294,060	
				(1,045,420)	
2) Retention Pond					
- Imported Fill	m <sup>3</sup>	3,300	28.50	94,050	
- Spread, Level &	m <sup>2</sup>	10,300	1.15	11,850	
Compact Fill	m <sup>3</sup>	700	154	107,800	
- Gabion Mattresses	m <sup>2</sup>	1,200	154	184,800	
- Stone Pitching	m <sup>3</sup>	17	350	5,950	
- Outlet	m	15	1,317	19,760	
- Box Culvert (1800x1800x3)	m <sup>3</sup>	30	350	10,500	
- Apron	m <sup>3</sup>	170	154	26,180	
- Downstream Improvement				(460,890)	
* Gabion Mattresses					



Cont. Table 3.10

WORK ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT (RM)	REMARKS
3) Drains					
- Block Drain 300mm	m	1,125	60	67,500	
" 600mm	m	4,975	123	611,930	
" 400x1200mm	m	1,660	351	582,660	
- U-Drain 750 x 750mm	m	510	142	72,420	
" 900 x 900mm	m	320	185	59,200	
" 1200 x 1200mm	m	170	288	48,960	
- Box Culvert 600 x 600mm	m	120	322	38,640	
" 400 x 1200mm	m	78	403	31,430	
" 750 x 750mm	m	27	422	11,390	
" 900 x 900mm	m	59	509	30,030	
" 1200 x 1200mm	m	20	770	15,400	
				(1,569,560)	
4) Sump					
- for Block Drain 600mm	pcs	28	560	15,680	
" 400 x 1200mm	pcs	10	615	6,150	
- for U-Drain 750 x 750mm	pcs	4	501	2,000	
" 900 x 900mm	pcs	8	667	5,340	
" 1200 x 1200mm	pcs	2	1,111	2,220	
				(31,390)	
5) Con.Pipe Dia. 300mm	m	525	136	71,400	
Sub-total				3,178,660	
1.4 Roads and Bridges					
1) Roads					
- Inner Collector Road (W=20m)	m	1,290	630	812,700	
- Outer Collector Road	m	1,403	640	897,920	
- Major Local Road (W=15m)	m	414	550	227,700	
- Minor " (W=12m)	m	2,575	510	1,313,250	
				(3,251,570)	
2) Bridges					
- Span 10m W=17m no:1	m <sup>2</sup>	170	800	136,000	
- " 5m W=6m no:3	m <sup>2</sup>	90	800	72,000	
				(208,000)	
Sub-total				3,294,152	
1.5 Water Reticulation					
1) Steel Water Pipe 100mm	m	4,406	125	550,750	
" 150mm	m	425	160	68,000	
" 200mm	m	870	200	174,000	
Sub-total				792,750	
1.6 Sewerage System					
1) Concrete Sewer Dia. 200mm	m	4,823	99	477,480	
2) Manhole (Precast Conc)	pcs	210	1,187	249,270	
3) Brick Manhole	pcs	230	680	156,400	
4) Oxidation Pond	Ls			100,000	
Sub-total				983,150	

Cont. Table 3.10

Civil, Mechanical and Electrical Infrastructure Improvement Cost	12,508,843	1
Detail Design Works	1,250,844	$2 = 1 \times 0.10$
Management and Supervision	250,177	$3 = 1 \times 0.02$
Contingency	700,495	$4 = (1 + 2 + 3) \times 0.05$
Total Construction Cost	14,710,399	32.57/m <sup>2</sup>

Cont. Table 3.10

WORK ITEM	UNIT	QUANTITY	UNIT PRICE	AMOUNT (RM)	REMARKS
1.7 Landscaping					
1) Turfing	m <sup>2</sup>	44,100	2.82	124,360	
2) Recreational Facilities	m <sup>2</sup>	1,500	4	6,000	
3) Planting Trees	pcs	540	50	27,000	
4) Planting Shrubs	pcs	8,000	5	40,000	
Sub-total				197,360	
<b>TOTAL CIVIL INFRASTRUCTURE IMPROVEMENT COST</b>				<b>10,046,036</b>	<b>22.24/m<sup>2</sup></b>

(MECHANICAL AND ELECTRICAL INFRASTRUCTURE)

WORK ITEM	UNIT	QUANTITY	UN. PRICE	AMOUNT (RM)	REMARKS
2.1 Electricity Supply					
1) Distribution Substation	pcs	1		309,810	
2) Electrical Cable	m	6,965	97	675,600	
3) Trenching	m	6,965	15	104,400	
Sub-total				1,089,810	
2.2 Telephone Service					
1) Man hole	pcs	40	10,000	400,000	
2) Telephone Cable	m	6,695	26	174,070	
3) Ducting	m	6,695	74	493,417	
4) Trenching	m	6,695	15	100,430	
Sub-total				1,167,917	
2.3 Street Light Installation					
1) Street light 150W	pcs	70	1,540	107,800	
2) Cabling and Trenching	m	2,700	36	97,200	
Sub-total				205,000	
<b>MECHANICAL AND ELECTRICAL INFRASTRUCTURE IMPROVEMENT COST</b>				<b>2,462,807</b>	<b>5.45/m<sup>2</sup></b>

## **PART II : PROJECT IMPLEMENTATION PLANNING**

## PROBABILITY AND COMBINATORICS

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**1.1 Objective**

The implementation planning process intends to integrate all the internal and external requirements to prepare an effective implementation plan which is basically agreeable to all parties concerned. The main objectives of this process are as follows:

- (a) To assess the viability of the LR project and formulate a workable project implementation framework on which basis detailed LR activities can follow, such as replotting design, detailed engineering design, negotiation with landowners, financial arrangement, organisational setting, etc.; and
- (b) To prepare the necessary information which will form part of the legal document for public validation and subsequent approval by the authority.

**1.2 Overall Framework of Project Implementation Planning**

The overall framework of LR project implementation planning is illustrated in Figure 1.1. It is assumed that when there is a local plan, the LR project area is defined in the plan and when there is no such plan and the LR project is to be initiated, a master plan should be prepared to identify specifically the LR project in the plan. The process is outlined as follows:

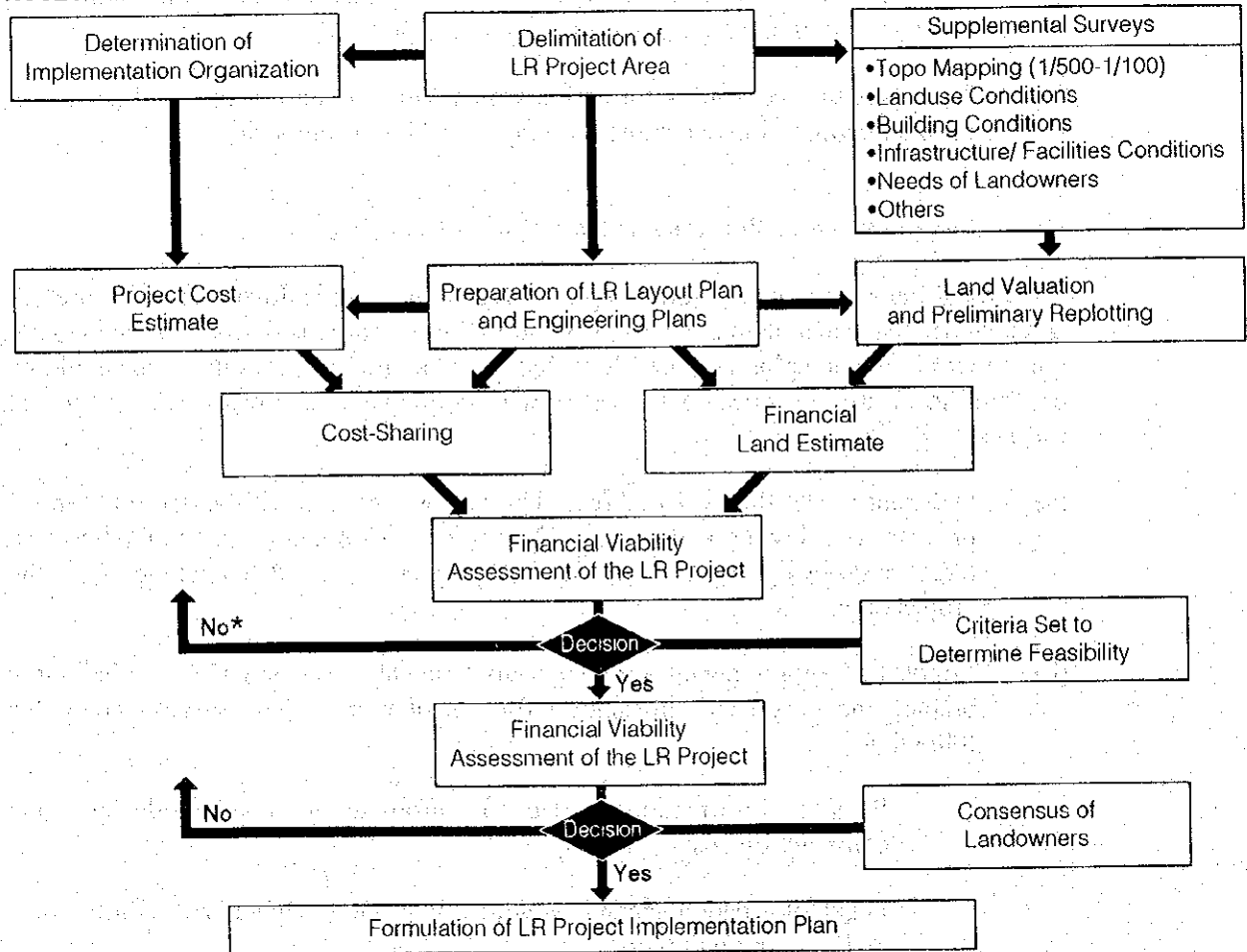
- (a) **Delimitation of the Project Area:** The LR project area will be delimited in the presence of relevant landowners. The project area boundary is to be adjusted if there are strong opposers to the proposed project who are then excluded from the project area.
- (b) **Conduct of Supplemental Surveys:** Supplemental surveys will be carried out to prepare the necessary information for LR planning. The surveys cover the following:
  - Physical information needed for infrastructure planning/design and construction cost estimates;
  - Legal information needed for adjusting property rights, particularly those on lands and buildings;
  - Social information on the profile, problems and needs of landowners and others residing in the project area;
  - Policy information which will govern or affect the development or socio-economic activities in the project area; and
  - Market information with regard to adequate planning of financial lands.

**Figure 1.1**  
**Overall Framework of LR Project Implementation Planning**

**PRE-PLANNING**



**PROJECT IMPLEMENTATION PLANNING**



\*If No, feedback refers to cost-sharing and/or financial land estimate

- (c) **Determination of Implementing Body:** The type of implementing organisation will affect the project development framework. In the case of Japan, there are different possible bodies, each of which has unique features and resources for the implementation of LR projects.
- (d) **Preparation of LR Layout Plan and Engineering Plans:** This activity is not only an important process for estimating project costs but more so for achieving a desired community plan in conformity with public interests and landowners' desires. This task should also take into account the relocation of affected properties.
- (e) **Land Valuation and Preliminary Replotting:** This is one of the most important matters for landowners. Their shares in terms of replots are to be adequately calculated to determine the size and location. This process is often repeatedly done to satisfy as much as possible the landowners' requirements and equity among landowners.
- (f) **Project Cost Estimate and Cost-Sharing:** The costs of a LR project consist of construction cost, compensation cost and project management cost. Since the latter two requires a considerable amount of adequate planning, cost estimate methods should be established. On the other hand, the estimation of construction cost has already been well established based on accumulated project experiences. Cost-sharing between the implementing body (landowners) and the Government as well as relevant utilities/public facilities agencies will significantly affect the contribution of landowners as well as financial viability of the project. Since there is no standard rule, discussions should be held and a guideline be formulated for the implementation of LR projects.
- (g) **Financial Lands Estimate:** Planning of financial land is an important factor which affects the financial viability of an LR project as well as the acceptance of the project among landowners. In financial land planning, the factors which have to be considered are marketability and resultant contribution rate. A popular practice is to allot financial lands under commercial, industrial, or quality residential uses that can be sold at higher value so that the contribution rate can be lessened.
- (h) **Viability Assessment of LR Project:** Assessment of a LR project from a financial viewpoint is a critical aspect not only for the implementing body but also for the landowners. Landowners' interests are more directly related to their property, such as contribution rate and location, size, shape, and use of the replot.
- (i) **Criteria to Determine Financial Feasibility:** There is no standard set of criteria on which the financial feasibility of an LR project is determined. One condition which has to be met in any LR project is that the total value of lands after the project should not be less than that before the project unless the landowners are compensated in cash. In general, it can be said that when an LR project is initiated by the landowners themselves it is required to be self-supporting, while an LR project is to be implemented more with public interest in mind. The criteria to determine the financial viability of the project should be adequately determined.
- (j) **Formulation of LR Project Implementation Plan:** After the consensus of landowners are more or less obtained and viability of the project has been determined, a set of documents will be prepared for submission and approval of

the authority.

### 1.3 LR Related Surveys

For a project implementation plan, it is necessary to conduct some related surveys. These surveys are to be conducted in accordance to the work process of the plan as shown in Figure 1.2. However, if a local plan is available, the data contained therein will be of great help.

#### 1) Survey Process during the Master Plan Formulation

- (a) The survey area is selected from the standpoint of city planning such as recent trend in urbanization and necessity of area improvement. Regional characteristics are also duly considered.
- (b) The survey area boundary is determined on a map of approximately 1:2,500 scale wherein the proposed basic infrastructure and community service facilities are indicated. And then the purpose of urban development, its urgency and method, are simultaneously examined.
- (c) Some possible project areas are selected on the map of 1:2,500 scale in order to collect some information of the areas. If it is impossible to get a precise map, it is necessary to prepare a new topographic map based on an aerial photo. Since it is difficult to obtain enough information from only the topographic map, the Social and Engineering Surveys Level 1 should be conducted in the field. And then, analysis of area characteristics and formulation of a new master plan can be worked out.

The contents of the above mentioned works are usually incorporated into a local plan. As an implementation measure to realize a local plan entirely or partially, an LR project implementation plan is subsequently prepared.

The data requirements for LR are basically obtained by surveys during the plan formulations, i.e., the Master Plan formulation and the Implementation Plan formulation. Their survey processes are described hereafter.

#### 2) Survey Process during Implementation Plan Formulation

- (a) The project implementation area is determined in accordance with the Master Plan.
- (b) Present condition survey is conducted on the map to a scale of 1:500 to collect land information. The survey result will be utilized at the replotting design phase. The map of 1:1,000 scale may be acceptable in the case of a large project area.
- (c) Social and Engineering Survey Level 2 is conducted to survey land use and building conditions.
- (d) LR design plan is drafted. The plan must comply with the corresponding local plan and consider a rational and economic construction method. It is also required for the plan to make replotting design easy and effective.

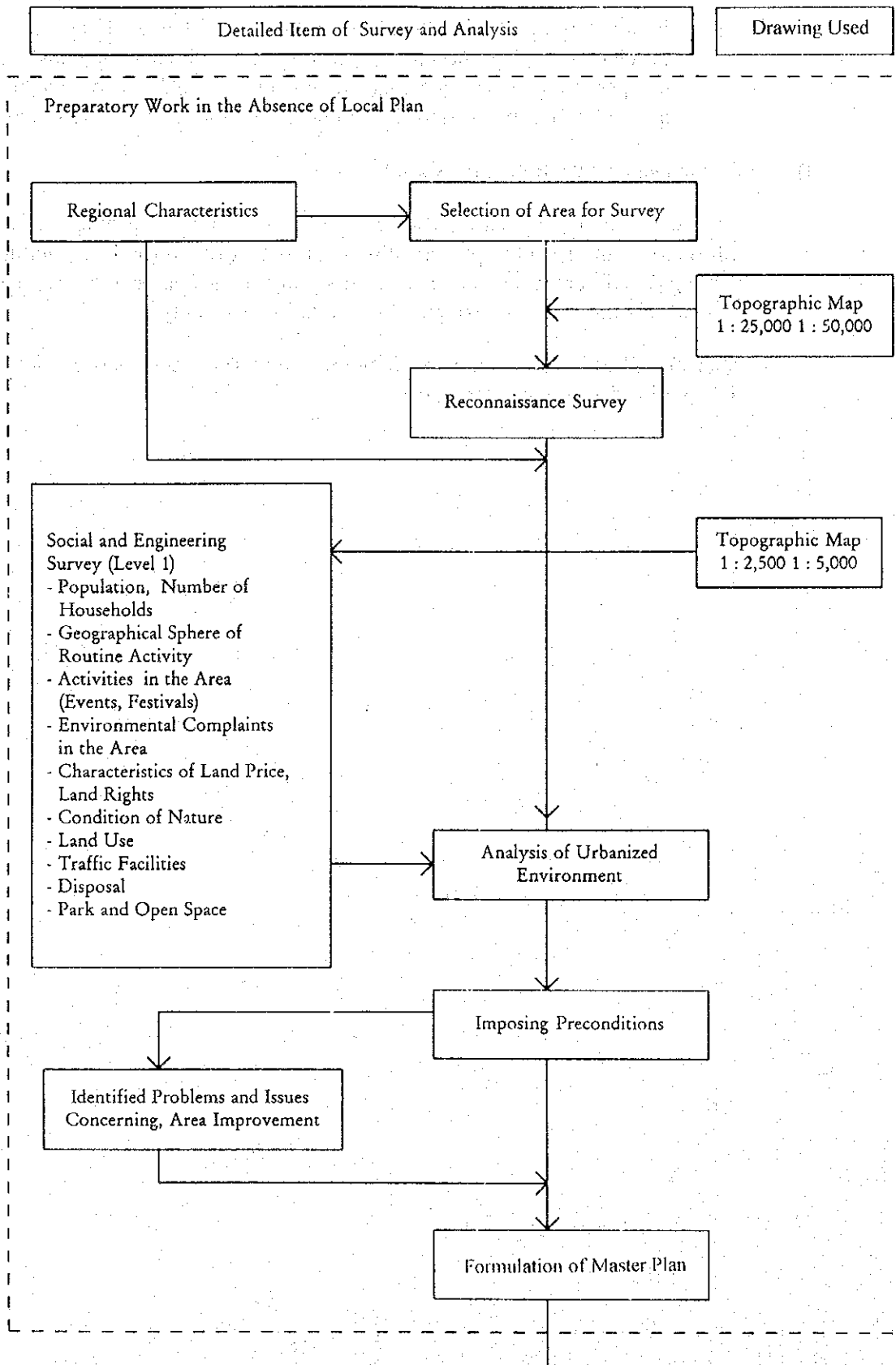
- (e) Social and Engineering Survey Level 3 is conducted to survey the detailed conditions of lands, land rights, buildings and public facilities.
- (f) Project Implementation Plan is formulated. The financial plan is the key element in the plan. Accordingly, project cost is divided into construction, compensation, and project management costs, while project revenues are sourced from subsidy, defrayal of public facilities and financial land sale.

### 3) Actual Data Collection in the Case Study

The Social and Engineering Surveys (Levels 2 and 3) provide necessary information for project implementation planning work. Since the availability of existing data differs from area to area, survey depth and approach in securing the raw data should be discussed with the people in the locality.

Therefore, Table 1.1 summarizes how the Study Team collected the necessary information for the case study area.

**Figure 1.2**  
**Work Process for the LR Implementation Plan**



cont. Figure 1.2

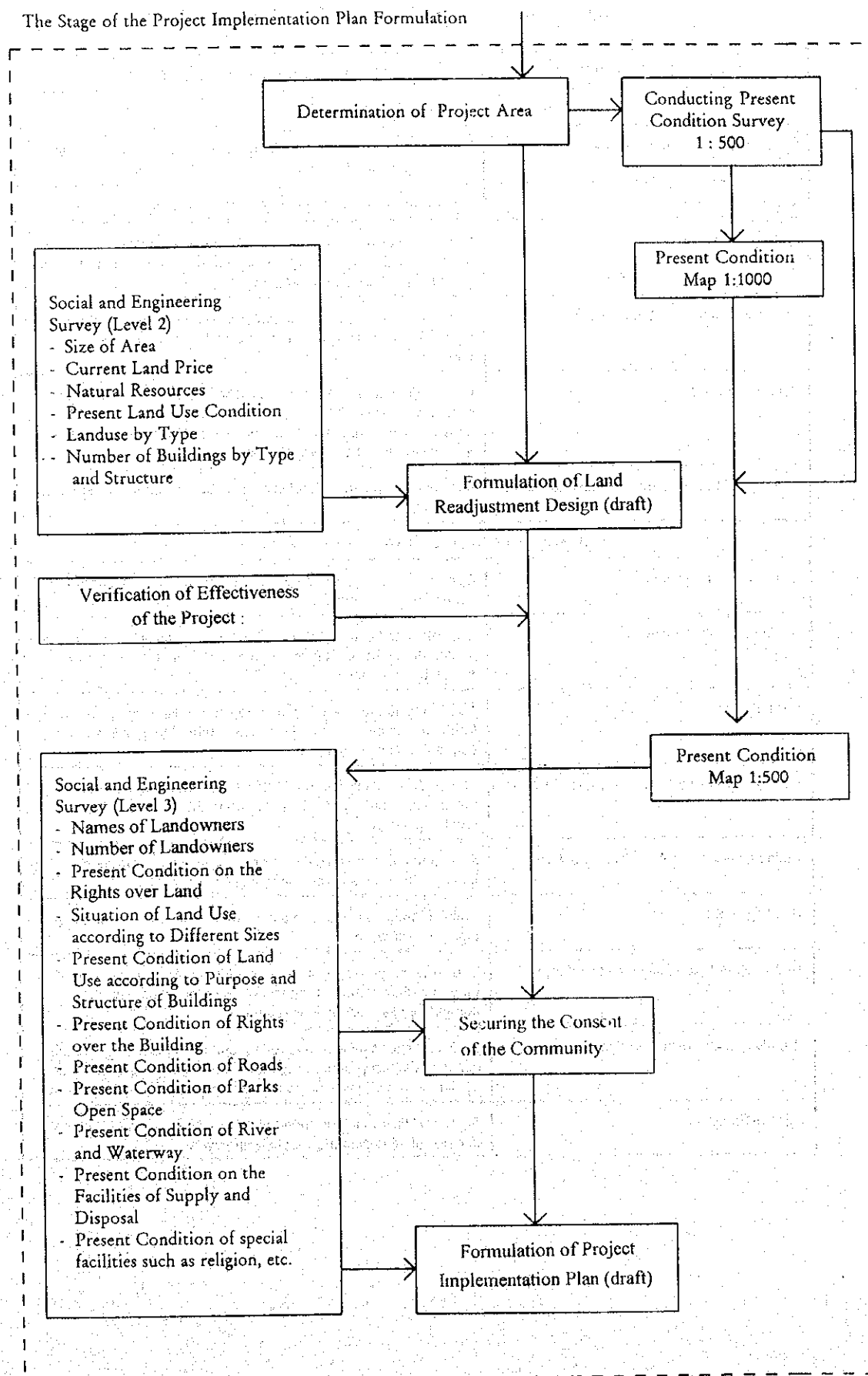




Table 1.1  
Data Collection Method in the Case Study

DATA COLLECTION ITEM	EMPLOYED APPROACH IN CASE STUDY
<b>SOCIAL AND ENGINEERING SURVEY (LEVEL 2)</b>	
Determination of Project Implementation Area	The Project Implementation Area was determined on a cadastral map at the land office and the acreage was calculated.
Current Land Price	Periodical statistics "Property Market" was used as reference.
Natural Conditions	Natural conditions ought to be surveyed with a scale of 1:1000 on the ground. But the survey was not conducted and the map made by aerial photos was utilized instead.
Present Condition of Land Use	Present conditions surveyed map and on-the-spot survey are used. As to legalized land use, information from a register was used.
Area by Land Use	It is obtained from the present condition survey of land use and survey by register. Priority is given to the registered area for cases where there is a difference between the area referred from the register and the surveyed area.
Number of Buildings by Purpose and Structure	It is counted with the use of the present condition map and on-the-spot survey.
<b>SOCIAL AND ENGINEERING SURVEY (LEVEL 3)</b>	
Names of Landowners	Owner, co-owner, parties concerned, and address of owners are surveyed from a register.
Number of Title Holders	It is calculated from a list of title holders. In principle, only one title holder should be recognized for a piece of lot. Co-owners are calculated differently.
Land Rights	The following are referred from a register: restriction in land use, freehold, leasehold, term of the lease, annual rent, assessment tax, and encumbrance.
Present Land Use by Lot Size and Landowner	The land use data prepared in Level 2 is further edited and, if necessary, resurveyed. It can be referred to as a material for replotting design.
Building Use, Floor Area, and Structure	As a material in the calculation of compensation for transfer of building, they are surveyed in addition to Level 2.
Building Rights	Building rights, such as sublease tenant which affect replotting plan, are surveyed.
Road, Open Space, River and Drainage	The lands for public facilities are confirmed by a present condition map, a cadastral map, a register of reserved lands, and the compulsory land acquisition records.
Supply and Disposal Facilities	Sufficient information is required for confirming facilities of water service, electricity, telephone, etc. under existing road. They are confirmed through visiting companies or organizations concerned.
Special Facilities	Some facilities which are needed for providing special treatment under replotting plan are carefully surveyed.

## 1.4 Contents of Project Implementation Plan

In formulating a project implementation plan, the following items should be indicated:

- (i) Name of land readjustment project/Name of implementing body;
- (ii) Location of project area/Boundary of project area/Purpose of project;
- (iii) Present condition of project area;
- (iv) LR plan;
- (v) Project implementation method;
- (vi) Financial plan;
- (vii) Calculation for contribution rate;
- (viii) Attached drawings; and
- (ix) Other materials for reference.

For dissemination and assessment of LR projects in Malaysia, contents of the LR project implementation plan should be standardized as practised in the structure plan/local plan formulation. The proposed contents and guidelines are shown in Table 1.2.

Table 1.2  
Proposed Contents of LR Project Implementation Plan

Item	Specification
1. Name of LR Project	
2. Name of Implementing Body	
3. Project Area 3.1 Location 3.2 Address 3.3 Boundary	<ul style="list-style-type: none"> <li>The location is described together with a map showing the locational relationship with mother town and nearby major communities.</li> <li>Official address of the project area.</li> <li>Coordinated map overlaid with topo-map and cadastral map on which the boundary of project area is delineated.</li> </ul>
4. Objective of the Project	<ul style="list-style-type: none"> <li>Objective and reason for selecting the project area.</li> </ul>
5. Existing Conditions in the Project Area 5.1 General Area Characteristics 5.2 Population 5.3 Land use 5.4 Roads 5.5 Rivers/drainage 5.6 Utilities 5.7 Building 5.8 Other Public Facilities 5.9 Living Environment 5.10 Topo-map	<ul style="list-style-type: none"> <li>Overall development conditions and characteristics of the area.</li> <li>Demographic features including nighttime and daytime population, employment, racial and age composition, etc.</li> <li>Registered land purpose and actual landuse.</li> <li>Geometric features and maintenance of existing roads.</li> <li>Road traffic characteristics and problems</li> <li>Existing conditions and problems.</li> <li>Existing conditions and problems of water supply, sewerage, energy, telecommunication systems.</li> <li>Uses, structures, floor areas of existing buildings.</li> <li>Existing conditions of other community facilities.</li> <li>Assessment of existing living environment</li> <li>Topo-map showing the existing condition, with scale of 1/1000- 1/2000.</li> </ul>
6. LR Plan 6.1 Planning Policy 6.2 Public Facilities Plan 6.3 Land use Transformation Plan 6.4 LR Plan	<ul style="list-style-type: none"> <li>Description of planning policy/direction on land use plan, population distribution plan, public facilities plan, layout plan.</li> <li>Plan and description of public facilities which will be developed in the project.</li> <li>Land use changes due to the project.</li> <li>Land use and layout plan drawn on topo-map with scale of 1/1000 - 1/2000.</li> </ul>
7. Project Implementation Period	
8. Financial Plan 8.1 Expenditure Plan 8.2 Revenue Plan 8.3 Land Valuation 8.4 Financial Land Plan	<ul style="list-style-type: none"> <li>Estimated construction cost, relocation/compensation cost, survey cost, project management cost, etc.</li> <li>Estimated defrayal of relevant agencies, subsidies, sale of financial land, etc.</li> <li>Estimate of land value before and after the project.</li> <li>Estimate of financial land.</li> <li>Plan of financial land disposition.</li> </ul>
9. Calculation of Contribution Rate	<ul style="list-style-type: none"> <li>Average contribution rate</li> </ul>
10. Other References	<ul style="list-style-type: none"> <li>Plans and drawings on layout, land development, drainage, utilities, relocation, etc.</li> </ul>

## 1.5 Detailed Financial Planning

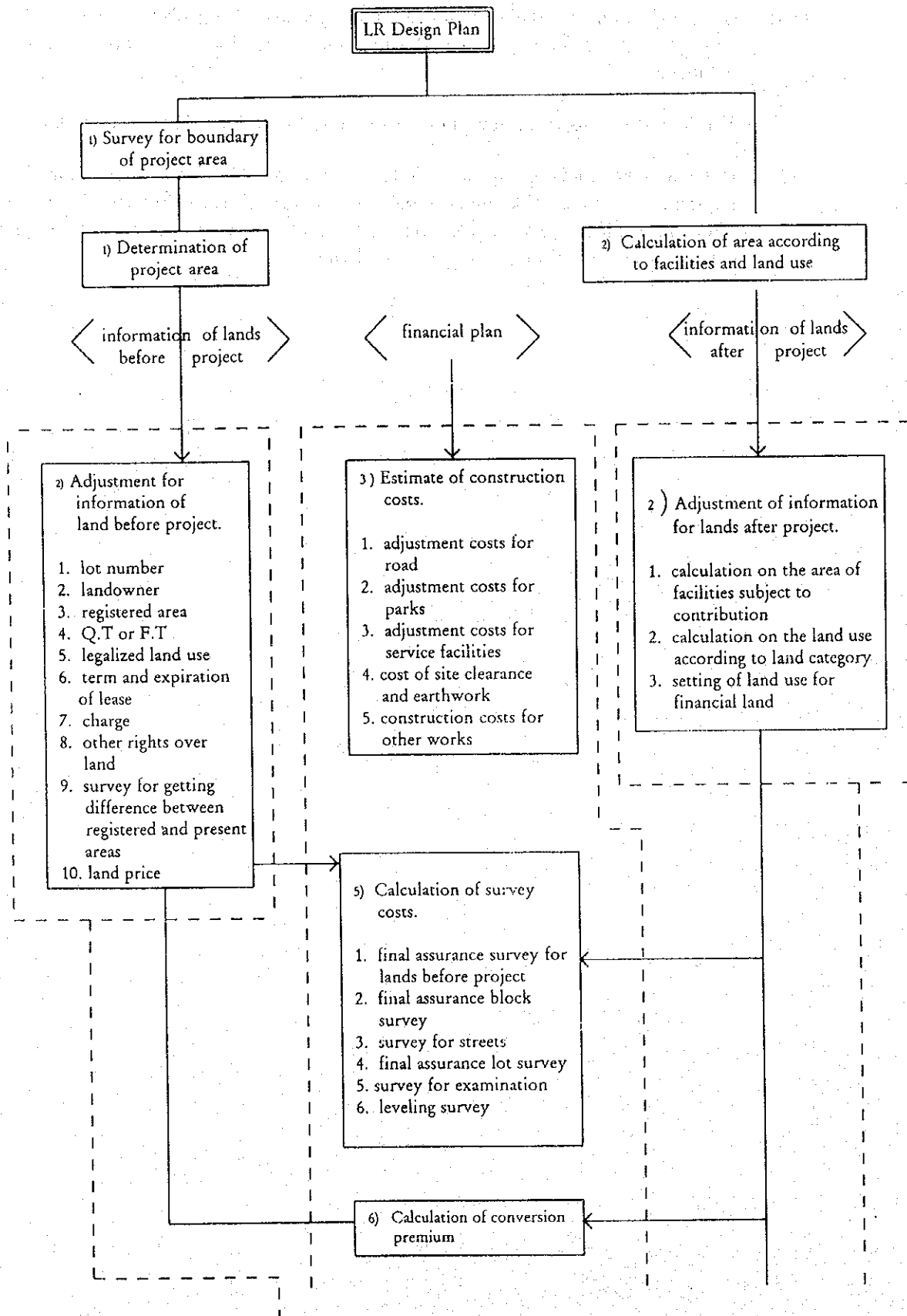
### 1) Planning Procedure

The implementation planning process can be simplified by just filling out the blank spaces in a set of standardized formats as shown in Appendix 1.1. To obtain the necessary words and figures, however, consecutive planning works are inevitable. The works can be grouped into three, i.e., existing land analysis, future land analysis, and financial planning. They are sequentially and interactively outlined as follows (refer to Figure 1.3):

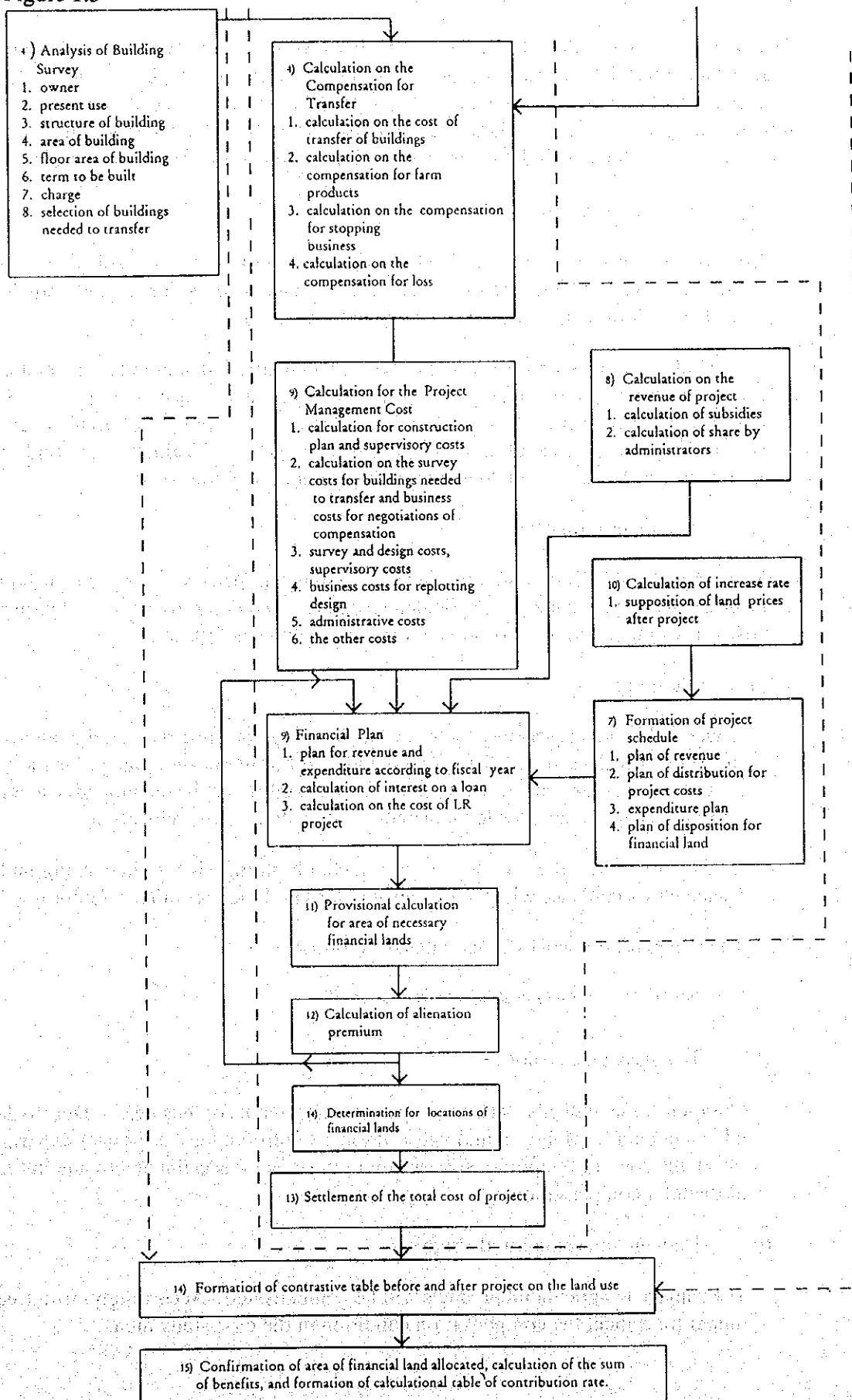
- (1) Project area is determined based on the project area boundary map and the LR design plan which have been worked out in consultation with landowners. For this purpose, the boundary survey is conducted in the presence of land rights holders.
- (2) The LR design plan is analyzed from sectoral viewpoints such as land use, road, etc. The results are enumerated and stored as quantitative database for financial planning.
- (3) Construction cost is estimated based on the LR design plan. If earth work and trenching work are necessary, land development plan and underground utilization plan must be prepared for costing.
- (4) The LR project needs various surveys to cope with land issues sensitively and accurately. These costs are estimated in the plan.
- (5) The premium in land use conversion is estimated by referring to land price information.
- (6) The LR design plan may require some buildings and other properties to be relocated for the development of public facilities. It will need compensation by which the cost is calculated based on individual estimations. Other compensations will be required in the case of business suspension and enforcement of transfer replottings. The costs are also estimated.
- (7) Project management cost is estimated by assuming a certain percentage of the expenses, e.g., expenses on engineering design, supervision of construction, replotting design, office expense and others.
- (8) Subsidy and defrayal of public facilities are estimated and distributed on the annual revenue plan.
- (9) Land price after the project is estimated and then compared with land transaction records in its environs. Then, a land utility increase rate is calculated.
- (10) The project scheme is duly framed with consideration of area size, number of lots, and number of buildings to be transferred.
- (11) The financial plan is formulated annually and necessary interest for repayment is calculated.
- (12) To make the project viable, an area of financial land is tentatively estimated by making a comparison between the financial plan and the expected land price.

- (13) The alienation premium for newly created financial land is estimated based on the remaining lease period of existing lots.
- (14) Generally, revenue and expenditure are relational and changeable as financial land changes. Accordingly, repeated calculations are done until this relation is balanced.
- (15) The land use transformation plan is formulated following the financial plan.
- (16) Development benefit is estimated in terms of land value. Some benefits must be internalized into the landowners' replots. In other words, landowners' land value after the project must surpass the existing one. Contribution rates are also calculated in compliance with a standard value.

**Figure 1.3**  
**Flowchart of Costing and Financial Planning Works**



Cont. Figure 1.3



## 2) Actual Costing Works in the Case Studies

The project implementation plans of the study areas were formulated based on both physical planning and financial planning works. These are presented in Chapters 3 and 4. Although costing is an important component during the planning process, it needs some assumptions which may make it seem veiled superficially. Therefore, in order to prepare a more appropriate plan, the detailed costing methodologies and assumptions are revealed below:

### (1) Construction Cost

Construction cost in the case study was estimated based on the available data on similar construction work undertaken in the region as well as the experiences and knowledge of a local consulting engineer employed by the Study Team.

The Study Team assumed the most suitable construction methods and materials in Malaysia in terms of quality, easy construction, and reasonable price. Integral development is considered to be one of the advantages in the case of areal development such as LR projects. Accordingly, the construction cost was estimated on condition that individual works have been done integrally without any extra work.

### (2) Compensation Cost

The project will compensate the relevant persons and parties in the area for buildings, business suspension, damage to agricultural products and other losses. The compensation cost was estimated in the Project Implementation Plan as follows:

#### (a) Buildings

Under an LR project scheme, some existing buildings must be relocated to another area in order to realize an LR design plan and a replotting design plan. For the vacated areas, basic infrastructure or community service facility will be developed instead of the buildings while other private lands will be allocated for the relocation.

In the case study, the number of the affected buildings is 994 in Subang and 70 in Kuantan in accordance with the LR design plans and the preliminary replotting design.

The compensation cost was calculated as follows:

$$\text{total floor area} \times \text{unit price of new building} \times 80\%$$

#### (b) Business Suspension

Compensation will also cover temporary suspension of business. Due to lack of adequate data in Malaysia and substitutionally introducing the project experience in Japan, the cost for temporary suspension of business was estimated to amount to 15% of the total compensation.

#### (c) Damage to Agricultural Products

The damage to agricultural products will be compensated. Accordingly, fruit trees and rubber trees meet the compensation condition in the case study area.

(d) Other Losses

The Implementation Body will compensate landowners for the temporary occupation of their land for construction convenience. In the case study, it was assumed that 8% of private lands will be taken up temporarily by the project.

(3) Survey Cost

Surveys under an LR project aim at confirming land area for a registry purpose. Accordingly, survey results must be accurate which is defined in the context of land administration system in Malaysia. Existing land registration in the area such as a composition of Final Title (F.T.), Qualified Title (Q.T.), and T.O.L. makes some difference to estimate necessary survey work and its cost. However, the basic procedure of LR survey work can be described as follows:

- a) Firstly, Control Point Survey is conducted to frame traverse points;
- b) Based on the traverse points, Plate Table Survey as well as Levelling Survey are conducted;
- c) All the surveyed information is incorporated in the area map to a scale of 1:1000;
- d) The area map is finalized in accordance with an official cadastral map;
- e) Boundary survey is conducted in the presence of the land rights holders;
- f) Block Confirmation Survey is conducted based on the LR design plan;
- g) Road Centerline Survey is conducted prior to construction;
- h) Lot Confirmation Survey is conducted based on the replotting design plan;
- i) To adjust planned lot area to the actual one after construction, Alteration and Confirmation Survey is conducted with the planting boundary stones; and
- j) To register new lots as Final Titles, Final Lot Confirmation Survey is conducted.

In the Project Implementation Plans for the case study areas, the survey cost was estimated by a licensed surveyor in Malaysia in compliance with the above mentioned items.

(4) Project Management Cost

Management of an LR project requires preparation of detailed design, supervision of construction and survey works, undertaking compensation negotiation and work implementation, and forging replotting design. For this, an effective LR organization needs to be established which is composed of a large number of personnel with adequate levels of expertise.

In the Implementation Plans, project management cost was estimated based on the accumulation of the following items:

- a) Supervision and Detailed Design of Construction



a) Supervision and Detailed Design of Construction

The following percentages originating from experience of local consultants were added to construction cost.

Detailed Design	=	10%
Construction Supervision	=	2%
Contingency	=	5%

b) Survey Supervision

Deriving from a survey firm's experience, 10 - 15% of every survey cost was allocated as overhead cost. To calculate personal expense, a survey engineer's standard fee (RM 6,000/month) was adopted and multiplied by 2.5.

c) Replotting Design

Since there is no experience in Malaysia, a popular quotation method in Japan was applied to the case study as follows:

$$\text{Necessary No. of Designers} = 351 + (8225 \times a \times b) + (785 \times a \times b \times c)$$

where,

a	=	0.0085 x Project Area (ha) = 0.15
b	=	0.000381 x (no. of lots before project / project area) + 0.20
c	=	0.005 x (no. of lots with buildings / no. of lots before project) + 0.9

To calculate personal expense, RM 6,500/month was adopted and multiplied by 2.5.

d) Compensation Management

Compensation management includes buildings survey, assessment of compensation and negotiation.

A Japanese method to calculate the required personnel was applied to the case study as follows:

Concrete Building	=	0.04013 person/sq.m.
Wooden Building	=	0.03243 person/sq.m.
Suspension of Business	=	2.00425 persons/unit
Damage of Agricultural Product	=	1.32425 persons/unit
Other Losses	=	0.02400 person/unit

e) Land Conversion Further Premium

Under an LR project scheme, an implementing body is supposed to pay the land conversion premium. In the case study, the premium calculation was done in accordance with the concerning local code issued by Selangor State.

f) Alienation Premium

Only financial land is required to pay alienation premium in an LR project. Financial land

is regard as aggregated contribution lands which have different remaining periods of leaseholds. Accordingly, in the case study, the average remaining period was calculated and the gap between newly issued leasehold period and the remaining period was changed as alienation premium.

In Kuantan area, all private lands belong to freehold and so no alienation premium is required.



## CHAPTER 2      KG. SERI SUBANG LAND READJUSTMENT PROJECT IMPLEMENTATION PLAN

### 2.1      Project Name

KG. SERI SUBANG LAND READJUSTMENT PROJECT

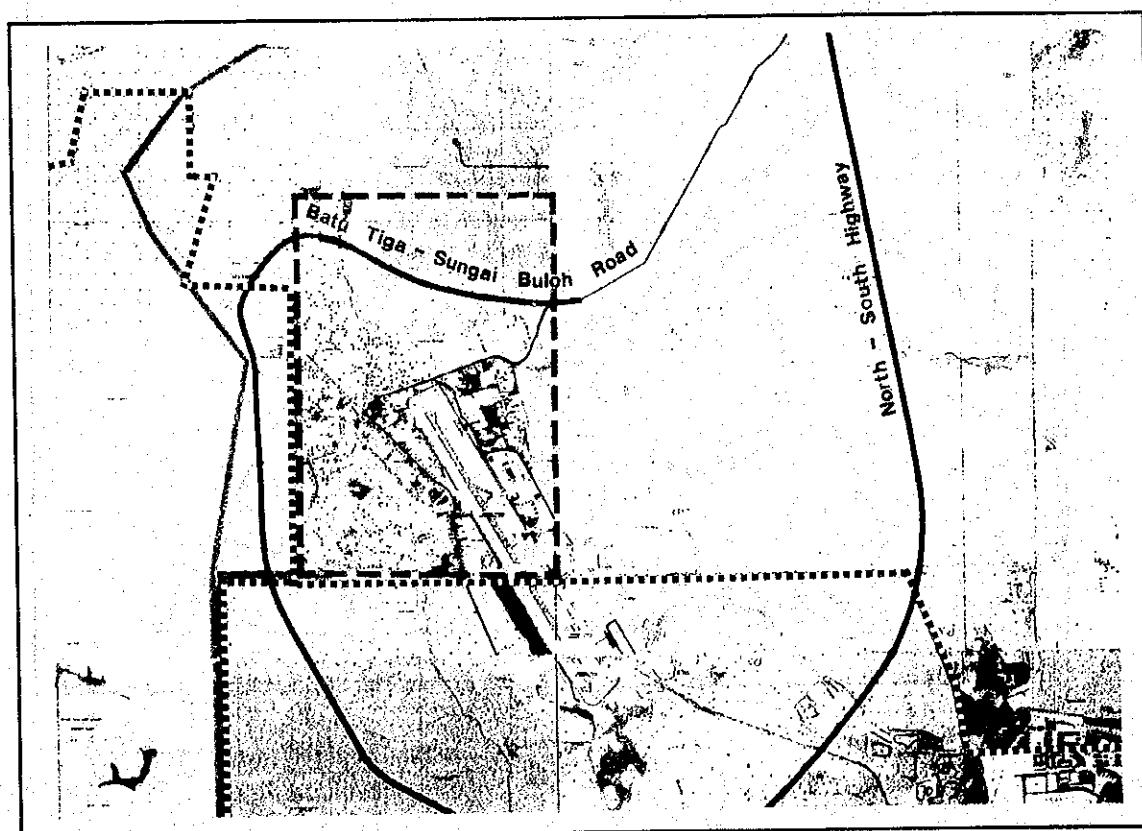
### 2.2      Implementing Body

Majlis Daerah Petaling

### 2.3      Project Area Location

The project area of approx 320 ha adjacent to the east edge of runway in Subang International Airport is within the jurisdiction of Mukim Sungai Buloh, Petaling District and Selangor State.

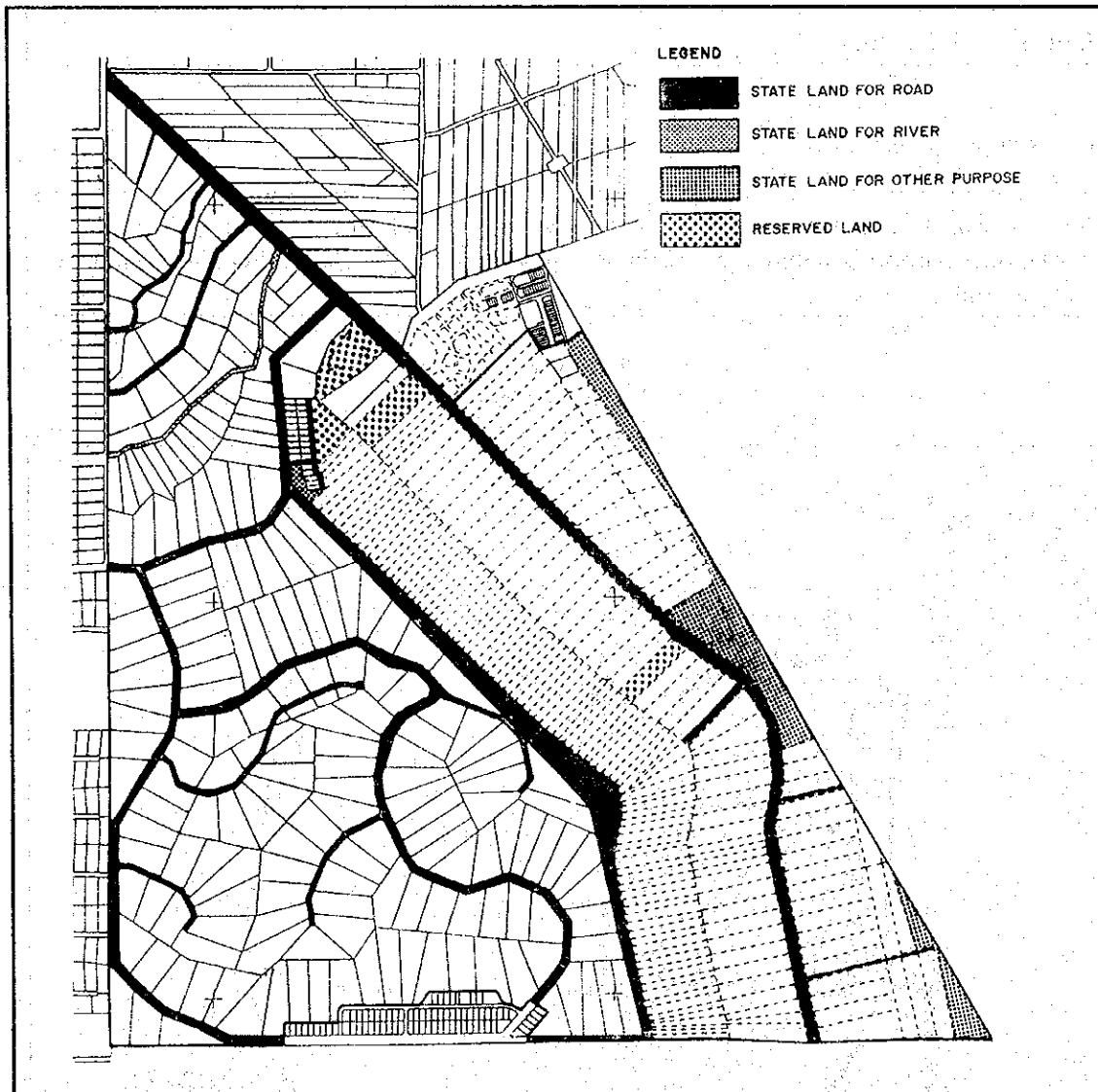
Figure 2.1  
Location Map



## 2.4 Project Area Boundary

The project area encloses part of Kg. Seri Subang (Lot No.1 to No. 4251), Mukim Sungai Buloh.

Figure 2.2  
Project Area Boundary Map



## 2.5 Project Objective

The primary objective of the project is to materialize the proposed Master Plan effectively with participation of the community under the assumption that the Master Plan would be converted to become a statutory local plan.

Development objectives are further as follows :

- Improvement of Infrastructure and Community Service Facilities
- Promotion of Orderly Land Use
- Regulation of Land Titles
- Maintaining Existing Community

## 2.6 Present Conditions of the Project Area

### 1) Area Development Characteristics

The area wherein agricultural land use was dominant before is being converted into an industrial area in line with the progress of industrialization in the environs. Currently, there is a growing need for a preventive measure against disorder and illegal land conversion while planned land use is required in cooperation with public facilities improvement.

### 2) Population

The area has a population of approx. 2,300 which is equivalent to 8.2 per hectare in density. Its ethnic composition as of 1992 is indicated in Table 2.1. At the same time, the area provides as many as approx 3,000 job opportunities.

Table 2.1  
Night-time Population by Ethnic Group

	Malays	Chinese	Indians	Others	Total
Number of Persons	159	1,965	188	20	2,332
(%)	6.8	84.3	8.1	0.8	100

### 3) Existing Land Use

Regarding land registration, agricultural use accounts for 78.4% of the areas or 255 ha in total and followed by building use (5.9% or 19 ha) and industrial use (1.4% or 4.5 ha). It differs in existing land use to a great extent. The difference between registered and surveyed land uses is indicated in Table 2.2.

It was found that there is some discrepancy in the land area. It can be partly explained by indefinite boundaries on Qualified Titles (Q.T) as well as a trivial error during the survey on a map.

Table 2.2  
Comparison Between Registered and Actual Land Use

Condition	Category	Registered Area (sqm)	%	Surveyed Area (sqm)	%	Difference
Alienated Land	Agriculture	2,547,593	78.4	1,377,272	42.4	-1,170,321
	Building	190,911	5.9	549,724	16.9	358,813
	Industry	45,278	1.4	856,786	26.4	811,508
	Sub-Total	2,783,782	86.7	2,783,782	85.7	0
State Land		425,487			13.1	0
Reserved Land		40,178			1.2	0
Registered Area Total		3,249,447			100	-58,860
Boundary Surveyed Area		3,190,587			-	

### 4) Existing Road and Private Land

There are two major roads in the area. One is a road of 8 meters wide originating from the TUDM via Pekan Subang which functions as a boundary between Kg. Melayu Subang and Kg. Seri Subang.

The other is an east-west link with external trunk road. Other roads are all insufficient in terms of width as well as length.

Building activities have focused on the area near the airport and at the northern portion. Most of the factories and houses are, however, considered to have been illegally built.

5) River

There are two rivers, Sg. Pelumut at the north and Sg. Air Kuning at the south. Both are left without improvement.

6) Water Supply and Disposal

The area is provided with piped water while its disposal is done individually. Electricity and telephone services are available.

7) Educational Facility

There is one primary school located at the north of the area where most of the students in the area attend. On the other hand, there is no secondary school within the area.

8) Existing Buildings

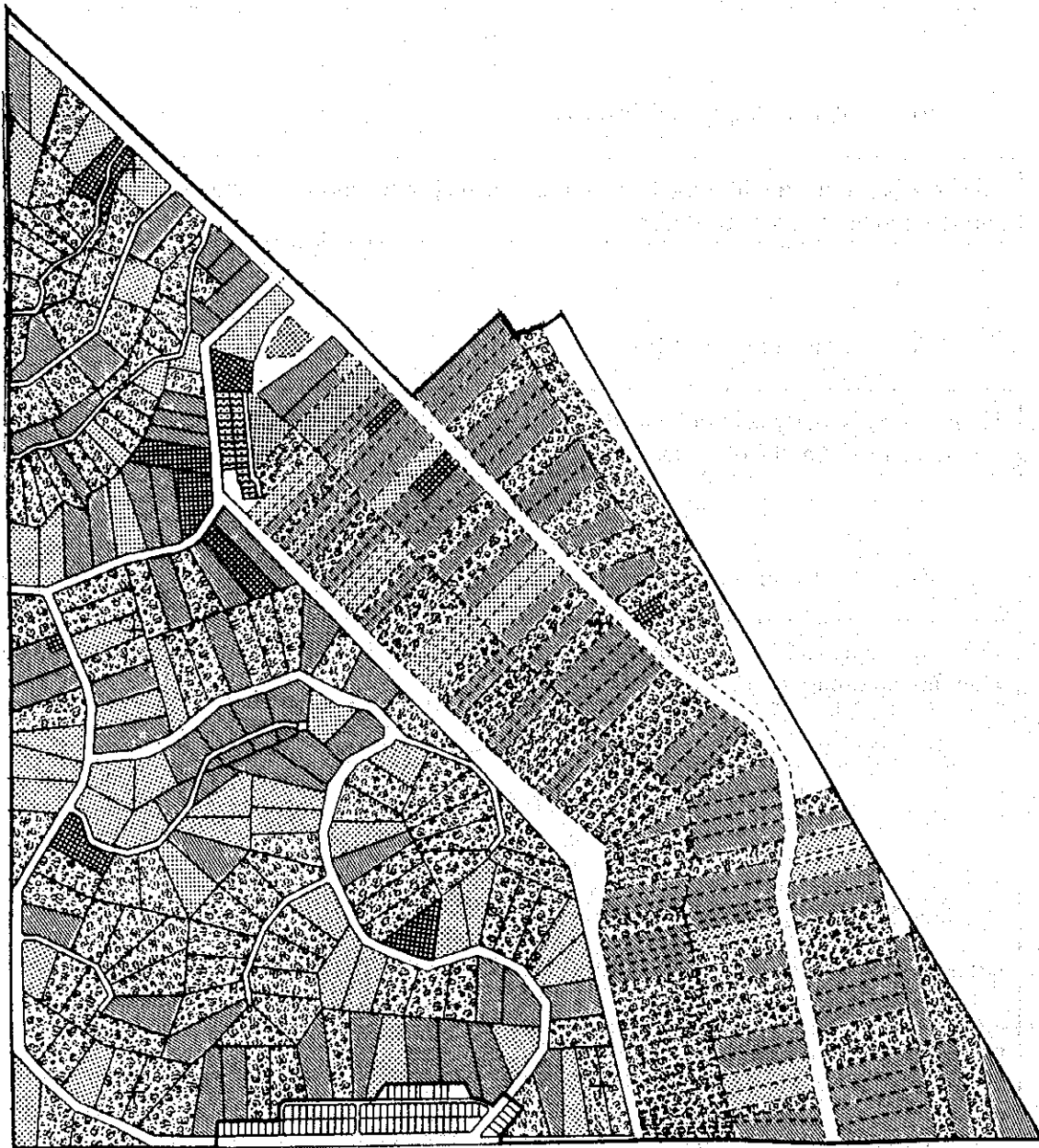
There are approx. 1,100 buildings in the area inclusive of structures annexed to the houses. They are summarized in Table 2.3.

Table 2.3  
Existing Buildings by Usage






Building Usage	Nos.	(%)	Note
Residential	629	58.2	Including Uncertain Owners' Building and Structure
Business / Commercial	43	4.0	
Industry	277	25.6	
Animal Shed	131	12.2	
Total	1,080	100	



Figure 2.3  
Map of Existing Conditions



LEGEND

- |   |  |
|---|--|
|  | RESIDENTIAL LAND                           |
|  | INDUSTRIAL LAND                            |
|  | COMMERCIAL LAND                            |
|  | PUBLIC FACILITIES LAND                     |
|  | AGRICULTURAL, CLEARED AND UNDEVELOPED LAND |

## 2.7 Outline of LR Design

### 1) Design Policies

#### (a) Land Use Plan

From analysis of the development activities at adjoining areas such as industrial estates and housing schemes, the demand for commercial and industrial lands seems to be promising in the area.

In formulating the commercial land use plan, on-going Pekan Subang renewal plan must be duly considered. On the other hand, in formulating the industrial land use plan, continuity of existing industrial activities and allocation of service industry site must be taken into account.

#### (b) Demographic Framework

By providing housing units and disposing financial lands, night-time population is expected to increase from 2,500 to 10,650 while employment from 3,000 to 9,500.

### 2) Public Facilities Improvement Plan

The existing east-west link in connection with Batu Tiga - Sg. Buloh Road will be upgraded to 4 lanes. Other roads will be constructed within sufficient R.O.W. in line with the proposed land use plan (refer to Figure 2.4).

In addition, rivers will be improved with retention ponds while water supply and disposal system will be renewed in accordance with the proposed landuse plan and demographic framework. Table 2.4 indicates the list of public facilities which will be constructed anew in the project.

Table 2.4  
Public Facilities Improvement Plan

Category	Unit	Quality	Area (sqm)
<b>ROADS &amp; BRIDGES</b>			
Major Road 30m	m	988	29,640
Collection Road 24m	m	6,507	157,614
Major Local Road 20m	m	10,074	204,263
Minor Local Road 15m	m	4,000	61,823
Minor Local Road 12m	m	24,130	293,885
Minor Local Road 12m	m	24,130	293,885
Approach Road 6m	m	37	222

Cont. Table 2.4

Category	Unit	Quality	Area (sqm)
<b>PARK AND OPEN SPACE</b>			316,935
Buffer Zone	pcs	12	78,325
Play Ground	pcs	7	87,870
Play Lot	pcs	3	5,660
Green Zone (Forest Reserve)	pcs	10	145,080
<b>RIVER &amp; WATER-WAY</b>			117,910
Sg. Pelumut	m	467	13,970
Sg. Air Kuning	m	1,104	20,600
Retention Pond	pcs	2	60,000
Water Way	m	2,334	23,340
<b>EDUCATIONAL FACILITIES</b>			87,370
Kindergarten	pcs	2	5,520
Primary School	pcs	1	47,250
Secondary School	pcs		34,600
<b>PUBLIC UTILITIES</b>			74,490
Public Parking	pcs	1	11,920
Bus Terminal	pcs	1	3,950
Police Station	pcs	1	11,000
Fire Brigade Station	pcs	1	7,300
Post Office	pcs	1	1,400
Community Hall	pcs	2	14,500
Clinic	pcs	2	6,120
Religious Facility	pcs	1	5,000
Cemetery	pcs	1	13,250
<b>OTHER FACILITIES</b>			62,040
Water Facility	pcs	1	7,450
Sewage Treatment Plant	pcs	2	15,700
Electricity Main Intake	pcs	1	20,050
Electricity Substation	pcs	2	8,700
Telephone Exchange Station	pcs	1	9,730
Radar Site	pcs	1	400
<b>TOTAL</b>			1,406,192

### 3) Land Use Transformation Plan

The change in land use is tabulated in Table 2.5 and depicted in Figure 2.4. The area, after all planned facilities are built-up, is illustrated in Figure 2.5

**Table 2.5**  
**Land Use Transformation**

Item	Land Use Before LR		Land Use in LR Scheme		Final Planned Land Use	
	Area (sqm)	(%)	Area (sqm)	(%)	Area (sqm)	(%)
<b>Public Facility</b>						
<b>Basic Infrastructure</b>						
Road	310,285	9.7	747,447	23.4	747,447	23.4
River & Waterway	7,801	0.2	57,910	1.8	57,910	1.8
Retention Pond	0	0.0	60,000	1.9	60,000	1.9
Park & Open Space	0	0.0	238,610	7.5	238,610	7.5
Buffer Space	0	0.0	78,325	2.5	78,325	2.5
Reserved Land	107,401	3.4	0	0.0	0	0.0
<b>Basic Infrastructure Total</b>	<b>425,487</b>	<b>13.3</b>	<b>1,182,292</b>	<b>37.1</b>	<b>1,182,292</b>	<b>37.1</b>
<b>Community Service Facilities</b>						
Kindergarten	0	0.0	5,520	0.2	5,520	0.2
Primary School	17,019	0.5	47,250	1.5	47,250	1.5
Secondary School	0	0.0	34,600	1.1	34,600	1.1
Police Station	13,825	0.4	11,000	0.3	11,000	0.3
Fire Brigade Station	0	0.0	7,310	0.2	7,310	0.2
Clinic	0	0.0	6,120	0.2	6,120	0.2
Water Facility	0	0.0	7,450	0.2	7,450	0.2
Public Parking	0	0.0	11,920	0.4	11,920	0.4
Bus Terminal	0	0.0	3,950	0.1	3,950	0.1
Cemetery	8,934	0.3	13,250	0.4	13,250	0.4
Religious Facility	0	0.0	5,000	0.2	5,000	0.2
Community Hall	0	0.0	14,540	0.5	14,540	0.5
Radar Site	400	0.0	400	0.0	400	0.0
Post Office	0	0.0	1,400	0.0	1,400	0.0
Electricity Substation	0	0.0	8,710	0.3	8,710	0.3
Electricity Main Intake	0	0.0	20,050	0.6	20,050	0.6
Telephone Exchange Station	0	0.0	9,730	0.6	9,730	0.6
Sewage Treatment Plant	0	0.0	15,700	0.5	15,700	0.5
<b>Community Service Facility Total</b>	<b>40,178</b>	<b>1.3</b>	<b>223,900</b>	<b>7.0</b>	<b>223,900</b>	<b>7.0</b>
<b>Public Facility Land Total</b>	<b>465,665</b>	<b>14.6</b>	<b>1,406,192</b>	<b>44.1</b>	<b>1,406,192</b>	<b>44.1</b>
<b>Alienated Land</b>						
<b>Private Use</b>						
Agriculture	2,547,593	79.8	0	0.0	0	0.0
Building : Commercial	0	0.0	0	0.0	57,101	1.8
Building : Medical Welfare	0	0.0	0	0.0	48,119	1.5
Building : Residential	190,911	6.0	640,567	20.1	660,567	20.7
Industry : Medium Scale	30,000	0.9	846,537	26.5	879,317	27.6
Industry : Service	15,278	0.5	94,291	3.0	139,291	4.4
<b>Private Use Total</b>	<b>2,783,782</b>	<b>87.2</b>	<b>1,581,395</b>	<b>49.6</b>	<b>1,784,395</b>	<b>55.9</b>
<b>Other Community Service</b>						
<b>Other Community Service Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Alienated Land Total</b>	<b>2,783,782</b>	<b>87.2</b>	<b>1,581,395</b>	<b>49.6</b>	<b>1,784,395</b>	<b>55.9</b>
<b>Public Facility &amp; Alienated Land Total</b>	<b>3,248,447</b>	<b>101.8</b>	<b>2,987,587</b>	<b>93.6</b>	<b>3,190,587</b>	<b>100.0</b>
Financial Land	0	0.0	203,000	6.4	0	0.0
Area Difference (Actual - Registered)	-58,860	-1.8	0	0.0	0	0.0
<b>Total</b>	<b>3,190,587</b>	<b>100.0</b>	<b>3,190,587</b>	<b>100.0</b>	<b>3,190,587</b>	<b>100.0</b>

Figure 2.4  
LR Design

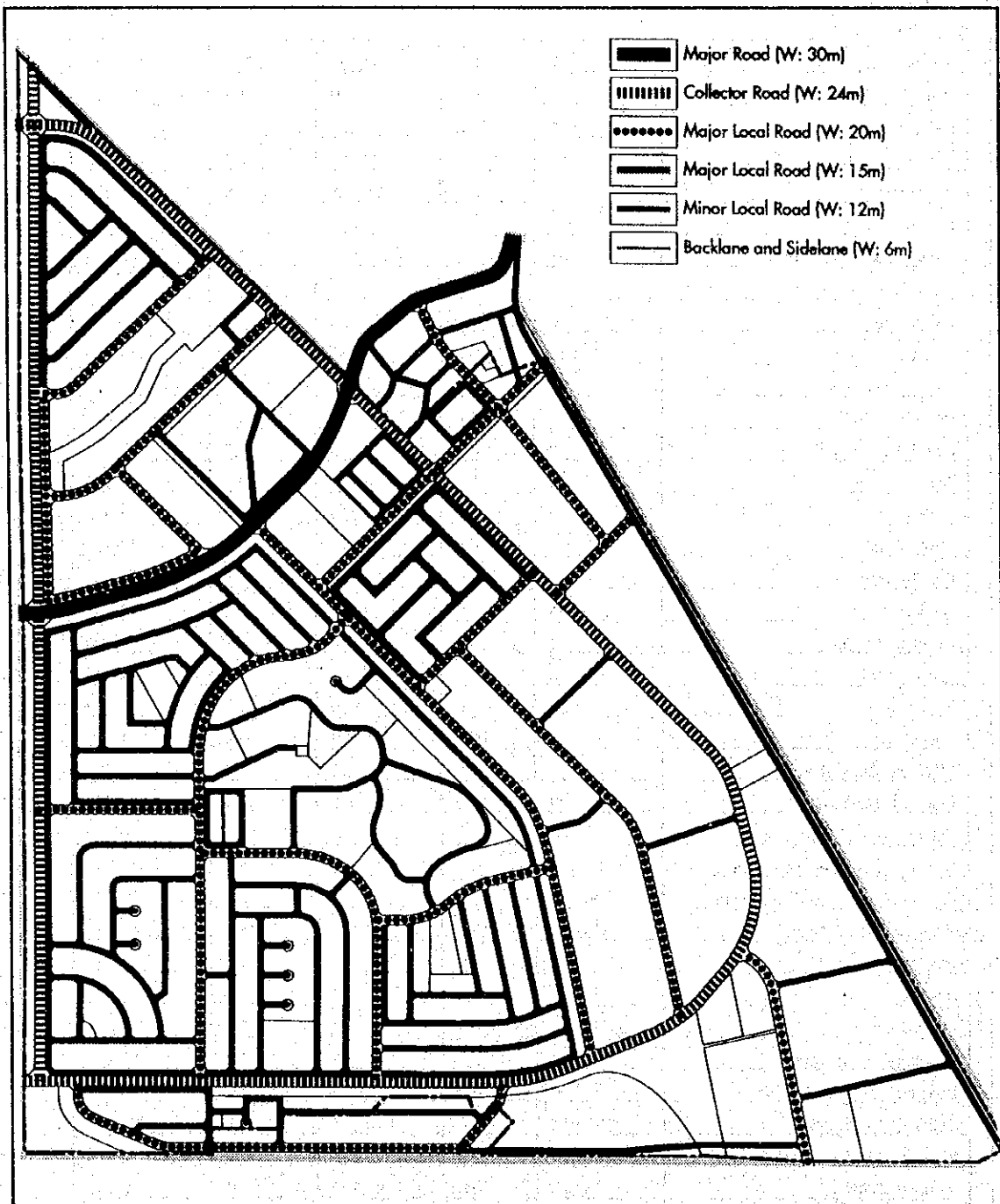
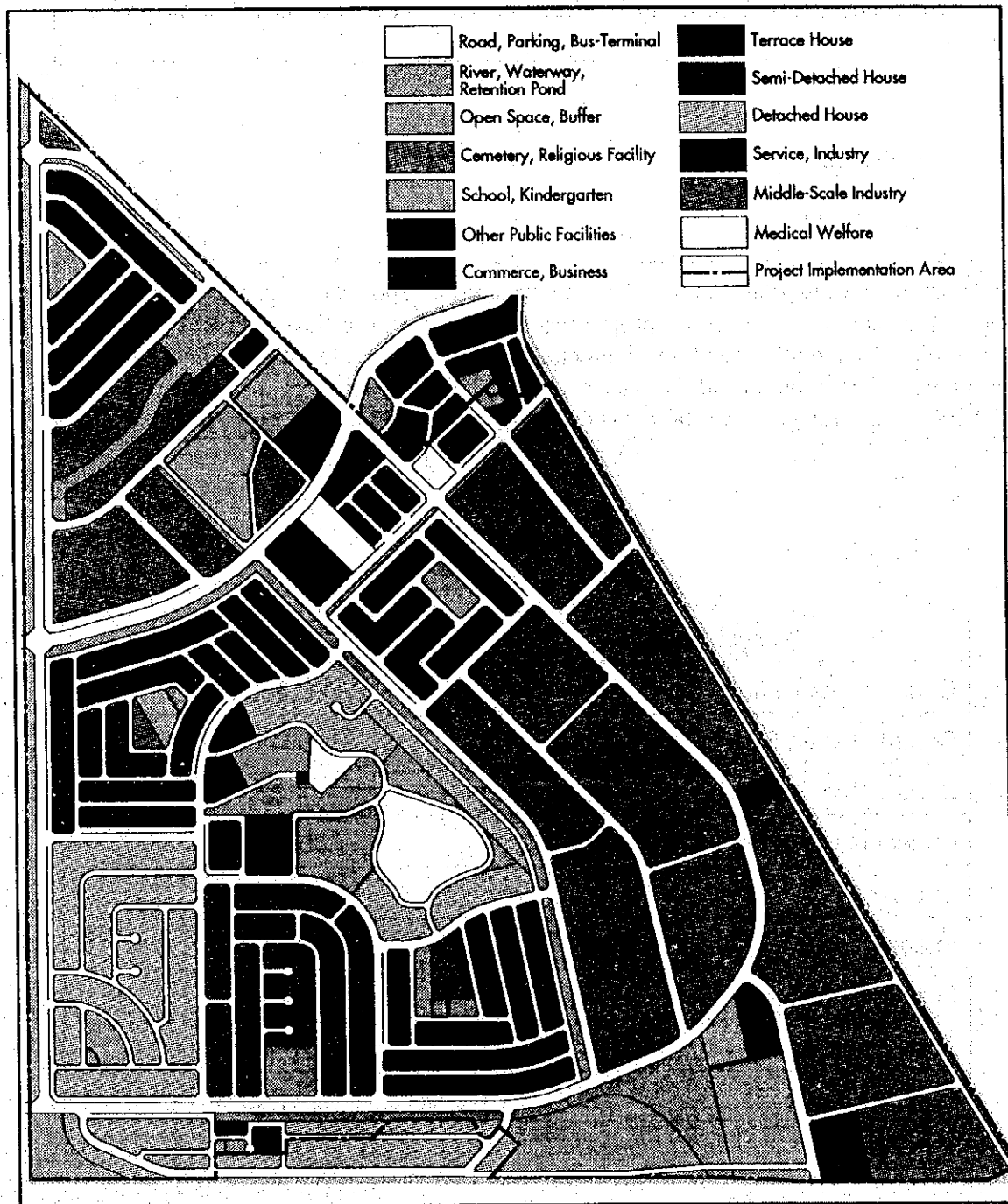


Figure 2.5  
Anticipated Urbanization



## 2.8 Project Period

The project is going to be implemented for six years after the announcement of the project approval.

## 2.9 Financial Plan

### 1) Project Cost

The direct cost for the project implementation, which is composed of construction cost, compensation cost, survey cost and project management cost, is estimated at RM 208,596,000. On the other hand, the indirect cost composed of interest repayment, land conversion further premium and financial land alienation premium sums up to RM 53,398,000. Accordingly, the total project cost is RM 261,994,000 as shown in Table 2.6

Table 2.6  
Project Cost Summary

Project Cost	RM000
Construction Cost	116,767
Compensation Cost	56,456
Survey Cost	1,376
Project Management Cost	33,997
Sub Total	208,596
Interest	8,267
Further Premium	24,668
Alienation Premium	20,463
Project Cost Total	261,994

**Table 2.7**  
**Construction Cost**

Item	Unit	Quantity	Unit Price (RM)	Amount (RM000)
<b>Public Facility Construction</b>				
<b>Basic Infrastructure</b>				
<b>Roads &amp; Bridges (Include Drain)</b>				48,606
Major road (30m width)	m	988	4,842.91	4,785
Collector road (24m width)	m	6,507	1,437.91	9,356
Major local road (20m width)	m	10,074	956.02	9,631
Minor local road (15m width)	m	4,000	1,020.00	4,080
Minor local road (12m width)	m	24,130	859.99	20,752
Approach Road (6m width)	m	37	54.05	2
<b>River &amp; Water Way</b>				1,736
Sg. Pelumut improvement	Ls			818
Sg. Air Kuning improvement	Ls			918
Water way (be included River)	Ls			0
<b>Retention Pond</b>				1,683
Retention pond along Sg. Pelumut	Ls	22,000		905
Retention pond along Sg. Air Kuning	Ls	38,000		778
<b>Park &amp; Open Space</b>				611
Turfing	sqm	94,500	2.81	266
Recreational facilities	sqm	23,620	4.02	95
Planting trees & shrubs	no	32,000	7.81	250
<b>Buffer Space</b>			0.00	0
<b>Basic Infrastructure Total</b>				52,636
<b>Community Service</b>				
<b>Water Facility</b>				9,465
Water distribution reservoir	Ls			1,467
Water supply pipes	m	44,000	181.77	7,998
<b>Public Parking</b>	sqm	11,920		262
<b>Bus Terminal</b>	sqm	3,950		86
<b>Electricity Substation</b>				8,887
Distribution substation	pcs	6	309,000	1,854
Electrical cable	m	62,900	99.81	6,278
Trenching	m	62,900	12.00	755
<b>Electricity Main Intake</b>				4,616
Distribution main intake	pcs	2	2,308,000	4,616
<b>Telephone Exchange Station</b>				10,713
Manhole	pcs	350	10,000	3,500
PCV ducting	m	62,900	74.52	4,686
Cabling	m	62,900	25.17	1,583
Trenching	m	62,900	15.00	944
<b>Sewerage Disposal</b>				11,852
Treatment plant along Sg. Pelumut	Ls			1,140
Treatment plant along Sg. Air Kuni	Ls			2,800
Pumping station	Ls			65
Concrete sewer	m	33,330	102	3,400
Steel pipe	m	650	200	130
Manhole (road)	pcs	1,680	1,279	2,148
Manhole (site)	pcs	3,030	716	2,169
<b>Community Service Total</b>				45,881
<b>Public Facility Construction Total</b>				98,517
<b>Site Improvement</b>				
<b>Site Clearance</b>				1,385
General site clearance	ha	171	7,122	1,220
Cutting of trees (above 1m girth)	pcs	1,000	165	165
<b>Earth Work</b>				16,865
Cutting & filling	cum	2,500,000	6.00	15,002
Sloop protection	sqm	300,000	6.21	1,863
<b>Site Improvement Total</b>				18,250
<b>Construction Cost Total</b>				116,767



**Table 2.8**  
**Compensation Cost**

1. Building Compensation					
Building Type	Material	Affected No. of Unit	Floor Area (sqm)	Estimated Unit Value (RM/sqm)	Estimated Value (RM000)
Residential	Reinforced Concrete	219	38,214	480	18,343
	Brick	3	471	280	132
	Timber	194	26,867	200	5,373
	Brick & Timber	135	25,824	240	6,198
	Steel	3	520	240	125
Commercial	Reinforced Concrete	14	5,581	400	2,232
	Brick	0	0	200	0
	Timber	15	2,070	160	331
	Brick & Timber	10	1,235	160	198
	Steel	10	1,235	160	198
Factory	Reinforced Concrete	10	10,725	400	4,290
	Brick	0	0	200	0
	Timber	42	23,048	160	3,688
	Brick & Timber	14	12,440	200	2,488
	Steel	121	9,287	160	1,486
Work Shop	Reinforced Concrete	2	187	400	75
	Brick	1	100	200	20
	Timber	26	7,473	160	1,196
	Brick & Timber	2	664	200	133
	Steel	47	15,775	160	2,524
Animal Shed	Timber	131	29,056	120	3,487
Building Total		994	210,738		52,559
2. Other Compensation					
		Affected No. of Unit Value (1000RM) / Area		Unit Price (RM/sqm)	
Suspension of Business		(Affected No. of Unit 309)18,901		Rate (%) : 15.00	2,835
Agricultural Property		254,759.00 sqm		3.50	892
Compensation to Other Loss		212,744.00 sqm		0.80	170
Other Compensation Total					3,897
3. Compensation Total					56,456

**Table 2.9**  
**Conversion Premium**

Alienated Land	Area After LR (sqm)	Area Before LR (sqm)	Conversion Area (sqm)	Ratio (%)	Market Price (RM)	Premium (RM/sqm)
<b>Private Use</b>						
Agriculture	0	2,547,593	0	0.00	83.15	0
Building : Commercial	57,101	0	57,101	30.00	83.15	1,424
Building : Medical, Welfare	48,119	0	48,119	30.00	83.15	1,200
Building : Residential	660,567	190,911	469,656	15.00	83.15	5,858
Industry : Middle Scale	879,317	30,000	849,317	20.00	83.15	14,124
Industry : Service	139,291	15,278	124,013	20.00	83.15	2,062
Private Use Total	1,784,395	2,783,782	1,548,206			24,668
<b>Other Community Service</b>						
Other Community Service Total	0	0	0			0
Alienated Land Total	1,784,395	2,783,782	1,548,206			24,668

**Table 2.10**  
**Alienation Premium**

Financial Land	Area (sqm)	Market Price (sqm)	Ratio (%)	Tenure (year)	Average tenure (year)	Premium (RM/sqm)
<b>Private Use</b>						
Agriculture	0	100	0.00	99	37	0
Building : Commercial	57,101	800	0.75	99	37	12,676
Building : Medical, Welfare	48,119	500	0.75	99	37	6,677
Building : Residential	20,000	300	0.50	99	37	1,110
Industry : Middle Scale	32,780	500	0.75	60	0	0
Industry : Service	45,000	500	0.75	60	0	0
Private Use Total	203,000					20,463
<b>Other Community Service</b>						
Other Community Service Total	0					0
Financial Land Total	203,000					20,463

2) Project Income

(a) Land Valuation

Existing land was valued by land use with reference made to the precedent records of the project area surveyed by the relevant valuation department. Similarly, future land was also valued by utilizing the valuation records on selected areas where urbanization has occurred within proximity to the project area.

As a result, the existing land value is RM 83.15/sqm on the average while the future value is RM 435.56 on the average (refer to Table 2.11). Accordingly, increase ratio in land value is expected to be 5.24 (refer to Table 2.12).

Table 2.11  
Estimate of Land Value

Financial Land	Before LR			After LR		
	Unit Price (RM/sqm)	Area (sqm)	Amount (RM000)	Unit Price (RM/sqm)	Area (sqm)	Amount (RM000)
<b>Private Use</b>						
Agriculture	80.00	2,547,593	203,807	100.00	0	0
Building : Commercial	0.00	0	0	800.00	57,101	45,681
Building : Medical, Welfare	0.00	0	0	500.00	48,119	24,060
Building : Residential	107.0	190,911	20,427	300.00	660,567	198,170
Industry : Middle Scale	160.00	30,000	4,800	500.00	879,317	439,659
Industry : Service	160.00	15,278	2,444		139,291	69,646
Private Use Total	83.15	2,783,782	231,478		1,784,395	777,216
<b>Other Community Service</b>						
Other Community Service Total	0	0	0		0	0
Alienated Land Total	83.15	2,783,782	231,478		1,784,395	777,216
Area Difference (Actual-Registered)		-58,860	-4,894			
Total / Average	83.15	2,724,922	226,584	435.56	1,784,395	777,216

**Table 2.12**  
**Estimate of Land (Replot) Value and Site Utility Increase Ratio**

Item	Unit	Before LR	After LR
Registered Area	sqm	2,783,782	
Actual Area	sqm	2,724,992	1,784,395
Average Unit Value	RM/sqm	83.15	435.56
Total Value	RM000	226,584	777,216
Site Utility Increase	Ratio		5.24

**(b) Shared Cost**

Table 2.13 indicates the subsidy and shared defrayal of newly built public facilities in the project. As a result, Federal Government, State Government and private companies will make the contribution of RM 76,438,000, RM 32,777,000 and RM 38,148,000, respectively, toward the project.

**(c) Financial Land Disposal Plan**

Financial land will be disposed mainly for commercial and industrial development as shown in Table 2.14.

**Table 2.14**  
**Financial Land Value Estimate**

Land Use : Alienated Land		Area (sqm)	Unit Price (RM/sqm)	Amount (RM000)
Private Use	Agriculture	0	100.00	0
	Building : Commercial	57,101	800.00	45,681
	Building : Medical, Welfare	48,119	500.00	24,060
	Building : Residential	20,000	300.00	6,060
	Industry : Medium Scale	32,780	500.00	16,390
	Industry : Service	45,000	500.00	22,500
	Private Use Total	203,000		114,631
Other Community Service	Other Community Service Total	0		0
Total		203,000		114,631

**Table 2.13**  
**Cost Sharing**

Item	Land Purchase Cost				Construction Cost (RM000)	Compensation Cost		Share of Federal / State / Agency	
	Planning Area (sqm)	Purchase Area (sqm)	Price (RM/sqm)	Amount (RM000)		No. of building	Amount <sup>1)</sup> (RM000)	%	Amount (RM000)
Federal Share									
Road									
Major road (30m)	29,640	23,712	83	1,972	4,785	15	854	100	7,611
Collector road (24m)	157,614	126,091	83	10,484	9,356	24	1,366	100	21,203
Major local road (20m)	204,263	163,410	83	13,588	9,631	25	1,423	50	12,321
Minor local road (15m)	61,823	49,458	83	4,112	4,080	11	626	50	4,409
Minor local road (12m)	293,885	74,313	83	6,179	20,752	553	31,466	0	0
Approach road (6m)	222	178	83	15	2	0	0	0	0
Sub Total	747,447	437,162	83	36,350	48,606	628	35,735		45,547
River & Waterway	57,910	50,109	83	4,167	1,736	2	114	100	6,017
Retention Pond	60,000	60,000	83	4,989	1,683	13	740	100	7,412
Kindergarten	5,520	5,520	83	459	0	0	0	100	759
Primary School	47,250	30,231	83	2,514	0	8	455	100	2,969
Secondary School	34,600	34,600	83	2,877	0	23	1,309	100	4,186
Police Station	11,000	0	83	0	0	0	0	100	0
Fire Brigade Station	7,310	7,310	83	608	0	2	114	100	722
Clinic	6,120	6,120	83	509	0	0	0	100	509
Water Facility	7,450	7,450	83	619	7,998	0	0	100	8,617
Federal Share Total	984,807	638,502		53,092	60,023	676	38,467		76,438
State & Local Authority Share									
Park & Open Space	238,610	238,610	83	19,840	611	27	1,536	100	21,987
Buffer Space	78,325	78,325	83	6,513	0	3	171	100	6,684
Reserved Land	0	0	83	0	0	0	0	0	0
Public Parking	11,920	11,920	83	991	262	7	398	100	1,651
Bus Terminal	3,950	3,950	83	328	86	0	0	100	414
Cemetery	13,250	4,316	83	359	0	0	0	100	359
Religious Facility	5,000	5,000	83	416	0	0	0	100	416
Community Hall	14,450	14,540	83	1,209	0	1	57	100	1,266
Radar Site	400	0	83	0	0	0	0	100	0
State & L.A. Share Total	365,995	356,661		29,656	959	38	2,162		32,777
Agency Share									
Post Office	1,400	1,400	83	116	0	2	114	100	230
Electricity Substation	8,710	8,710	83	724	8,887	0	0	80	7,689
Electricity Main Intake	20,050	20,050	83	1,667	4,616	4	228	80	5,209
Telephone Exchange Station	9,730	9,730	83	809	10,713	0	0	100	11,522
Sewage Treatment Plant	15,700	15,700	83	1,305	11,852	6	341	100	13,498
Agency Share Total	55,590	55,590		4,821	36,068	12	683		38,148
Total	1,406,192	1,050,753		87,369	97,050	226	41,312		147,363

1) Average purchase rate is calculated based on sub total of roads and applied to respective type of roads.

2) The amount is calculated by multiplying no. of building with average compensation cost per building of RM56.90

(d) Project Revenue

Table 2.15 summarizes anticipated project resources and their amounts.

Table 2.15  
Revenue Estimate

Revenue	Amount (RM000)
Federal Share	76,438
State & Local Authority Share	32,777
Agency Share	38,148
Disposition of Financial Land	114,631
<b>Revenue Total</b>	<b>261,994</b>

3) Annual Financial Plan

The annual financial plan for years 1997 to 2003 is estimated in terms of monetary unit as well as yearly proportion as shown in Tables 2.16 and 2.17.

Table 2.16  
Financial Plan

<Expense>

Project Cost	Amount (RM000)							
		1997	1998	1999	2000	2001	2002	2003
Construction Cost	116,767	0	5,838	17,515	29,192	35,030	17,515	11,677
Compensation Cost	36,456	0	5,646	14,114	16,937	11,291	5,646	2,822
Survey Cost	1,376	344	275	69	206	69	206	207
Project Management	33,997	2,720	4,080	5,100	7,819	6,119	4,420	3,739
Conversion Premium	24,868	0	0	0	7,400	9,868	4,934	2,467
Alienation Premium	20,463	0	0	0	6,139	8,185	4,093	2,046
Subtotal	253,727	3,064	15,839	36,798	67,693	70,561	36,814	22,958
Interest	10.00%		306	1,921	3,609	2,431	0	0
<b>Total</b>	<b>261,994</b>	<b>3,064</b>	<b>16,145</b>	<b>38,719</b>	<b>71,302</b>	<b>72,992</b>	<b>36,814</b>	<b>22,958</b>

Cont. Table 2.16

## &lt;Revenue&gt;

Revenue	Amount (RM000)							
		1997	1998	1999	2000	2001	2002	2003
Federal Share	76,438	0	0	15,288	22,931	22,931	11,466	3,822
State & Local Authority Share	32,777	0	0	6,555	6,555	8,194	4,917	6,556
Agency Share	38,148	0	0	0	0	15,259	15,259	7,630
Disposition of Financial Land	114,631	0	0	0	57,316	47,193	5,172	4,950
<b>Total</b>	<b>261,994</b>	<b>0</b>	<b>0</b>	<b>21,843</b>	<b>86,802</b>	<b>93,577</b>	<b>36,814</b>	<b>22,958</b>

Table 2.17  
Cost Disbursement Plan

## &lt;Expense&gt;

PROJECT COST	1997	1998	1999	2000	2001	2002	2003
Construction Cost	0.00%	5.00%	15.00%	25.00%	30.00%	15.00%	10.00%
Compensation Cost	0.00%	10.00%	25.00%	30.00%	20.00%	10.00%	5.00%
Survey Cost	25.00%	20.00%	5.00%	15.00%	5.00%	15.00%	15.00%
Project Management	8.00%	12.00%	15.00%	23.00%	18.00%	13.00%	11.00%
Conversion Premium				30.00%	40.00%	20.00%	10.00%
Alienation Premium				30.00%	40.00%	20.00%	10.00%

## &lt;Revenue&gt;

REVENUE	1997	1998	1999	2000	2001	2002	2003
Federal Share	0.00%	0.00%	20.00%	30.00%	30.00%	15.00%	5.00%
State & Local Authority Share			20.00%	20.00%	25.00%	15.00%	20.00%
Agency Share					40.00%	40.00%	20.00%
Disposition of Financial Land				50.00%	30.00%	10.00%	20.00%

## 2.10 Contribution Ratio

### 1) Calculation of Contribution Ratio

Additional space for basic infrastructures such as roads, rivers and open spaces, and financial land must be balanced by landowners' contribution. The necessary areas are 940,527 sq.m. for the basic infrastructure and 203,000 sq.m. for the financial land, respectively. Table 2.18 calculates the corresponding contribution ratios.

Table 2.18  
Contribution Rate Estimate

Item		Unit	Amount	Remarks
Registered Area before LR	(A)	(sqm)	2,783,782	
Actual Area before LR	(B)	(sqm)	2,724,992	
Replot & Financial Land After LR	(C)	(sqm)	1,784,395	
Contribution Area	For Public Facility	(D)	(sqm)	940,527
	For Financial Land	(E)	(sqm)	203,000
	Total	(F)	(sqm)	1,143,627 (F) = (D) + (E)
Contribution Rate	For Public Facility	(G)	( % )	34.52 (G) = (D) / (B) *100
	For Financial Land	(H)	( % )	7.45 (H) = (E) / (B) *100
	Aggregated Area	(I)	( % )	41.97 (I) = (G) + (H)

### 2) Calculation of Development Benefit

A difference of the total land value before and after the project is estimated at RM550,632,000 which is equivalent to an area of 1,254,193 sq.m. after the project. The amount is considered as the development benefit of the project or the maximum allowable financial land.

Of which, an area of 203,000 sqm or an equivalent value of RM 88,419,000 will be disposed as financial land while the rest, an equivalent value of RM 462,200,500, will be internalized as landowners' development benefit.



Table 2.19  
Financial Land Estimate

Item	Unit	Amount
Total Value before LR	RM000	226,584
Total Value after LR	RM000	777,216
Total Increased Value	RM000	550,632
Unit Value after LR	RM/sqm	435.56
The Maximum Area for Financial Land	sqm	1,264,193
Financial Land (Area)	sqm	203,000
Financial Land (Ratio)	%	16.06

#### 2.11 Attached Drawings

- |    |                            |         |
|----|----------------------------|---------|
| 1) | Location Map               |         |
| 2) | Project Area Boundary Map  | 1:2,500 |
| 3) | Map of Existing Conditions | 1:2,500 |
| 4) | LR Design Drawing          | 1:2,500 |

#### 2.12 Other Drawing for Reference

- |    |                                     |         |
|----|-------------------------------------|---------|
| 1) | Drawing of Land Development Plan    | 1:2,500 |
| 2) | Drawing of River and Drainage Plan  | 1:2,500 |
| 3) | Drawing of Anticipated Urbanization | 1:2,500 |

## CHAPTER 3

# KG. KUANTAN ULU SELANGOR LAND READJUSTMENT PROJECT IMPLEMENTATION PLAN

### 3.1 Project Name

KG. KUANTAN ULU SELANGOR LAND READJUSTMENT PROJECT

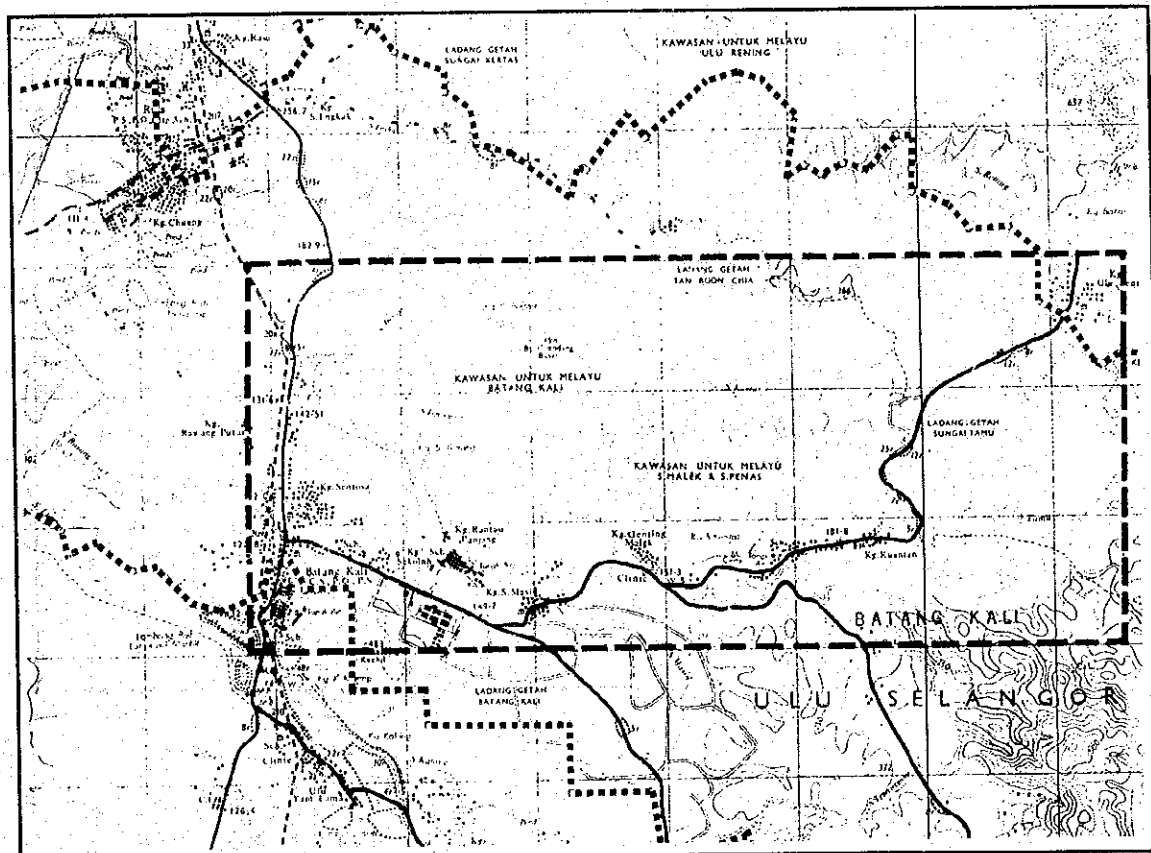
### 3.2 Implementing Body

Majlis Daerah Batang Kali or District Office, Ulu Selangor

### 3.3 Project Area Location

The 45 ha project area is adjacent to Kg. Genting Malek and located at approx. 4km east of Batang Kali where Federal Route 1 passes through.

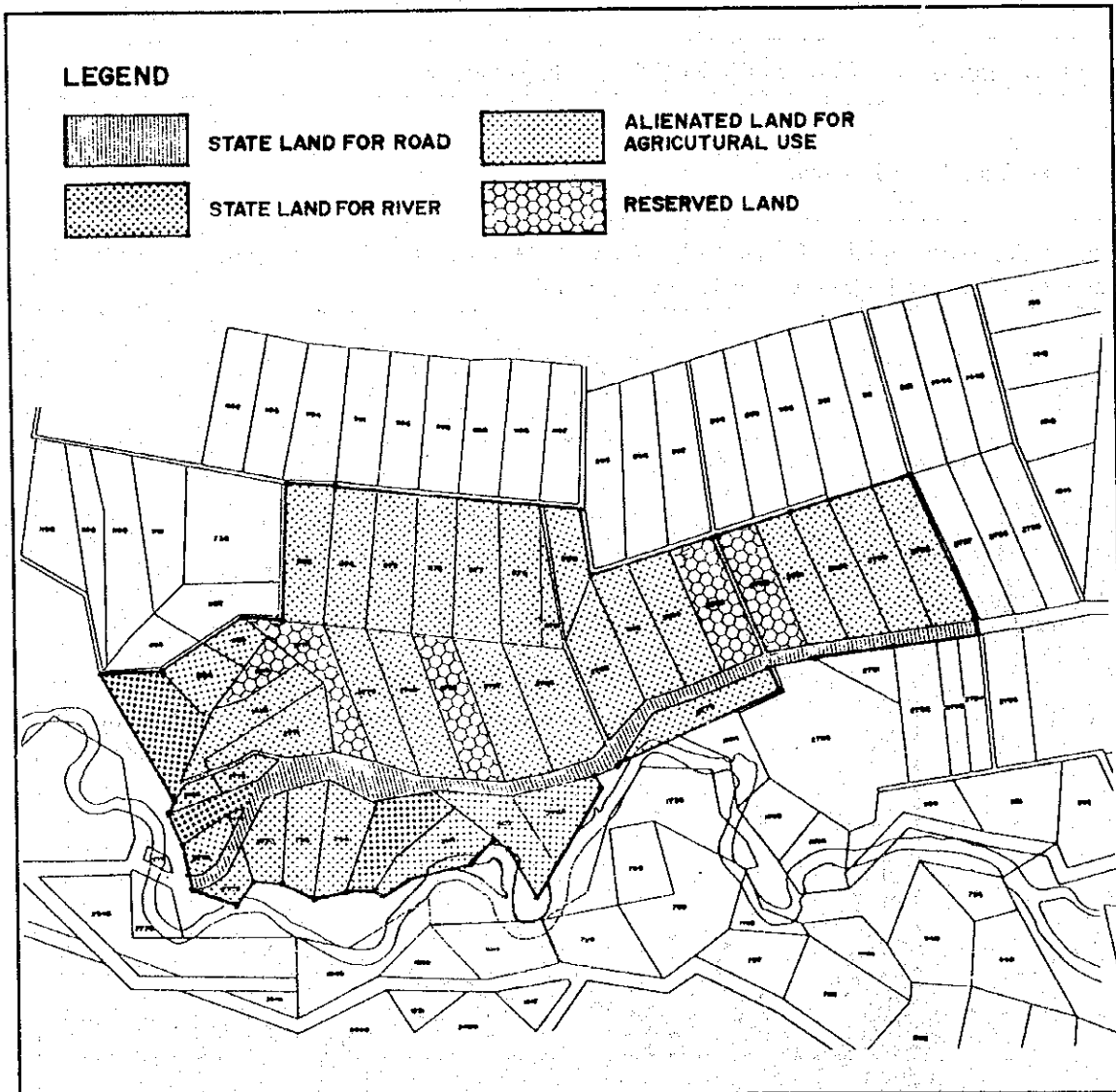
Figure 3.1  
Location Map



### 3.4. Project Area Boundary

The project area encloses part of Ulu Kali, Sungai Penas, Sungai Malik and Kuala Sungai Masin within Mukim Batang Kali.

Figure 3.2  
Project Area Boundary Map



### 3.5. Project Objective

Ulu Selangor District, to the north of Kuala Lumpur, is being faced with burgeoning urbanization in line with some regional projects such as the North-South Expressway and the second national car factory.

Although the project area remains in its rural settlement form and agriculture is only one local industry, neighbouring industrialization and urbanization are liable to affect the area's living environment by means of increasing traffic inflow, facilitating illegal land conversion, etc. And what is worse, Sg. Batang Kali is in danger of overflow and under the apprehension lest flood cause great damage to agricultural products and daily activities. It is the reason why a land readjustment project shall be carried out as a priority investment.

### 3.6 Present Conditions of the Project Area

#### 1) Area Development Characteristics

The project area and its environs used to be an agricultural land while nowadays small housing schemes are briskly occurring. Orderly land conversion and creation of favourable living environment are considered to be pressing tasks.

Since the project area is a Malay reservation land with a long history attached to its community, a method of land readjustment is essential to prevent disorder and illegal land conversion, and to actualize planned land use with the improvement of public facilities.

#### 2) Population

There are 294 residents inhabiting the project area with approx. 60 job opportunities (30 in the agricultural sector and 30 in other sectors). The population density is as sparse as 7.7 persons per hectare.

#### 3) Existing Land Use

According to the records on land registration, agricultural land accounts for 67% of the total or 31 ha. An aggregated area of 4.7 ha is classified to be residential as the actual land use.

There is no difference between registered area and surveyed area in total because all the lots are precisely registered as Final Title (F.T.)

**Table 3.1**  
**Comparison between Registered Land Use and Surveyed Land Use**

Condition	Category	Registered Area sqm	%	Surveyed Area sqm	%	Difference
Alienated Land	Agriculture	305,226	67.2	257,673	57.1	-16,493
	Building	0	0.0	47,553	10.5	47,553
	Sub-Total	305,226	67.6	305,226	67.6	0
State Land		60,723		13.1		0
Reserved Land		85,758		13.4		0
Registered Area Total		451,707		100		0
Boundary Surveyed Area		451,707		-		

**4) Existing Road and Private Land**

There is only one paved road of 8m width running through the project area in the direction of east to west. Others roads are reserved with narrow width probably for agricultural use. Residential units are located around the centre area as in a typical Malay kampung.

**5) River**

Sg. Batang Kali flows from east to west at the south edge of the project area. However its shape has changed from time to time without adequate improvement.

**6) Water Supply and Disposal**

The area is provided with piped water but its disposal is done individually. Electricity and telephone services are available.

**7) Educational Facility**

There is a kindergarten and a primary school in the area. A secondary school is not located inside the area.

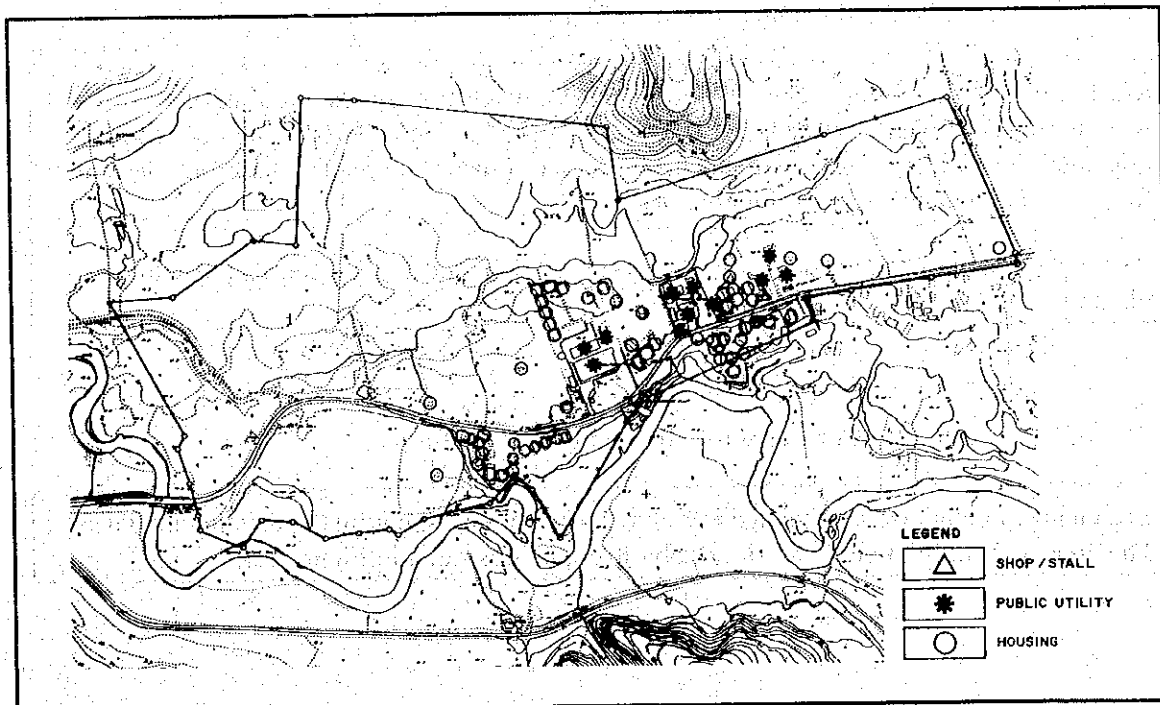
## 8) Existing Buildings

There are 135 buildings inclusive of annexed structures in the area. They are summarized in Table 3.2.

Table 3.2  
Existing Buildings by Usage

Building Usage	Nos.	(%)
Residential	94	69.6
Retails Shop	3	2.2
Canteen	2	1.5
Office	2	1.5
Animal Shed	3	2.2
Garage	10	7.5
Public Facility	21	15.5
Total	135	100

Figure 3.3  
Map of Existing Conditions



### 3.7 Outline of LR Design

#### 1) Design Policies

##### (a) Land Use Plan

The demand for residential development is deemed to be high in the area in order to balance with the increasing daytime population by burgeoning industrialization at the surrounding area.

With regard to housing type, detached houses are suitable to enable the existing houses, which are mostly kampung houses, to remain. A similar housing scheme in Kg. Genting Malek was successfully developed before.

A small commercial area will be built as a rural centre. Agricultural activities will be enhanced with the improvement of the agricultural road.

##### (b) Demographic Framework

The disposal of financial lands and relocation of existing houses will be done for the residential area where 200 households or 1,000 people shall reside.

#### 2) Public Facilities Improvement Plan

Most of the traffic volume generated from the area heads toward Batang Kali. In formulating the road network, such traffic movements are considered. The traffic to the opposite direction is limited to trucks for agricultural use. The road is therefore, designed to meet such demand (refer to Figure 3.4).

As for Sg. Batang Kali, adequate river reserves will be allocated in accordance with the planning standards.

#### 3) Land Use Comparison Before and After the Project

The change in land use is tabulated in Table 3.4 in comparison with the existing land use. The area, after all planned facilities are built-up, is illustrated in Figure 3.5.

**Table 3.3**  
**Public Facilities Improvement Plan**

Facility Name	Unit	Quantity	Area ( sqm)
<b>ROADS &amp; BRIDGES</b>			
Collection Road 20m	m	1,290	93,994
Major Local Road 20m	m	1,403	29,085
Minor Local Road 15m	m	414	26,502
Minor Local Road 12m	m	2,575	6,534
			31,873
<b>RIVER &amp; WATER WAY</b>			49,443
Sg. Batang Kali	m	1,312	33,993
Retention Pond	pcs	1	15,450
<b>PARK AND OPEN SPACE</b>			29,090
Play Ground	pcs	1	25,450
Play Lot	pcs	2	3,640
<b>EDUCATIONAL FACILITIES</b>			26,500
Kindergarten	pcs	1	1,500
Primary School	pcs	1	25,000
<b>PUBLIC UTILITIES</b>			25,860
Community Hall	pcs	1	3,360
Clinic	pcs	1	1,500
Religious Facility	pcs	1	5,000
Cemetery	pcs	1	16,000
<b>OTHER FACILITIES</b>			20,250
Water Facility	pcs	1	16,250
Oxidation Pond	pcs	1	4,000
<b>TOTAL</b>			<b>245,137</b>



**Table 3.4**  
**Land Use Transformation**

Item	Land Use Before LR		Land Use in LR Scheme		Final Planned Land Use	
	Area (sqm)	(%)	Area (sqm)	(%)	Area (sqm)	(%)
<b>Public Facility</b>						
<b>Basic Infrastructure</b>						
Road	30,311	6.7	93,994	20.8	93,994	20.8
River & Waterway	23,836	5.3	33,993	7.5	33,993	7.5
Retention Pond	0	0.0	15,450	3.4	15,450	3.4
Park & Open Space	0	0.0	0	0.0	0	0.0
Buffer Space	0	0.0	29,090	6.4	29,090	6.4
Reserved Land	6,576	1.5	0	0.0	0	0.0
<b>Basic Infrastructure Total</b>	<b>60,723</b>	<b>13.4</b>	<b>172,527</b>	<b>38.2</b>	<b>172,527</b>	<b>38.2</b>
<b>Community Service Facilities</b>						
Kindergarten	0	0.0	1,500	0.3	1,500	0.3
Primary School	11,129	2.5	25,000	5.5	25,000	5.5
Clinic	0	0.0	1,500	0.3	1,500	0.3
Water Facility	15,335	3.5	16,250	3.6	16,250	3.6
Cemetery	15,927	3.5	16,000	3.5	16,000	3.5
Religious Facility	0	0.0	5,000	1.1	5,000	1.1
Community Hall	12,307	2.7	3,360	0.7	3,360	0.7
Others	31,060	6.9	0	0.0	0	0.0
Sewage Disposal	0	0.0	4,000	0.9	4,000	0.9
<b>Community Service Facility Total</b>	<b>85,758</b>	<b>19.0</b>	<b>72,610</b>	<b>16.1</b>	<b>72,610</b>	<b>16.1</b>
<b>Public Facility Land Total</b>	<b>146,481</b>	<b>32.4</b>	<b>245,137</b>	<b>54.3</b>	<b>245,137</b>	<b>54.3</b>
<b>Alienated Land</b>						
<b>Private Use</b>						
Agriculture	305,226	67.6	67,400	14.9	67,400	14.9
Building : Commercial	0	0.0	0	0.0	5,8001	1.3
Building : Residential	0	0.0	63,695	14.1	133,370	29.5
<b>Private Use Total</b>	<b>305,226</b>	<b>67.6</b>	<b>131,095</b>	<b>29.0</b>	<b>206,750</b>	<b>45.7</b>
<b>Alienated Land Total</b>	<b>305,226</b>	<b>67.6</b>	<b>131,095</b>	<b>29.0</b>	<b>206,750</b>	<b>45.7</b>
<b>Public Facility &amp; Alienated Land Total</b>	<b>451,707</b>	<b>100.0</b>	<b>376,232</b>	<b>83.3</b>	<b>451,707</b>	<b>100.0</b>
Financial Land	0		75,457	16.7	0	0.0
Area Difference (Actual - Registered)	0	0.0	0	0.0	0	0.0
<b>Total</b>	<b>451,707</b>	<b>100.0</b>	<b>451,707</b>	<b>100.0</b>	<b>451,707</b>	<b>100.0</b>

Figure 3.4  
LR Design

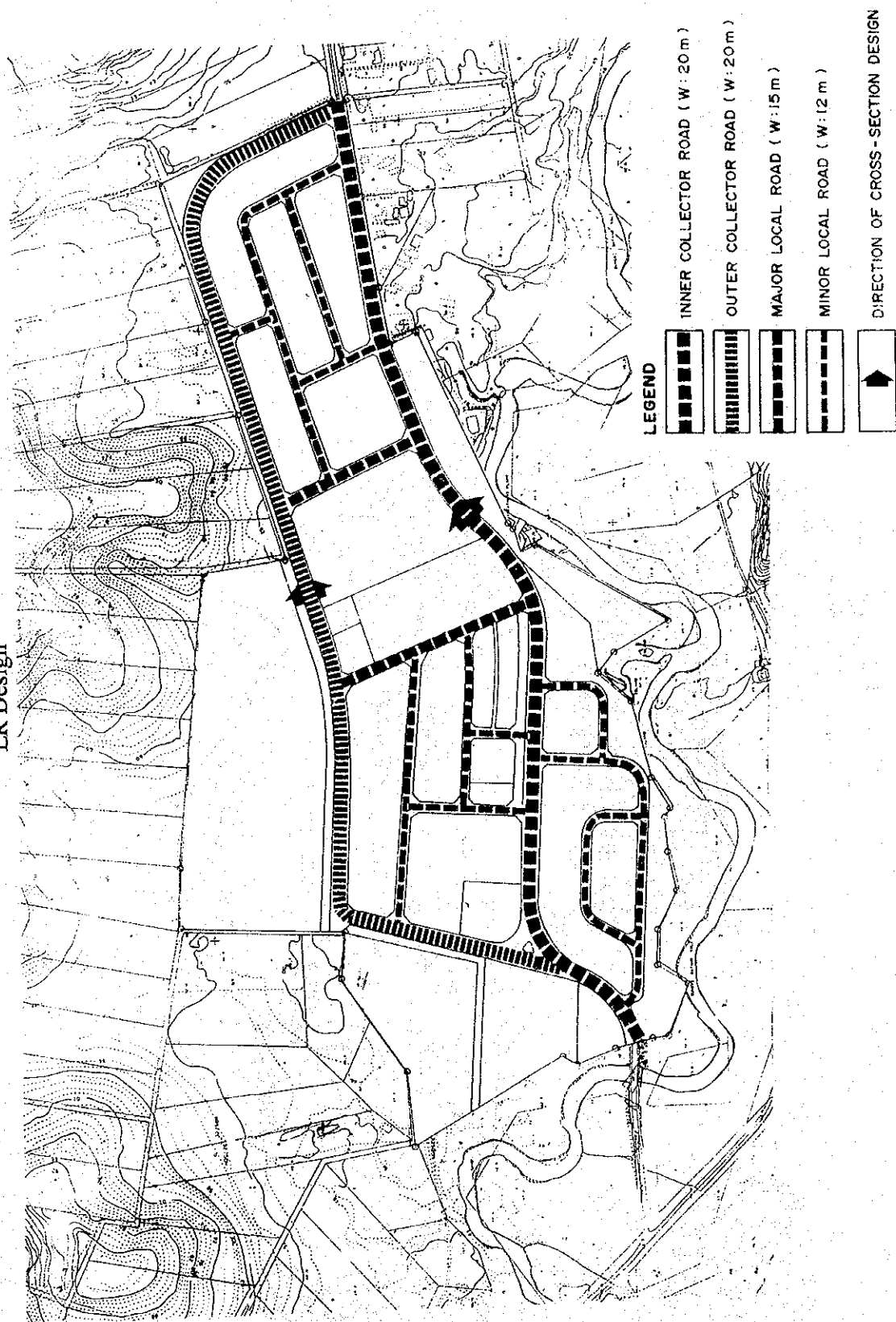
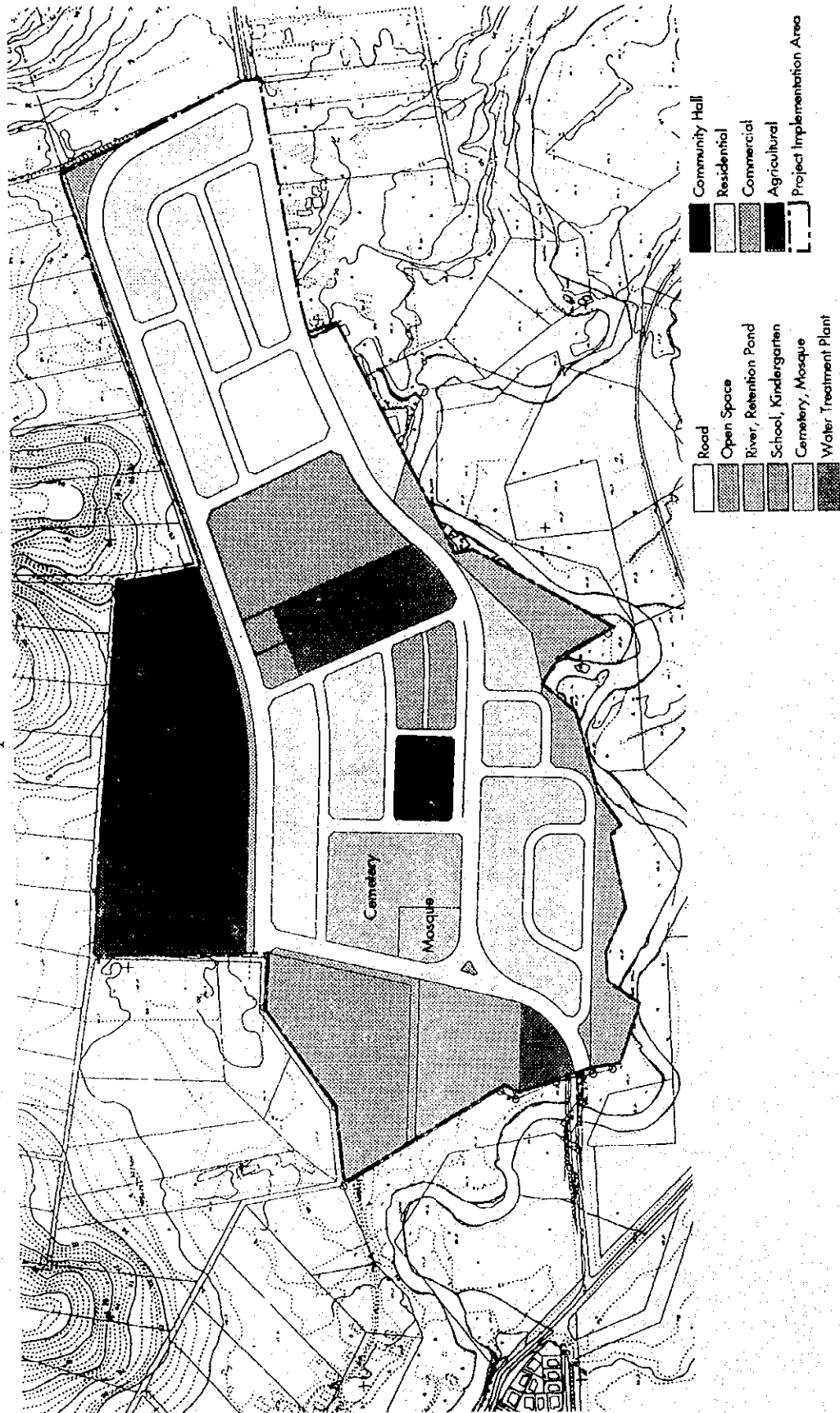


Figure 3.5  
Anticipated Urbanization



### 3.8 Project Period

The project is going to be implemented for six years after the announcement of the project approval.

### 3.9 Financial Plan

#### 1) Project Cost

The direct cost for the project implementation, which is composed of construction cost, compensation cost, survey cost and project management cost, is estimated at RM 20,812,000. On the other hand, the indirect cost composed of interest repayment, land conversion further premium and financial land alienation premium sums up to RM 942,000. Accordingly, the total project cost is RM 21,754,000 as shown in Table 3.5.

Table 3.5  
Project Cost Summary

Project Cost	RM000
Construction Cost	12,513
Compensation Cost	4,316
Survey Cost	219
Project Management Cost	3,764
Sub Total	20,812
Interest	568
Further Premium	374
Alienation Premium	0
Project Cost Total	21,754

**Table 3.6**  
**Construction Cost**

Item	Unit	Quantity	Unit Price (RM)	Amount (RM000)
<b>Public Facility Construction</b>				
<b>Basic Infrastructure</b>				
Roads & Bridges (Include Drain)				5,230
Inner collector road (20m width) & Bri	m	1,290	1,093.74	1,411
Outer collector road (20m width)	m	1,403	990.13	1,389
Collector road (15m width)	m	414	827.02	342
Local road (12m width)	m	2,575	810.67	2,087
River & Water Way				1,045
Sg. Batang Kali improvement	Ls			1,045
Retention Pond				563
Retention pond along Sg. Batang Kali	Ls	15,450		563
Park & Open Space				197
Turfing	sqm	44,100	2.81	124
Recreational facilities	sqm	1,500	4.00	6
Planting trees & shrubs	no	8,540	7.85	67
Buffer Space				0
Basic Infrastructure Total				7,035
<b>Community Service</b>				
Water Facility				793
Water supply pipes	m	5,701	139.10	793
Electricity Substation				1,090
Distribution substation	pcs	1	309,810	310
Electrical cable	m	6,965	97.06	676
Trenching	m	6,965	12.00	104
Telephone Exchange Station				1,183
Manhole	pcs	40	10,000	400
PCV ducting	m	6,965	24.98	174
Cabling	m	6,965	73.08	509
Trenching	m	6,965	14.36	100
Sewerage Disposal				982
Concrete sewer	m	4,823	98.90	477
Manhole (Precast)	pcs	210	85.71	249
Manhole (Brick)	pcs	230	678.26	156
Oxidation Pond	Ls			100
Community Service Total				4,048
Public Facility Construction Total				11,083
<b>Site Improvement</b>				
Site Clearance				169
General site clearance	ha	23	7,122	169
Earth Work				1,261
Cutting & filling	cum	238,000	3.79	901
Sloop protection	sqm	306,000	6.21	360
Site Improvement Total				1,430
Construction Cost Total				12,513

**Table 3.7**  
**Compensation Cost**

1. Building Compensation					
Building Type	Material	Affected No. of Unit	Floor Area (sqm)	Estimated Unit Value (RM/sqm)	Estimated Value (RM000)
Residential	Reinforced Concrete	18	3,740	480	1,795
	Brick	0	0	280	0
	Timber	21	3,028	200	606
	Brick & Timber	27	5,880	240	1,411
	Steel	0	0	240	0
Commercial	Reinforced Concrete	0	0	400	0
	Brick	0	0	200	0
	Timber	0	0	160	0
	Brick & Timber	4	490	200	98
	Steel	0	0	160	0
Factory	Reinforced Concrete	0	0	400	0
	Brick	0	0	200	0
	Timber	0	0	160	0
	Brick & Timber	0	0	200	0
	Steel	0	0	160	0
Work Shop	Reinforced Concrete	0	0	400	0
	Brick	0	0	200	0
	Timber	0	0	160	0
	Brick & Timber	0	0	200	0
	Steel	0	0	160	0
Animal Shed	Timber	0	0	120	0
Building Total		70	13,138		3,910
2. Other Compensation					
		Affected No. of Unit Value (1000RM) / Area		Unit Price (RM/sqm)	
Suspension of Business		(Affected No. of Unit 4)	98	Rate (%) : 15	15
Agricultural Property		102,000 sqm		3.5	357
Compensation to Other Loss		42,800 sqm		0.8	34
Other Compensation Total					406
3. Compensation Total					4,316

**Table 3.8**  
**Survey Cost**

Item	Unit	Quantity	Unit Price (RM)	Amount (RM000)
<b>Survey Map Preparation</b>				
Control point survey (1st class)	km	2.8	1,563	4
Block point survey	block	26	625	16
Detail survey (Plane-table survey)	ha	45	500	23
<b>Boundary Survey</b>				
Settlement survey with landowner attendance	lot	30	1,000	30
Computation of area (Confirmation of area)	lot	30	125	4
<b>Additional Survey</b>				
Preparation of cadastral map	lot	40	125	5
Preparation of area map	lot	40	63	3
<b>Block Confirmation</b>				
Block confirmation survey		26	625	16
Road centerline survey		5.8	2,500	15
Block & lot survey		40	1,000	40
<b>Confirmation / Alternation Survey</b>				
Confirmation / Alternation Survey	point	120	250	30
<b>Lot Confirmation Survey</b>				
Lot Confirmation Survey	lot	146	1,250	33
<b>Survey Cost Total</b>				<b>219</b>

**Table 3.9**  
**Project Management Cost**

Item	Unit	Quantity	Unit Price RM/day	Amount (RM000)
Construction Design & Supervision	Ls	3,120	707	2,204
Compensation	person	684	707	484
Survey Supervision	person	51	652	33
Replotting	person	1,475	707	1,043
<b>Project Management Cost Total</b>				<b>3,764</b>

**Table 3.10**  
**Land Conversion Further Premium**

Alienated Land	Area After LR (sqm)	Area Before LR (sqm)	Conversion Area (sqm)	Ratio (%)	Market Price(RM)	Premium (RM/sqm)
<b>Private Use</b>						
Agriculture	67,400	305,226	0	0.00	17.20	0
Building : Commercial	5,800	0	5,800	30.00	17.20	30
Building : Medical, Welfare	0	0	0	0.0	0.00	0
Building : Residential	133,370	0	133,370	15.00	17.20	344
Industry : Medium Scale	0	0	0	0.00	0.00	0
Industry : Service	0	0	0	0.00	0.00	0
Private Use Total	206,570	305,226	139,170	0.00	0.00	374
<b>Other Community Service</b>						
Other Community Service Total	0	0	0			0
Alienated Land Total	206,570	305,226	139,170			374

**Table 3.11**  
**Alienation Premium**

Financial Land	Area (sqm)	Market Price (sqm)	Ratio (%)	Tenure (year)	Average tenure (year)	Premium (RM/sqm)
<b>Private Use</b>						
Agriculture	0	30	0.00	99	0	0
Building : Commercial	5,800	368	0.75	99	0	0
Building : Medical, Welfare	0	0	0.75	99	0	0
Building : Residential	69,675	80	0.75	99	0	0
Industry : Middle Scale	0	0	0.75	60	0	0
Industry : Service	0	0	0.75	60	0	0
Private Use Total	75,475					0
<b>Other Community Service</b>						
Other Community Service Total	0					0
Financial Land Total	75,475					0



2) Project Income

(a) Land Valuation

Existing land was valued by land use with reference made to the precedent valuation records at the project area surveyed by the relevant valuation department.

Similarly, future land was also valued by utilizing the precedent valuation records on selected areas where urbanization has occurred within proximity to the project area.

In addition, Malay reservation lands are usually assessed lower than non Malay lands in the case of land transactions. Accordingly, a reduction rate of 20% was assumed and applied to the land valuation of the project area.

As a result, the project area was valued at RM 17.2/sq.m. at present and RM 71.77/sq.m. in the future, both on the average. Accordingly, increase ratio in land value is expected to be 4.17 with the implementation of the project.

Table 3.12  
Estimate of Land Value

Financial Land	Before LR			After LR		
	Unit Price (RM/sqm)	Area (sqm)	Amount (RM000)	Unit Price (RM/sqm)	Area (sqm)	Amount (RM000)
<b>Private Use</b>						
Agriculture	17.20	305,226	5,250	30.000	67,400	2,022
Building : Commercial	0.00	0	0	368.00	5,800	2,134
Building : Medical, Welfare	0.00	0	0	0.00	0	0
Building : Residential	25.00	0	0	80.00	133,370	10,670
Industry : Middle Scale	0.00	0	0	0.00	0	0
Industry : Service	0.00	0	0	0.00	0	0
Private Use Total		305,226	5,250		206,570	14,826
<b>Other Community Service</b>						
Other Community Service Total	0	0	0	0.00	0	0
Alienated Land Total		305,226	5,250		206,570	14,826
Area Difference (Actual-Registered)		0	0			
Total / Average	17.20	305,226	5,250	71.77	206,570	14,826

**Table 3.13**  
**Estimate of Land (Replot) Value and Site Utility Increase Ratio**

Item	Unit	Before LR	After LR
Registered Area	sqm	305,226	
Actual Area	sqm	305,226	206,570
Average Unit Value	RM/sqm	17.20	71.77
Total Value	RM000	5,250	14,826
Site Utility Increase	Ratio		4.17

**(b) Shared Cost**

Table 3.14 indicates subsidy and shared defrayal of newly built public facilities in the project. As a result, Federal Government, State Government, and related agencies will make contribution of RM 10,100,000, RM 840,000 and RM 3,106,000, respectively.

**(c) Financial Land Disposal Plan**

Financial land will be disposed mainly for commercial and residential development so as to recover the project cost effectively. The necessary financial land is 75,475 sqm which is equivalent to RM 7,708,000 in the financial land disposal plan.

**Table 3.15**  
**Financial Land Estimate**

Item	Unit	Amount
Total Value Before LR	RM000	5,250
Total Value After LR	RM000	14,826
Total Increased Value	RM000	9,576
Unit Value after LR	RM/sqm	71.77
The Maximum Area for Financial Land	sqm	133,426
Financial Land (Area)	sqm	75,475
Financial Land (Ratio)	%	56.57

**Table 3.14**  
**Cost Sharing**

Item	Land Purchase Cost				Constructio n Cost (RM000)	Compensation Cost		Share of Federal / State / Agency	
	Planning Area(sqm)	Purchase Area(sqm)	Price (RM/sqm)	Amount (RM000)		No. of building	Amount <sup>1)</sup> (RM000)	%	Amount (RM000)
Federal Share									
Road									
Inner collector road (20m)	29,085	19,760	17.2	339	1,411	0	0	100	1,750
Outer collector road (20m)	26,502	17,956	17.2	309	1,389	9	502	100	2,200
Collector road (15m)	6,534	4,427	17.2	76	342	2	112	50	265
Local road (12m)	31,873	21,595	17.2	371	2,087	2	112	50	1,285
Sub Total	93,994	63,684	17.2	1,095	5,229	13	726		5,500
River & Waterway	33,993	10,157	17.2	175	1,045	0	0	100	1,220
Retention Pond	15,450	15,450	17.2	266	563	0	0	100	829
Kindergarten	1,500	1,500	17.2	26	0	0	0	100	26
Primary School	25,000	13,871	17.2	239	0	15	837	100	1,076
Clinic	1,500	1,500	17.2	26	0	0	0	100	26
Water Facility	16,250	915	17.2	16	793	11	614	100	1,423
Federal Share Total	187,687	107,077	17.2	1,843	7,630	39	2,177		10,100
State & Local Authority Share									
Park & Open Space	29,090	29,090	17.2	500	197	0	0	100	697
Reserved Land	0	0	17.2	0	0	0	0	100	0
Cemetery	16,000	73	17.2	1	0	0	0	100	1
Religious Facility	5,000	5,000	17.2	86	0	0	0	100	86
Community Hall	3,360	0	17.2	0	0	1	56	100	56
Others	0	0	17.2	0	0	0	0	100	0
State & L.A. Share Total	53,450	34,163	17.2	587	197	1	56	100	840
Agency Share									
Electricity Substation	0	0	0	0	1,090	0	0	80	872
Telephone Service	0	0	0	0	1,183	0	0	100	1,183
Sewage Disposal	4,000	4,000	17.2	69	982	0	0	100	1,051
Agency Share Total	4,000	4,000		69	3,255	0	0		3,106
Total	245,137	145,240		2,499	11,082	40	2,233		14,046

1) Average purchase rate is calculated based on sub total of roads and applied to respective type of roads.

2) The amount is calculated by multiplying no. of building with average compensation cost per building of RM56.90

(d) Project Revenue

Table 3.16 summarizes anticipated project resources and their amounts.

Table 3.16  
Revenue Estimate

Revenue	Amount (RM000)
Federal Share	10,100
State & Local Authority Share	840
Agency Share	3,106
Disposition of Financial Land	7,708
Revenue Total	21,754

3) Annual Financial Plan

Table 3.17 indicates the annual financial plan for years 1997 to 2003 and Table 3.18 indicates its percentage proportion.

Table 3.17  
Financial Land

<Expense>

Project Cost	Amount (RM000)							
		1997	1998	1999	2000	2001	2002	2003
Construction Cost	12,513	0	626	1,877	3,128	3,754	1,877	1,251
Compensation Cost	4,316	0	432	1,079	1,295	863	432	215
Survey Cost	219	55	44	11	33	11	33	32
Project Management	3,764	301	452	565	866	678	489	413
Conversion Premium	374	0	0	0	112	150	75	37
Alienation Premium	0	0	0	0	0	0	0	0
Subtotal	21,186	356	1,554	3,532	5,434	5,456	2,906	1,948
Interest	10.00%		36	195	294	43	0	0
Total	21,754	356	1,590	3,727	5,728	5,499	2,906	1,948

Cont. Table 3.17

## &lt;Revenue&gt;

Revenue	Amount (RM000)							
		1997	1998	1999	2000	2001	2002	2003
Federal Share	10,000	0	0	2,525	3,030	3,030	1,515	0
State & Local Authority Share	840	0	0	210	252	252	126	0
Agency Share	3,106	0	0	0	0	1,242	1,242	622
Disposition of Financial Land	7,708	0	0	0	3,854	2,505	23	1,326
<b>Total</b>	<b>21,754</b>	<b>0</b>	<b>0</b>	<b>2,735</b>	<b>7,136</b>	<b>7,029</b>	<b>2,906</b>	<b>1,948</b>

Table 3.18  
Cost Disbursement Plan

## &lt;Expense&gt;

Project Cost	1997	1998	1999	2000	2001	2002	2003
Construction Cost	0.00%	5.00%	15.00%	25.00%	30.00%	15.00%	10.00%
Compensation Cost	0.00%	10.00%	25.00%	30.00%	20.00%	10.00%	5.00%
Survey Cost	25.00%	20.00%	5.00%	15.00%	5.00%	15.00%	15.00%
Project Management	8.00%	12.00%	15.00%	23.00%	18.00%	13.00%	11.00%
Conversion Premium				30.00%	40.00%	20.00%	10.00%
Alienation Premium				30.00%	40.00%	20.00%	10.00%

## &lt;Revenue&gt;

Revenue	1997	1998	1999	2000	2001	2002	2003
Federal Share	0.00%	0.00%	25.00%	30.00%	30.00%	15.00%	0.00%
State & Local Authority Share			25.00%	30.00%	30.00%	15.00%	0.00%
Agency Share					40.00%	40.00%	20.00%
Disposition of Financial Land				50.00%	30.00%	10.005	10.005

### 3.10 Contribution Ratio

#### 1) Calculation of Contribution Ratio

Additional space for basic infrastructures such as roads, rivers and open spaces, and financial land must be balanced by landowners' contribution. The necessary areas are 98,656 sqm for the basic infrastructure and 75,475 sqm for the financial land. Table 3.19 calculates the corresponding contribution ratios.

Table 3.19  
Contribution Rate Estimate

Item		Unit	Amount	Remarks
Registered Area before LR	(A)	(sqm)	305,226	
Actual Area before LR	(B)	(sqm)	305,226	
Replot & Financial Land After LR	(C)	(sqm)	206,570	
Contribution Area	For Public Facility	(D)	98,656	
	For Financial Land	(E)	75,475	
	Total	(F)	174,131	(F) = (D) + (E)
Contribution Rate	For Public Facility	(G)	( % )	32.32 (G) = (D) / (B) *100
	For Financial Land	(H)	( % )	24.73 (H) = (E) / (B) *100
	Aggregated Area	(I)	( % )	57.05 (I) = (G) + (H)

#### 2) Calculation of Development Benefit

A difference in the total land value before and after the project is estimated to be RM 9,576,000. The amount can be exchanged with a land of 133,426 sqm after the project.

An area of 75,475 sqm or an equivalent value of RM 7,708,000 will be disposed as financial land while the rest or an equivalent value of RM 1,814,000, will be internalized as landowners' development benefit.