9 CASE STUDY FOR KG. KUANTAN, ULU SELANGOR

9.1 Planning Framework

The Kg. Kuantan study area is located about 40 km north of Kuala Lumpur. Kg. Kuantan is a typical Malay kampung developed on Malay reservation land. Its urbanization has gradually accelerated with the construction of the North-South Expressway and the announcement of a number of impact projects. A study was also made on the development of the area as a rural growth center. The Kg. Kuantan area has been selected, being in contrast to the Kg. Seri Subang, for a study on the feasibility of LR application in a rural setting. Methodology and approach taken in this study are similar to that of Kg. Seri Subang case study.

9.2 Concept Plan

Development Potentials and Constraints: The Kg. Kuantan Concept Plan encompasses the area between Batang Kali and Kg. Kuantan along Sg. Batang Kali and administratively belongs to Mukim Batang Kali, Ulu Selangor District. The area is located 20 km south of Kuala Kubu Bahru, the administrative center of Ulu Selangor, and Kg. Kuantan is 4 km east of Batang Kali township where the Federal Route No. 1 passes. Urban and industrial developments in Ulu Selangor are insignificant compared to other regions inspite of the fact that the district is located only 20 to 70 km north of Kuala Lumpur. However, with the completion of the North-South Link Expressway for Kuala Lumpur - Tanjung Malim - Bidor sections, various development projects and policy directions have been made available. Although the impact of these changes on the study area has not been assessed nor reflected in any official development plans, it is considered that the development potentials and opportunities for the Kg. Kuantan study area would increase considerably over time.

Development Directions: Development directions of the area is set forth in both regional and local development context as follows:

Regional Level

- Zoning for effective urban development,
- Improvement of accessibility,
- Provision of planned housing area, and
- Strengthening of urban centers.

Local Level

- Improvement of basic living conditions,
- Flood control of Sg. Batang Kali, and
- Development of rural centers.

Concept Plan: In order to provide a more concrete basis for the concept plan, a development structure for the region has been conceived, wherein the strengthening of the regional road network and upgrading of urban center, especially at Batang Kali are proposed. The proposed Concept Plan intends to encourage adequate urbanization of the area and modernization of village activities by strengthening accessibilities between Batang Kali, providing better infrastructure along the new/improved roads, enforcing clearly defined zoning for more adequate land use, introduction of new types of development such as housing scheme, homestead, etc. and improving industry infrastructures and so on. Sungai Batang Kali will function as an important environmental axis in the community while calamitous threat to the residents will be minimized.

Figure 9.1
Aerial View of Kg. Kuantan Area

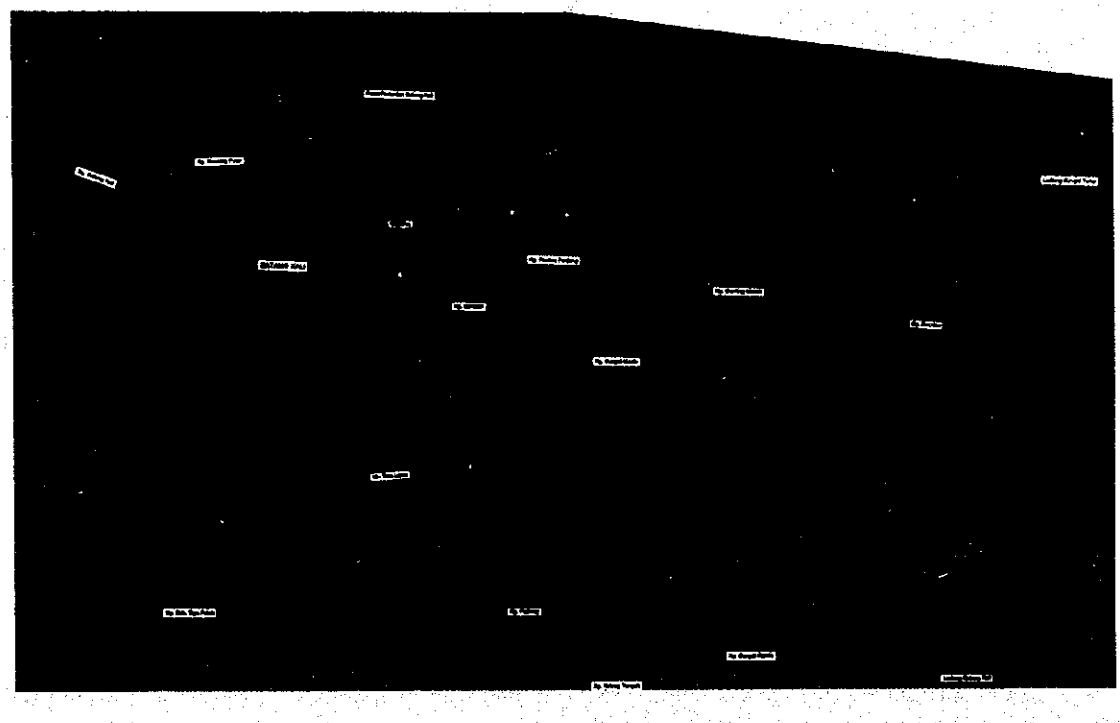


Figure 9.2
Proposed Regional
Development Structure

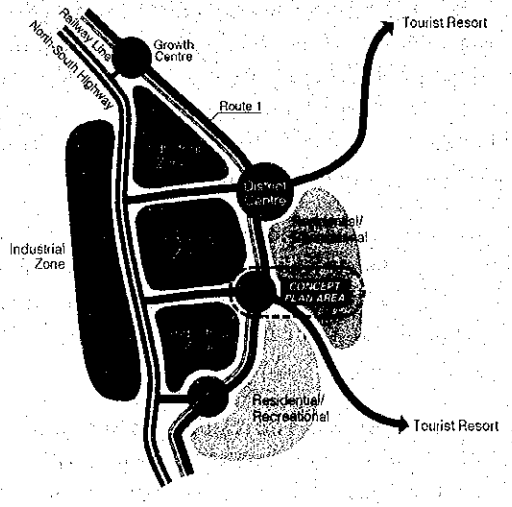
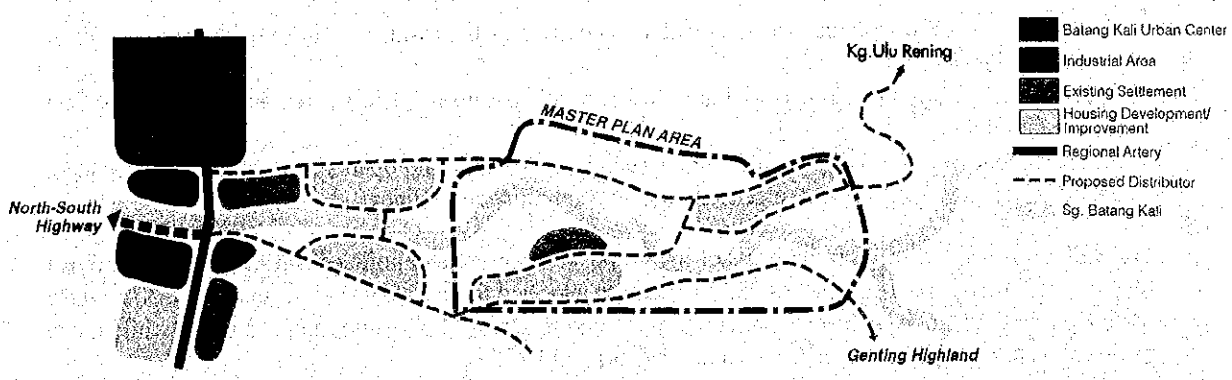


Figure 9.3
Development Structure of
Concept Plan Area



9.3 Master Plan

Profile of the Area: The Master Plan Area with approximately 229 ha. is composed of Kampung Sungai Masin, Kampung Genting Malek and Kampung Kuantan. Existing land use is dominantly agriculture (75%) and residential (20%). The area is surrounded with vast Malay Reservation Land, private estates, forest reserve and Batang Kali township. Road network in the area is not well developed. The roads linking with Batang Kali, Kampung Ulu Rening and Genting Highland are 8 to 12 meters wide, while the others are less than 6 meters. They are mostly paved but are not well-maintained. Even though there are abundant agricultural and undeveloped land, planned open space is successfully provided.

Sg. Batang Kali with 113 sq.m. catchment area and with width of 10 - 20 m passes through the area with its tributaries of Sg. Tamu in the east and Sg. Kental to the north. Floods frequently occur between October and March. When the water level exceeds the warning level of 35.81 m at Dijaian Bridge in Batang Kali, the alarm is automatically activated. This happens two to three times a year. The natural river in the area frequently changes while the reserve land for the river is not well maintained. From Batang Kali to the downstream, dredging work is carried out every three years by the District DID. On the other hand, the upstream is a natural river.

Socio-Economic Characteristics: The area's population (1,027 as of 1993) is dominantly of Malay (99.4%) stock. Only 31% of the population is employed of which about a third is self-employed. Main employment sectors are manufacturing (37%) and government services (23%). Agriculture (20%) is no longer the economic basis of the area. Average household income is RM 930 gained by an average number of 1.3 workers per household.

Most of the houses are provided with piped water, though some use wells. For sewerage, flushing and filtration types are used and it is discharged to the septic tank provided in the perimeter. TNB supplies electricity for most of the houses. The ownership of telephones is less than 30% of the households, while only three public phones are available. Other main public services provided in the area are a maternal clinic, three suraus, a primary school, two kindergartens, two public halls, a playground and a cemetery. All higher level of facilities such as mosque, secondary above school, hospital, government offices, etc. are located in Batang Kali and other towns.

Activity areas of the residents extend widely. For commuting, 54% complete their trips within the area while 22% to Batang Kali, 18% to Kuala Kubu Bahru/Rawang and 6% as far as Kuala Lumpur. Coverage of schooling is mainly within the area (59%) and Batang Kali (34%). Daily shopping is completed mostly in the area (89%), while occasional shopping is done in Batang Kali (74%) followed by Kuala Lumpur (14%) and Rawang (9%).

Improvement Needs: The residents' assessment on current living environment and public services, on the whole, was that they were dissatisfied with their park/playground, road/bridge, garbage collection, higher education, drainage, public transport, and telephone.

Planning Directions:

- Creation of new rural center to support daily activities of the residents and to meet higher level of community needs.
- Development of planned residential area to improve existing residential area and to accommodate future population.
- Improvement of infrastructure and utilities such as road, park and open space, rivers and drainage, piped water, sewerage system, electricity and telecommunication lines.

Overall Land Use Plan: On the basis of the proposed development policies and framework, land use plan has been prepared. Total land of 229 ha. has been allocated for private use (132 ha or 57.6%). Major uses of public land are river enclosing retention pond and reserve (21.3%) and road (13.0%), while those of private land are agriculture (45.3%) and residential (11.8%).

Figure 9.4
Physical Condition in the Master Plan Area

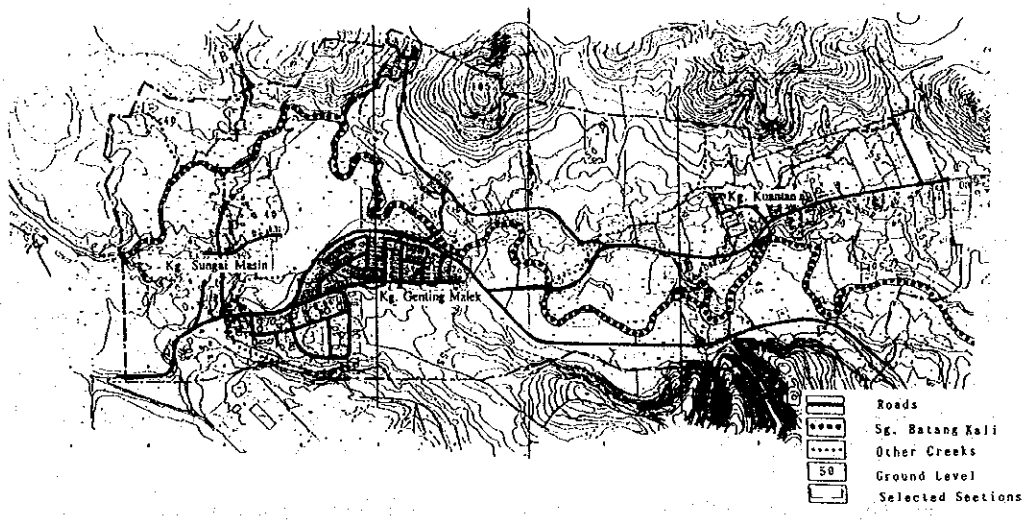


Figure 9.5
Land Use Plan

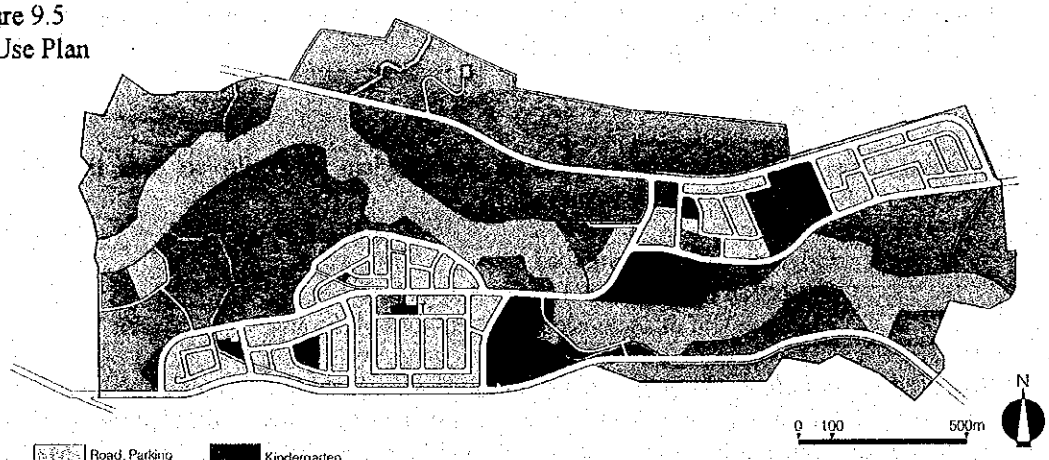


Figure 9.6
Assessment of Living Environment by Residents

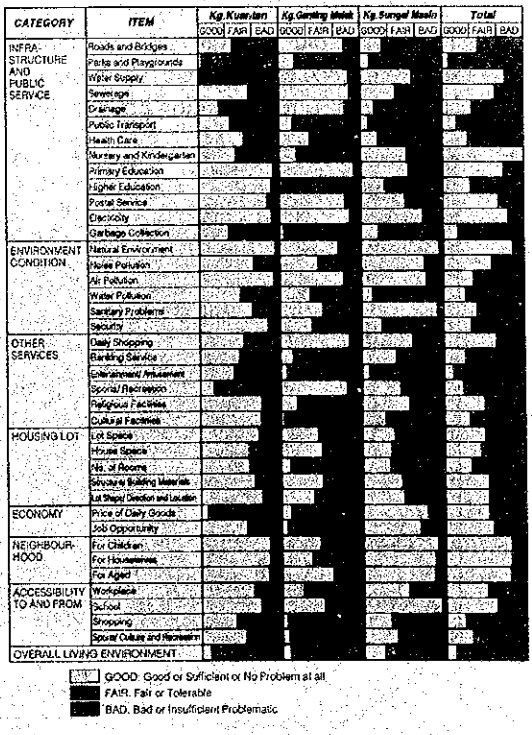


Table 9.1
Area Allocation by Land Use

Land Use		Area	
		Ha	%
Public Use	- Open Space	9.43	4.1
	- Road	29.80	13.0
	- River & Detention Pond	48.72	21.3
	- Educational Facilities	2.90	1.3
	- Water Tank	0.10	0.1
	- Oxidation Pond	2.12	0.9
	- Water Treatment Plant	1.59	0.7
	- Community Halls	0.53	0.2
	- Religious Facilities	1.66	0.8
	Sub Total	97.11	42.4
Private Use	- Residential Area	26.96	11.8
	- Commercial Area	1.08	0.5
	- Agriculture	103.78	45.3
	Sub Total	131.82	57.6
	Total	228.93	100.0

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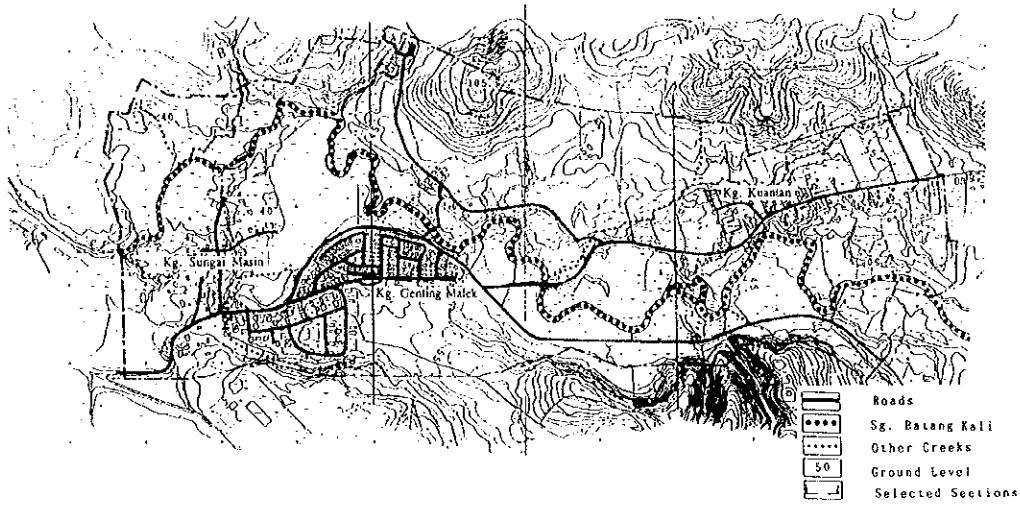

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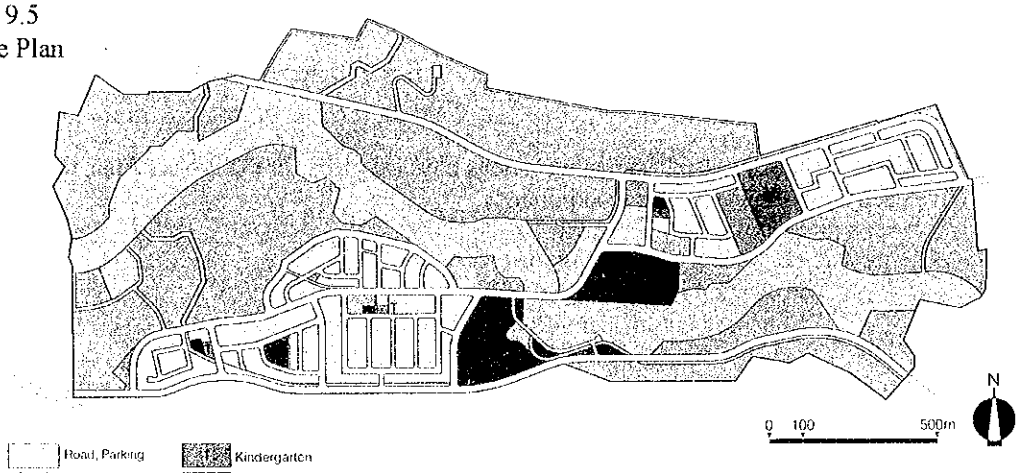

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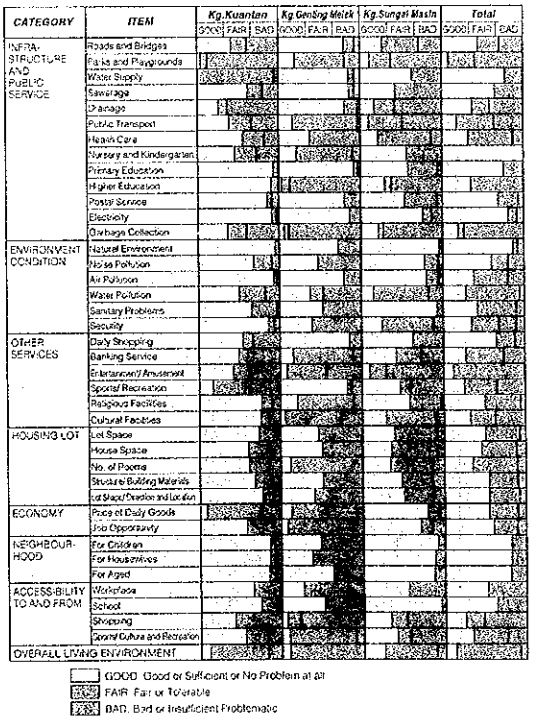


9.4 LR Layout Plan

A. Land Characteristics

Existing Land Use: At present 45 ha. Project Area inhabited by 294 residents and providing 30 lots for employment for agriculture and 10 lots for others is significantly of rural nature of a typical Malay village. The existing land use is dominantly occupied by agriculture/undeveloped use (73.8% of the total area), followed by residential use (12.2%), public facilities use (10.8%) and commercial use (3.1%).

Existing Condition of Lands: The Project Area includes state land, reserve land and alienated land. The state land consists of roads and rivers, while alienated land is for agricultural purposes. Reserve lands cover school, water treatment plant, cemetery, community hall, etc. All alienated lands are with freehold status and Final Titles except one lot. No difference in the area is observed between the registry and the topo-map produced by the Study Team. There are three lots under caveat. The entire area is designated as Malay Reservation Land. The lots are alienated only to Malays and selling, leasing and charging to non Malays are prohibited.

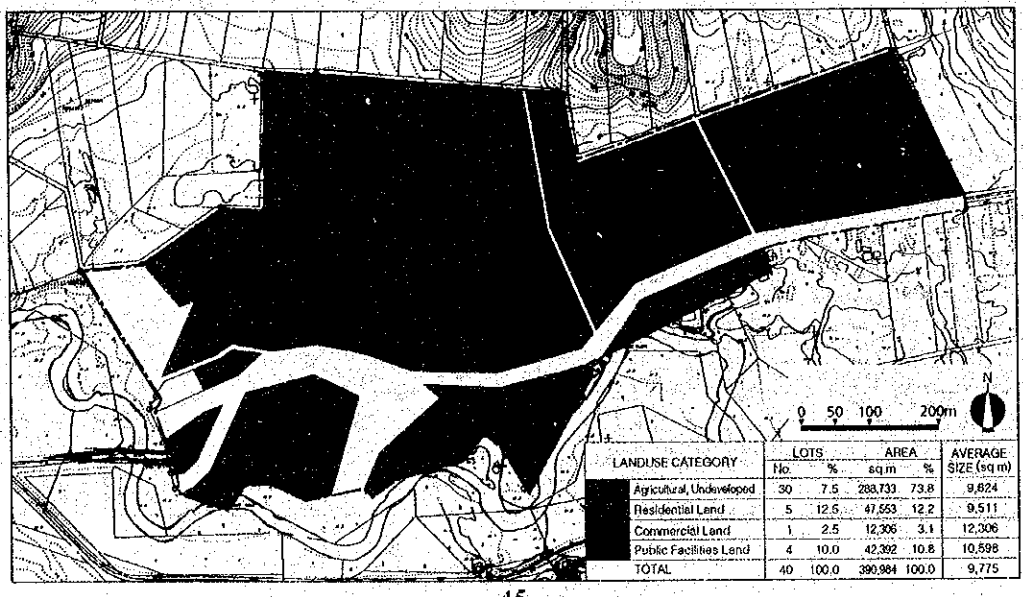
Building: There are 135 buildings in the Project Area including 94 housing and 21 public facilities. As to residential type, detached houses (38 units) and kampung houses (48 units) are the most popular. The buildings are located mostly along the major road.

B. LR Layout Plan

Planning Considerations: In preparing various physical plans for the Project Area, the following points have been duly considered and incorporated:

- Upgrading the existing road
- Protection from the flood of Sg. Batang Kali
- Enhancement of socio-economic activities of the area

Proposed Layout Plan: The proposed layout shows a concentration of public facilities in the area and the rest are residential areas. Residential lot size and shape will be standardized to 60' by 80' - 100' (20m by 24 - 30m) which is the practice in the existing housing scheme in Kg. Genting Malek. Existing agriculture areas will remain as they are except the area required for road and waterway construction. A commercial site will be provided at the proposed rural center. The site can accommodate two shophouses or market space. The existing primary school will be expanded in compliance with the planning standard. The existing old kindergarten school built on a narrow site will be transferred to a new site with enough space and good environment. Other public facilities to be provided include a park, community hall, clinic, cemetery, mosque, retention pond, and an oxidation pond.



LANDUSE CATEGORY	LOTS No.	LOTS %	AREA sq.m	AREA %	AVERAGE SIZE (sq.m)
Agricultural, Undeveloped	30	7.5	288,733	73.8	9,624
Residential Land	5	12.5	47,553	12.2	9,511
Commercial Land	1	2.5	12,306	3.1	12,306
Public Facilities Land	4	10.0	42,392	10.8	10,598
TOTAL	40	100.0	390,984	100.0	9,775

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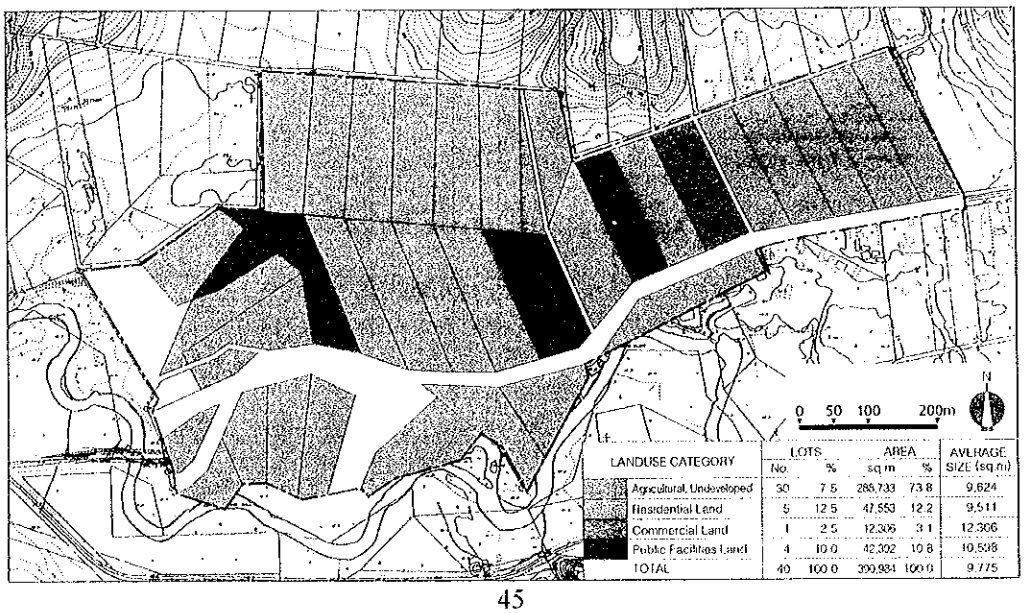

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Figure 9.8
Land Classification by Lot

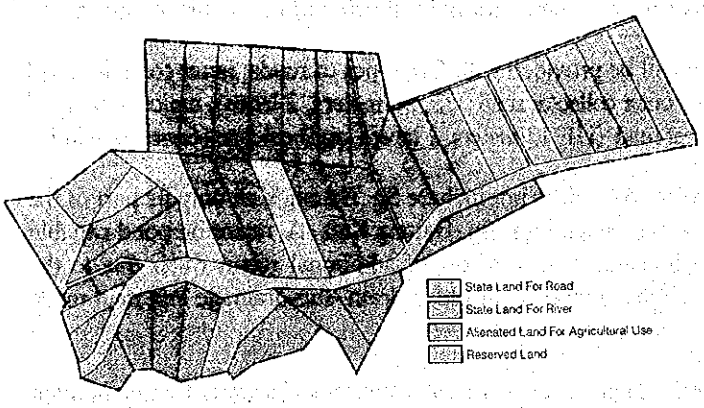

Table 9.2
Classification of the Lands

Classification		Area		No of Lot
		sqm	(%)	
State Land	Road	36,887	(8.1)	-
	River	23,836	(5.3)	-
	Sub-total	60,723	(13.4)	-
Reserve Land	School	11,129	(2.5)	1
	Water Treatment Plant	15,335	(3.4)	
	Cemetery	15,927	(3.5)	2
	Community Hall	12,307	(2.7)	1
	Unknown	31,060	(6.9)	2
	Sub-total	85,758	(19.0)	6
Alienated Land	Agriculture	305,226	(67.6)	34
Grand Total		457,707	(100.0)	

Source : Study Team Land Title Survey 1994

Figure 9.9
Distribution of the Buildings by Type

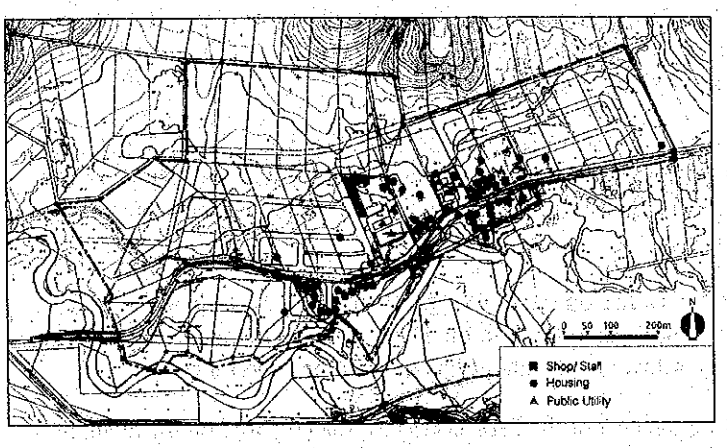

Table 9.3
Existing Buildings by Use

Use	No.	Floor Area (sqm)	
		Total	Average
Public Facility	21	6,028	287
Housing	94	10,309	110
Retails Shop	3	246	82
Restaurant/Canteen	2	213	106
Office	2	807	403
Animal Shed	3	227	109
Garage	10	285	29
Total	135	18,115	134

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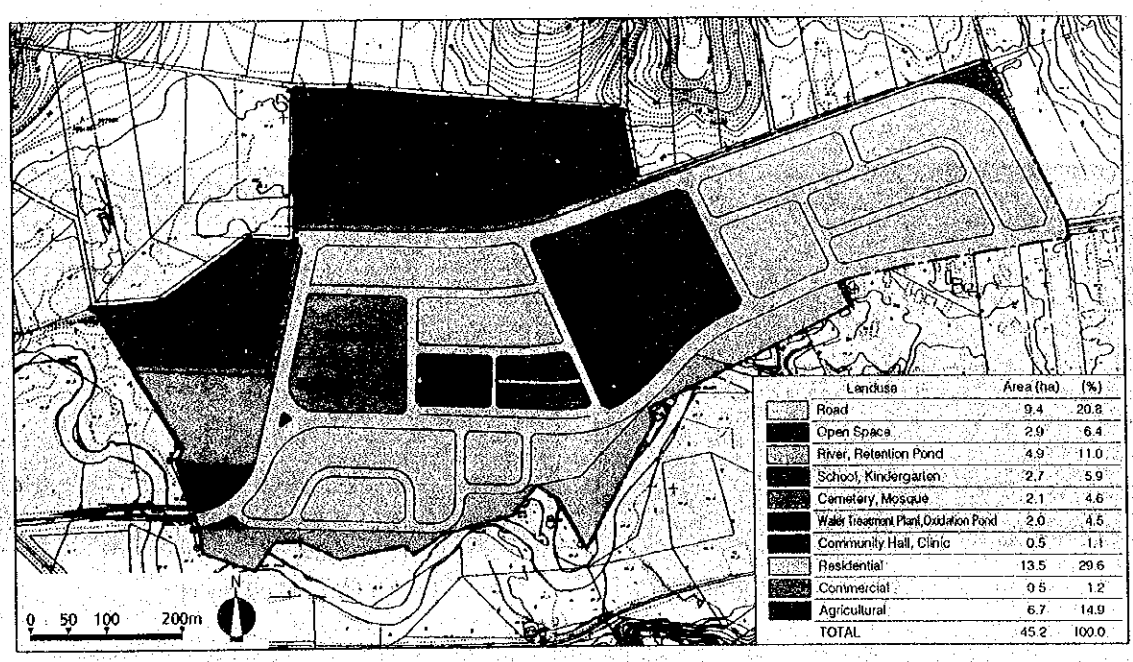
Figure 9.10
Layout Plan for Kg. Kuantan Project Area



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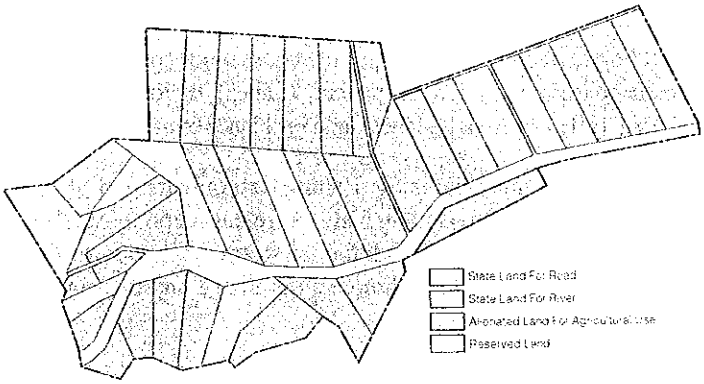

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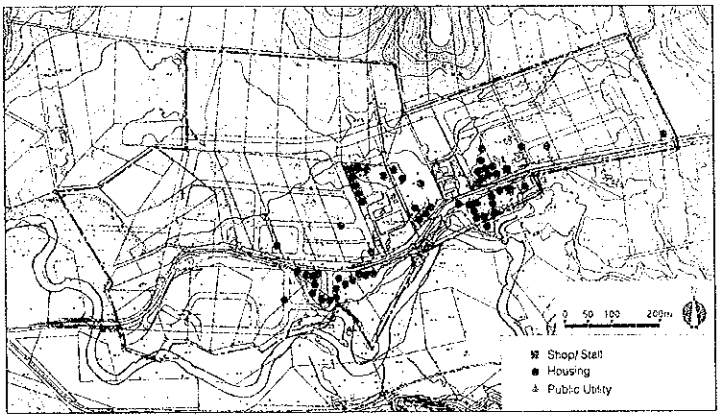

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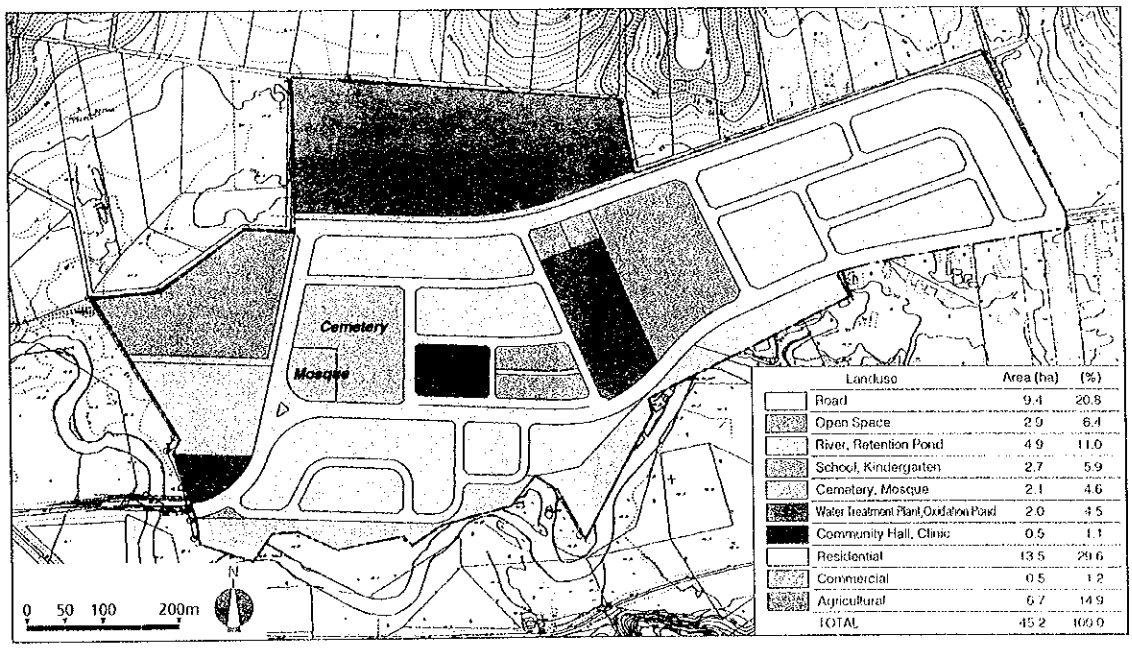


C. LR Design for Infrastructure and Public Facilities

Infrastructure Development Plans: Plans were prepared for the following infrastructure components:

(i) Road Network: The Project Area will be provided with five types of roads; inner collector road (U2, 20 meters width with 2 lanes), outer collector road (U2, 20 meters, 2 lanes), major local road (U1, 15 meters, 2 lanes), minor local road (U1, 12 meters, 2 lanes), and backlane (6 meters width).

(ii) River and Drainage Plan: The Project Area does not include Sg. Batang Kali only its part of the river reserve. There is a natural creek which joins Sg. Batang Kali. A retention pond capable of storing 18,500m^2 of water will regulate the outflow of additional storm water due to the development. Drainage system will be composed of block drain, sub-drainage and man-made waterway.

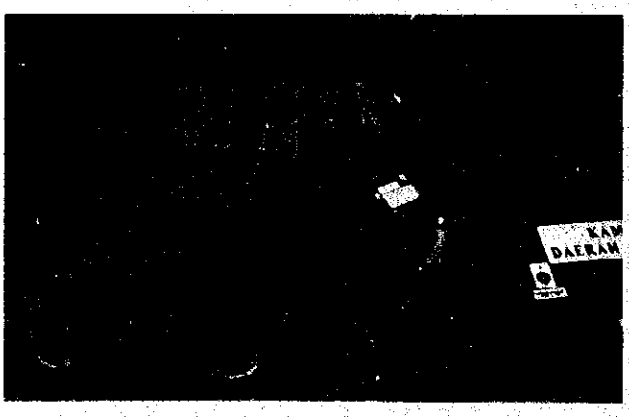
(iii) Water Supply and Disposal System: There is a water intake station and a water treatment plant both managed by JBA at Kg. Kuantan. Future water demand of the Project Area is estimated to be 398 m^3. The existing water supply system can work in the future only when new water pipes connecting to consumers are installed.

(iv) Sewerage Disposal System: Sewerage generated in the area will not be discharged into roadside drains or artificial waterway or Sg. Batang Kali directly. Sewers will be installed. The effluent will be conveyed to an oxidation pond and retained for a sufficient period of time until micro-organisms will break up into a more stable end product.

(v) Electricity and Telecommunication: To meet the demand of increased population, an electric substation will be installed in the proposed rural center with a capacity of 1 MVA which can cater to about 400 households. To meet the increase in telephone demand, a distribution point will be installed on the road reserve.

(vi) Land Development: The Project Area lies on the foot of gentle north to west slope with 1.2% gradient, while a tiny natural creek runs north to south through the area. To minimize the adverse environmental impact due to the earthwork, adequate measures will be undertaken.

Estimated Construction Cost: Construction cost of the Project was estimated based on the available data on similar construction work undertaken in the region as well as the experiences and knowledge of an experienced local consulting engineer employed by the Study Team. The total construction cost is RM 14.3 million which is equivalent to RM 317,503/ha, RM32/sq.m. or RM 2.9/sq.ft.



Before the Project

After the Project

Figure 9.11
Retention Pond Sectional Design

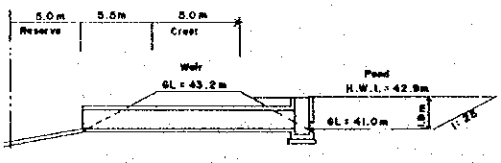


Figure 9.12
River and Drainage System Plan

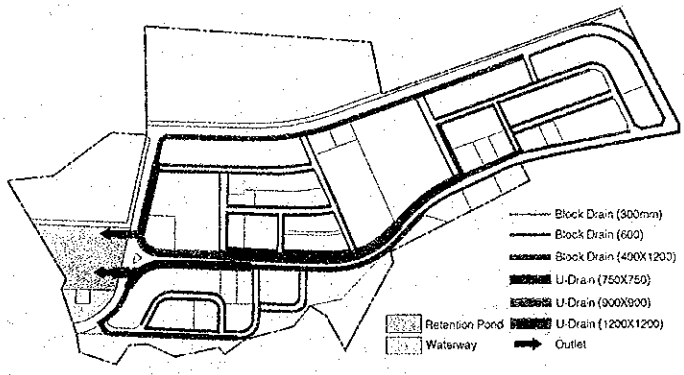


Figure 9.13
Present Water Supply System in the Region

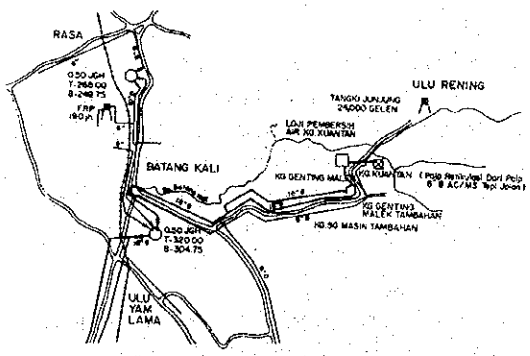


Figure 9.14
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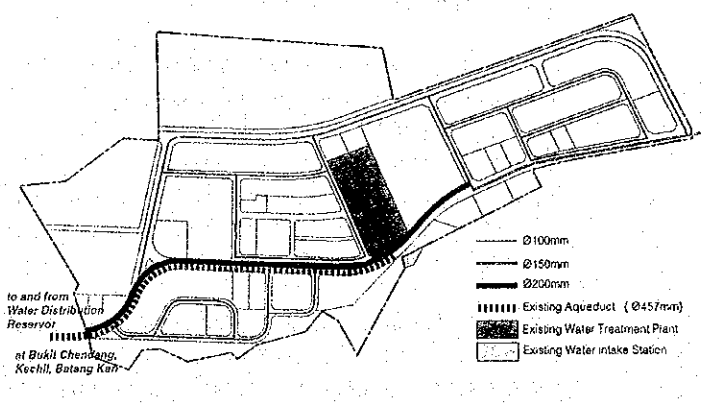


Figure 9.15
Sewerage System Plan

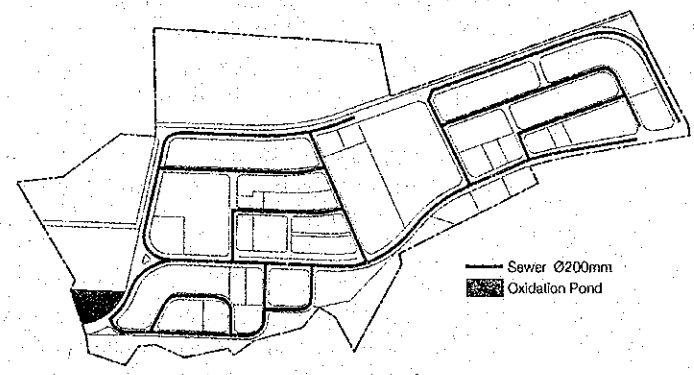
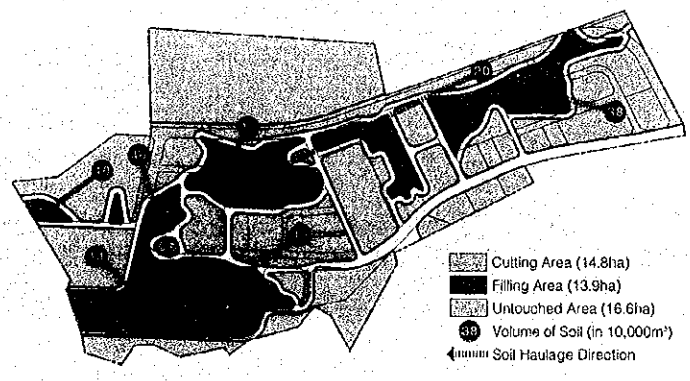


Figure 9.16
Land Development Plan



9.5 Project Implementation Plan

LR Project Implementation Planning and Assumptions: A similar exercise made for the Kg. Seri Subang study area has been made for the Kg. Kuantan, Ulu Selangor study area. The same assumptions made in the Kg. Seri Subang project were applied. An issue unique to this project area is the effect of Malay reservation land which only can be owned, used and transacted among Malays. With this, exchange of lands with or without money will be a planning constraint. Replotting planning becomes more complicated and constrained especially when a project area is composed of both Malay reservation lands and other lands. Financial land planning will also be affected because they can only be sold to Malays.

Land Transformation Plan: The land use will change significantly due to the Project. Lands for basic infrastructures increase substantially from the existing 6.1 ha (13.4% of the total area) to 17.3 ha (38.1%). The increase was contributed by roads and parks/open space, river/waterway and retention pond. Lands for community services will slightly decrease from 8.6ha (19.0% of the total area) to 7.3 ha. (16%). Currently unutilized land (3.1%) will be converted to the sites for basic infrastructure. On the other hand, lands for private use will decrease from 30.5 ha. (67.6% of the total area) to 20.7 ha (45.9%). However, land use which was largely under agriculture will be transformed to residential (13.3 ha.), commercial (0.6 ha.), and agriculture (6.7 ha.).

Land Valuation: Lands "before" and "after" the LR Project were evaluated by land use type. The value "before" Project was determined in consultation with Valuation Department, while those "after" Project were estimated by comparing the quality of the Project with similar developments under similar conditions. The average land value of RM 17/m^2 "before" Project is expected to increase to RM 72/m^2 "after" Project. Thus, the total land value will increase from RM 5.3 million to RM 14.8 million. Site utility ratio defined as a ratio to be calculated by dividing the average land values "after" Project by that of "before" Project is 4.6.

Financial Land Estimate: The financial lands planned in the area are mostly for commercial and residential use taking into account the marketability and expected land value. A total of 75,475 sq.m. to generate RM 7.7 million are necessary to sustain the project. The maximum area which can be allocated for financial land is 133,426 sq.m., while the actual allotment is 75,475 sq.m. which accounts for 56.6% of the maximum allowable area.

Financial Plan: Financial viability of the project was studied as follows:

(i) Project Cost: The estimated project cost is about RM 21.8 million of which the construction cost shares the largest portion (57.5%) followed by compensation cost (19.9%), project management cost (17.3%) etc. Land conversion premium shares an insignificant portion of the cost.

(ii) Project Revenue: The revenue sources of the project include the shared costs of Federal Government, State Government, Local Authority and relevant agencies, and sale of financial land. The total revenue of the project is expected to be RM 21.8 million of which sale of financial land contributes 35.4% of the total while federal share 46.4%, state and local authority shares 3.9% and various agencies 14.3%.

(iii) Financial Plan: The disbursement of the project costs and generations of the revenues are more or less made over seven years between 1997 and 2003. The cost and revenues will be balanced by year 2001, though this exercise at this stage of the study involves a lot of uncertainties such as project period, the sale of financial land, etc.

(iv) Contribution Rate: Estimated contribution rates are 32.3% for public facility and 24.7% for financial land. Therefore, the aggregate contribution rate for landowners becomes as high as 57.1%.

Figure 9.17
Diagram of Land Use Transformation

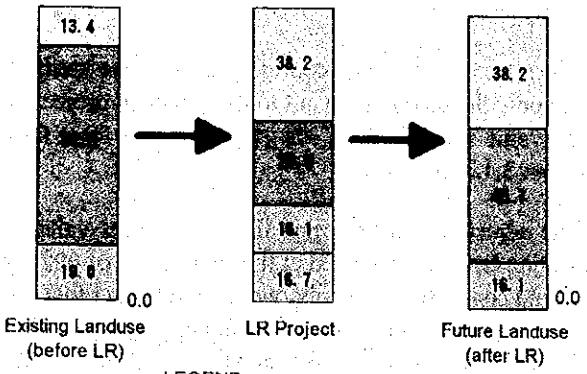


Table 9.6
Planned Financial Lands and Estimated Value

Use	No of Lots	Area (sqm)	Average price (RM/sqm)	Amount (RM'000)
Commercial		5,800	368	2,134
Residential		69,675	80	5,574
Total		75,475	-	7,708

Table 9.7
Estimate of Maximum Contribution for Financial Land

Item	Amount	Remarks
Total value of private use lands before LR : RM 000	5,250	Refer to Table 9.4
Total value of private use lands after LR : RM 000	14,826	"
Total increased value of private use Lands : RM 000 (A)	9,576	"
Unit Value of private use lands after LR : RM/sqm (B)	71.77	"
The Maximum Area for Financial Land Contribution : sq.m. (C)	133,426	(A) / (B)
Actually planned Financial Land : sq.m. (D)	75,475	Refer to Table 4.1.15
Actually planned Financial Land : % to maximum	56.6	(C)/(D)

Table 9.4
Estimate of Land Value

Land Use / Alienated Land	Before LR			After LR		
	Unit Price (RM/sqm)	Area (sqm)	Amount (RM 000)	Unit Price (RM/sqm)	Area (sqm)	Amount (RM 000)
Private Use						
Agriculture	17.20	305,226	5,250	30.00	67,400	2,022
Building : Commercial	-	0	0	368.00	5,800	2,134
Building : Medical, Welfare	-	0	0	-	0	0
Building : Residential	25.00	0	0	80.00	133,370	10,670
Industry : Medium Scale	-	0	0	-	0	0
Industry : Service	-	0	0	-	0	0
Private Use Total	17.20	305,226	5,250	71.77	206,570	14,826
Other Community Service						
Other Community Service Total	-	0	0	-	0	0
Alienated Land Total	17.20	305,226	5,250	71.77	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 9.8
Project Cost Estimates

Item	RM 000	(%)
Construction Cost	12,513	(57.5)
Compensation Cost	4,316	(19.9)
Survey Cost	219	(1.0)
Project Management Cost	3,764	(17.3)
Land Conversion Premium	374	(1.7)
Interest	568	(2.6)
Total	21,754	(100.0)

Table 9.9
Revenue Estimates

Revenue	RM 000	(%)
Federal Share	10,100	(46.4)
State & Local Authority Share	840	(3.9)
Agency Share	3,106	(14.3)
Disposition of Financial Land	7,708	(35.4)
Total	21,754	(100.0)

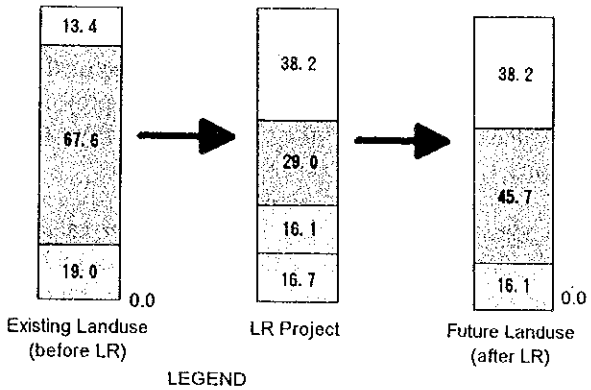
Table 9.5
Estimate of Land (Replot) Value and Site Utility Increase Ratio

Item	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 : RM 000	5,250 (A)	14,826 (B)
Site Utility Increase Ratio : (B)/(A)		4.17

Table 9.10
Contribution Rate Calculation

Item			Amount	Remarks
Registered Area before LR (sqm)		(A)	305,226	
Revised Area before LR (sqm)		(B)	305,226	
Development Plan & Financial Land after LR		(C)	206,570	
Contribution Area (sqm)	Basic Infrastructure	(D)	98,656	
	Financial Land	(E)	75,475	
	Aggregated Area	(F)	174,131	(F)=(D) + (E)
Contribution Ratio (sqm)	Basic Infrastructure	(G)	32.3	(G)=(D)/(B)*100
	Financial Land	(H)	24.7	(H)=(E)/(B)*100
	Aggregated Area	(I)	57.0	(I)=(G) + (H)

Figure 9.17
Diagram of Land Use Transformation



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	Financial Land	: (H)	24.7	(H)=(E)/(B)*100
	Aggregated Area	: (I)	57.0	(I)=(G) + (H)

9.6 Replotting Design Plan

Assumptions: Assumptions made in this exercise are similar to those made in Kg. Seri Subang. Without any statutory plan, it is assumed that the area is declared under rural growth center project of the Government. The lands in Kg. Kuantan are provided with Final Title.

Land Valuation: Land valuations were carried out as follows:

(i) Calculation of Street Value: Street values were calculated according to the same method as applied for Kg. Seri Subang project, where only the factors relevant to Kg. Kuantan project have been considered. The calculated street value index "before" the project ranges from 650 to 1,000, while "after" the project ranges from 3,120 to 3,350.

(ii) Valuation of Individual Lot/Block: The adjustment factors and their coefficient values are considered for individual lots. All the existing lands were valued at the same index of 697 since they are all designated as agricultural land and connected with only one road. On the other hand, the future lands were grouped into three land uses; commercial, residential and agricultural, and they were valued at different indexes. For residential purpose, the lands were valued within the narrow range between 3,245 and 3,485.

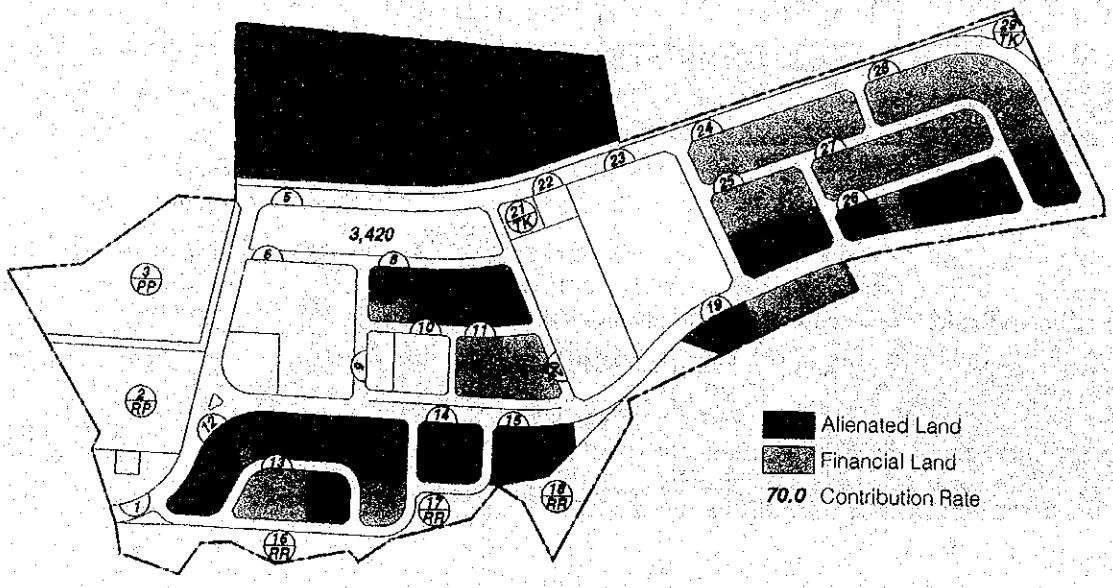
Replotting Design:

(i) Replotting Principle: Proportional valuation replotting calculative method is employed as a key formula to determine the replotted area. The proportional rate in the project area is calculated at 1.278 on the average. Since the replotting design is to be formulated based on the Project Implementation Plan, commercial area is first fixed as financial land and then replottings of the private land proceeded in compliance with the following policies:

- Basically, lots are to be replotted to original places or nearby.
- To ensure lot utilization after the project, replotted lots shall have enough frontage with rectangular shape.
- No financial land shall be allocated at the agricultural land.

(ii) Results: All original lots were replotted to new lots under some calculated contribution rates. The rate of residential land is as high as 70.6%.

Figure 9.18
Replotting Design



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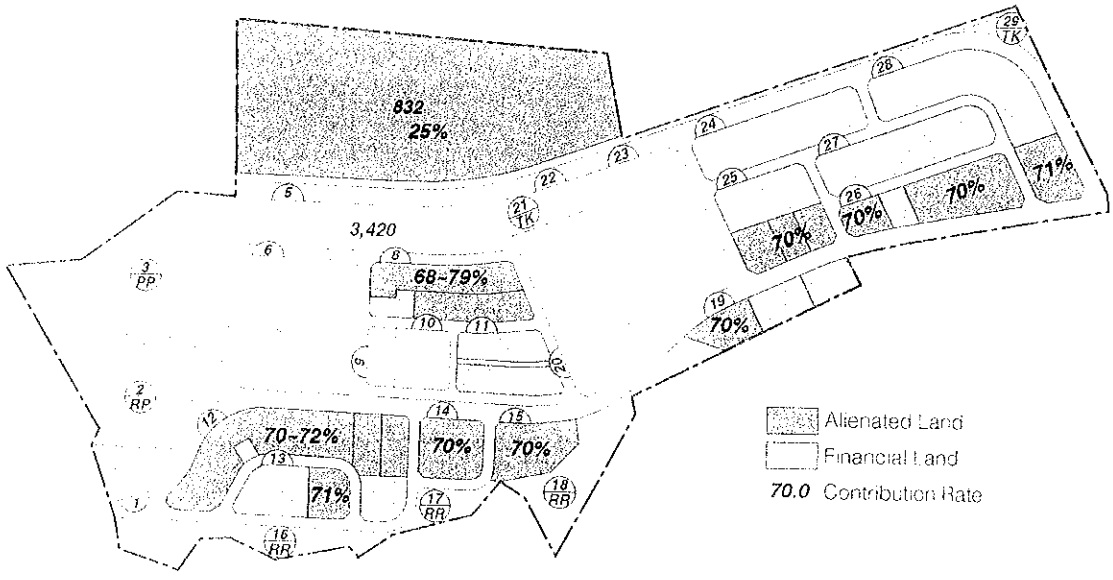

Figure 9.19
Street Value Index "Before" Project

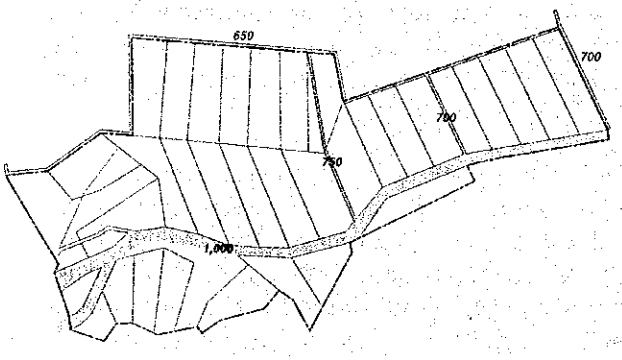

Figure 9.21
Individual Lot Valuation

Figure 9.20
Street Value Index "After" Project

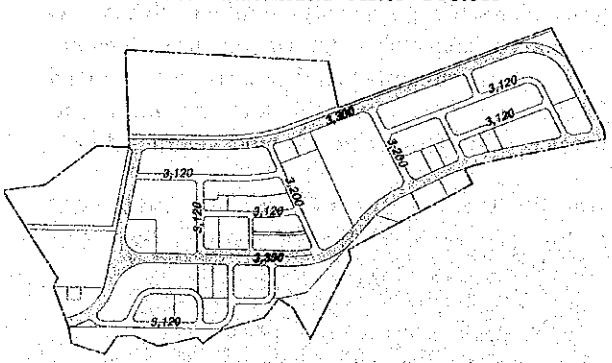

Figure 9.22
Block Valuation "After" Project

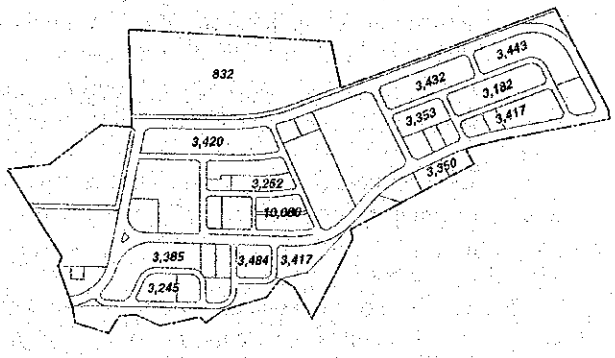

Figure 9.23
Location of Replots and Original Lots

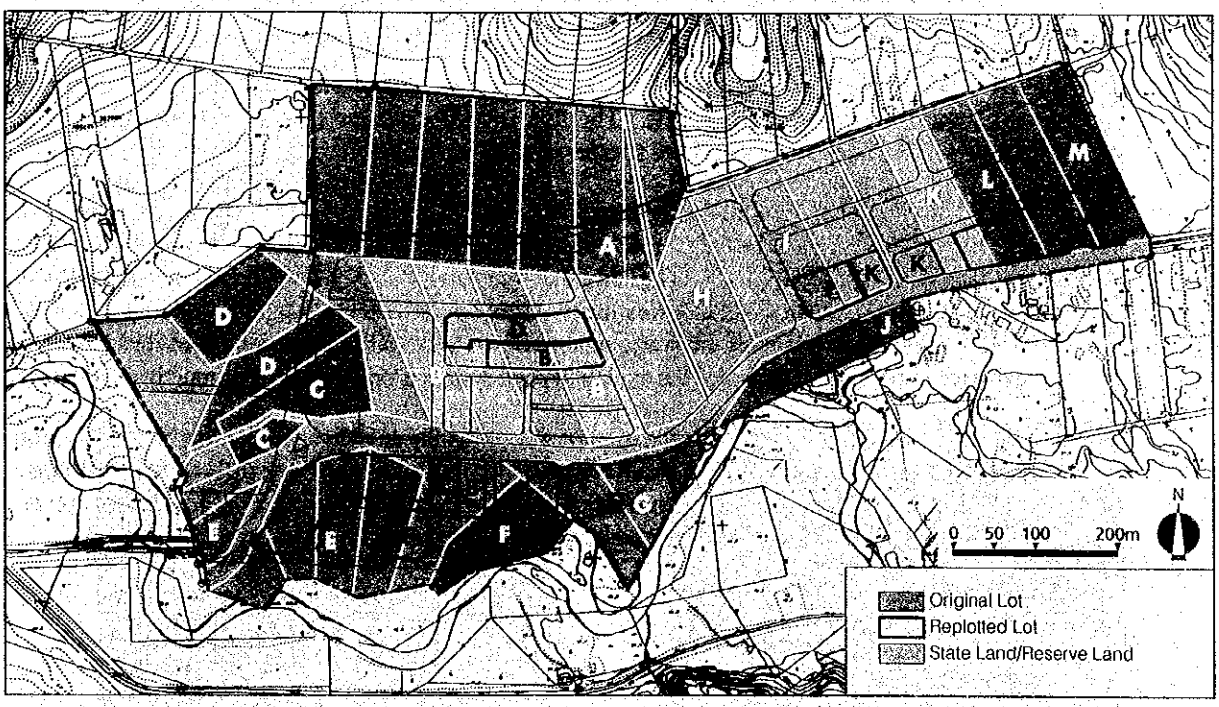

Figure 9.19
Street Value Index "Before" Project

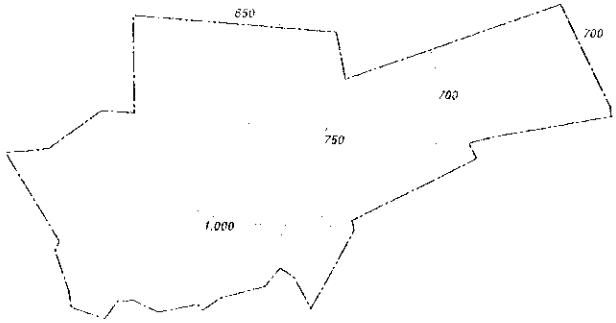

Figure 9.21
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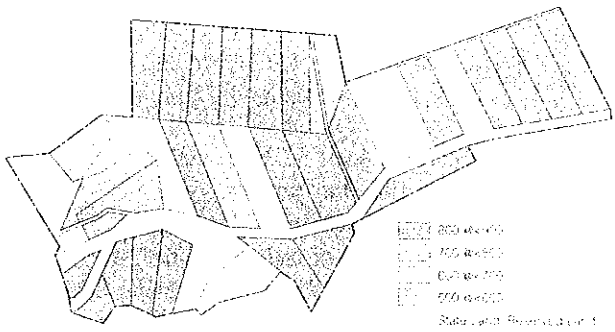
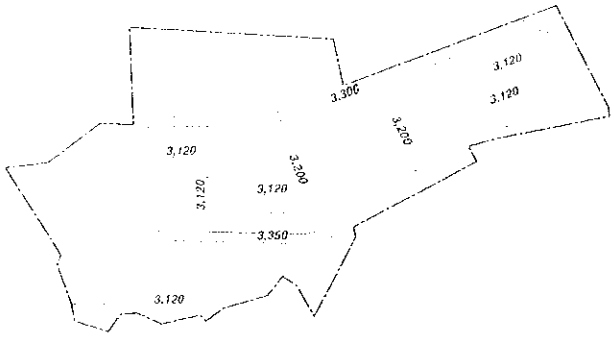


Figure 9.20
Street Value Index "After" Project



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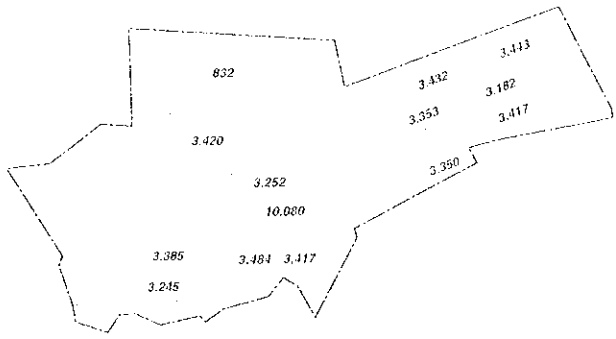

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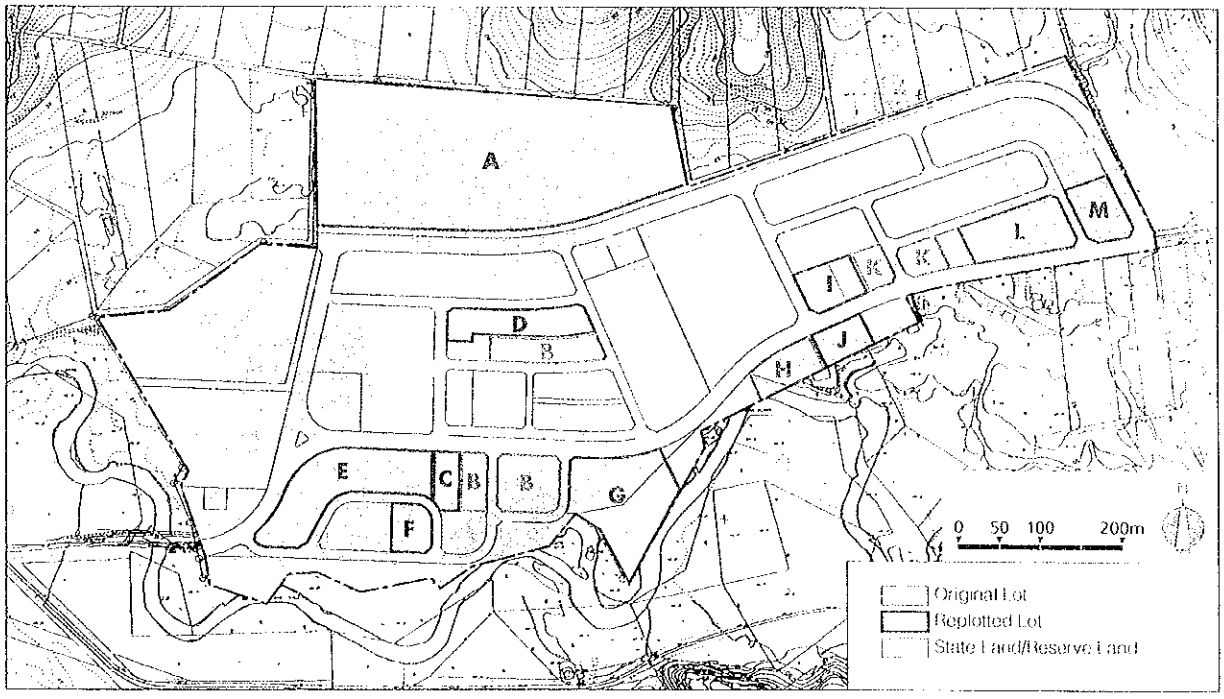


9.7 Assessment of the Project

Economic Aspect: Similar economic effects are expected from the project as explained in Kg. Seri Subang. However, the results are only insignificant. Although no quantitative analysis was made, the project is not considered economically viable. If an urbanized center is considered necessary in the area, it has to be justified more from the regional and social development aspects.

Financial Aspect: Financial viability of the project largely depends upon the expected increase in land value after the project. The result of the analysis indicates that due to the insufficient increase, contribution rate on landowners side as well as shared costs on the Government side become high. From the view point of "self-financing", it is considered that the project is not as attractive as Kg. Seri Subang, which is more favorably located. Since the Kg. Kuantan project area is considered as a "rural growth center", more financial commitment of the Govrnment would make the project financially feasible.

Social Aspects: Without any statutory plan covering the project area, LR planning process becomes difficult and long. Although the residents feel certain improvements are needed and show positive response to developments, they are basically contented with the existing environments. If a rural growth center is needed from the regional viewpoint, the public interest should be adequately balanced with the community interest and those of individual landowners. Since the study also suggests that the sale of financial land might not be so easy and contribution rates of the landowners are considerably high, it is not fair to develop the area using the LR unless financial commitment of the Government is more significant.

Environmental Assessment: The assessment was made following the EIA guideline of the Department of Environment. After a pre-scoping was conducted, following is the set of main issues for the project area:

(i) Soil Erosion and Sedimentation: The mean estimated soil erosion for the project site, under the worst case scenario is 160 tonnes/ha./year. With adequate mitigation measures, soil erosion is not expected to be a problem. Some measures are the clearing and grading of the land in phases and only when necessary, utilization of channels, diversions and various soil-trapping structures such as silt-traps and settling basins to control the channelling of water and sediments, revegetation of bare and exposed land, construction of retaining walls or terracing at steep cut and fill slopes to prevent slope failure and possible landslides, etc.

(ii) Loss of Flora and Fauna: The biological resources of the project site mainly comprise of species commonly found in a rubber estate. The flora and fauna found here are neither endemic nor indigenous. Thus, the loss of these species presents no threat to the biodiversity in the area.

(iii) Water Quality: Judging from the results of water sampling survey, the existing water quality of Sg. Batang Kali is clean as its organic and inorganic constituents are well below the values stated in Standard A of the EQA 1974. The sewerage system will be engineered to channel all effluent generated to the oxidation pond for treatment. Since land is available and the population density is low, adverse impacts on the water quality of the various waterways in the Project Area is expected to be minimal provided the oxidation pond system is operational and properly maintained.

(iv) Air and Noise Quality : Some degradation of the air quality may happen during the construction phase due mainly to movement of heavy vehicles. It is anticipated that the major sources of noise pollution will be produced by the construction activities such as earthworks and piling. However, these are all temporary effects and can be minimized with adequate construction method.

Figure 9.24
Identified High Risk Erosion Areas

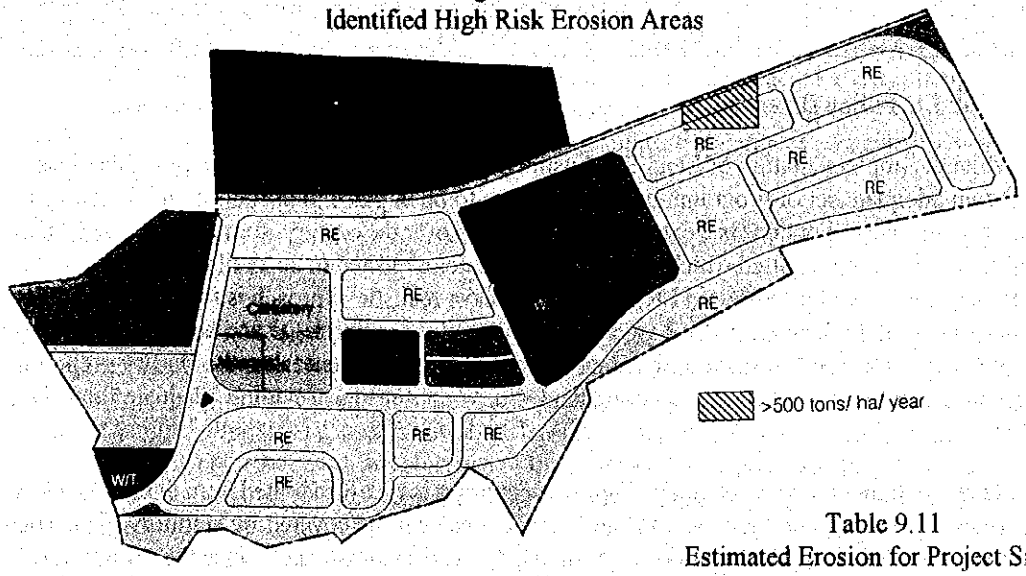
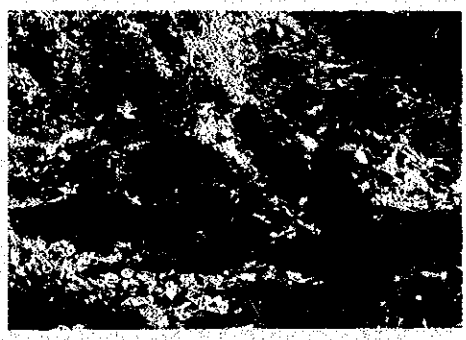


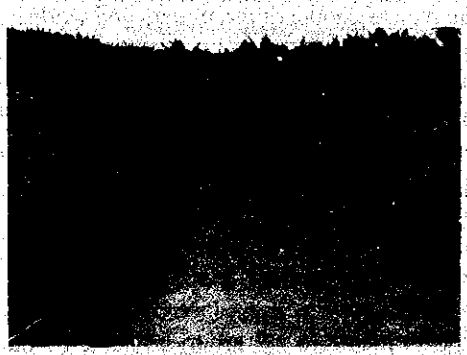
Table 9.11
Estimated Erosion for Project Site
under the Worst Case Scenario

Slope Direction	Slope Angle (°)	Area Involved		Erosion Range (Tonnes/ha/yr)
		(ha)	(%)	
Slope A (northeast-southwest)	0 - 5	21.2	46.9	51 - 96
	6 - 26	23.7	52.4	102 - 405
	> 26	0.3	0.7	2167
	TOTAL AREA	45.2	MEAN	169
Slope B (northwest - southeast)	0 - 5	25.1	55.5	46 - 96
	6 - 25	18.3	40.5	108 - 417
	> 26	1.8	4.0	791 - 971
	TOTAL AREA	45.1	MEAN	151


Rubber Plantation


Kampung House


Indiscriminate Dumping Site


Water Sampling Point


Major Road

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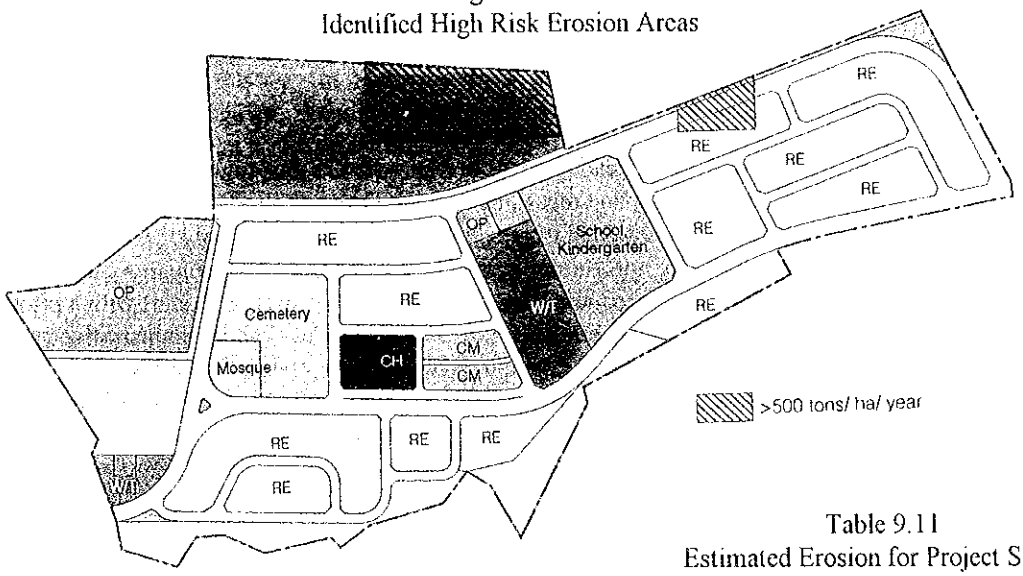

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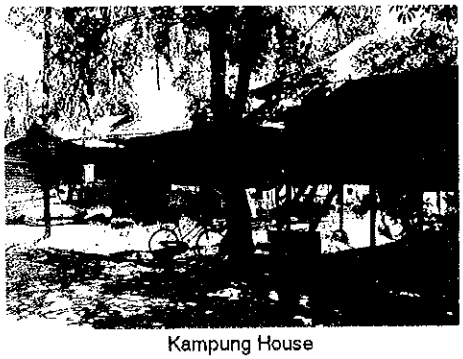
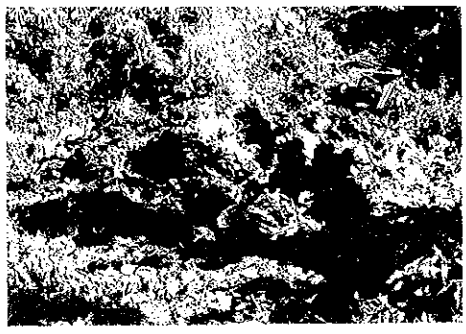

Kampung House


Indiscriminate Dumping Site


Water Sampling Point


Major Road

10. INTRODUCTION OF MALAYSIAN LAND READJUSTMENT SYSTEM

10.1 Overall LR Policy Direction

While the implementation of Land Readjustment in Malaysia is found highly feasible, there is a need for an adequate set of programmes and measures to be in place to introduce and disseminate the LR system in reality. For universal extension of the system over the country, formal legal and administrative framework is also required which, unfortunately, is not expected to be available in a short time. From the experience of other advanced LR countries, the most realistic approach is to start with a pilot project and accumulate the experience based on the use of the existing legal and administrative system and available resources to a maximum extent wherein the Government takes the lead by preparing a local plan for the LR project area, promoting landowners' consensus, providing adequate financing, and so on.

Malaysia's future urban development/improvement thrust is clearly indicated from the current Government policy and movement. That is, the entire urban areas will be covered by statutory plans comprising structure plan, local plan and action area plan. Under such circumstances, since the proposed LR system is considered as an effective means of enforcing these statutory plans, the LR system in Malaysia should be well integrated with the statutory planning institution. In order to establish a formal LR framework which can be applied throughout the country, the following sub-systems must be given further consideration:

(a) Enactment of a new LR law;

(b) Establishment of permanent LR organization at Federal, State and Local Authority levels;

(c) Establishment of formal training institution for LR project management and technique;

(d) Establishment of concrete administrative procedure to encourage private sector's involvement and landowners' initiatives;

(e) Systematic publicity of LR concept and procedures to potential participants and general public; and

(f) Provision of financial subsidy and technical support for the Local Authorities who wish to implement LR projects.

10.2 Introduction Plan of Malaysian LR System

Dissemination and Practice of Malaysian LR System: It is planned that during the 7th Malaysia Plan Period (1996 - 2000) the entire Peninsular Malaysia will be covered by structure plans and that local plans preparation are also to be promoted. As LR is found to be an effective method of enforcing the statutory plans, it is important that the LR system be introduced to all local authorities (a total of 144 in Malaysia and 97 in Peninsular Malaysia) in advance of the plan formulation. Transfer of LR technology should be systematically done by JPBD by way of conducting seminars and workshops on a regular basis using manuals, texts, visual aids, etc., and encouraging local authorities to identify LR projects and conduct feasibility studies for which technical guidance and financial support are provided. Other potential LR agencies and organizations such as UDA, JKR, MHLG, SEDC, private developers are also to be adequately informed of the LR system and must be regular participants of the LR seminars and workshops.

Establishment of Implementing Organization: The administrative framework needs to be formally established at Federal, State and Local Authority levels. At Federal level, MHLG is considered as the most appropriate to administer LR institution where JPBD is to function as the central agency on LR technical aspects. Policy decisions on land matters with regard to LR are to be made by the State Government, while local authorities are to function as approving as well as main implementing agencies

of LR projects. Training of LR personnel/experts is inevitable which is to be undertaken not only in the proposed pilot project but also by establishing a new training system to ensure their availability both in quantity and quality. In Malaysia, local authorities are considered the most appropriate LR implementing agencies. In order therefore to promote LR projects further, adequate support of the Federal Government is necessary, including technical support, training of personnel as well as various financial assistance.

Promotion Measures: In order to promote the implementation of LR projects, various measures are necessary such as:

a) Incentives: For implementing bodies (local authority, Government agencies, public corporation, private developer, etc.), project funding and implementation need to be promoted by providing technical and financial support to the conduct of feasibility studies. Adequate policy decisions on premium, illegal land use, renewal of leasehold periods, squatters, etc. are also to be made depending upon the nature and objective of the projects. Exemption or mitigation of various taxes, relocation/construction of buildings, disposition of financial lands, etc. are also preferred incentive measures.

b) Government Support: In Malaysia, contribution of the landowners in LR projects tends to become high because of high planning standards. Since mixed land use is not allowed, in certain instances landowners may not be able to continue their previous activities. Government support is expected to cover the following:

   (i) Various incentives as described above to promote LR projects.

   (ii) Cost sharing in land, infrastructure, compensation, project mangement, etc.; The cost of LR project should be partly covered by Government agencies.

   (iii) Support to construction of housing and rebuilding of living plan of landowners; Under Malaysian planning standards, infrastructure and land use plan often determine the type and location of houses specifically that some landowners may not be able to construct desired houses or have to spend additional cost of acquiring new houses due to change in land use zoning. In this context, providing soft loan or adequate financial scheme, etc. may be taken into account.

c) In-Advance Voluntary Land Acquisition: An institutional framework needs to be developed in which implementing bodies can acquire lands before the Project commencement. This increases flexibility in replotting design, facilitates management of squatter issues and helps the implementing body to internalize development benefits which then can be allocated for squatter measures.

10.3 Further Considerations to be Incorporated into Malaysian LR System

LR is an undertaking with highly local flavor as is explicitly seen in the cases of other countries. On the basis of the case studies carried out in this Study, it is submitted that there are a number of aspects which need to be further investigated and possibly incorporated into the Malaysian LR System to facilitate better participation of landowners and effectively achieve project objectives. Initial discussions were held on the following matters:

(a) Incorporation of building elements into the LR scheme: Since lands and buildings are normally physically integrated in accordance with planning standards in Malaysia, the Malaysian LR System must have a built-in mechanism to encourage LR parties to construct buildings in the areas so designated for terrace house, semi-detached house, service industry, shop house, etc.

(b) Active involvement of the private sector: In Malaysia, private developers have accumulated wealth of experience in land and infrastructure development, marketing, project financing and management. Since LR projects should cover all these processes, adequate institutional/

administrative arrangements are to be made to encourage active participation and involvement of the private sector.

(c) Provision of appropriate financing institutions: Although LR project involves a self-financing mechanism, it requires considerable costs at preparatory stage and implementation stage before financial lands are sold in the market. Building of houses soon after the LR project or upgrading the buildings or activities in the project is also to be encouraged for the effective formation of communities. Adequate financing institutions both for implementing body and landowners including tenants are necessary.

(d) Relief measures for the low-income group: It is likely that potential LR project areas are inhabited by low-income group of people who either do not own lands or have proper houses. Since the LR principle is to take into account the existing rights in the project area, adequate formal and informal measures have to be prepared depending upon the situation and nature of inhabitance. Some of the measures are:

- provision of financial assistance i.e., low interest long-term loan;
- charging additional contribution from the Government; and
- in-advance acquisition of lands by the implementing body to generate additional revenue to subsidize the target group.

VII CONCLUSION AND RECOMMENDATIONS

In Malaysia, the institutional framework for land management is well structured and large-scale lands with few landowners are available for development in adjoining areas of cities. Current urban development and expansion have been mainly undertaken for these areas under development control. Extensive greenery has been stripped from the lands and adverse environmental impact is feared. Moreover, the current development practice tends to exclude the existing urban and semi-urbanized areas where environmental degradation progresses without adequate development undertakings. Not only from environmental viewpoint but also from economic viewpoint to promote formulating more effective urban areas, policy is to be directed to introduce more "redevelopment" type of urban development. LR is an effective method to comply with these changes and will work validly to such development issues of Malaysia as materialization of structure/local plans, promotion of comprehensive living environment, improvement in existing urban areas, development of large-scale infrastructure in once-developed areas, response to growing demands of public participation, tackling increasing difficulties in land acquisition and mitigating constraint of public financing.

In this Study, a Malaysian LR System has been formulated and its feasibility confirmed from legal, administrative, social, technical and environmental viewpoints. It is found that there are potential project areas as well as justifications to implement LR schemes. However the most practical and effective way is first to implement a pilot project within the existing legal and administrative framework. With this, not only will LR be proven successful as a development undertaking but will also showcase that it is important to promote understanding among concerned agencies, to provide a wider range of social and political consensus, to formulate a new LR law, and to strengthen LR administration through the conduct of a pilot project. It is strongly felt that adequate financial and policy support of the Federal Government is a necessary intervention.

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