6-3-2 Basic Policies for the KASIBA Development Plan

In preparing plans for the KASIBA development in Parung Panjang, it shall firstly consider several patterns of development components and project organization. However, it is also necessary to consider a problem or preferable solution from different perspectives so as to reach a final recommendation. At this stage, the following alternative plan is presented in a hypothetical fashion so as to facilitate the verification of a model plan.

(1) Establishment of the KASIBA Management Body (KMB) and the LISIBA Executor

Perum Perumnas as KMB

As stated in article No. 20 of Act No. 4/1992 regarding Housing and Human Settlement, the KMB is the State Owned Enterprises (SOE) or Local State Owned Enterprises (LSOE). As we know that there are two kinds of SOEs, which are PERSERO (Government Regulation No. 12/1998) and PERUM (Government Regulation No. 13/1998). LSOE itself, based on Act No. 5/1962 regarding LSOE, is classified as a PERSERO. In the reformation, the government tends to privatize PERSEROs. It means that the SOEs will be Perum Perumnas only.

(2) LISIBA Executors

LISIBA executors are private developers including Perum Prumnas. The developers which have acquired land and principle permit from Local Government, will be coordinated by Perum Perumnas and the KMB to develop infrastructure and housing estate in LISIBA.

(3) Case Study Development System

Considering the adaptability of the development system and the characteristics of the land, the development system to be employed shall represent a combination of the "land readjustment system (L/R)" and the ordinal "acquirement and development system (A/D)". The L/R serves to accelerate the development of settlement areas without land acquisition and also the relocation of existing villages. A further advantage is the ease of cost recovery.

Principally, land acquisition for infrastructure, public facilities, and the operational costs involved are the responsibility of the landowners. All of the said landowners as participants in the L/R should contribute their land for development purposes so that it may be used for infrastructure and public facilities and for covering the cost of L/R execution through the sale of the land so contributed. Perumnas is the largest landowner in the case study area and owns the majority of the development lands.

1) Land Readjustment by Perumnas

- Fundamentally, L/R is a self-sustaining program but there would appear to be some difficulties about recovering the entire development costs for regional infrastructure from within the case study area itself. Therefore, government subsidies will be required to motivate landowners to finance L/R with their own funds from their land. The KMB is responsible for the management of L/R, and Perumnas for its execution.

- Perumnas has plans to develop approximately 200ha in the case study area and, as of the end of 1998, had already acquired over 100ha of land. Acquisition of the remaining land may be confronted to various obstacles, such as the existence of villages and/or the price range of the land. Thus, the L/R system will be adapted in this housing development

without land acquisition.

- Furthermore, the National Land Agency (BPN) must be involved so as to handle the registration of the land involved in the project.

2) Acquirement and Development System by the Private Sectors

One of the purposes of the establishment of the KASIBA is to encourage the channeling of the private sector's energy into a properly controlled housing development. The private sector has accumulated know-how concerning land acquisition, procurement and securing of development funds, etc. The KMB should involve the participation of private developers so that they can provide initial development funds by themselves and be nominated for the LISIBA executor.

6-3-3 KASIBA Development Plan

The KASIBA case study plan is developed and revised from previous confirmed plans due to the following points:

(1) Land Use Plan

The plan is following the "rail oriented new town" concept. And the community center will be positioned as a core of the town that will be surrounded by the new rail station.

In this KASIBA development plan, a more detailed land-use plan together with community planning should be examined. Therefore, public and social facilities will be divided into neighboring units in accordance with the administrative hierarchy for the residents. Public and community facilities being required are figured out based on the estimated population. And these facilities will be allocated to the community center/sub-centers where locations will be attractive to the residents and suitable in terms of land profile. Procedures in both community planning and lad-use theory are integrated by this plan.

On the other hand, the meaning of housing development is equal to social development. Therefore, the zoning system should be reviewed from the aspect of categories and levels of housing, and environment of planned residential area. As such, a certain percentage of middle-category housing zones were located not only in east sides but also in west sides for balancing the community.

Further, the planned area between the housing zone, local trunk roads and major rivers will be provided with a green buffer to secure the setback space and maintain a comfortable environment in the residential area.

(2) Community Plan

The area for the KASIBA development will be divided into several blocks in accordance with the optimum size of community units. Each housing block can commonly and universally enjoy public/community services. For determining components and the size of community units, educational facilities shall be utilized as a checking sector. Since the educational sector is strongly encouraged in national programs, particular attention shall be paid to the improvement of the educational environment when planning the future urban development. Therefore, the catchment area of junior high schools shall be provided for one neighboring unit in accordance

with the number of service population and walkable distance. As a result of the community planning, the area for the KASIBA development will be consisted of 3 neighboring units with the land area of approximately 100ha. Theoretically, this 100ha-area meets the basic unit size in the urban planning standard.

Moreover, considering the regional characteristics of Parung Panjang, some of indispensable community facilities will served the neighboring areas if they do not have enough service facilities.

(3) Road Network System

The road network in the area for the KASIBA development will be integrated to the regional network. The road system will have an hierarchical structure as follows: regional arterial road (ROW=22 meters with 4 lanes), arterial road (ROW=16 meters with 2 lanes and 2 lanes of side stop), collector road (ROW=12 meters with 2 lanes) and 3 types of local road (ROW=10 meters, 8 meters, 6 meters).

The arterial road is designated to have radial and circular formations that will serve as bus feeder routes, major routes for cargo delivery services and garbage collection, and routes for emergency vehicles. The land profile is taken into account for the road alignment, and slope gradient is designated to be less than 10%.

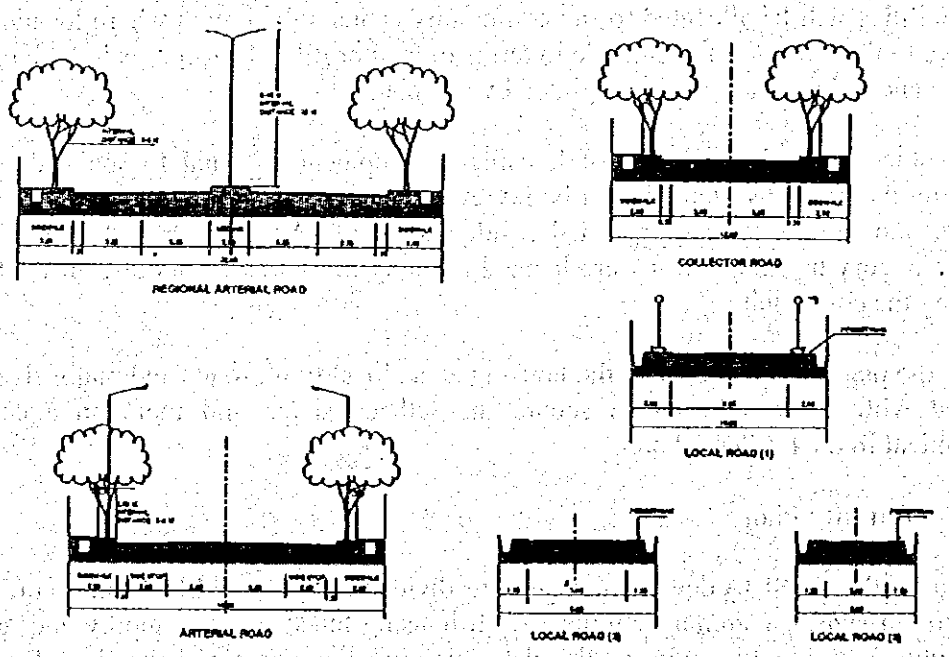


Figure 6-3-2 Typical Road Section

(4) Public Utility Services

1) Water Supply System

Accommodating the demand of water supply, a system of water supply is planned in a distribution network system based on the population growth in residential areas and road hierarchy networks. Water supply facilities and network in the final stage will be developed by the Local Government Water Supply Enterprises.

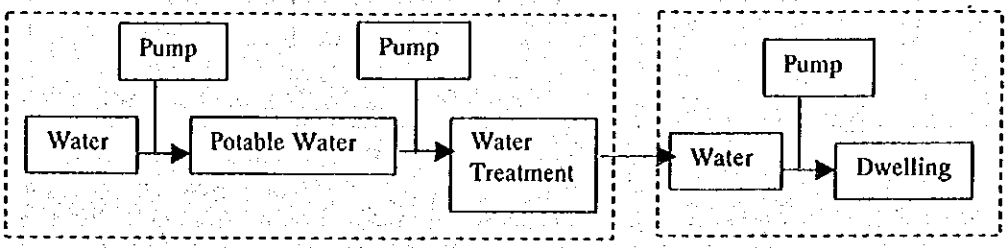
The Average water consumption per capita is estimated at 120 liter/capita/day. By this ratio, the total water consumption or residential is calculated at 4,920 m^3 per day. The water consumption of commercial institutional facilities is calculated by the formula that is multiplying the domestic water consumption by the commercial and institutional water consumption ratio.

Total water supply needed by a population of approximately 41 thousands in a 300 ha development area is calculated at about 6,092 m^3 per day.

The total water supply demand by the community unit is shown in Table 6-3-4.

- **Water Distribution System**

The water distribution system for the final stage of development is presented in the following diagram:



The plan of the water supply distribution system in the development area shown in Figure 6-3-3 depicts the water storage, main supply lines and main the distribution network.
(Detail of water resources to be referred to attached analysis paper).

2) Power Supply System

- **Power Supply sources**

The demand of electricity in the development area will be served by the Government Power Supply Enterprise (PLN) through the nearest Main Power Station (GI).

Table 6-3-4 Demand Projection of Water Supply

		Community Unit I		Community Unit II		Community Unit III		
	Standard D	Population (pop)	Demand Capacity (m^3/day)	Population	Demand Capacity (m^3/day)	Population	Demand Capacity (m^3/day)	Sub Total (m^3/day)
Residential								
Middle Class	liter /capita 120 /day	1,600	192	3,000	360	7,500	900	1,452
Low cost Built up Res	liter /capita 120 /day	11,200 2,200	1,344 264	9.000	1,080	6,500	780	3,204 264
	Standard	Domestic Water Consumption / DWC (m^3/day)	Demand Capacity (m^3/day)	Domestic Water Consumption / DWC (m^3/day)	Demand Capacity (m^3/day)	Domestic Water Consumption / DWC (m^3/day)	Demand Capacity (m^3/day)	
Commercial Business and Institution	% of 23.83 DWC	1,800	429	1,440	343	1,680	400	1,172
Total		2,229		1,783		2,080		6,092

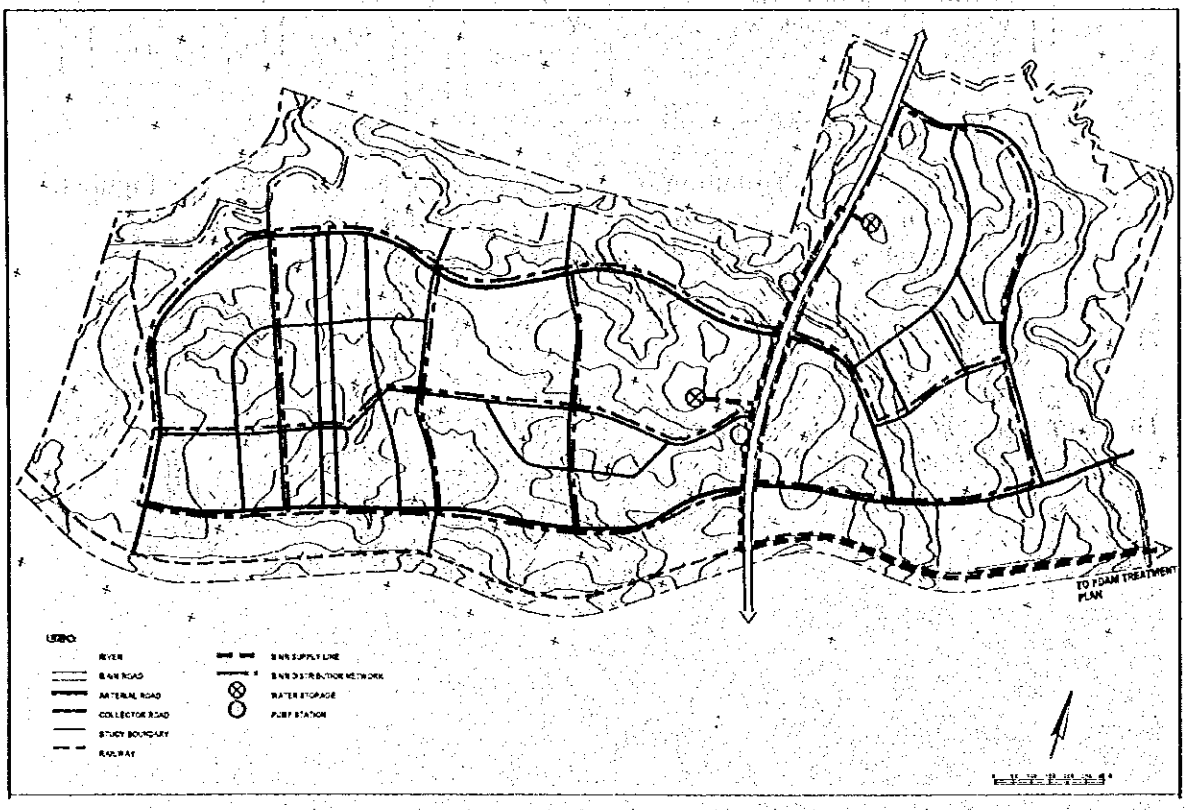


Figure 6-3-3 Water Supply System

Distribution network

Distribution of electricity in the 300-ha KASIBA project will be developed by the PLN and should consider the PLN's power supply capacity and network availability.

The power distribution to consumer will be supported by the connecting station (GH) that is located the closest to the public facility and positioned in the center power load of serviced area. The radius of the connecting stations will be based on the amount and capacity of power inside each serviced block.

Distribution stations are planned to be located inside community units that consist of 2-4 residential blocks. A forty to sixty sqm area is needed for each distribution station and the location of each station depends on the possibility of network distribution line and length of the main feeders (400 to 800 m)

Planning of distribution stations are taken into considerations:

- Service area of each station is in a square shape and located at the center of the serviced area.
- Each distribution station is connected to 4 main feeders.

The power distribution network system consists of a primary cable network, a secondary cable network and a consumer cable network.

The electricity network plan is shown in Figure 6-3-4, showing the main plan covering the whole system network that consists of a main station GI (located outside of the Project Area), a distribution station and a primary cable network.

The power distribution network system consists of a primary cable network, a secondary cable network and a consumer cable network.

Table 6-3-5 Demand Projection of Power Supply

	STANDARD (VA)	COMMUNITY UNIT I	DEMAND CAPACITY (KVA)	COMMUNITY UNIT II	DEMAND CAPACITY (KVA)	COMMUNITY UNIT III	DEMAND CAPACITY (KVA)	TOTAL (KVA)
RESIDENTIAL								
Middle Class	2,200 per unit	400 unit	880.0	770.0 unit	1,702.3	1,980 unit	4,356.0	6,938
Low Cost	554 per unit	2,830 unit	1,567.8	2,170.0 unit	1,202.2	1,700 unit	941.8	3,712
Built-up Res	2,200 per unit	2,200 unit	4,840.0					4,840
COMMERCIAL	/ m² floor 80 area	103.200 sqm	8,256.0	0.0 sqm	0.0	16,200 sqm	1,296.0	9,552
BUSINESS	/ m² floor 40 area	38.880 sqm	1,555.2	0.0 sqm	0.0	4,080 sqm	163.2	1,718
Public facility								
RW level								
Junior High School	16,000 / unit	1 unit	16.0	1.0 unit	16.0	1 unit	16.0	48
Primary School	12,000 / unit	8 unit	96.0	6.0 unit	72.0	7 unit	84.0	252
Mushofa & Church	3,600 / unit	4 unit	14.4	3.0 unit	10.8	4 unit	14.4	40
Village Level								0
Senior H.School	16,000 / unit			2.0 unit	32.0			32
Clinic, Public health center, Maternity Clinic	54,000 / unit			1.0 unit	54.0			54
Kelurahan Office, Police Post, Sub Post Office	13,000 / unit			1.0 unit	13.0			13
Multi Purpose Hall	9,000 / unit			1.0 unit	9.0			9
Sport Facility	10,000 / unit			1.0 unit	10.0			10
Mosque	10,000 / unit			1.0 unit	10.0			10
TOTAL			17,225.4		3,131.2		6,871.4	27,228

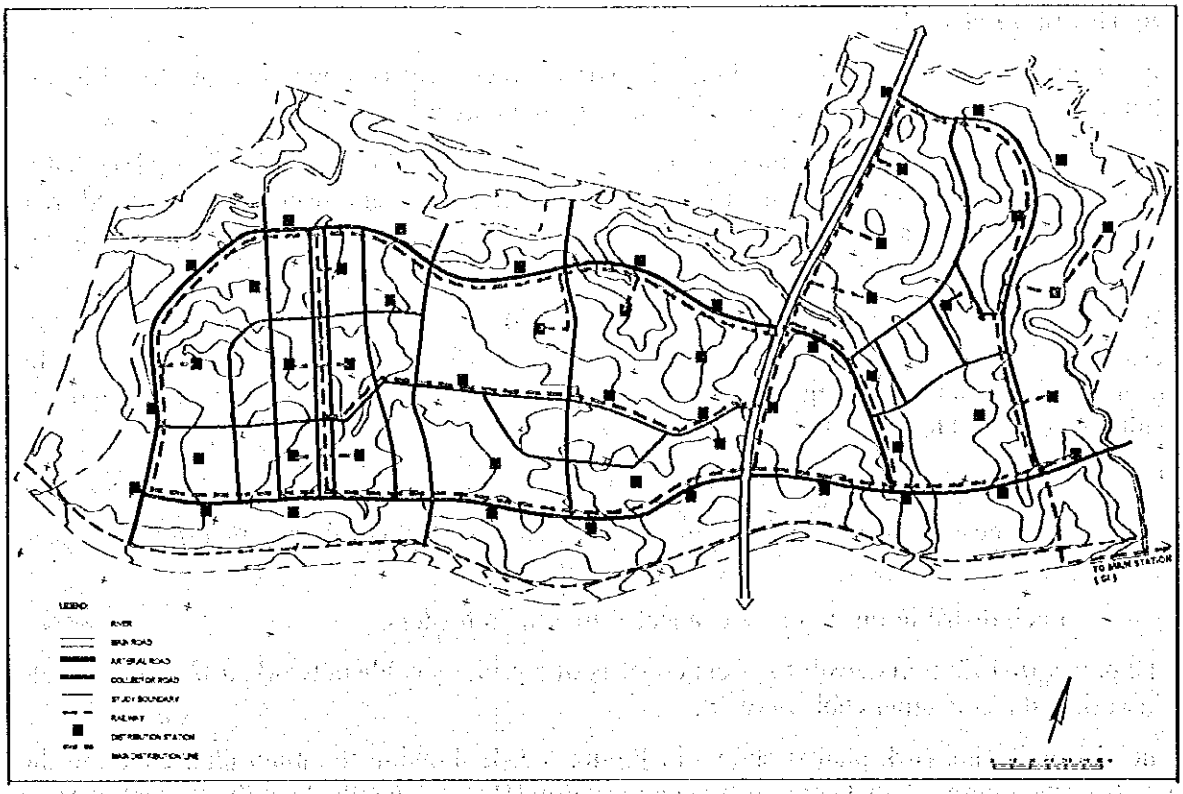


Figure 6-3-4 Power Supply System

3) Telecommunication System

The telecommunication network plan in the development area is planned using microwave telephone. This situation is influenced by the telecommunication plan in this area and surrounding that is using the microwave telephone system that received by the Automatic Telephone Station (Station Telpon Otomat / STO). On the bases of on the projection demand for telecommunication in the development area, the telecommunication network is planned to serve proposed residential areas, commercial and public facilities, and public telephone facilities.

The telecommunication demand for the final stage of development is calculated at 9,526 lines including connection lines serving the business and commercial facilities. The telecommunication lines will be served by one Automatic Telephone Station.

The demand projection of telecommunication lines by community units is shown in Table 6-3-6.

The development of the telecommunication network is based on the priority of development stages. The area needed for one Automatic Telephone Station is about 500 sqm. This area does not include public telephones, telecommunication office and customer services. The allocation of public telephone booths is based on the consideration of the service area, centralization of activities and security. The optimum serviced area for public telephone booths is every 500 m to 1,000 m. The location of Warung Telekomunikasi (Wartel) is based on the condition of the residential and consumer character. Wartel is positioned in the center of a 30 ha residential area and close to public facilities. The average Wartel building size is 300 sqm.

The telecommunication network plan is shown in Figure 6-3-5, depicting the main plan covering the whole network that consists of automatic telephone stations, cable houses and the primary cable network.

Table 6-3-6 Demand Projection of Telecommunication Line

	Standard (VA)	Community Unit I	Demand Capacity (lines)	Community Unit II	Demand Capacity (lines)	Community Unit III	Demand Capacity (lines)	TOTAL (lines)
Residential Middle Class Low Cost Built-up Res	1 per unit 0.36 per unit 1 per unit	400 unit 2,830 unit 2,200 unit	400 1,019 2,200	770 unit 2,170 unit	770 781	1,980 unit 1,700 unit	1,980 612	3,150 2,412 2,200
Commercial	/ m2 floor 0.010 area	103,200 sqm	1,032	0 sqm	0.0	16,200 sqm	162	1,194
Business	/ m2 floor 0.005 area	38,880 sqm	194	0 sqm	0.0	4,080 sqm	20	215
Public facility RW level Junior High School	2 / unit	1 unit	2	1 unit	2	1 unit	2	6
Primary School	2 / unit	8 unit	16	6 unit	12	7 unit	14	42
Musholla & Church	1 / unit	4 unit	14	3 unit	3	4 unit	4	11
Village Level Senior H.School	2 / unit			2 unit	4			4
Clinic, Public health center, Maternity Clinic	5 / unit			1 unit	5			5
Kelurahan Office, Police Post, Sub Post Office	5 / unit			1 unit	5			5
Multi Purpose Hall	4 / unit			1 unit	4			4
Sport Facility	6 / unit			1 unit	6			6
Mosque	2 / unit			1 unit	2			2
TOTAL			**4,867**		**1,594.2**		**2,794**	**9,256**

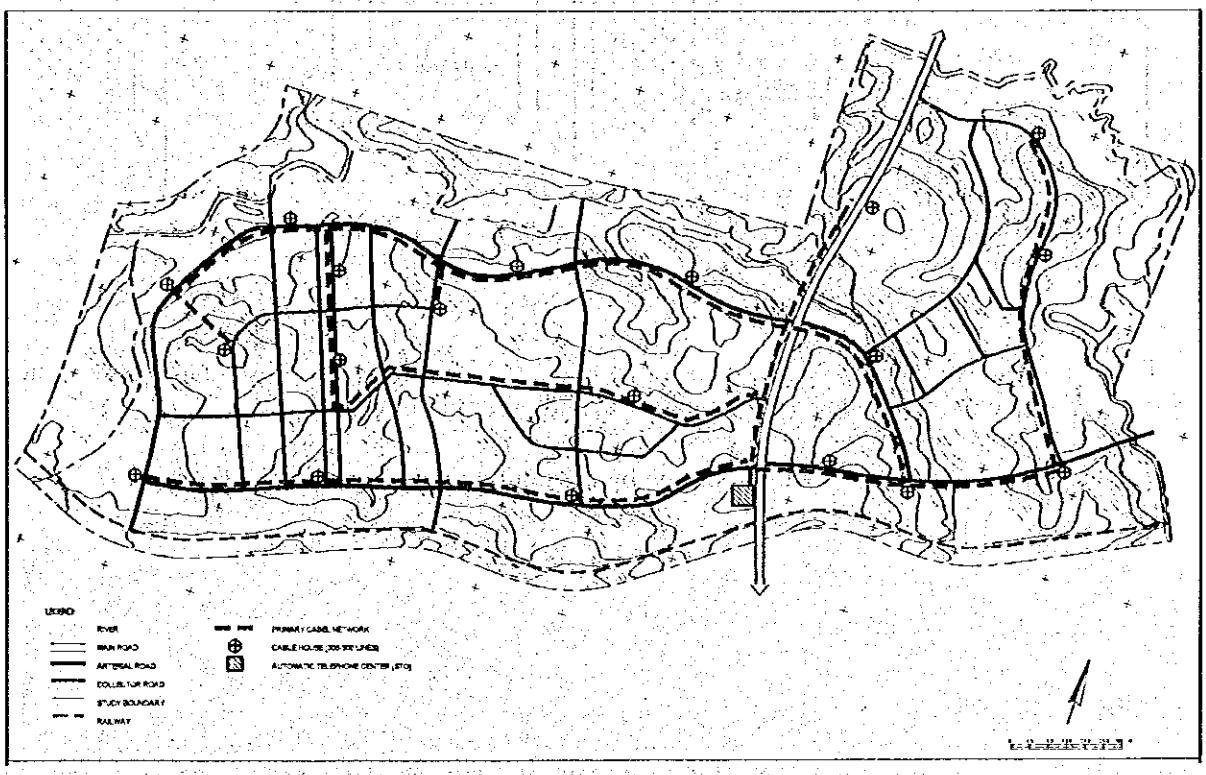


Figure 6-3-5 Telecommunication System

4) **Drainage System**

- **Waste Water Drainage System**

The waste water drainage system proposed for the development is a separated system that separates night soil, gray water and storm water, as the first alternative. In case of much higher construction costs of this separation system the other alternative is to combining gray water and storm water in the same drainage network.

In the alternative-B, night soil will be treated by an on-site treatment system (septic tank) and then infiltrated into underground.

Each septic tank can serve 2-6 dwelling units in low-cost housing and located in an allowed distance to shallow wells. The cleaning process of each septic tank should be done every one or two years. The average volume of each tank is 2-12 m^3. The vacuum truck capacity needed to move the night soil to the end-dumping site is 5 m^3.

These two alternatives are proposed for the short-term stage of the development. For the long-term stage, all the domestic wastewater is proposed to be treated in a treatment plant.

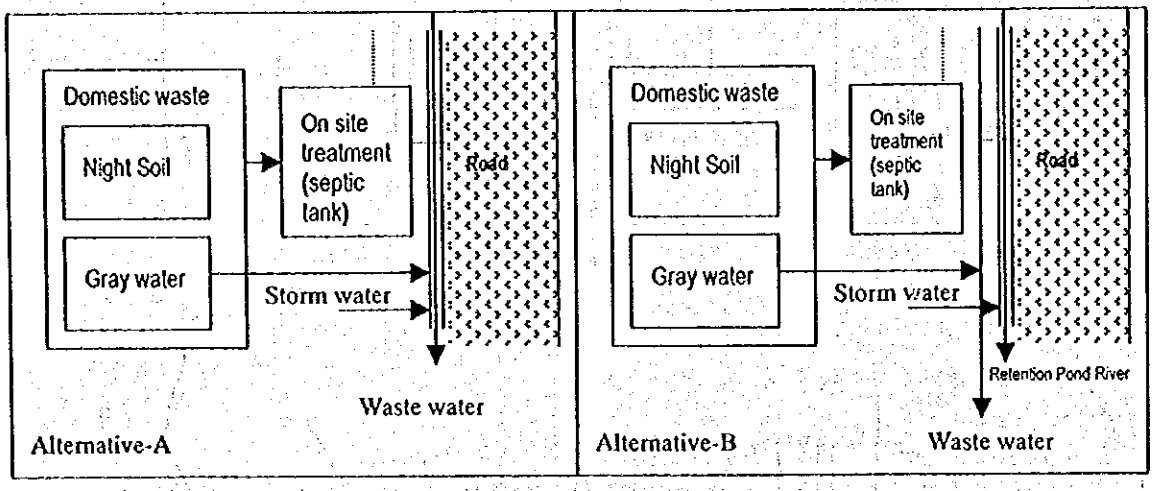


Figure 6-3-6 Wastewater System

The total water discharge volume is estimated at 2,702 m3 per day including the water discharge of commercial and office buildings, and other facilities.

The projection of water discharge volume by community units is shown in Table 6-3-7.

Table 6-3-7 Projection of Water Discharge / Waste Water

	COMMUNITY UNIT I			COMMUNITY UNIT II		COMMUNITY UNIT III		
	Unit Discharge (l/capita/day)	Population (Pop)	Water Discharge (m^3/day)	Population (Pop)	Water Discharge (m^3/day)	Population (Pop)	Water Discharge (m^3/day)	TOTAL (m^3/day)
Residential Middle class	78	1,600	125	3,000	234	1,980	154	513
Low Cost	78	11,200	874	9,000	702	1,700	133	1,708
Built-up Res	78	2,200	172					172
	Standard	Water consumption (m^3/day)	Water Discharge (m^3/day)	Water consumption (m^3/day)	Water Discharge (m^3/day)	Water consumption (m^3/day)	Water Discharge (m^3/day)	
Commercial Business and Institution	% of supply 65 capacity	366	238	3	2	105	68	308
Total			1,408		938		355	2,702

Note : Assumption of waste water is included night soil and gray water

- **Storm Water Drainage System**

The storm water drainage system is planned in order to prevent all of development area from the possibility of flooding. The storm water drainage system is planned following the topography and hydrology of the development area.

In case of alternative-B where the storm water is separated from other wastewater, the drainage pattern flow is divided into three catchment areas that maintain the existing catchment area. Based on the existing catchment area, the drainage network is proposed to be developed as a collector ditch line as follows:

Primary and secondary drainage networks, in the west of the arterial collector roads, serve the catchment area of the Cibeber River (center catchment).

Primary and secondary networks, in the east of arterial collector roads, serve the catchment area of the Cibunar River (east catchment).

The flowing speed planning inside the ditches was decided based on the minimum and maximum speed allowed by the material of the ditch. The limit of the flowing speed is estimated as follows:

Ditches constructed of concrete or stone have a maximum speed of 0.6m/sec and minimum speed of 3.0 m/sec.

Ditches constructed without enforcement have a maximum speed of 0.75 – 1.85 m/sec. (Details of flood protection to be referred to in the attached analysis paper).

5) Solid Waste Collection and Disposal

There are no specific national regulations regarding solid waste management. The solid waste management in the Kasiba Project is implemented based on the ordinance concerning the

organizational structure and management of Parung Panjang Municipality. The local government is responsible for street sweeping, the cleaning of public places and supplying central bins in public places. Transportation and final disposal will be conducted by the local government as well. The ordinance is based on a collection fee, transportation and disposal that is based on categories of habitation, for example residences, commercial offices, etc.

- **Weight and Volume**

The project amount of solid waste generated based in the studies carried out in several cities in Indonesia is around 0.5 –0.7 kg/person/day or 3.1 – 3.8 liter/person/day.

Table 6-3-8 Projection of Solid Waste Weight and Volume

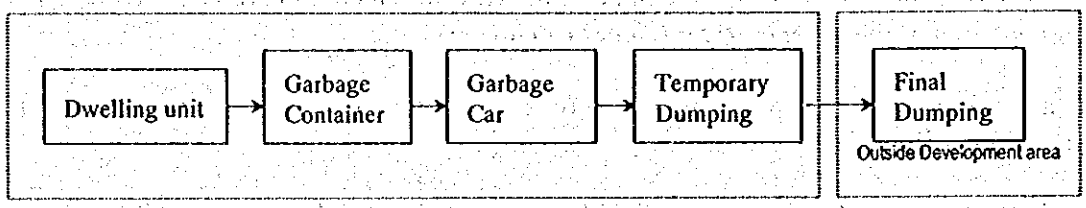
	Population (Pop)	Daily Weight (kg/day)	Daily Volume (Litre/day)
Community Unit I	15,000	9,000	51,000
Community Unit II	12,000	7,200	40,800
Community Unit III	14,000	8,400	47,600
T o t a l	41,000	24,600	139,400

- **Solid Waste Disposal System**

The solid waste disposal system applied in the development area must consider some factors that are influencing the amounts and quality of garbage to be handled in every of the three development stages. The waste disposal system should consider the following aspects:

- hierarchy of services
- service area
- garbage container
- collecting system
- transportation
- final disposal

The garbage disposal system is presented in the following diagram:



The solid waste collecting system is planned as follows:

- Garbage Container
  Garbage from dwelling units collected in garbage containers with a capacity of 40 liters positioned close to each dwelling. The garbage is collected two or three times a week.
- Garbage Car
  Garbage planned to be carried away by garbage car. The design width of the garbage car is 0.7 m with the capacity of 1 m^3, it is assumed that garbage cars can carry the garbage of 40 dwellings at once. Garbage cars with a of size of 1.25 m width can be used in middle class housing.
- Temporary Dumping Site/Movable Container (TPS)
  The temporary dumping site is a container that has a bigger capacity than a garbage car with a

capacity of 10 m^3. The container can be carried by truck to the final dumping site.

- Final Dumping Site
  The final dumping site is planned to be located outside of the development area.

(5) Land Use Allocation

After studying the selected KASIBA development area in detail a land use and a housing development plan can be worked out.

1) Jurisdiction of the Land

The actual size of the case study area marked off by a local administration unit of RT/RW is 292ha. Of the total, 29.4ha (Building rights:HGB) have already been subject to development by the private sector. Houses have already been built on some part of the area. A railway line separates the south side, and the area along the railway is owned by the National Railway. Excluding the above-mentioned land (covering 31.3ha or 10 percent of the total), the jurisdiction of land for actual development is 243ha (83.2 %).

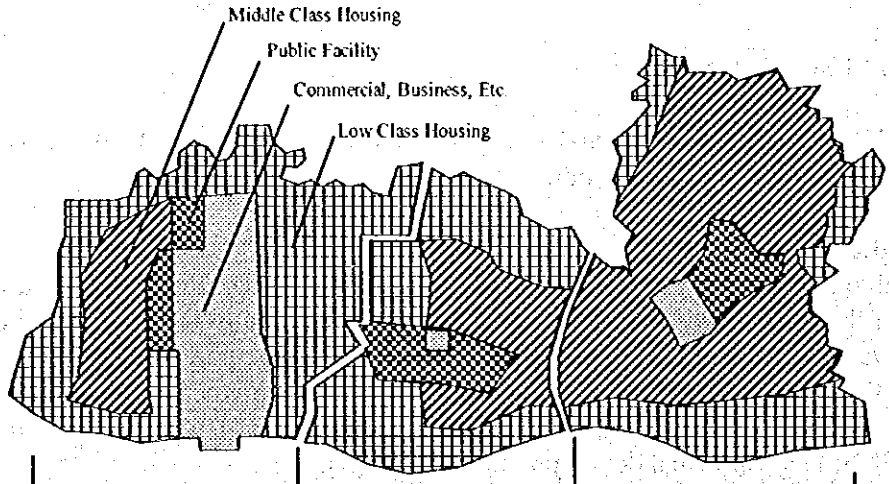
2) Area allocation by Land Use

A land use plan must be based on feasible economic and financial indexes. At the same time, ideal urban environment must be pursued. In this respect, a land use plan requires flexibility. It is important to revise the plan if needs arise in accordance with such changing factors as a development system, administration and execution, a development fund, market and feasibility. A hypothetical land use plan has been formulated as a springboard for such goals.

(6) Housing Allocation and Development Scheme

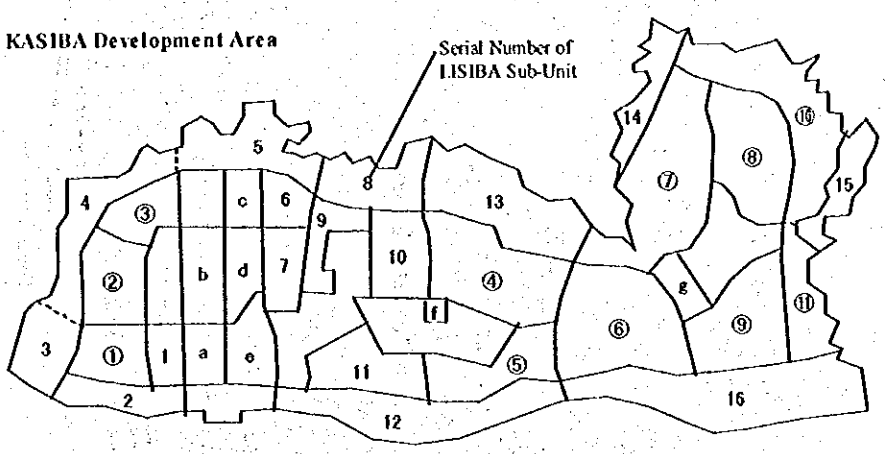
It is necessary to comply with the principle of 1:3:6 percentage points for high-class, middle-class and low-class houses imposed on large-scale housing development (about 200ha or more). In view of Parung Panjang locational characteristics and little need for a public organization to supply high-class houses, it has been decided to only provide middle-class and low-class houses. On the assumption that 33 percent are for middle-class houses and the remaining 67 percent for low-class houses, the number of units is 3,500 households (14,700 persons) and 7,300 households (30,600 persons), respectively. In terms of land use ratio, 60 percent (93ha) are for middle-class houses, much larger than 40 percent (64ha) for low-class houses. Two types are available for middle-class houses, and simple housing (RS) and very simple housing (RSS) for low-class houses. The types of houses have been determined in the wake of consultations with Perumnas, which has played a major role in housing development in Parung Panjang.

Details are shown in the attached table.



Community Unit : I	Community Unit : II	Community Unit : III
* Target Population : 15,000 p (Middle Class :1,600 Low Class :11,200 Built up Resi. :2,200)	* Target Population : 12,000 p (Middle Class :3,000 Low Class :9,000)	* Target Population : 14,000 p (Middle Class :7,500 Low Class :6,500)
Facility Demand Projection		
Cesa (Village) Level		
Junior High School : 1 Unit Primary School : 8 Units Musholla, Church : 4 Units Security Post, Public Tel. : 4 Units Pharmacy, Shops : 1 Unit	Junior High School : 1 Unit Primary School : 6 Units Musholla, Church : 3 Units Security Post, Public Tel. : 3 Units Pharmacy, Shops : 1 Unit	Junior High School : 1 Unit Primary School : 7 Units Musholla, Church : 4 Units Security Post, Public Tel. : 4 Units Pharmacy, Shops : 1 Unit
Kecamatan (Sub-district) Level		
Senior High School, Clinic, Public Health Center, Maternity Clinic, Small Hospital, Kelurahan Office, Police Post, Sub-post Office, Fire Brigade Post, Shopping Center (Pasar), Commercial (Retail Shops), Cinema, Cultural Hall, Multi Purpose Hall/Yuth Club, Sports Field, Mosque----------: Each 1 Unit		

Figure 6-3-7 Development Unit Based on the Community Level



LISIBA:Residential Development

Low Class Housing			Middle Class Housing		
LISIBA Sub-Unit Number	Area (ha)	No. of Houses	LISIBA Sub-Unit Number	Area (ha)	No. of Houses
1	2.2	160	①	4.6	120
2	3.4	250	②	6.0	170
3	6.0	440	③	4.0	110
4	5.0	370	④	19.0	550
5	6.4	470	⑤	7.9	220
6	2.4	180	⑥	12.5	360
7	2.8	210	⑦	17.6	500
8	5.1	380	⑧	7.6	220
9	5.0	370	⑨	11.5	330
10	5.0	370	⑩	14.0	400
11	6.5	480	⑪	6.0	170
12	10.7	790			
13	7.2	530			
14	3.0	220			
15	4.8	360			
16	15.2	1,120			
Total	90.7	6,700	Total	110.7	3,150
		(73.9 units/ha)			(28.6 units/ha)

LISIBA:Commercial Development

Commercial & Business		
LISIBA Sub-Unit Number	Area (ha)	
a	2.7	
b	3.8	
c	2.3	
d	3.2	
e	4.2	
f	0.3	
g	1.7	
Total	18.2	

Note: LISIBA development size will be consists of appropriate number of LISIBA sub-unit

Figure 6-3-8 LISIBA Development Unit

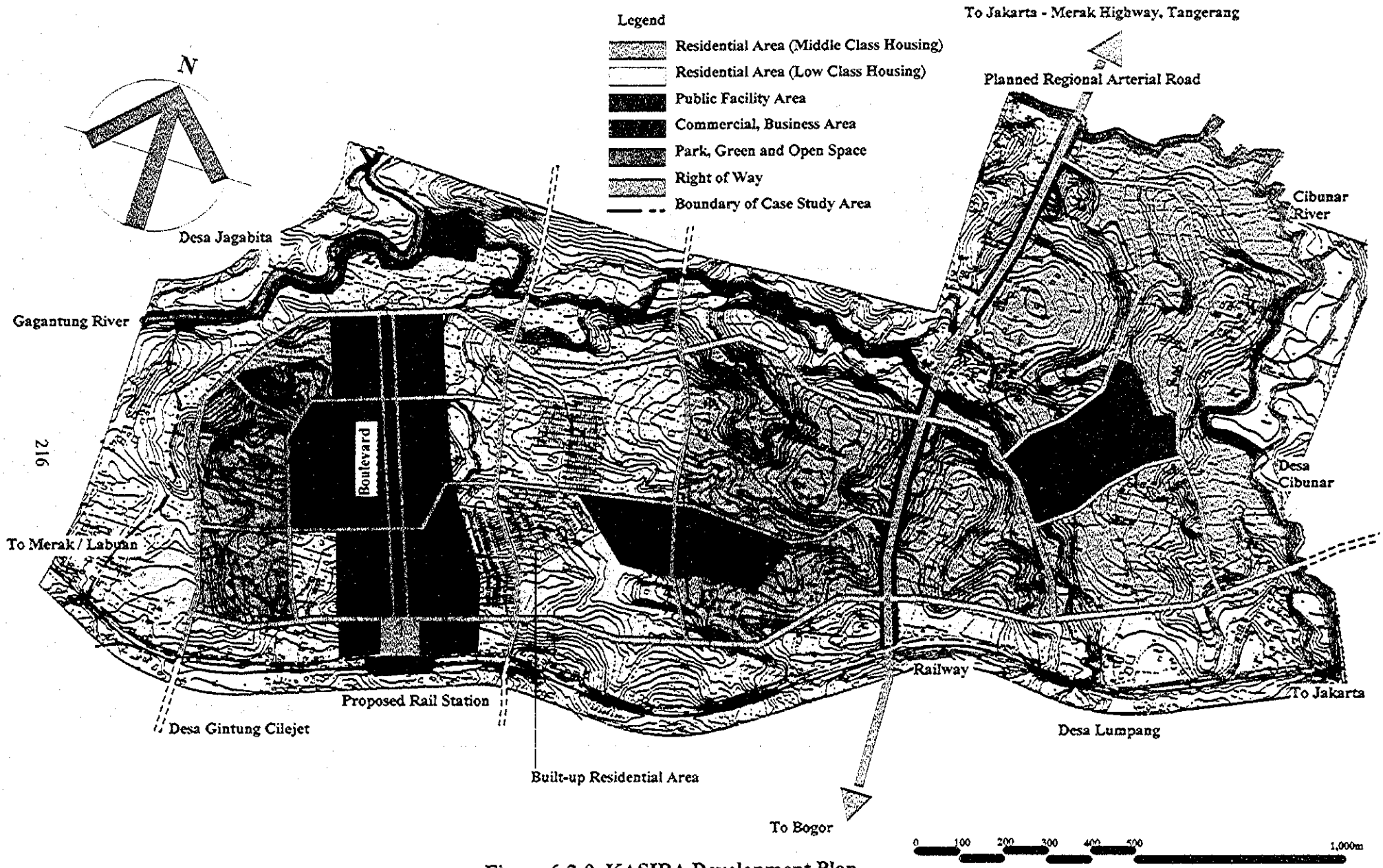


Figure 6-3-9 KASIBA Development Plan

Table 6-3-9 Land Use and Housing Allocation

Jurisdiction of the Land

Category of Land	Area	
	(ha)	(%)
Case Study Area	292.0	(100.0%)
Land occupied by developer	29.4	(10.1%)
Land of national railway	1.9	(0.7%)
Kampung area (Total area : 21ha, Removed by new dev't : 3.4ha)	17.6	(6.0%)
Efficient land for the development	243.1	(83.2%)

Area Allocation by Land Use

Land Use					Area	
					ha	(%)
Public Land Use	Basic Infrastructure (25%)	Road, Public Parking, Bus Terminal			53.5	(22.0%)
		Park, Buffer Green, Reserved Forest			4.9	(2.0%)
		River, Waterway, Retention Pond			2.4	(1.0%)
	Others (5%)	School, Kindergarten			7.3	(3.0%)
		Religious Facility, Cemetery			2.4	(1.0%)
		Other Public Facility			2.4	(1.0%)
	Sub-Total				72.9	(30.0%)
Private Land	Residential (58%)	Middle Class		T-150/350	47.3	(19.4%)
				T-100/200	36.0	(14.8%)
		Low Class	RS	T-54/153	23.7	(9.8%)
				T-36/90	14.0	(5.7%)
			RSS	T-36/60	10.8	(4.4%)
				T-21/54	9.7	(4.0%)
	Commercial (12%)	Market, Retail Shop, Office			28.7	(11.8%)
	Sub-Total				170.1	(70.0%)
Total					243.0	(100.0%)

Housing Allocation

Housing Category			Land		Number of Unit		Planned Population
			(ha)	(%)	(un it)	(%)	
Middle Class		T-150/350	47.3	(33.4%)	1,350	(13.7%)	5,670
		T-100/200	36.0	(25.4%)	1,800	(18.3%)	7,560
Sub Total			83.3	(58.9%)	3,150	(32.0%)	13,230
Low Class	RS	T-54/153	23.7	(16.7%)	1,550	(15.7%)	6,510
		T-36/90	14.0	(9.9%)	1,550	(15.7%)	6,510
	RSS	T-36/60	10.8	(7.6%)	1,800	(18.3%)	7,560
		T-21/54	9.7	(6.9%)	1,800	(18.3%)	7,560
Sub Total			58.2	(41.1%)	6,700	(68.0%)	28,140
Total			141.5	(100.0%)	9,850	(100.0%)	41,370

6-3-4 Feasibility Analysis

(1) Basis of Cost Estimation

1) Cost components

[Land development]
The total land development cost of KASIBA case study area is composed of infrastructure construction cost and housing construction cost including building permits and land acquisition cost. These costs are classified as follows:

1. Infrastructure construction cost
   - Study and design work
   - Preparation work
   - Land arrangement work
   - Road work
   - Drainage work
   - Park and green work
   - Electricity and water supply work
   - Other works
   - Physical contingency
2. Housing construction cost and building permits
   - Low class housing : RSS(T-21/54, T-36/60), RS(T-36/90, T-54/153)
   - Middle class housing : T-100/200, T-150/350
   - Land acquisition cost

[Main infrastructure development]
The main infrastructure listed below is to be constructed as the basic infrastructure for LISIBA development.

1. Road work[1]
   - Arterial roads (w=16m)
   - Collector roads (w=12m)
   - Drainage work
   - Open drains are constructed on both sides of major roads
2. Electricity and water supply work
   - Electric transmission main intakes are installed along major roads.
   - A piped water supply system is installed under major roads.

2) Construction cost

[Infrastructure construction cost]
The unit cost of infrastructure construction is determined by comparing and analyzing the following data.

- Perum Perumnas's cost data of its past development projects.
- "Journal of Building Construction & Interior" (supervised by Ministry of Public

[1] Regional arterial road (w=22m) will be constructed by the government budget.

Works)

- Estimation of unit cost for main activities 1998-1999 by Cipta Karya
- Standard cost of DKI Jakarta
- Market price data collected through interviews with local contractors and engineering consultants.

Material prices, especially those of imported materials, have increased significantly since the economic crisis, while prices of domestic materials and labor costs have been stable. Infrastructure construction costs of Perumunas's housing projects[2] around DKI Jakarta estimated by Perumnas before the economic crisis are shown in the Table 6-3-10.

Table 6-3-10 Perum Perumnas's Infrastructure Development Cost

City	Location	Date of Estimation	Area m^2	Total cost Rp/m^2
Bogor	Parung Panjang Thp1	1996.5	242,738	18,820
Bogor	Parung Panjang Thp2	1998.4	825,624	19,190
Bogor	PT. Agi Bojong Gede	1997.1	43,190	11,720
Tangerang	Suradita Tahap II	1997.6	19,017	17,160
Tangerang	Karawaci II	1998.4	17,179	23,230
Bekasi	Ditjen Perhubungan Darat	1998.3	104,999	17,290
Bekasi	Bojong Menteng	1998.4	333,181	23,990
Average				18,771

(Source: Perum Perumnas)

Total infrastructure construction cost averaged 18,770 $Rp./m^2$ before the economic crisis. Table 6-3-11 shows a summary of interviews with local contractors on the price increase of construction materials. The price escalation of materials between July 97' and July 98' averaged 75% for contractor 1 and 53% for contractor 2.

[2] These are typical projects for relatively low class housing development.

Table 6-3-11 Price escalation reported by contractors

Classification	Unit	August '97	Contractor 1		Contractor 2	
			August '98	Increase	August '98	Increase
Labor Cost (Rp.)						
Driver	Hr	3,221	3,750	16%	3,221	0%
Forman	Hr	3,865	4,000	3%	3,865	0%
Operator	Hr	4,725	5,000	6%	4,725	0%
Skilled Labor	Hr	3,438	3,500	2%	3,438	0%
Unskilled Labor	Hr	2,468	2,500	1%	2,468	0%
Material Cost (Rp.)						
Cement	ton	175,000	300,000	71%	250,000	43%
Sand	m3	38,031	45,000	18%	50,000	31%
Crusher stone	m3	38,031	45,000	18%	50,000	31%
Steel	ton	1,680,000	4,460,000	165%	3,100,000	85%
Reinforcement	ton	1,600,000	4,250,000	166%	2,800,000	75%
Wood	m^3	83,000	450,000	442%	379,500	357%
Concrete product(K225)	m^3	186,409	185,000	0%	192,400	3%
Asphalt	ton	429,000	1,400,000	226%	673,750	57%
Gasoline	Ltr	700	1,000	43%	1,000	43%
Diesel oil	Ltr	400	600	50%	550	38%
Heavy oil	Ltr	300	400	33%	400	33%
Electricity		88	105	20%	180	106%
Average				75%		53%

According to the information from Perum Perumnas, local contractors, government staff and local engineering consultants, infrastructure construction costs for housing development have increased 30 to 50 percents since last year. Based on the information above, the infrastructure construction cost as of August '98 for the proposed Parung Panjang project was estimated at 24,000 to 30,000 Rp./m^2.

[Housing construction cost]

The housing construction cost has also significantly increased since the economic crisis. The following table shows Perum Perumnas's standard cost for low-cost housing construction (RSS and RS).

Table 6-3-12 Construction cost of RSS, RS (Rp./unit)

	RSS 21/54	RSS 36/60	RS 21/72	RS 36/98	RS 54/153
1997	2,079,000	3,783,600	4,328,000	9,000,000 ~ 10,000,00	21,000,000 ~ 25,000,000
1998 December	3,570,000	5,940,000	8,400,000	12,312,000	28,325,000
	(170,000/m^2)	(165,000/m^2)	(400,000/m^2)	(342,000/m^2)	(327,000/m^2)

(Source: Perum Perumnas)

The construction cost of RSS houses increased 50 to 70 percents between 1997 and 1998. The construction cost of middle-class houses (T-100/200 and T-150/300) is estimated by Perum Perumnas at 800,000 to 1,000,000 Rp./ m^2 (floor size).

(2) Economic Consideration

There is no established methodology to quantify the economic benefit of city planning or housing development projects. We may define the benefit of these projects as the increase in efficiency in economic activities and/or the improvement of living conditions, produced by the total of all project components. Simple addition of economic benefits generated through the construction of each infrastructure does not adequately capture total project benefit.

The major objective of economic analysis is to provide policy makers with the information necessary to judge whether an investment of public funds will yield worthwhile public benefit. A quantitative comparison between economic costs and benefits is often requested as one of the most practical and useful sources of information for this objective. Measuring the GDP gains to be achieved by the project is the method most frequently used to quantify the economic benefit of public works projects. In the case of road construction projects, for instance, fuel saving, increase in the car usage period and time-saving for car users can be translated into an increase in GDP. However, not all public works projects are aimed at increasing GDP, but rather at improving the quality of human life, which is not easy to measure in monetary terms. Such projects as water supply, sewer treatment or public health would fall into this group. Alternative benefit measurements, such as beneficiaries' willingness to pay, are often used to judge the worthiness of the investment in these cases.

In city planning or housing development projects, the appreciation of land value is sometimes used as an indicator of a project's economic benefit, since land value is basically a function of economic activities or the value added generated on the land. Land value in a housing area would be the price that people are willing to pay for the amenity or convenience that they can enjoy by living on that land. It should be noted, however, that market land value is often strongly affected by real estate speculation, especially in ASEAN countries. Indonesia is not an exception. House rental rates, which are not really subject to speculation, could also be used as an indicator of a housing project's economic benefit since they are also a function of economic activities or value added generated on the land. However, in Indonesia, since the house rental market is not yet developed and rental rate data is not available, it would be quite difficult to forecast the appreciation of house rental rates after a housing development project. For the reasons mentioned above, quantitative economic analysis for the proposed KASIBA development project was not carried out in this Study.

The following economic effects are expected after the implementation of the proposed housing development project in Parung Panjang:

- Improved housing conditions for the new residents: their current housing conditions would supposedly be much worse than those expected in Parung Panjang without enough space in DKI Jakarta.
- Improved living conditions for the new residents: the new town is equipped with all necessary urban infrastructures.
- Efficient urban infrastructure: housing development is integrated into a city plan where economic efficiency is achieved.
- Equitable distribution of development benefits: distribution of development benefits is carefully planned in the KASIBA system. The benefits are not monopolized but shared by each expected KASIBA constituent (Perumnas, developers, cooperatives, landowners, homebuyers, etc.).

It should be noted, however, that the risk of the project must be fully considered before proceeding to the implementation. The development plan in Parung Panjang presented in this chapter is designed based on the following critical assumptions:

1) **Middle-class housing sale**
   - Indonesian GDP growth turns positive by 2000, and the general demand for middle-class housing resumes.
   - The planned new north-south arterial road is constructed as scheduled and connected with the Jakarta-Merak Highway. Middle-class residents normally use a car for commutation.

2) **Low-class housing sale**
   - BTN's (National Saving Bank) subsidized housing loans become available (the Government resumes subsidized lending to BTN), and the general demand for low-class housing resumes.
   - A new railway station is constructed or a bus connection to the existent railway station in Parung Panjang is established.
   - The number of commuter trains between Parung Panjang and DKI Jakarta is increased.

The housing demand in Parung Panjang will not materialize and many houses will remain unsold unless the above conditions are satisfied. Efficiency in urban infrastructure will not be achieved if there are many unsold houses since the infrastructure is designed to serve the total new town. The recovery of the economic conditions of the country and the Government's fiscal arrangement for the related infrastructure are the preconditions for the implementation of this Parung Panjang housing development.

(3) Financial Analysis

Financial analysis was conducted on each of the following four types of Parung Panjang housing development, out of which land consolidation is used in two cases.[3] (Land and housing development by a single entity, which is currently undertaken as the conventional housing development by Perumnas, is presented as Case 0 for a reference.)

Case 0	Land/housing development	Infrastructure construction, land acquisition and housing development by a single entity
Case 1	Selling LISIBA	Infrastructure construction and land acquisition by KMB and selling LISIBA
Case 2	Development Charge	Infrastructure construction by KMB and development charge on LISIBA
Case 3	L/R for KASIBA/LISIBA	L/R covering the entire area
Case 4	L/R for KASIBA	L/R for main infrastructure

[3] Since the financial analysis on each case is undertaken for the purpose of establishing KASIBA and land readjustment systems, examination of financial viability of each case is not the objective of this case study.

The following are the assumptions applied to the analysis:

1. Elements under the current unusual economic situation are eliminated from the case study so that the same methodology can be generally applied. For this purpose, a 0 percent inflation rate and a 10% real interest rate were applied.
2. Field survey results were used for the purchase and selling prices of land.
3. The proportion of middle-class houses and low-cost houses to be constructed is 3 to 6. (80% of revenues come from middle-class houses.)
4. As financial indicators, Internal Rate of Return (IRR) is used for housing development, while Land Contribution Rate (LCR) is used for land readjustment.
5. Case 1 (Infrastructure construction and land acquisition by KMB and selling LISIBA) and Case 3 (land readjustment in the entire area) are the basic cases for Parung Panjang, based on which Case 2 and Case 4 are developed, respectively.
6. Case 0 (Infrastructure construction, land acquisition and housing development by a single entity) is presented only as a conceptual case, since KMB and LISIBA developers are financially different entities.

The results of the financial analysis are shown in Table 6-3-13.

Table 6-3-13 Financial Analysis Comparison Table

	Case 0	Case 1	Case 2	Case 3	Case 4
KASIBA	Land/Housing Dev.	Selling LISIBA	Dev. charge	L/C Kasiba,Lisiba	L/C Kasiba
A. Total area (-,000 m²)	2,430.1	2,430.1	2,430.1	2,430.1	2,430.1
Housing area	1,414.7	1,414.7	1,414.7	1,414.7	1,414.7
Commercial area	287.0	287.0	287.0	287.0	287.0
Infra./Public	729.3	311.8	311.8	729.3	311.8
	Sellable plot 1,702 m²	LISIBA Area 2,119 m²	LISIBA Area 2,119 m²	Reserve land 821 – 1,008 m²	Reserve land 543-831 m²
B. Development Cost	556,461	61,182	32,700	91,131–112,457	33,512-42,140
1. Land dev.cost	110,936	61,182	32,700	79,000	29,246
Land acquisition	31,936	31,936	3,454	0	0
Infra/Others	79,000	29,246	29,246	79,000	29,246
2. Housing dev.cost	452,236	0	0	0	0
3. Interest Payment (Interest Rate)	—	—	—	12,131-33,457 10-30%	4,266-12,894 10-30%
C. Revenue	642,583	65,730	35,318	91,131-112,457	33,512-42,141
1. Sales of houses	599,534	0	0	0	0
2. Commercial area	43,050	0	0	0	0
3. Sales of LISIBA	0	65,730	0	0	0
4. Charge to LISIBA	0	0	35,318	0	0
5. Sale of reserve land	0	0	0	91,131-112,457	33,512-42,141
Raw Land Price 1998	House/land Price	LISIBA Price	Dev.Charge	Reserve land	Reserve land
12,000 Rp./m²	(Perum Perumnas) 4,9-195.0 Mil Rp./Unit	(Perum Perumnas) 10,000 Rp/m²	(Perum Perumnas) 3,000 Rp/m²		
		(Resid area) 30,000 Rp/m²	(Resid area) 20,000 Rp/m²	(Resid area) 90,000 Rp/m²	(Resid area) 30,000 Rp/m²
	(Com.Area) 150,000 Rp./m²	(Com area) 90,000 Rp/m²	(Com area) 40,000 Rp/m²	(Com area) 150,000 Rp/m²	(Com area) 90,000 Rp/m²
D. IRR	17%	6%	7%	—	—
E. LCR R(max)*	—	—	—	63-73% (59-76%)	34-46% (46-71%)
F. IRR for LISIBA housing development	—	Low Class: 8% / Mid. Class: 13%	Low Class: 4% / Mid. Class: 12%	—	—

* Ratio of planned reserve land over maximally allowable reserve land

The results of the financial analysis are summarized as follows:

1. If a single entity implements the entire project including housing construction as shown in Case 0, a 17% of IRR will be achieved, showing the project's financial viability when the real interest rate is 10%. Since this outcome is valid under the specific conditions in Parung Panjang, different assumptions should be applied if conditions are different. Cross-subsidies among 1:3:6 house types are also proved to be achievable.
2. The results of Case 0, Case 1 and Case 2 are basically the same, since these cases have the same financial structure. Profits to be achieved in Case 0 are shared between KMB and LISIBA developers in Case 1 and Case 2. The IRR to be achieved by KMB is

rather marginal, 6% in Case 1 and 7% in Case 2.

3. Cross subsidies are introduced by charging different selling prices between LISIBA developers. As a result, Perumnas that constructs only low-cost housing can achieve a positive return, 8% in Case 1 and 4% in Case 2, while private developers that construct medium-class housing can achieve a 13% return in Case 1 and a 12% return in Case 2.
4. Although land readjustment in Case 3 and Case 4 is financially viable, its application is rather difficult in Case 3 since its LCR is as large as 63% to 73%. This is because the increased amount of land value is small compared to the infrastructure construction costs. The ratio of planned reserve land over maximally allowable reserve land is also large, 59% to 76% in Case 3. These results show that ordinary land readjustment is difficult to implement in remote areas as such Parung Panjang, if small landholders are dominant in the area. However, if large-scale landholding is dominant in the area, the project becomes practically the same as ordinary large-scale housing development where 50% to 60% of the housing area is sold. This method is applicable if Perumnas becomes a dominant landholder by purchasing land before the land readjustment. In this case, Perumnas constructs only main infrastructure (Case 4 in which LCR is 34% to 46%) and then develops LISIBA by itself or sells LISIBA to private developers (Case 2). As such, housing development through land consolidation in Parung Panjang should be implemented in combination with up-front land purchase.

6-4 KASIBA Implementation and Action Plan

6-4-1 KASIBA Implementation Plan

(1) Conditions for the Formulation of the Implementation Plan

So far we have been studying various types of project systems that should play a leading role in organizing the KASIBA Management Body (KMB). Proposed here is a system and a development entity considered being the most applicable and easiest to materialize among various alternatives scenarios.

1) Implementation System as a Premise

This implementation and action plan is based on project system studies, including land consolidation that require no land purchase for infrastructure development. What has been discussed can be used to carry out similar projects in areas other than Parung Panjang. As far as the project area is concerned, a project system with a comprehensive land purchase has been adopted except for built-up zones and existing villages. Regarding the land purchasing, PERUMNAS has the priority due to its current land possessions and development rights. In other words, the KMB will acquire land in the project area, including that owned by the area's largest landowner PERUMNAS, implement infrastructure development and sell land with added value to contractors in LISIBA in order to ensure profitability of the project.

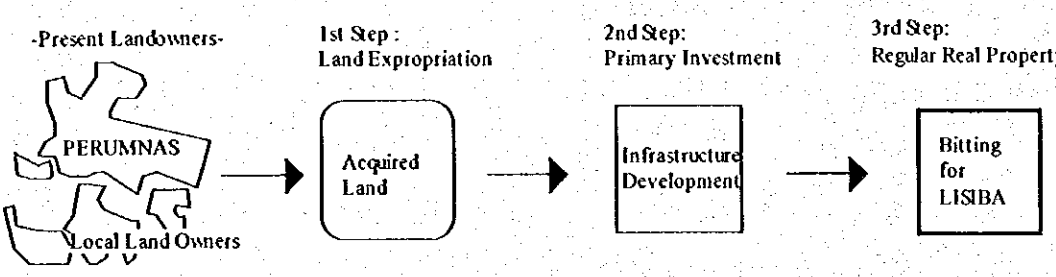


Figure 6-4-1 Type of Project Implementation

2) Organizations Involved in the Establishment of the KMB

Given the above project system, PERUMNAS will play a leading role in setting up the KMB. Under the KMB, some sub-organizations such as the MENPERKIM and the Ministry of Public Works will assist the development of the KASIBA project. Assisting organizations include BINAMARGA, the Department of Land Transportation, a Local Water Supply Company, an Electricity Company and a Telephone Company.

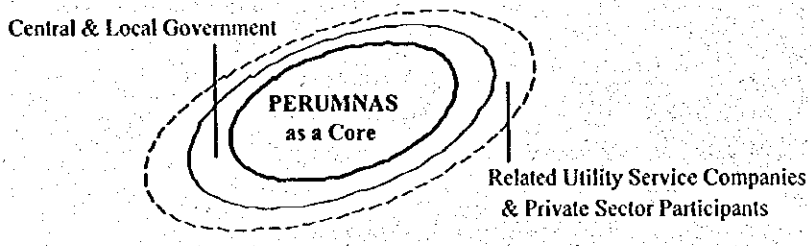


Figure 6-4-2 Organization of KMB

(2) Procedures up to Implementation of the Project

It is necessary for the KASIBA to play an active role in avoiding urban sprawl. Specifically, it will carry out housing development in accordance to development strategies of the central and local government in areas where the private sector has implemented housing development without any considerations for government strategies. Publicly led development can bring about proper urban development, efficient infrastructure development in harmony with traffic development, and thereby achieve necessary housing supply. This requires, however, the following legal procedures to obtain approval for the project.

1) Enactment of the KASIBA Law
A detail study is now being conducted on the basis of an existing draft law. Prior to project implementation, it is necessary to enact an official law to that end.

2) Preparation of a Project Implementation Plan
A project implementation plan must be worked out in accordance with the contents specified in the law.

3) Confirmation of the Soundness of the Project
The economic and financial aspects of the project must be studied to confirm that the project has adequate economic effects and profitability.

4) Establishment of an Organization for the Project
An organization well versed in real estate development must be set up to manage and execute the project.

5) Acquisition of Approval for Development
Documents necessary for approval must be prepared to obtain approval from the government and acquire a development license.

6) Measures for Local Residents
Measures must be taken so that local residents will not be victimized from the KASIBA project.

7) Consideration for the Environment
An environmental impact assessment must be carried out to work out measures designed to reduce environmental damages.

8) Land Purchase
Land must be purchased at a reasonable price, while paying due respect to the rights of individual landowners and right holders.

9) Infrastructure Development
Proper functions must be provided to the housing development area, including the development of infrastructures such as roads, water supply, sewerage, storm water drainage, electricity, communications and land for public facilities.

10) Selection and Management of LISIBA Contractors
While inviting tenders for the LISIBA project area, contractors will be selected to execute the LISIBA project.

11) Monitoring

The KASIBA implementation procedures will be managed while monitoring will be carried out even after the settlement of residents. The findings of this monitoring will be compiled as know-how for better community building in other KASIBA projects.

On the basis of the contents described in the above (1) conditions for formulation of Implementation Plan and (2) procedures up to approval of the project, the main points for the KASIBA implementation will be explained considering the current political and economic situation in Indonesia.

(3) Institutional Arrangement

The Indonesian government has been implementing drastic reforms of its organization since 1998. It is still in progress and further reforms are expected in 2000. The following chart shows what the new Indonesian governmental organization is expected to resemble in the near future.

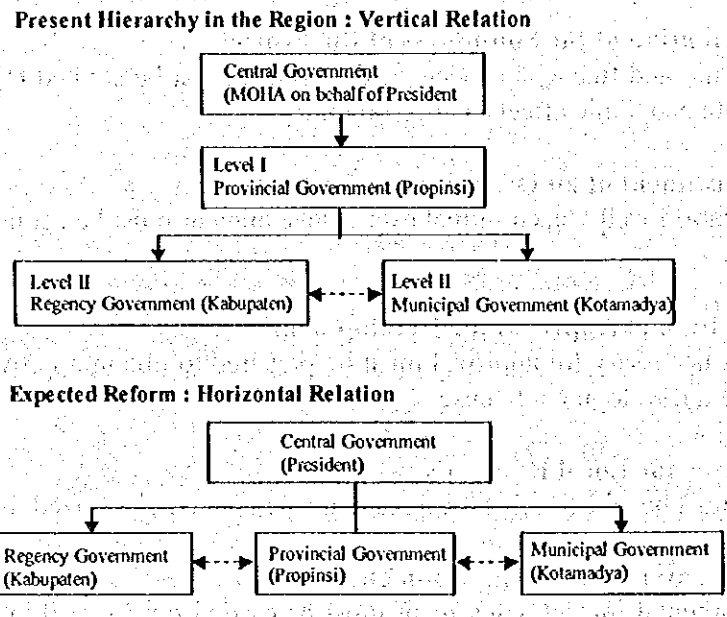


Figure 6-4-3 New Form of Government Organization

The current organization was inherited from the previous regime of centralized economic management. This organization had many deficiencies requiring remedy, in the course of adjusting its administrative structure into the most effective and appropriate form for enforcing the decentralization policy.

The new system aims at reducing and eliminating duplicated functions between the central and local government, and separating administrative functions independently from the implementation function. As such, the decentralization process will render the local government financially and administratively more independent. The advantageous points of decentralization are: a) the saving administration-process time, b) a better accountability, and c) faster decisions-making process.

However, it is essential to insure that the following particular points be well coordinated in

future reform efforts:

- Strengthening of making financial budget for basic public works in the local government
- Establishment of clear guidelines for setting investment priorities and ranking of alternative project
- Bringing up of capable government officer in each position and fields

These are important to ensure that urban development/housing supply projects are consistent with overall national strategies and objectives, and with activities undertaken using the local administration's own resources. These key items would also be useful for other similar projects or local governments preparing project profiles.

- Strengthening of the planning section in the local government in terms of administrative capacity and right

This recommendation aims at establishing a clear-cut regional/urban development plan and strengthening rights for the development permission, termination and penalty. With a free access to the various information bases of the several participating agencies, and sufficient capability to compile information on housing development plans, especially at the planning stage, overall the planning of individual projects can be well-designed and aligned to the national development plan.

(4) Project Formulation

1) Strengthening of Perumnas' Activities

Perumnas, which has been established to improving the worsening living environment due to the sharp population growth and rapid inflow of population into urban areas, has mainly supplied low-cost housing for low-income earners. Although the supply of inexpensive housing requires low-priced land, it is increasingly difficult to acquire such land in metropolitan areas. Furthermore, Perumnas must strengthen its initial role. The so-called 'Principle 1: 3: 6', for houses has been applied to development by the private sector, regardless of the effectiveness of the system. Under this principle, 60 percent of the houses should be built for low-income groups, while 30 percent are for medium-income groups and 10 percent for high-income brackets.

As a first step toward meeting the changing demand, Perumnas will be able to not only construct and sell low-class houses, but also middle-class houses. In the near future, Perumnas will also perform a leadership role in the KMB that serves to promote urban development and carry out land readjustment in cooperation with the National Land Agency if necessary.

2) Private Sector Participation

The use of the private sector to carry out housing projects is crucial for ensuring an efficient implementation of those projects and programs. The profit motive makes private firms more sensitive to consumer demand, improving prospects for a sustained flow of benefits. After improving Indonesia's economy, their financial resources, management skills and technical know-how should be fully utilized in order to attain the goals of the projects and programs.

With respect to incentives for private investments, the areas of key importance for the successful revitalization of the economy are: (1) existence of a competitive tax concession

package, (2) credible and efficient banking and finance operations, (3) streamlined requirements for company formation, and (4) appropriate government guarantees for the exemption, incentives and concessions granted by the government.

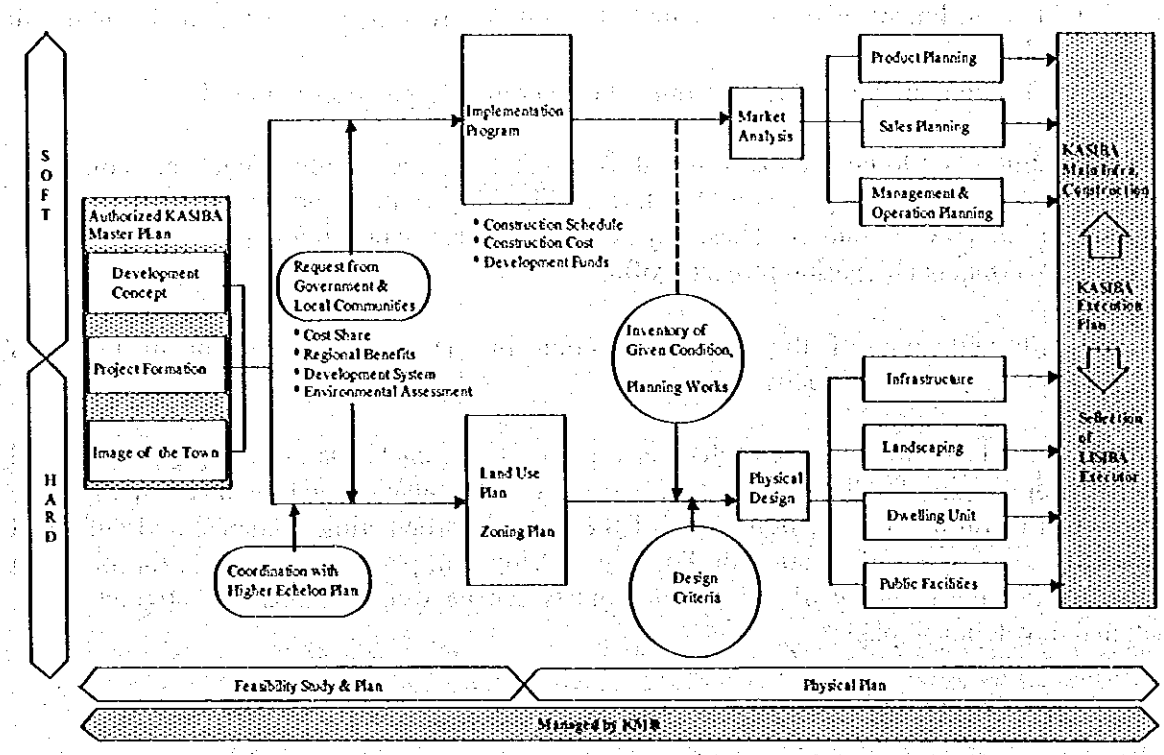


Figure 6-4-4 Overall KASIBA Execution Flow

(5) Implementation Schedule

1) Act in Concert with the Market Maturity

When preparing the implementation schedule for the KASIBA development, the market's maturity must be considered to ultimately realize and implement the project. The Short-term period is 5 years, 2001 to 2005, the Medium-term is 5 years, 2006 to 2010, and the Long-term is 10 years, 2011 to 2020. Considering the economic growth in JABOTABEK, the following implementation actions are desired for each term:

Short-term: Preparatory and engineering work for the execution

According to the implementation schedule, the short-term KASIBA housing development will require preliminary administrative and engineering work such as, institutional arrangement, design and engineering, public acceptance and financial arrangement. The initial site preparation/acquisition and basic infrastructure development should be implemented continuously.

Mid-term: Development of priority area (300ha/10,0000 houses)

The mid-term plan is the actual start of housing construction. The targeted supply volume of housing units is around 10,000 during this period. Providing a double tracking of rail network from Parung Panjang to Central JKT (Tanah Abang) and the construction of a regional arterial road connecting Parung Panjang to JKT-Merak Highway are identified as two major key projects related to KASIBA development. However, considering the importance of

strengthening the public transportation system, the mass and rapid transportation system between the project site to JKT-CBD should be constructed.

Long-term: Development of the Master Plan area (700ha/23,000 houses)
After the development of the priority area, the KASIBA housing development project's long-term objective will be to develop the remaining land designated in the Master Plan (700ha with 23,000 dwelling units).

The project implementation schedule, procedure and cost sharing provisions are summarized in the following figure.

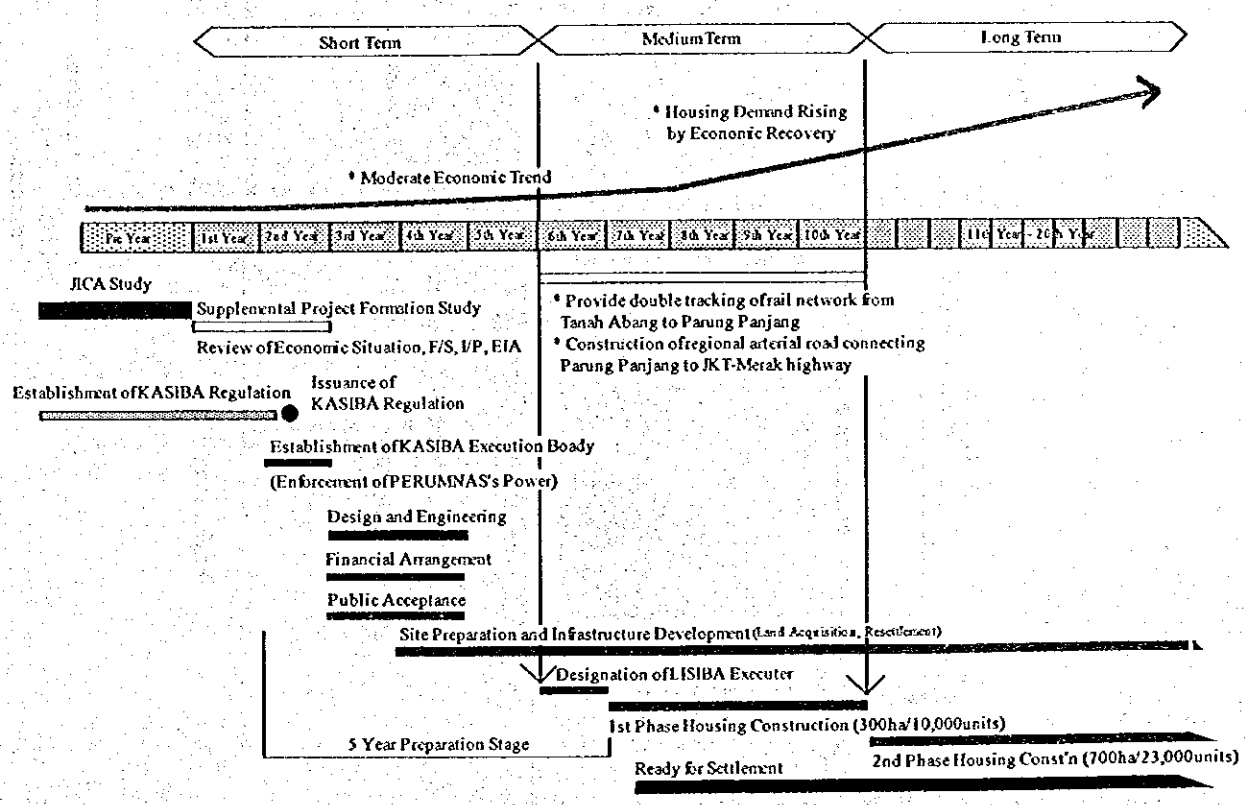


Figure 6-4-5 Project Implementation Schedule

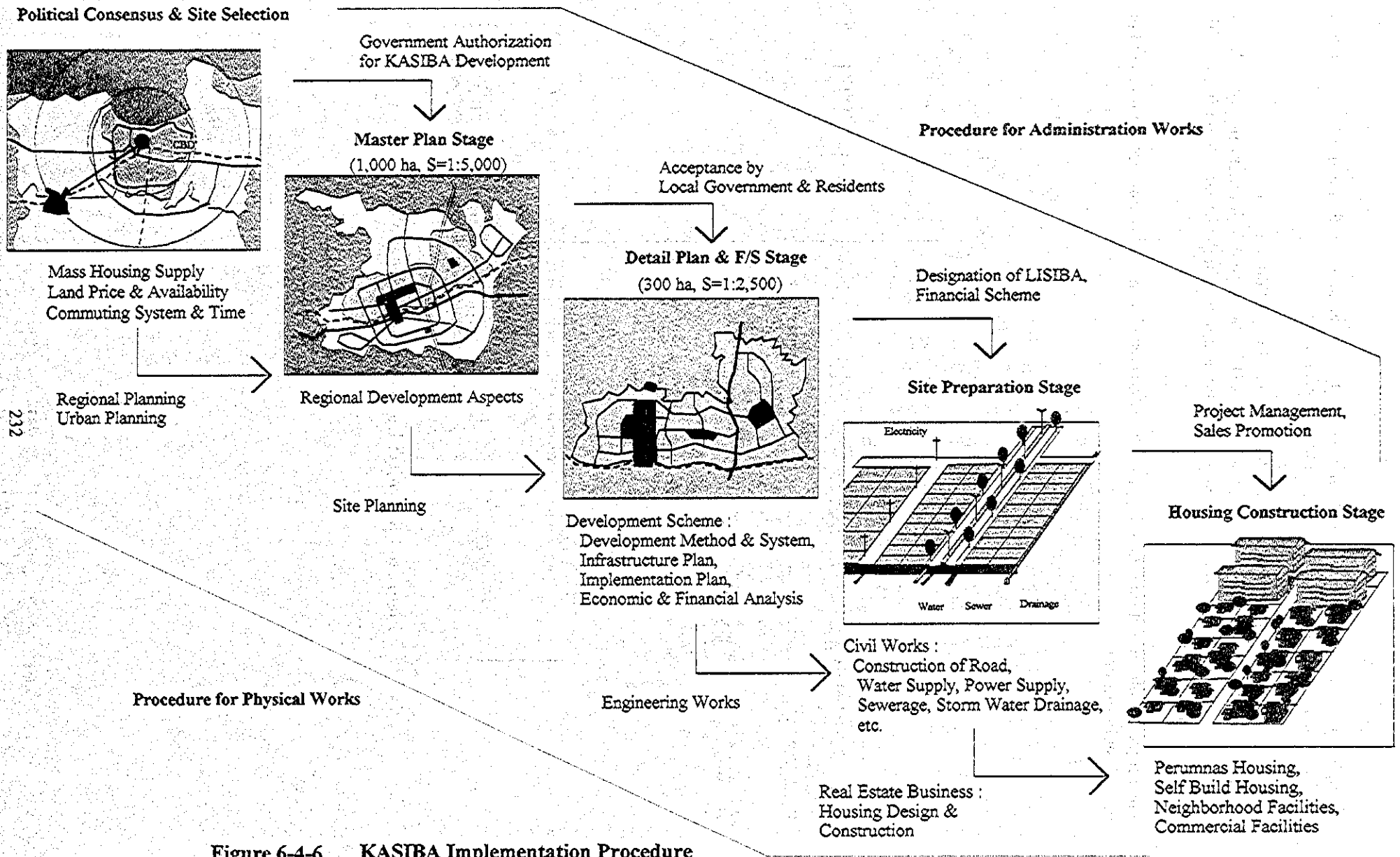


Figure 6-4-6 KASIBA Implementation Procedure

Table 6-4-1 Assumed Cost Sharing Provision of Public Utilities/Facilities in the Area of KASIBA (Parung Panjang)

Case: KMB : Main Organization = PERUMNAS
Sub Organization = MENPERKIM, PU & Bogor Regency Local Government
Infrastructure construction within LISIBA

Category		Cost Sharing		Operation &
		Land	Construction	Maintenance
Road	Regional Arterial Road (ROW=22m)	KMB	PU	PU
	Arterial Road (ROW=16m)	KMB	KMB	LG
	Collector Road (ROW=12m)	KMB	KMB	KMB/LG *1
	Local Road (ROW=10m)	KMB	KMB	KMB/LG *1
	Local Road (ROW=8m)	KMB	KMB	LD/LG *1
	Local Road (ROW=6m)	KMB	KMB	LD/LG *1
	Footpath (ROW=4m)	KMB	LD	LD/LG *1
Transportation	Public Parking	KMB	LG	LG
	Bus Terminal	KMB	LG	LG
	Rail Station	KMB	DLT	DLT
Waterway/Drainage	Retention Pond	KMB	KMB	LG
	Waterway	KMB	KMB	LG
	Drainage	KMB	KMB	LG
Park & Green	RW Level	KMB	KMB	LC
	RT Level	KMB	KMB	LC
Sewerage	Sewerage Treatment Plant	KMB/LG *2	LG	LG
	Sewerage Network	-	KMB	LG
Water Supply	Deep Well	KMB	PDAM	PDAM
	Distribution Network	KMB	KMB	PDAM
	Purification Plant	PDAM	PDAM	PDAM
Power Supply	Substation	KMB	PLN	PLN
	Distribution Network	-	PLN	PLN
Telecommunication	Exchange Station	KMB	PTT	PTT
	Cable Network	-	PTT	PTT

Remarks;
KMB : KASIBA Management Body
PU : Department of Public Works
LG : Local Government
DLT : Department of Land Transportation
PDAM : Local Government Owned Water Supply Company
PLN : State-Owned Electricity Company (Perusahaan Umum Listrik Negara)
PTT : National Telecommunication Company (P.T. TELKOM)
LD : LISIBA Developer
LC : Local Community
*1 = For under-construction, O & M will be undertaken by KMB or LD. If the project has been worked out and submitted to LG, O & M will be responsible of LG.
*2 = If sewage treatment plant (STP) is inside of KASIBA, land should be provided by KMB, but if STP is outside of KASIBA, land should be provided by LG.

6-4-2 Expected Cash Flow

When Case 1 in Section 6-3-4 is applied to the KASIBA development in Parung Panjang, the total project cost excluding interest costs is Rp.61 billion. Although revenues are expected to be generated from the second year, the yearly net cash flow turns positive for the first time in the fourth year. As a result, capital needs peak in the fourth year: approximately Rp.35 billion is

needed as capital costs.

Table 6-4-2 Expected Cash Flow for KASIBA Parung Panjang Project

Year	Costs	Revenues	Net Cash Flow
0	0	0	0
1	15,296	0	(15,296)
2	15,296	9,975	(5,321)
3	15,296	9,975	(5,321)
4	15,296	35,805	20,509
5	0	9,975	9,975
Total	61,182	65,730	4,548

Perumnas's participation in the KMB's capital by providing its already acquired land (106ha) would lead to smooth implementation of KASIBA in Parung Panjang. The value of land currently owned by Perumnas in Parung Panjang is estimated at Rp.12 billion, which is equivalent to a third of the KMB's required capital. It is expected that the local government also participates in the KMB, providing the rest of the capital, possibly by using a foreign loan on-lent through the central Government.

6-4-3 Action Plan

- The Perum Perumnas should be the main organization of the KASIBA Management Body for both administration/management functions and project execution
- Manpower and quality strengthening of supporting sections of the central and local governments (MENPERKIM, Department of Public Works, Provincial & Regency Government Offices, each departments' planning section)
- Establishment of the following institutions:
  - The Organization for Analysis of the Land Prices (in each land title or right)
  - The Monitoring Section for the Buying and Selling of Real Estate
  - And, the Statistical Section of Data Collection/Compilation for the above two institutions
- Preceding a model project:
  - The housing supply model
  - Improvement of the housing soft loan by the utilization of public funds, housing assistance organization as BTN and private funds
  - The housing production model
  - The upgrading and reinforcement of the high quality and mass housing supply, which aims at the improvement of house construction technique from conventional method to industrialized (this subject should be developed by Perumnas together with the D.G. of Human Settlements, and assisted by foreign aid)
- International criteria for project evaluation of housing should be adopted