6-2-3 Housing Demand Forecast

(1) Socio-economy Projection in JABOTABEK

For the basis of housing demand forecast, the population of JABOTABEK and the GDP is projected, based on the existing plans and reports.

1) Population

Due to the economic crisis, the population of JABOTABEK will rather increase gathering people from rural area who have difficulty to live, or will it decrease loosing unemployed residents who return to their home land? Assuming that the natural increases will be the same as the forecast, and the population will decrease in urban area, the population in rural area will grow reducing the per capita income. The existing population projection is as follows.

The future population was projected based on the 'Development Strategy of (Greater) Jabotabek Area' (DSJ) (1997), Cipta Karya, collecting the population in the JABOTABEK area.

Table 6-2-2 Population Projection in JABOTABEK (unit: 1,000)

	1995	2000	2005	2010	2015	2020
DKI Jakarta	8,964	9,696	10,487	10,827	11,178	11,407
Kabupatan Bekasi*	2,236	2,743	3,365	3,891	4,500	5,085
Kabupatan Bogor	4,064	4,836	5,755	6,599	7,567	8,544
Kotamadya Bogor	647	744	856	942	1,037	1,122
Kabupatan Tangerang	1,490	2,435	3,978	4,506	5,104	5,431
Kotamadya Tangerang	1,119	1,430	1,828	2,001	2,191	2,315
BOTABEK	9,556	12,189	15,783	17,940	20,399	22,355
JABOTABEK	18,520	21,884	26,270	28,767	31,577	33,754
BOTABEK growth rate		(1995~2005)	5.1%	(2005~2015)	2.6%	1.8%
JABOTABEK growth rate			3.6%		1.9%	1.3%

* : including Kotamadya Bekasi

(Source:DSJ, 1997, Cipta Karya; population in 2000, 2010 and 2020 estimated by geometric trend)

The population increases during 1995~1996 of Parung Panjang was 12,500, however except this period the population was stable. The increase was triggered largely by the inflow to the completed Perumnas development. Therefore the future population depends not on the trend but on the development policy and strategy.

2) Household

The number of households was projected from the above population and the household size projected in the Jabotabek Metropolitan Development Plan Review (JMDPR 1993). The tendency of household size is downsizing. The household size in 2010 will be 4.0.

Table 6-2-3 Household Projection in JABOTABEK (unit: 1,000)

	1995	2000	2005	2010	2015	2020
DKI Jakarta	1,961	2,214	2,497	2,707	2,926	3,125
Kabupatan Bekasi*	489	626	801	973	1,178	1,393
Kabupatan Bogor	889	1,104	1,370	1,650	1,981	2,341
Kotamadya Bogor	142	170	204	236	272	308
Kabupatan Tangerang	326	556	947	1,126	1,336	1,488
Kotamadya Tangerang	245	327	435	500	574	634
BOTABEK	2,091	2,783	3,758	4,485	5,340	6,164
JABOTABEK	4,053	4,996	6,255	7,192	8,266	9,289
Household size	4.57	4.38	4.20	4.00	3.82	3.65

Source: JMDPR, 1993

3) Economy

- GDP

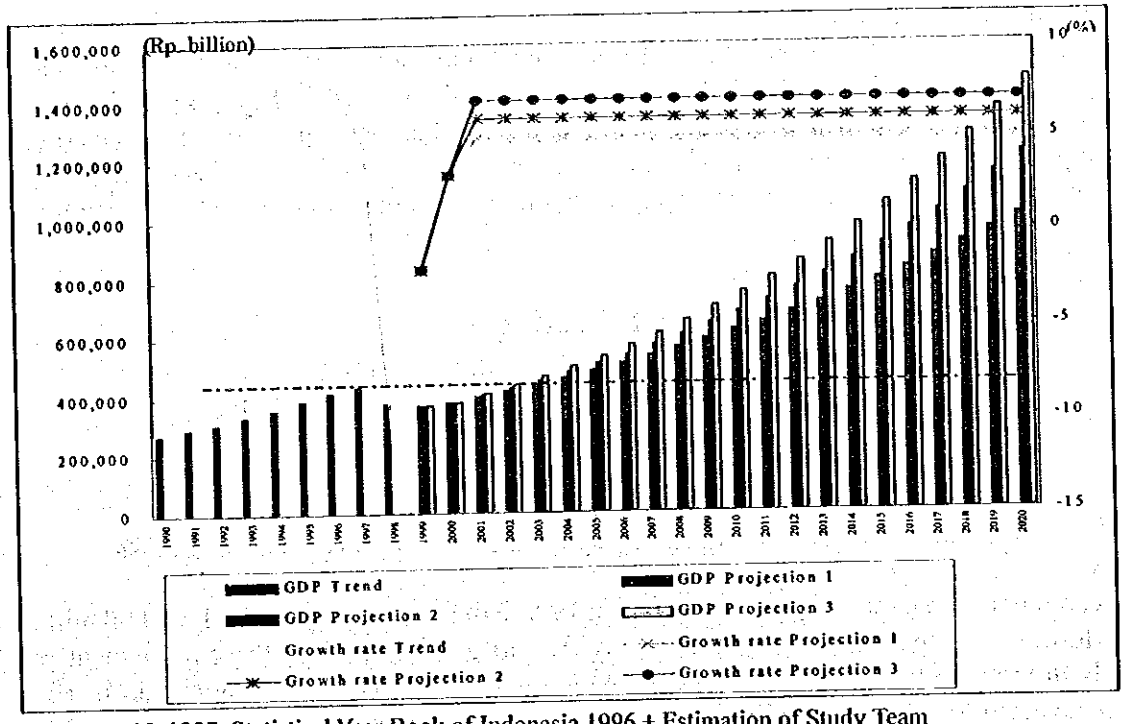
For the basis of housing demand forecast, the future GDP is projected mainly based on the forecast of the World Bank, Macroeconomic Update 'Indonesia in Crisis' (July 1998), which describes the growth rate as follows:

1998 : -10 ~ -15%
1999 : -2% (~ +2)%
2000 : 2 ~ 4% growth

The economic growth forecast is about –12% in 1998, or the real GDP drops to Rp.377,027 billion (constant 1993 price) from Rp.433,685 in 1997, due to the economic stagnation and the high inflation rate of 66%.

In the light of the rich natural and human resources of Indonesia, it is no doubt that the economy should develop upward in the long run. However there is no established forecast on the timing of the turning point to a rise and growth rate. Considering the potential of Indonesia, the recovery would be achieved under the condition that the political stability be secured.

In the long term, 25 year plan (PJP-2) (1968-1993) up to 2018, the target of the annual average growth rate is set as 7%, based on the growth rate of 6.8% which was actually achieved. Considering the sporadic economic contract, stagnation and the heavy burden of foreign debt, the target 7% seems too ambitious. Based on the growth rate experienced until 1997, the average growth rate of 6% is considered more achievable. For the economic projection, the forecast of the World Bank is followed until 2000. After 2001, average annual growth rates of 5%, 6% and 7% are compared. In the lower case 1 and medium case 2, the GDP will exceed the level of 1997 after 2003 (Figure 6-2-4).



Source: BPN, 1997, Statistical Year Book of Indonesia 1996 + Estimation of Study Team

Figure 6-2-4 GDP Trend and Projection

- Government Budget

The government announced the revised 1998/99-state budget (April 1998 - March 1999) on 16 July 1998, with drastic changes due to the economic crisis. The outline is shown below.

Table 6-2-4 Revised Targets in Government's 1998/99 Budget

(in trillion rupiah)

	Previous	New	Change
Revenues			
Domestic Revenues	115.00	149.30	30%
Development Revenues	32.25	127.80	96%
Program Aid	8.50	87.30	927%
Project Aid	23.75	40.50	71%
TOTAL	147.22	277.14	88%
Expenditure			
Routine Expenditures	97.82	205.50	110%
Development Expenditures	49.40	71.60	45%
TOTAL	147.22	277.14	88%

Source: Government Announcement (Newspaper)

The budget was made based on the following assumptions:

Assumption Used	Previous	New
Rupiah / Dollar rate	Rp.5,000	Rp.10,600
Economic growth	0.0%	-12%
Inflation	20.0%	66.0%

- Employment – Poverty

In the announcement of BPS on 2 July 1998, 94.9 million people (40% of the total population) was under the poverty line and it will increase to 95.8 million (48% of the total population) by the end of this year. In urban area, 28.8% of population is below the poverty line. The criteria for the poverty line were raised due to high inflation. Saving rates decreased accordingly, and the lower-income groups are now negative, while middle-income groups register an average of 13%.

Table 6-2-5 Poverty Line

	Poverty line (Rp. per capita per month)		Percentage below the poverty line (%)	
	Urban	Rural	Urban	Rural
1996	38,246	27,413	9.7	12.3
1998	52,470	42,588	28.8	45.6

Source: Government Announcement (Newspaper) + Statistical Year Book of Indonesia 1996

It was announced that the unemployment rate in 1998 will hit 15.4 million (17.1% of 90 million work force). In 1995, although the economy was in good condition, the employment rate slightly dropped to 93%, while a high employment rate of 95–97% was kept except in 1995. The recovery of employment will take place after 2001. Without employment, housing would not be affordable by any means.

(2) Housing Demand Survey

- Outline

In order to have information on housing demand in the Jakarta Metropolitan Area, in particular of intention for new housing, affordability and size, the housing demand survey was carried out. The survey was home interview of 1,000 in number of samples in DKI Jakarta. The hearing of 10 developers was also done in addition.

- Survey Area

The survey area was selected from Kampung in South Jakarta, where many households seem to be in necessity for new housing. Kecamatan Kebayoran Lama and Kecamatan Pesanggrahan are in the southwest part of South Jakarta and the railway to Serang is running through these Kecamatans. In these Kecamatans, the Kelurahans are chosen with the suggestion of the Kecamatan office. With advice of the Kelurahan office, specific RTs were picked up as the survey area, where established high class residential areas are not included but they are typical Kampungs of high density, old, low-rise residential areas with narrow path with many rented houses. The density of Kecamatan Kebayoran Lama and Pesanggrahan was 174 and 120 people per ha in 1996.

- Survey Results

The survey results are summarized as follows:

- Almost all household have desire (85%) or plan (11%) for new house, both for 'owned' and 'rent / lease' house and for all age groups of household heads. None is in need. 1.9% have plan to move in this year.
- They would like to own detached housing, not for flat / neither apartment houses nor rent house.
  Detached houses in residential estate (54%) and individual detached house (43%)

- The tenure of planned house is half 'own' (49%) and half 'installment plan' (48%).
- Affordable level seems to be Rp.10 ~ 30 million for household income of Rp.200,000 ~ 1,000,000 per month.
- For the age group of household head of the twenties, the affordable level is less than Rp.20 million and for the household head more than twenties, the affordable level varies with weight between Rp.10 ~ 30 million.
- They desire a house with total floor area of 51~100 m^2 (67%) having 2 ~ 3 bedrooms.
- The desired location must be near the work place with a commuting time less than 60 minutes.
- Half desire to stay in DKI Jakarta and half will move to outside DKI Jakarta.
- There is a gap between desired houses and their assumed affordable level.

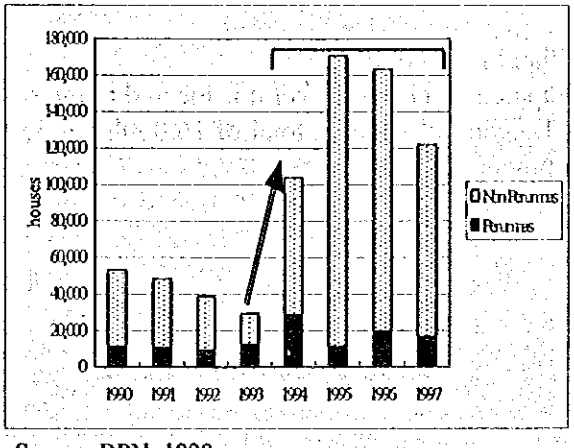
(3) Trend of Housing Demand

Traditionally the housing of Jakarta was characterized as high-density, low-rise houses in Kampong, shop-houses in town areas and houses in residential estates. Responding to the quick increase of population and households, the housing demand continued to be high. Due to the rise of land prices and difficulty in obtaining land inside DKI Jakarta, large-scale residential developments have been made along the east-west axis and the south axis outside DKI Jakarta to absorb such demand.

- Past demand of low bracket housing

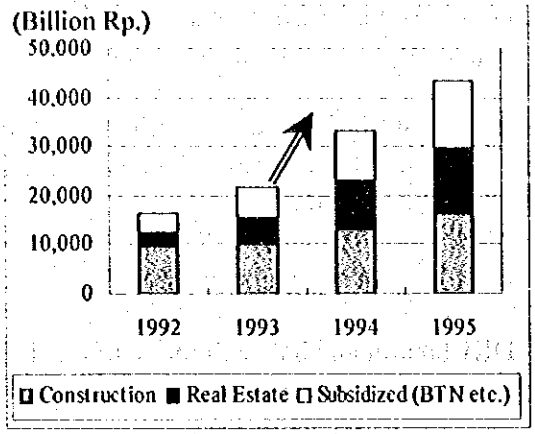
There was a boom of housing construction during 1994 ~ 1997. The number of housing constructed by the mortgage loan of BTN in 1994 increased to 104,000 units or recorded 156% annual increase in Indonesia and 171,000 in 1995 (Figure 6-2-5, 6-2-6). The number of housing constructed by Papan Sejahtera Bank in Jakarta in 1994 was 2,100 units or 93% annual increase and continued the level more than 2,000 units annually.

The constructed units during October 1996 ~ September 1997 by Perumnas with BTN loans was about 20,000 in the JABOTABEK area, which responded to about 10% of the increased households. The cumulative construction was 108,000 units.



Source: BPN, 1998

Figure 6-2-5 Number of Housing Units Constructed by BTN Loan in Indonesia



Source: Real Estate Indonesia, 1996

Figure 6-2-6 Credit of Bank in Property Business in JABOTABEK

- Past demand of middle to high bracket housing

The total cumulative supply of existing and proposed middle to high bracket houses is approximately 1,500,000 units with 42% or about 630,000 units offered to the market. About 41,000 units were reserved and sold in 6 months from April to September 1997. (Procon Indah, 'Property Market Outlook, Jakarta – October 1997 and April 1997') The sales in 12 months from April 1996 to March 1997 were 38,400 units.

Most developers postponed the new stage of the residential development due to slowing down sales, increased interest rate and difficulties in funding. The sales remarkably dropped in the later 1997 from the first half of 1997. The demand in the former 1997 was very high, which lifted up the number in 1997 despite the later downturn. In spite of the currency crisis, the demand still existed before May 1998 when the riots occurred, but after that the expatriates lost interest in real-estate investment.

- Present Situation

According to the interview of the developers in August 1998, there is still demand for very low and low bracket housing, and the demand for high bracket housing is nil or very little.

- Existing Development Plan in Tangerang

Parung Panjang is in Kabupaten Bogor, however it is located to the east of Jakarta, it should be considered in relation to Tangerang, where a total of 16,000ha or 330,000 units of residential estate exists in the development plan.

Table 6-2-6 Major Residential Estate Development Plan in Tangerang

	Area (ha)	Unit
Along Jakarta-Merak Railway		
Bintaro Jaya	1,700	25,000
Bumi Serpong Damai	6,000	139,000
Bumi Suradita	49	1,900
Along Jakarta-Merak Highway		
Alam Sutera	700	13,800
Kota Modern	770	20,000
Gading Serpong	1,500	30,000
Bumi Karawaci	509	20,500
Lippo Karawaci	700	50,000
Kelapa Dua	45	2,400
Citra Raya	1,000	17,000
Sub-total	**12,973**	**319,600**
Kota Tigaraksa	3,000	11,000
Total	**15,973**	**330,600**

Source: Real Estate Indonesia, 1997

(4) Housing Demand Forecast

It is difficult to forecast the housing demand because the number of the past and present housing stock is not available and because the demand depends on various factors in particular on the unpredictable future economy, availability of loan, housing policy and income level and so on.

- Factors for Housing Demand

Housing demand has three-folds of aspect. One is the demand for necessity of securing space of living of individual household, and the others are desire for better physical and social environment and building for living and speculation. The housing demand is affected by the following factors, some of which are interrelated:

- income
- price index (inflation), construction cost
- supply of housing (stock, development)
- price of housing (land + building)
- quality of house (site area, floor area, quality of building, shape of land etc.)
- location (distance from the center, facilities, bus stop or railway station)
- facilities (school, shops, medical, cultural etc.)
- environment (surrounding land use, fronting road, noise, air, water, nature etc.)
- social security and safety from disaster (flood, fire, earthquake etc.)
- infrastructure, maintenance system
- financing condition (availability, amount, interest rate, repayment period, mortgage, legislation etc.)
- means of transport
- information, service for procurement

The factors are also classified into inner ones mainly by residents themselves and outer ones like economic conditions and financial systems.

Table 6-2-7 Factors for Housing Demand

Inner factor	Outer factor
Needs	**Population – Number of household**
- Space for living Independence Adequate house for life style Good residential environment Commuting to work place	- Number of household by age group - Number of household by income group
Affordability	**Economy – Finance System**
Income – Employment Expenditure Savings	- GDP - Employment rate - **Housing finance system, resource** Interest rate Finance period
Preference	**Supply of housing**
Detached house Safety Convenience – Location, Facility Comfort – environment Boom, Speculation	- **Pricing** - Housing development - Infrastructure development

Source: Study Team

- Tenure of house

The tenure of houses or housing unit consist of 'owned, installment plan', 'rent / lease', 'official' and 'rent-free, others':

- Own	The resident has the right of ownership, building or use. 'Installment plan' is included as it is considered as a kind of loan.
- Rent / lease	'Lease' is a contract for a long term and the annual lease is usually paid in advance. 'Rent' is a contract for shorter term and the rent is usually paid monthly.
- Official	The houses are offered by government or authorities to live in.
- Rent-free	Living together with parents or free lodging.
- Others	Squatting or informal inhabitance may be included.

Largely speaking, the housing demand is classified into the following two categories:

- owned housing (including installment plan)
- rent/lease and others

Further 'owned' housing are divided into two kinds: housing in development areas (30~50%) and individual construction or purchase (50~70%).

- Increase of household

In spite of the economic contraction, the population will grow and the household will even rather increase due to downsizing of household size in future. Where will the increased new households live, who become independent or move from outside of JABOTABEK? It may be difficult to live together in the existing high-density condition. Squatting and the expansion of slums should not be allowed. Basically one individual household should need one house (housing unit). It should be the starting point of housing demand. On the condition that proper economic condition, housing promotion policy, affordable housing loans and adequate supply

would be secured, the demand would come near to the increase of households. New construction of rent / lease housing should loosing profitability due to the rise of construction costs, land prices and interest rates. After all the strong potential demand for new houses is expected due to the increase of households.

- Greater weight for higher age groups of household heads

The decrease of the fertility rate will bring about an aging society. The increase of higher age groups will progress and the weight of higher age groups of household heads will become greater. In general if the age of household heads becomes higher, the ownership rate of house rises while the number of family increases as well as the income.

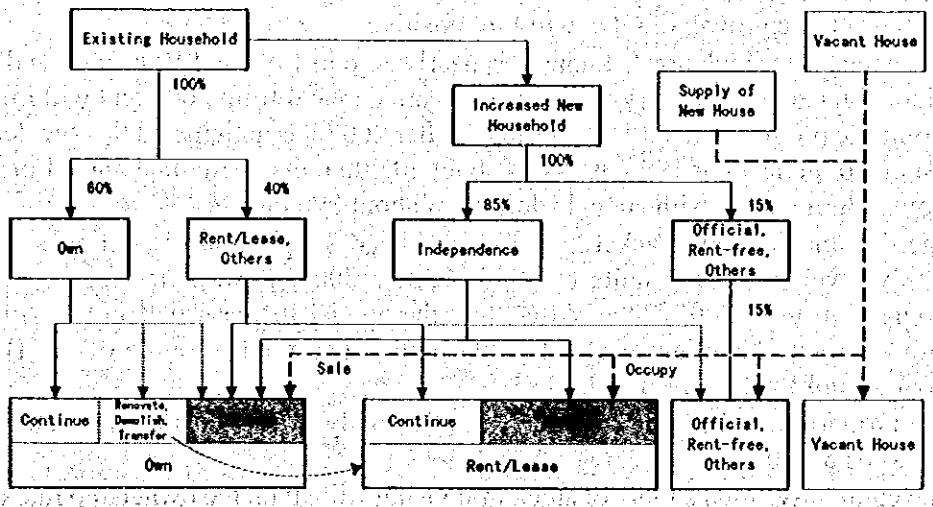
- Preference of owning detached houses

Basically there is strong desire to possess a detached houses in Indonesia. According to the recent survey by the JICA Study Team on August 1998, even in this economic contraction almost all households have the desire or even concrete plan to acquire a new house. The developers answer that there is demand for low bracket housing. The demand for moving from present houses seems still large, although the affordable price is low and there is a gap between the desired houses and affordability.

- Flow of housing demand

The flow of housing demand or increase of housing from the existing household and the increased number of households is shown in Figure 6-2-7. When the original houses continue to be used, the housing stock will not change. In case the original houses are demolished, the housing stock will decrease. However there still remains the potential for new house construction in the same place. When the present owners move to new houses, the original houses will absorb the other demand. The actual increase of owned houses should come from the increased and existing not-owning households.

The flow of owned housing demand from the increase number of households, preference of owning detached houses and other factors is shown in Figure 6-2-8. The potential demand exists by the increase of household, preference of owning detached houses, however the implementation or actual demand depends on the affordability and chances to find desired houses, which comes from economic conditions, housing loans and supply of proper housing etc.



Source: Study Team

Figure 6-2-7 Model of Housing Demand

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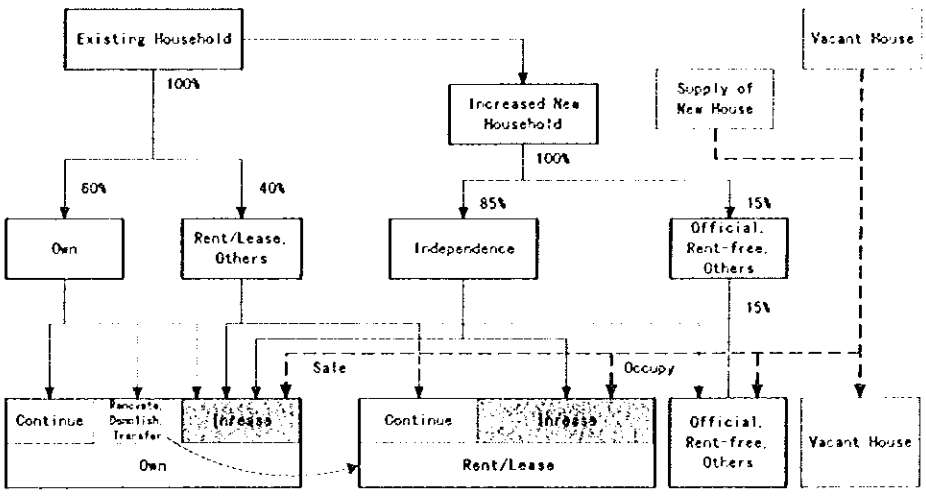
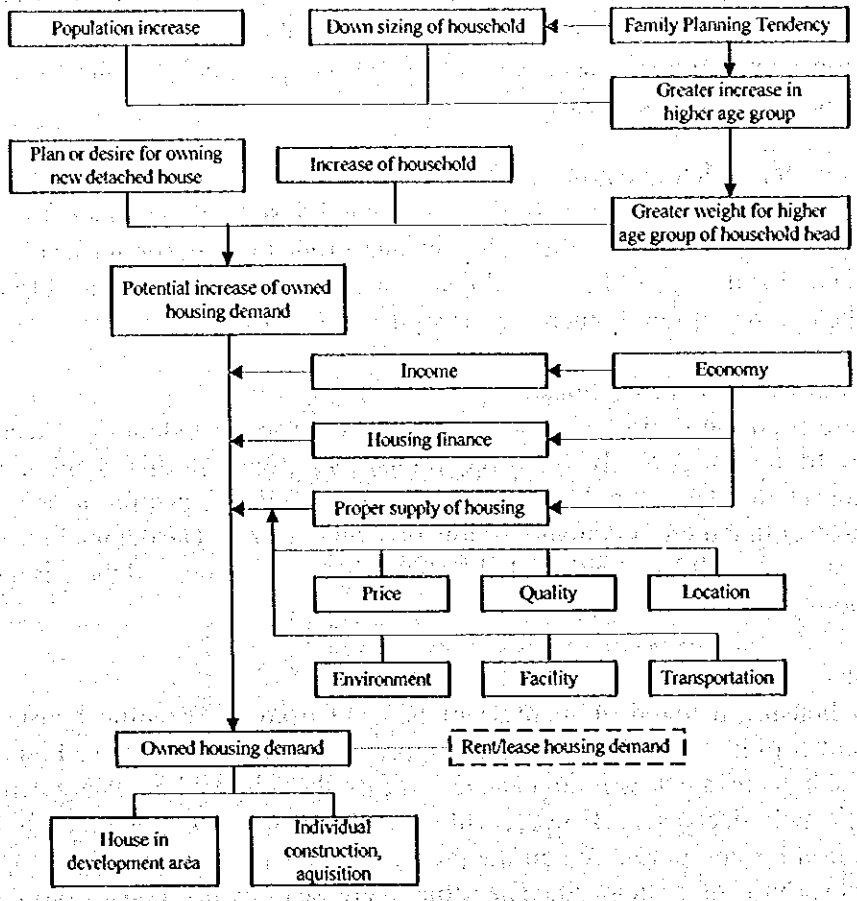


Source: Study Team

Figure 6-2-7 Model of Housing Demand



Source: Study Team

Figure 6-2-8 Flow of Owned Housing Demand

- Housing Demand Projection

The following assumption was set based on the survey result and the case that the GDP should exceed the level of 1997 after 2003:

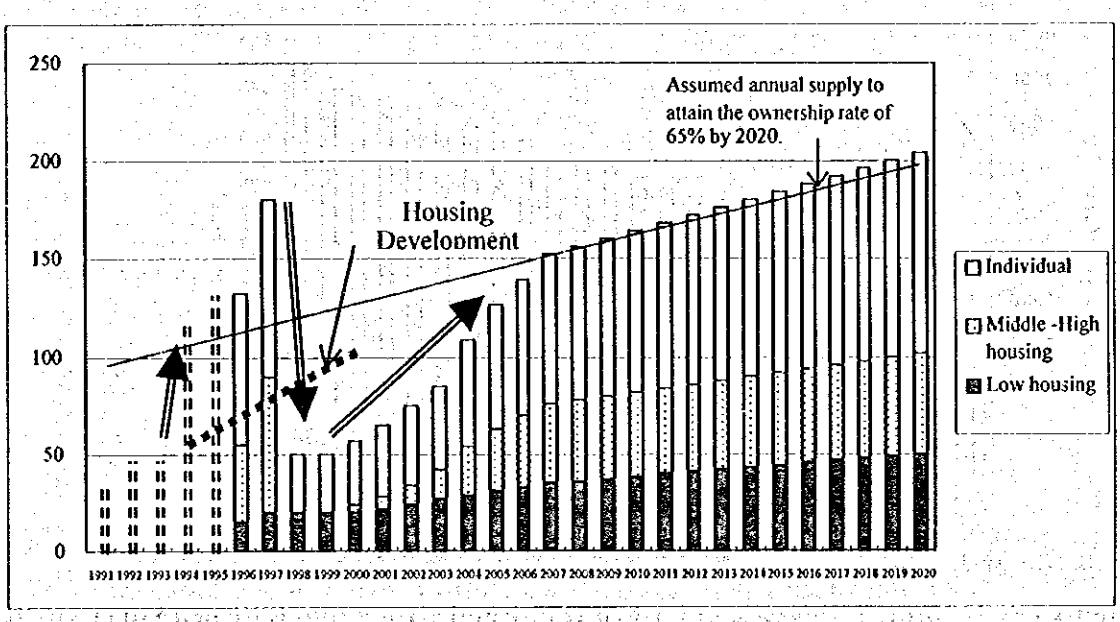
- The housing demand for medium to high bracket will continue to increase a little until 2000 when the growth of GDP will turn positive.
- The demand for high bracket houses is nearly zero in 1998 and 1999 and the demand for middle bracket ones is very small. It will gain demand from 2000 and will increase in a geometric progression until 2005~2006. After 2007 it is anticipated that the demand will resume to the level of 1996, which is about 40,000 units. After that annual increase will grow arithmetically with annual addition of about 800 units.
- The demand for low bracket houses (subsidized simple house) continues to keep the supply level of 20,000 units by 2003. After 2004, it will increase in a geometric progression until 2005~2006. After that, the annual increase will grow arithmetically with an annual addition of about 1,200 units. The fund resource of the BTN (State Saving Bank) will be resumed.
- The proportion of housing constructed individually to the housing in development area would be 50:50.
- The cumulative total supply of stock of housing will attain the ownership rate of 65% by 2020 from 61% in 1997.

Table 6-2-8 Condition of Housing Demand Projection

	Low Housing	Middle-High Housing	Individual
1998 ~ 1999	20,000 units	Little	100~150% of development housing
2000 ~ 2005-2006	10% annual increase	60% annual increase	100~140% of development housing
~ 2020	1,200 additional increase	800 additional increase	100% of development housing

The total demand for owned housing drops in 1998 and 1999 due to the decline of the middle-high bracket but there will be a substantial demand for low-bracket and individual constructions. It will increase gradually from 2000 and will recover the level of 120,000 units in 2003. After 2003, an annual additional increase of about 5,000 units is assumed. Thus by 2020, the rate of owned houses to total housing will become 65% absorbing the demand of the increase number of new households and acquisition from existing rent/lease or rent-free households.

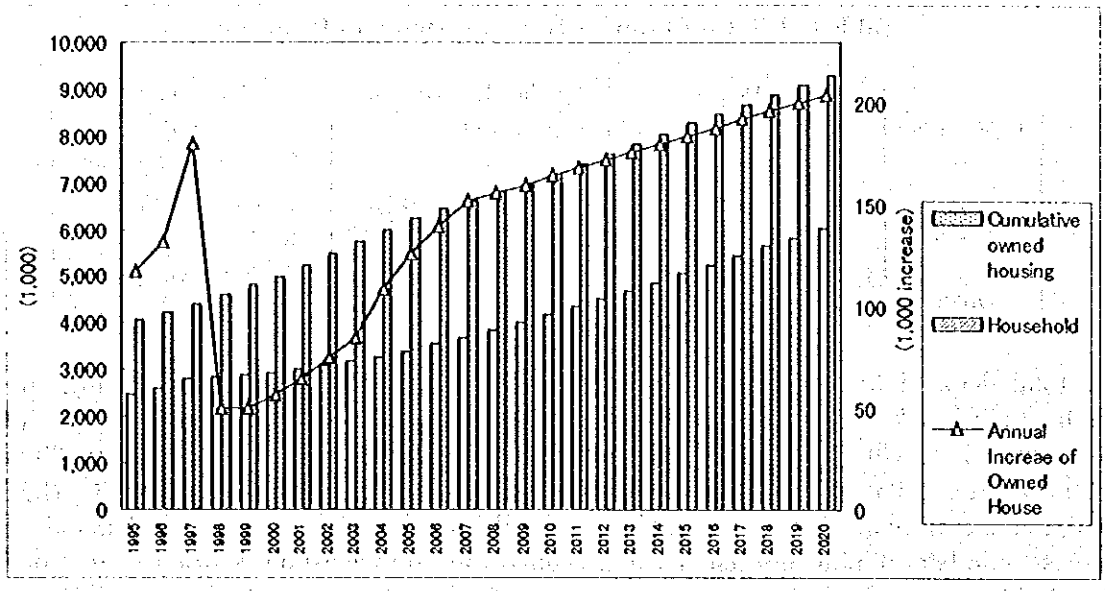
The projected annual increase of demand will exceed the assumed line of average increase after 2010. The housing demand projection is shown in Figure 6-2-9.



Source: Study Team

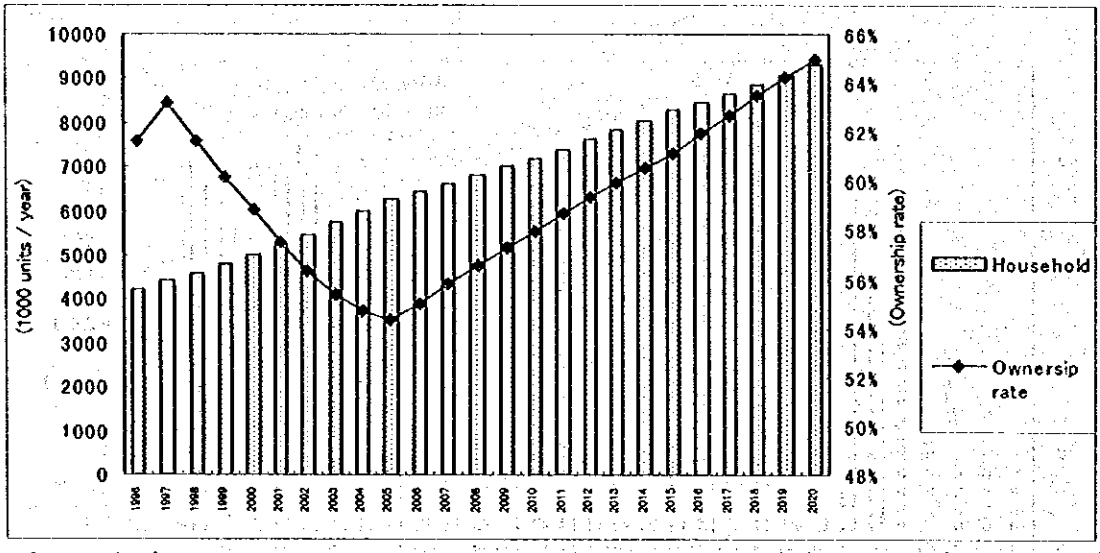
Figure 6-2-9 Housing Demand Projection in JABOTABEK

The ownership rate will decrease until 2005 due to the reduced supply of owned housing and steady the increase of households, however after 2005 it will grow up to about 65% by 2020. (Figure 6-2-10 and 6-2-11)



Source: Study Team

Figure 6-2-10 Number of Household, Stock of Owned House and Annual Increase In JABOTABEK



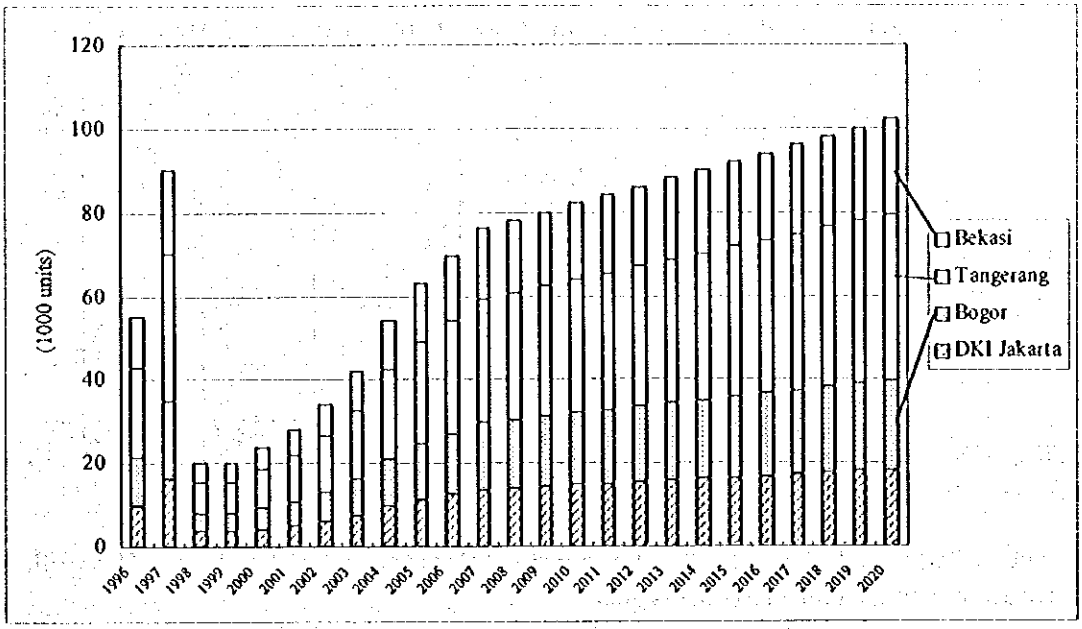
Source: Study Team

Figure 6-2-11 Annual Increase of Owned House and Ownership Rate in JABOTABEK

The distribution of total planned area residential estate development as of September 1997 was as follows:

DKI Jakarta : 18%, Bogor : 21%, Tangerang : 39%, Bekasi : 22%

According to this distribution, the increase of owned housing in residential development areas is shown in Figure 6-2-12.



Source: Study Team

Figure 6-2-12 Regional Distribution of Owned Housing in Development Area

- Affordability and Classification of Housing

From the survey of the JICA Study Team, the most affordable house would be Rp.10,000,000, which is ranked as lowest. The desired quality level of house is higher than the lowest house price. The low monthly income of affordable households may be Rp.0.5~1 million. The affordability is reflected by the income class of households and available interest rate.

The State Saving Bank raised the interest rate for housing, however, that for the lowest class subsidized loan was not changed. Even the interest rate for the RS (simple house), B type (comparatively higher standard type), became 25%. That of commercial banks is still higher. In this high interest rate, any loan may not be affordable. Furthermore, it is said that the fund resource has run a shortage. The situation should be improved.

Table 6-2-9 Interest Rate of State Saving Bank (BTN) for Housing

Lot / House Type	Interest rate (%)		Maximum monthly income (Rp.)	Housing Loan Type
	1997	1998		
Ready built lot, /54, 60, 72 m^2	8.5	8.5	175,000	A1
RSS, 21, 27, 36 m^2 / ~200 m^2	8.5	8.5	275,000	A1
RS, Flat 18,21m^2 / ~200 m^2	11	11	450,000 ~ 1,000,000	A2
RS 27,36m^2 / ~200 m^2 (A2 type)	14	14	450,000 ~ 1,000,000	A2
RS 27m^2 (B type)	17	25	450,000 ~ 750,000	B
RS 36,45,54,70m^2 (B type)	17	25	750,000 ~ 1,000,000	B
No limitation	17.5, 18	25	no limitation	C
Company investment for RSS/RS	16.5	22	-	KYG

Source: BTN, 1998

According to this condition, the following simulation was made to get ideas for affordability.

Table 6-2-10 Simulation of Price of House, Interest Rate and Repayment

Class	House type	Price (1000 Rp.)	Down Payment (1000 Rp.)	Amount of Loan (1,000 Rp.)	Interest rate of BTN (%)	Repayment period (year)	Monthly Repayment (1000 Rp.)	Percentage of repayment to income	Monthly income (Rp.1000)
Low end	RSS T21	4,900	490	4,410	8.5	20	39	20%	194
	RSS T27	5,400	540	4,860	8.5	20	43	20%	214
	RSS T36	6,900	690	6,210	8.5	20	55	20%	273
Low - Low	RS T18	11,302	3,052	8,250	11	15	96	20%	478
	RS T21	12,899	3,549	9,350	11	15	108	20%	542
	RS T27	14,260	2,860	11,400	14	15	155	20%	773
	RS T36	19,010	3,810	15,200	14	15	206	20%	1,031
Low - Middle	T45	30,000	6,000	24,000	25	15	518	25%	2,073
	T54	50,000	10,000	40,000	25	15	864	25%	3,455
Low - High	T70	100,000	20,000	80,000	25	15	1,727	25%	6,910

Source: Study Team based on information from Perum Perumnas

The housing demand depends on the housing class or price bracket. The following classification is made considered as typical.

Table 6-2-11 Classification of Housing Class

Income bracket	Price of house	Site area (m^2)	Income level (Rp./month)		Remark
			Household	Per capita	
Not affordable	not affordable	-	~0.3 mil	~100,000	
Low end class	Rp.7 mil	54	0.3 mil	100,000	KBS, RSS
Low class	Rp.15~50 mil	~200	0.5~5 mil	200,000~1,000,000	RI,RS
Middle class	Rp.50~250 mil	54~600	5~25 mil	1 mil~5 mil	
High class	Rp.250 mil ~	~600~	25 mil ~	5 mil ~	

Source: Study Team

6-2-4 KASIBA Master Plan

(1) Master Plan Development Scheme

1) Consistency with Higher Scheme

The General Spatial Plan for Bogor Regency up until the year 2005 (Kebijaksanaan Spatial / Rencana Umum Tata Ruang Daerah Kabupaten Daerah Tingkat II Bogor S/D Tahun 2005, BAPPEDA, Bogor), deals with the planned spatial utilization pattern, including spatial utilization for housing and residential purposes. Consequently, site appropriation for the proposed KASIBA must be consistent with land appropriation for housing purposes as set forth in the relevant spatial plan.

2) Development Scenario in Response to Demand

The development zone as defined by the original scope of the work is as follows:

- Master Plan Area : 1,000 ha
  (Estimated population: approx. 130,000 p/31,000 households)
- Feasibility Study Area : 300 ha encompassed within the aforesaid 1,000 ha
  (Estimated population: approx. 48,300 p/11,500 households)

The housing demand has recently dropped due to the current economic crisis and political

upheavals. Thus, it is exceedingly difficult to predict the level of future housing demand and, in addition, when sufficient demand for the Mater Plan area (1,000 ha) will be generated.

Accordingly, the Master Plan only describes an area of 300 ha which is designated to meet the predicted demand in the target year of 2001 to 2010. The remaining 700 ha are designated as a future urbanization area (e.g. allocated for housing, industrial, commercial and business estates, research and development, and recreational, etc.), in accordance with the economic circumstances and social needs. This reserved area is lying within the 1,000 ha Master Plan area and may still be developed in stages, in line with an easing of economic constrains in the near future.

In contrast, the 300 ha Feasibility Study area will be maintained at the same size as that set forth in the scope of work, and is designated to meet predicted demand in the foreseeable future, with continuous efforts being made to meet the target. The feasibility study area is the recommended location for the railway station and includes the proposed sites for Perumnas housing. Perumnas committed itself to continue and expand the housing projects into the Case Study area.

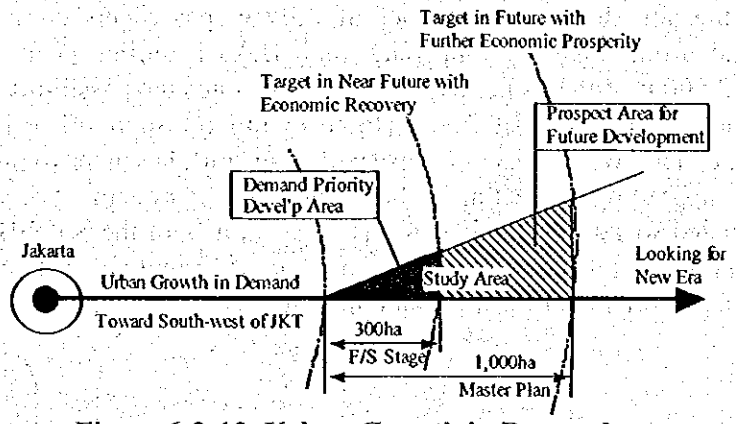


Figure 6-2-13 Urban Growth in Demand

3) Conformity with Location Characteristics and Social Needs

The Indonesian government has adopted the principle for the supply of housing in large scale developments of the ratio of 1 : 3 : 6 in terms of number of units supplied for upper, middle, and lower category housing respectively and every new development is required to adhere to this principle.

However, difficulties have arisen with respect to upper category housing development in Parung Panjang, particularly in the early stages of the development, due to the potentiality of the land. As a consequence, the housing supply for high income groups is centered on existing developments such as Bumi Serpong Damai (target development area of 6,000 ha), Lipo Karawaci (ditto: 2,000 ha) and other similar developments lying between Jakarta and Parung Panjang.

Given the target groups, middle and lower category housing can be supplied which is formulated based upon the demand analysis. The ratio of middle to lower category housing adheres to the principle of 3 : 6 (actually 3.3 : 6.7). It is considered desirable that the majority of housing units should be lower category so as to demonstrate social solidarity.

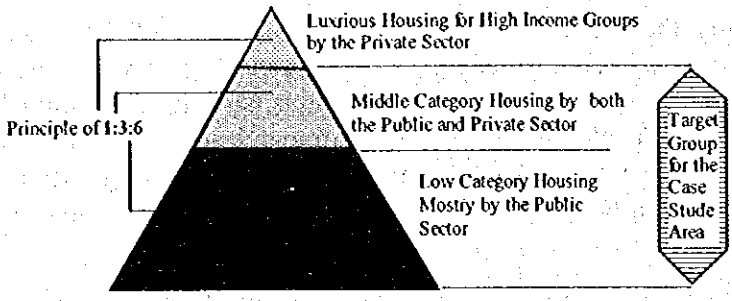


Figure 6-2-14 Principles for Housing Supply and Targets of the Development

4) Conformity with Transportation System

The utilization of the existing rail network, albeit single track, presents an advantageous solution for the development of a large-scale residential estate in a suburban area. Based upon the results of the site survey, the number of railway passengers commuting from Parung Panjang to and from Jakarta, Tangerang and Bekasi during peak period amounts to approximately 2,500 passengers per day. This demonstrates the possibility of a rail commuting system in terms of a modal-shift from vehicle to rail transport. The Department of Land Transportation, under the auspices of Ministry of Transport, has plans to provide a double track line through the upgrading of the Tanah Abang and Serpong system. Accordingly, this upgrade should be extended to Parung Panjang so as to sustain both the KASIBA plan and the rail demand for rail transport respectively. The provision of a rapid rail system is indispensable for the creation of a rail-oriented new town, unpolluted environment and just-in-time commuting.

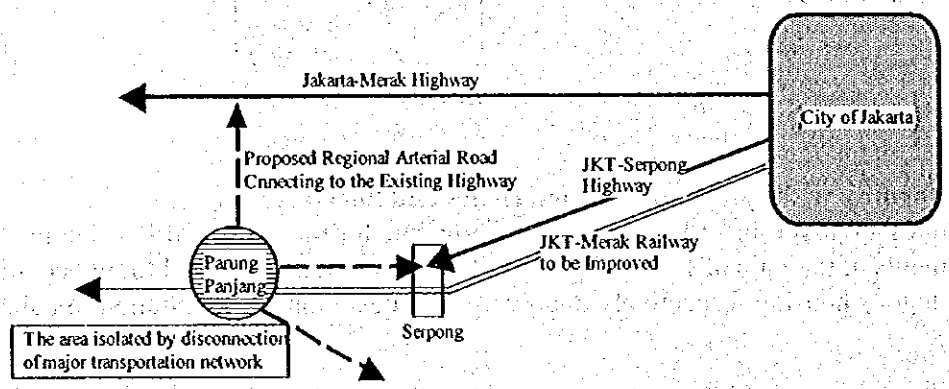


Figure 6-2-15 Conformity with Transportation System

The key issues involved in the realization of the KASIBA development in Parung Panjang are as follows:

- The improvement of the rail network up to Parung Panjang
- The opening of a new railway station in the center of the Master Plan area
- The construction of a new arterial road (to strengthen the north - south axis) connected with the Jakarta - Merak highway
- The construction of a Metropolitan Ring Road to unify the JABOTABEK region

5) Conformity with Designated Urban Functions

The JABOTABEK Development Plan, prepared by the Department of Public Works, set forth a designated hierarchy of cities and the function of each city concerned is based upon the forecast regional structure. Parung Panjang is designated as a 3rd level city in this hierarchy.

Table 6-2-12 Urban Hierarchy

	Hierarchy	Target Population	City / Town
I	National Capital / Metropolitan City	10,000,000	Jakarta
II	JABOTABEK Development Center	1,000,000	Bogor
III	Regional Development Center	400,000	Pancoran Mas
IV	Supported Development Cities-1	100,000	Parung Panjang
V	Supported Development Cities-2	50,000	
VI	Supported Development Cities-3	40,000	
VII	Supported Development Cities-4	30,000	
VIII	Supported Development Cities-5	20,000	

Source: Pengembangan Kawasan Parung Panjang / D.J. Cipta Karya, Department P. U.

According to this hierarchy system, Parung Panjang is positioned in the highest rank of the 5 categories of supported development cities and had a current population of approximately 68,000 (at the end of 1997). It is expected that the urban function of Parung Panjang will be able to justify its position in the hierarchy given the incentives of the Perumnas development and rail improvements. This represents the principal development target scheme during the Master Plan stage.

(2) Planning Scheme

1) Zoning Concepts

The proposed KASIBA development area is almost flat with a gently sloping undulating area. This flat topography provides opportunity for formulating and conceptualizing a large-scale housing development. The proposed KASIBA location is divided into 2 zones by the rail network and is bounded by a planned north-south regional arterial road axis. Thus, there are 2 areas of middle and lower category housing. These areas are further subdivided into smaller residential grouping which are bound by their related environmental facilities.

A secondary road network that debauches into the primary road network will interconnect these residential groupings.

The question of the degree of social integration must be considered given the divisions of house-type classifications and it is possible to resolve this issue satisfactorily through the categorization of housing units based upon similar socio-economic backgrounds. Consequently, residential groupings in the proposed KASIBA comprise a total of 6 types of housing units divided into 2 categories, namely 1) Large House T-100/200 (RB) and 2) Large House T-150/350 (RM) in the Middle Category housing group, and 1) Very Small House T-21/60 (RSS), T-35/90 (RSS) and 2) Small House T-54/120 (RS), T-70/150 (RS) in the Lower category housing group.

The sitting of the houses in the respective housing groups may be determined by, among others, the following criteria:

- Middle Class Housing (RB/RM)
  - Good access to the major arterial roads

- Isolated from location of the Very Small Housing areas
- Relatively attractive and quiet areas

The topography permits the development of medium size lots

- Lower Category Housing (RS/RSS)
  - Good access to public transport, such as a bus terminals or railway stations
  - Location near to a market
  - RS housing may be located adjacent to Middle Category housing

Residential zoning concepts may be formulated based upon these criteria whereby Middle Class Category housing is sited in the north-east of the area, which is relatively more attractive and isolated from Very Small Housing, and near to the planned regional arterial road, while majority of Low Category housing is sited in the south, near the town center and rail line.

The town center shall be considered in tandem with the proposed new railway station and shall comprise a market, administration office, education center, health, religious worship facilities, recreation/sports and business/commercial offices, etc. The allocation of neighborhood facilities will be in determined in accordance with the planning standards issued by the relevant government agencies. Settlement sub-center shall also be sited in the center of each residential grouping and shall comprise education facilities, health/religious worship facilities, commercial facilities, sports facilities and parks, etc.

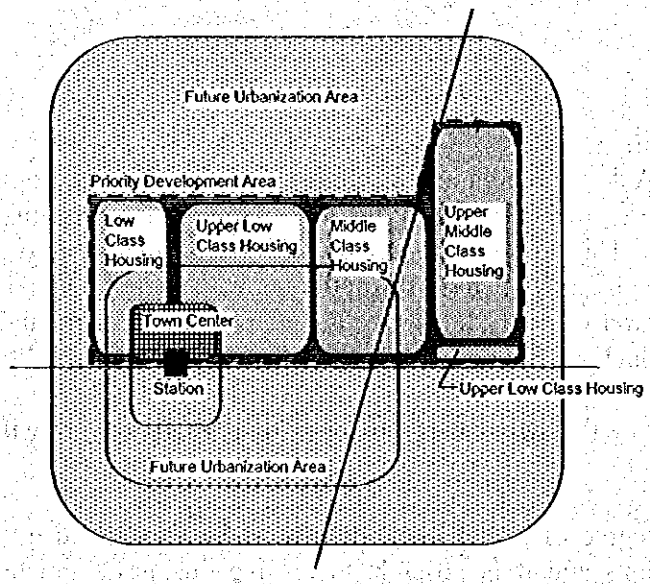


Figure 6-2-16 Zoning Concept

2) Road System

The basic road network concept is designated in a radial and circular pattern, similar to the "hub and spokes of a wheel", and is centered upon the planned new railway station. This further emphasizes the concept of a rail-oriented town and strengthens the community cohesion. Access to residential areas shall be via Jalan K.H. Sallman (existing asphalt road, ROW = +/- 6m) which shall connect with secondary roads, with access to each house being via primary roads.

3) Utility System

- Water Supply

To date, it has not been possible for PDAM Unit Parung Panjang (local government water utility) to provide a fresh water supply to the study area. Consequently, residents must avail of river water or controlled ground water from wells and shallow wells using hand-pump or electric pumps.

Fresh water service in the development area will have to refer to PDAM's planned fresh water system. The nearest location to the development area that has piped fresh water service is Desa Cibunar, which may be connected to the system in the development area. Topographical conditions will require recalculation so that a gravitational distribution system may be employed.

- Sewage

This will use the local sewage management system, which employs septic tanks complemented by a recharge area. The use of septic tanks is restricted in the areas having high ground water levels, whereas in the areas with low ground water levels septic tanks will be employed both individually and communally.

- Storm Water Drainage

The primary storm-water drainage system employs man-made drainage ditches at the verges of the primary and secondary road systems. Storm water watershed and catchment areas will be apparent from the site preparation using cut and fill methods. The next stage of the system design should calculate the rainfall and run-off and the required sizes of ditches and retention ponds.

- Electricity and Telecommunication

An overhead cable system using poles will be employed and the prospective locations for these can be adjusted in accordance with the planned primary and secondary road systems.

(3) Development Frame

In accordance to the results of the development demand study, the time frame for the Parung Panjang development is based on the following scenario:

- Housing demand in the entire Bogor Regency
  Cumulatively 47,000 units over 5 years

- New tenants in the KASIBA development will commence taking up residence from year 2006. Given the implementation schedule, approximately 5 years are required for administration, site preparation and construction work. During this period, it is anticipated that Indonesia's economy will have recovered and that growth will have resumed with housing consequently having become more affordable.

- Based upon the above assumptions, 47,000 housing units will have been required in the Bogor Regency during the first 5-year period.

Housing demand will be centered on 4 major residential development zones in the Regency, namely 1) highway corridor zone, 2) the Jakarta fringe zone, 3) the Bogor urban fringe zone,

and 4) the Parung Panjang KASIBA development zone.

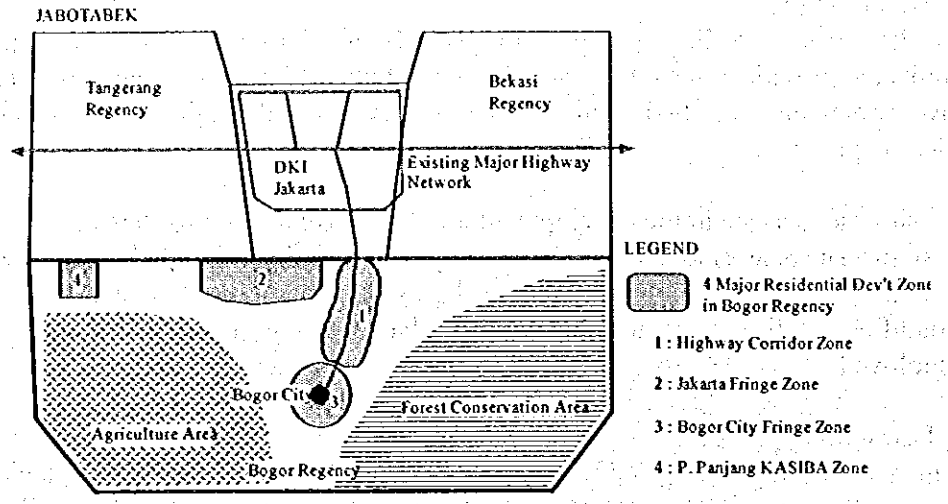


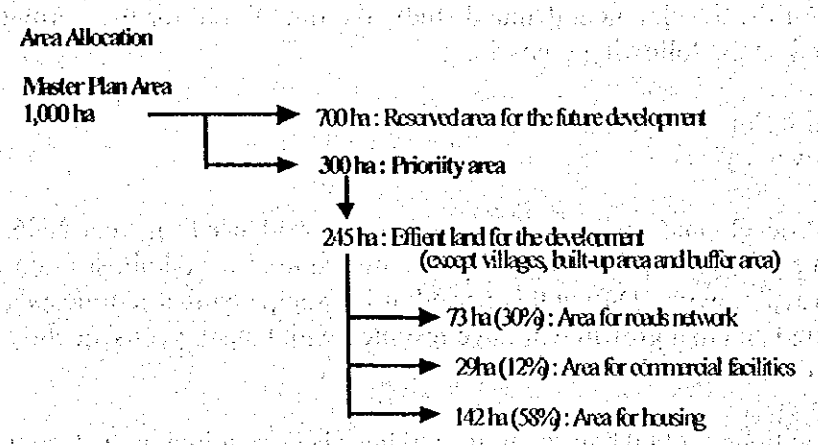
Figure 6-2-17 Major Housing Development Zone in the Bogor Regency

- If assumed that the P. Panjang KASIBA development absorbs a minimum of 25% (1/4) of the total demand, this means that more than 11,700 new housing units will be supplied. This assumption makes reference to the following housing allocation.

(4) Housing Allocation

The planned area of the proposed KASIBA in Parung Panjang amounts to approximately 300ha, with this being primarily allocated for housing, roads and public facilities. The target for the total housing units, which can be accommodated, is based upon a comparison with a balanced occupancy pattern.

Area and housing type allocations may be determined using the following method:



Housing Allocation

Middle Class : Low Class = 3 : 6 → 3.3 : 6.7 = 33% : 67%

Middle Class :	Type T-150/300 X	1,350 units =	48 ha
	Type T-100/200 X	1,800 units =	36 ha
	Sub Total	3,150 u(33%)	84 ha
Low Class :	Type T-54/153 X	1,550 units =	23 ha
	Type T-35/90 X	1,550 units =	14 ha
	Type T-36/60 X	1,800 units =	11 ha
	Type T-21/54 X	1,800 units =	10 ha
	Sub Total	6,700 u(67%)	58 ha
	Total	9,850 u(100%)	142 ha

→ 9,850 units X 4.2 persons/family = 41,370 persons

Density (Gross)
9,850 units / 245 ha = 40.2 units/ha
41,370 persons / 245 ha = 168.8 p/ha

(5) The Master Plan

The proposed Master Plan that has been formulated is presented below with the proposed regional development structure.

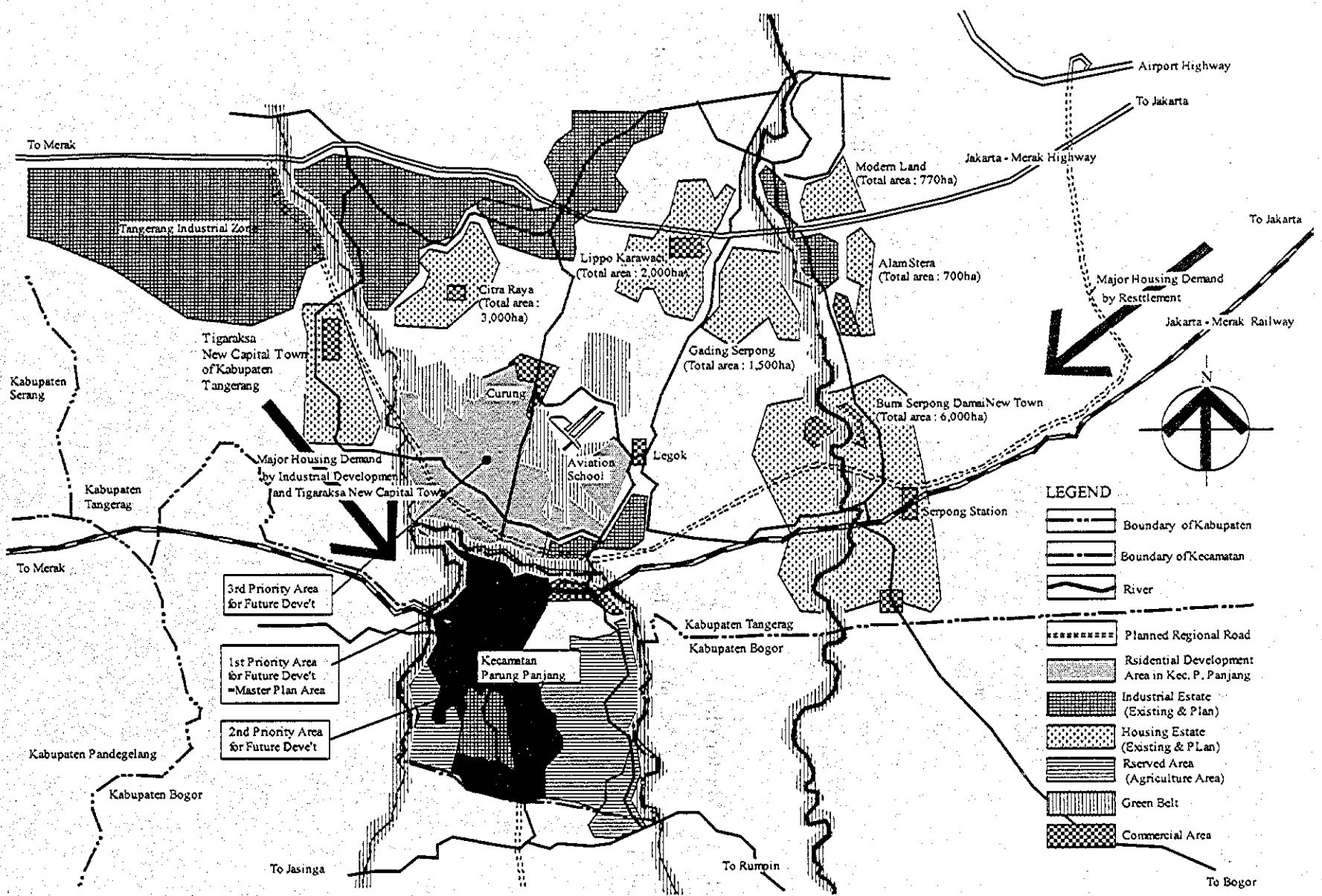


Figure 6-2-18 Proposed Regional Development

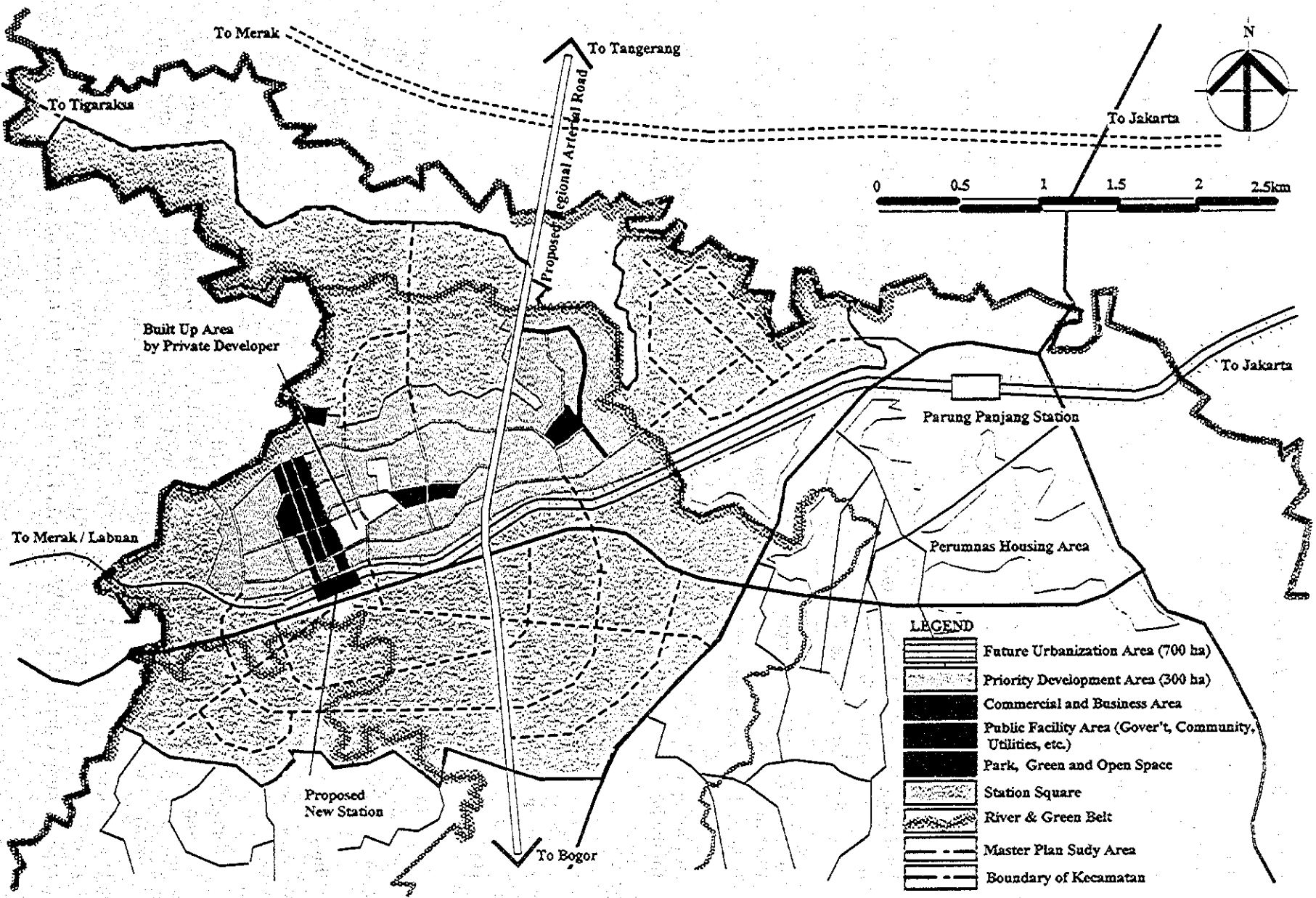


Figure 6-2-19 Master Plan (1,000 ha)

6-2-5 Site Selection for the KASIBA Development Plan

The candidate site for the feasibility study area (total area within 300 ha) should be selected from the designated Mater Plan area.

Major considering points for the site selection are described below, and it may satisfied most of items suitable for the Feasibility Study area for the KASIBA development.

(1) Criteria for Site Selection

1) Area Suitable for Establishing the Rail Commuting Town
This area must be a located service to build a rail oriented urban center and community. It can be fully utilizing the existing potential of rail network particularly for low-income group.

2) Area must be Included Perumnas's land
Following to the development policy and strategy, most of the area must be included the land occupied by Perumnas. Therefore, Perumnas is the main organizer of the KMB and also achieved candidate for the LISIBA contractor.

3) Exclusion of an obstacle area for land purchasing
Base on the conducted site survey, in the southern part of the Master Plan area there are 2 industrial areas and many villages scattered which be excluded.

According to above mentioned criteria and evaluation of the area, the result of the selected site for the Feasibility Study can be shown in the KASIBA Development Plan in following section.

6-3 KASIBA Development Plan (300 ha)

6-3-1 Present Conditions of the Area for KASIBA Development Plan

(1) Land Characteristics

An intensive Site Survey II was conducted by a local consulting firm under the supervision of the Study Team. The object of the Site Survey II was to obtain more detailed information on the case study area, especially the present situation of physical environment and the present situation of the urban activities which included land matters. The survey items obtained through site observation and institutional survey, and interviews for specific data are as follows.

(2) Administration

The study area covered part of sub sub-districts (desa) of Cibunar, Lumpang, Gintung Cilejet, 4 RW and 9 RT, with a total land of approximately 290 ha. The north and south boundaries of the case study area are the river Ci Bunar River, west the river Ci Gagantung and RT, and south railway. The local administrations included in the study area are:

Desa Cibunar : RT 12/RW 03, RT 13/RW 03, RT 15/RW 03
Desa Lumpang : RT 03/RW 02, part of RT 04/RW 02 (divided by railway)
Desa Gintung Cilejet : RT 05/RW 02, part of RT 04/RW 01, RT 06/RW 02 and RT 07/RW 02

(3) Present Situation of Buildings

-Building Coverage
The total number of buildings in the study area is nearly 600, with most (70%) of them covering a land area of 51 to 100m^2 and 18 % less than 50m^2. Only one house and one school have a yard of over 200m^2.

-Type of Structure
Most (62%) of buildings are made of concrete, another 24% timber, and mixed structure 14%.

-Building Height
The 99% of buildings are single storied except one with 2 stories.

-Building Age
Most (76%) of the buildings are between 5 and 20 years in age, the remaining 24% are below 5 years and in good condition. Those between 5 and 20 years old are almost equally divided into good and moderate condition. There are no buildings over 20 years.

-Building Use
Eighty-seven percent (87%) and three percent (3%) of the buildings are used for residential and commercial purposes respectively. Another 10% is for mixed use and factory purposes which is a relatively high figure in such rural areas. Others are for small stalls selling daily merchandise.

(4) Existing Land Use

Currently rice fields cover 170 ha or 58% of the total land area. The mixed crop plantations found in the case study area covers 65 ha or 22%, and dry land crop plantations 12 ha (4%), with settlement areas on 35 ha (12%) are virtually located along the main street.

Table 6-3-1 Existing Land Use

Category		Land Use	Area (ha)	Component Ratio (%)
Private Land	Agriculture	Paddy Fields	167.58	57.38%
		Dry Crop Land	11.63	3.98%
		Mixed Plantation	64.48	22.08%
		Sub Total	243.69	83.45%
	Residential	Village(Kampung)	21.16	7.25%
	New Housing Estate	Built up Area	13.17	4.51%
		Demolished Area	8.53	2.92%
		Sub Total	42.86	14.68%
		Total	286.55	98.12%
Public Land	Neighborhood Facility	Education Facility	0.10	0.03%
		Road	3.02	1.03%
		Cemetery	0.08	0.03%
		Religion	0.17	0.06%
		Sub Total	3.37	1.15%
	Others	Green/Buffer Area	1.39	0.48%
		Vacant Land	0.72	0.25%
		Sub Total	2.11	0.72%
		Total	5.48	1.88%
	Total		292.03	100.00%

Source: Study Team

(5) Infrastructure

1) Roads

The main road in the case study area is the K.H. Salimah with a width of 4-6 meters with asphalt pavement. The connecting roads comprise village (desa) and neighborhood (lingkungan) roads with a width of less than 4 meters without pavement.

2) Rivers and Waterways

There are two natural rivers in the case study area named Ci Bunar and Ci Gagantung, both of which are under the government of the regency (kabupaten) jurisdiction. Both are relatively large rivers (with width of 4-6 meters and depth of 1.5-2 meters) with permanent flow throughout the year.

Drainage and sewage facilities are not found in the area.

3) Electricity and Miscellanies

The case study area is a typical rural area, which lacks various kinds of infrastructure. The only utility available is electricity. There are no telephone lines, piped water and piped gas. The fresh water is taken from wells or through well pumps for the public; waste disposal is carried out by each household through burning or dumping. The local residents use joint lavatories located near the river or they use the river as toilet facilities.

(6) Neighborhood Facilities

1) Education Facilities

There are three primary schools in the case study area, two public primary schools in Lumpang (210 students with 6 teachers) and Cibunar (280 students with 7 teachers). One private school is located in Gintung Cilejet (65 students with 3 teachers).

2) Public Administrative Facilities

There is only one local government administrative facility in the case study area, namely the Gintung Cilejet village (desa) office. It is in located RW 02/RT 06 nearby the railway with a land area of 90 m^2 and floor area of 70 m^2 which is almost in good condition.

3) For commercial facilities

There are only small grocery stores, eateries, small workshops and beauty salons, particularly operated by owner-managers. However, the market is relatively small in the case study area.

4) Medical Facilities

There is one health center (Puskesmas) nearby case study area which is located in RW 02/RT 07 in the village of Gintung Cilejet. The health center is under sub-district (kecamatan) jurisdiction, with a land area of 100 m^2 and floor area of 72 m^2. However, the location is located outside of the case study area.

5) Religious Facilities

There is a large number of religious facilities, with all of them being small mosques (mushola) and at least two mosques located in one RT.

6) Miscellaneous Facilities

These are not formal sports facilities but an open space being used as football ground.

Other facilities include two rice storage areas and one rice mill, all of which are located in the village Gintung Cilejet.

(7) Urban Activities and Land Tenure

1) Population and Household

According to the population data in 1998, the total number of population amounts to 3,063 consisting of 774 households in the related administration area. The average population density is quite low with 8 persons per hectare. In the case of the population within the case study area, which is divided by the railway, it was calculated via the number of households and a multiple of 5 persons. The estimated umber of population in the case study area is 2,588 persons and number of households is 644.

2) Land Holdings

According to all heads of RT in the case study area, most of the landholdings are based on "freehold title without certification (hak girik)", and part of the case study area is occupied by real estate developers with "the right to build on land (hak guna bangunan)" on an area of 29.4ha. Of particular note is the land area held by the national railway corporation, which is located alongside the railway.

Table 6-3-2 Existing Land Holdings

Land Tenure		Area (ha)	Ratio (%)
Right of Ownership without Certification	(Hak Girik)	260.69	89.27%
Right of Building	(Hak Guna Bangunan)	29.44	10.08%
Land of National Railway	(Hak Pengelolaan)	1.90	0.65%
Total		292.03	100.00%

Source: Study Team

3) Land Value

The value of land is dependent on the distance to public roads and the existing use. The most expensive is residential area (the highest being at Rp.35,000/ m^2), and land for rice fields are lower (the lowest being at Rp.6,000/ m^2). The majority of land prices range between Rp.8,000 to 12,000 per square meter on approximately 193ha (66% of the total area).

(8) Development Trend

Based on the information obtained from the site survey, it can be recognized that the entire case study area bears location permits issued by the local office of the National Land Agency. There are five location permits that have as of now been issued to developers that included Perumnas. As of September 1998, actually only two developers implemented their development plans. Perumnas has acquired a total land area of approximately 106ha for low-cost housing, which covers 50 percent of the planned project area. However, the shape and location of the acquired lands seems to be respectively irregular and scattered.

On the other hand, one private developer started the construction of housing for civil servant exclusively. Construction activities on 25ha of the total 40ha of land area acquired with a location permit are underway. Meanwhile, critical problems have been arising. Some of the location permits overlapped with each other. This meant that the local office of the National Land Agency duplicated such permission. It is a matter of government administration and it can be solved by the transfer of such permission to new locations with priority.
The detail information of the location permits is as follows:

Table 6-3-3 List of Location Permit

	Name of Developer	Location (Name of Desa)	Date of Approval	Area of Permitted Land (ha)	Area of Acquired Land (ha)	Average Cost of Land Acquisition (Rp/m2)	Remarks
1	PT. Perum Perumnas	Cibunar, Jagabita	1998/6/23	200	106		350 ha in M/P area
2	PT. Cilangmatra Prima Citra	Lumpang	1996/5/22	195	0		
3	PT. Awab Saka Estraga	Cibunar, Lumpang	1997/5/12	40	25	15,000	Construction on going
4	PT. Aman Tata Cipta Perkasa	Gintung Cilejet	1996/5/1	100	0		
5	Koperasi Pegawai DPA RI	Gintung Cilejet	1996/6/18	1.5	0		Part of PT. Awab Saka E.

Source: Study Team

In the case study area, over 80 percent of the land area is used for agriculture purposes such as rice fields (170ha or 58 %) and mixed crop fields (65ha or 22%). Villages occupy 12ha or 35% with approximately 3 to 40 houses located along the district road or main village roads. For future KASIBA development, it is essential to improve or integrate existing villages through the new development system. Unless otherwise considered, development cannot be realized.

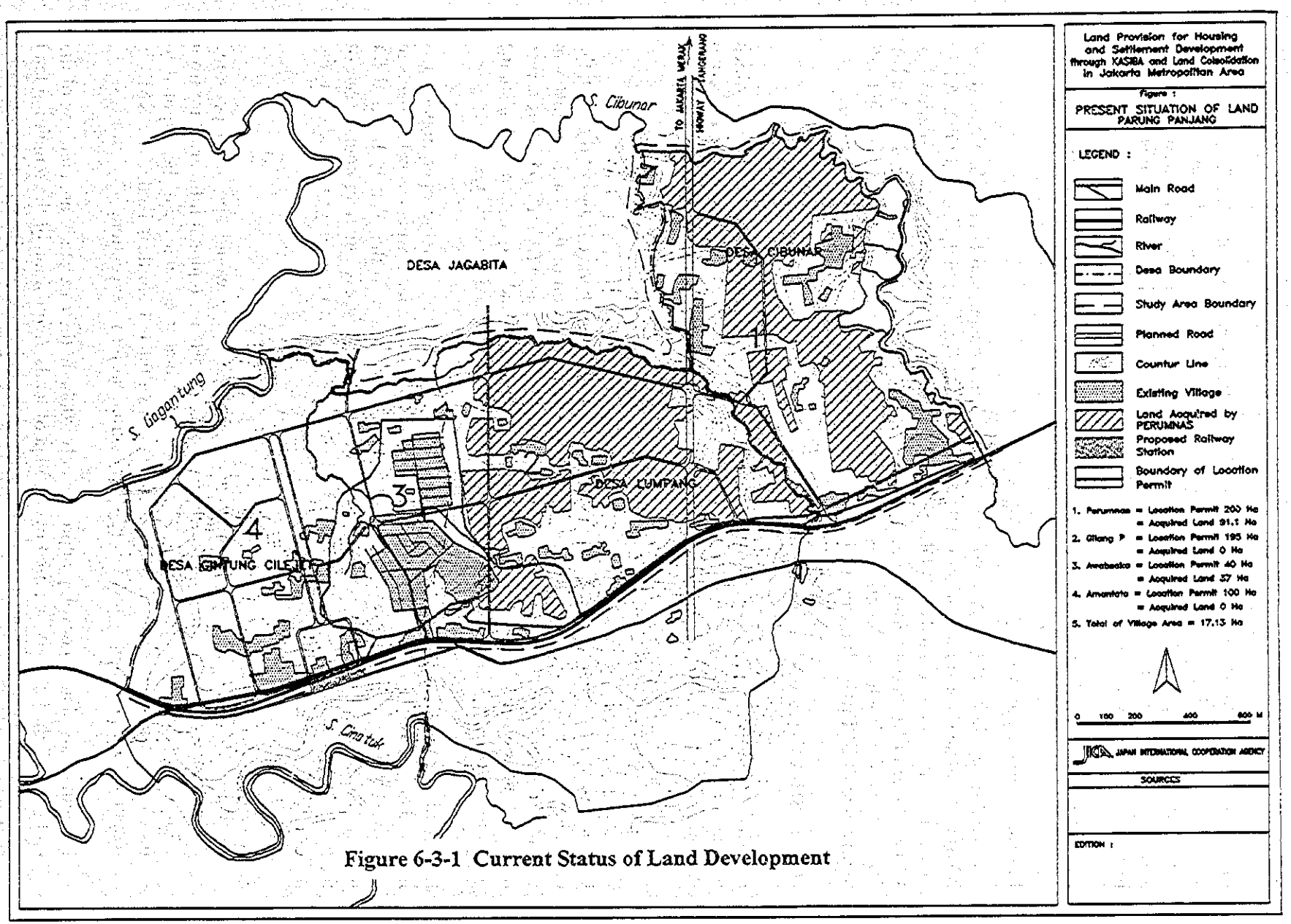


Figure 6-3-1 Current Status of Land Development