COMMUNITY AND CHANGE IN JAKARTA'S PUBLIC HOUSING: THE STORY OF KLENDER

By

JEFFREY J. WESTCOTT
B.E.D., University of Minnesota, 1974
B.ARCH., University of Minnesota, 1976

Submitted to the Department of Architecture in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE IN ARCHITECTURE STUDIES
at the
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 1984

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Signature of Author

C. Jeffrey J. Westcott 1984

Certified by

Edward Robbins, Thesis Supervisor
Assistant Professor of Anthropology in Architecture

Accepted by

N. John Habraken, Chairman,
Departmental Committee on Graduate Students
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ABSTRACT

Indonesia, like many other developing countries, has undertaken a major program of providing new housing for lower income people in crowded urban areas, particularly in its capital, Jakarta. The government's experience has included capital intensive projects, with a completed design, as well as site and service projects, which leaves the final home to be completed by the resident. The site and service project of Klenorr has undergone a major physical transformation, from a grouping of bare concrete block shells to a flourishing and colorful community. These changes present a fascinating case of how people create their own environment.

This thesis describes, observes and analyzes the changes that have taken place at Klenorr to determine how people with very little means have built and are building their environment and to see what lessons lay within that environment that can help generate future design ideas and hopefully help designers and policy makers better understand how people create and use their communities.

Thesis Supervisor: Edward Robbins, Assistant Professor of Anthropology in Architecture.
acknowledgements

The research for this thesis was carried out during the summer of 1982. Without the help of many individuals it would not have been possible. My thanks to all of them.

I am especially grateful to Mr. and Mrs. Padmodipoetro for their unending assistance and patience during my stay in Indonesia. My thanks to Pri, Erwin and Inarno for their help in the field visits.

I wish to thank Soenarjono Danoedjo, President Director of PERUMNAS, for his time and help. Many thanks to the staff of PERUMNAS for their kind assistance.

I would also like to thank John Courtney, at the World Bank, for his assistance in providing background information to the project.

Many thanks to Ed Robbins, Tunney Lee, Dean John de Monchaux and Julian Beinart for their constructive advise and criticism in the development of this thesis.

My special thanks to the people of Klender who extended their friendship and hospitality during my research.
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introduction

Neat little row houses, one after another, each with its own carefully landscaped front yards and low enclosing walls, face onto the commonly shared footpath, reflecting the last rays of the sun. The small narrow path and the front yards of the houses are jammed with people. It is five p.m. and everyone in the neighborhood is home. Husbands have just returned from work and have changed from their work clothes into their more comfortable sarungs and sit in their front yards to enjoy the cool evening air and catch the last fleeting rays of the sun. Some have pulled out their chairs and join the others sitting on the little wooden benches that have been built along the path, while others dash off to the masjid for their evening prayers. Children gather around the ice cream vendor who has parked his cart nearby. Another group of children are running up and down the path playing some game known only to them. The children's voices increase logarithmically as they unleash their last rituals of play for the day.
Only four years earlier where this community now stands was an assemblage of small concrete block structures lined up one row after another. There was no definition of place or space only long strips of concrete paths running between these rows of boxes. It was a bare and sterile environment.

Klender was constructed as a classic site and service project with core houses, or starter shelters. These shelters were to serve as home for some of the low income families of Jakarta while they saved enough money to expand their small units into a home. The government provided the base and the people had to do the rest.

The small nondescript concrete boxes that were to serve as four units, but looked like one, have been transformed into individual homes each with its own identity and character. The continuous strips of open land between the concrete shells and footpath have evolved into little private yards enclosed by a personalized fence or wall. Lush and colorful vegetation has grown out of the bare topless soil and the long strips of concrete path have become a center of community life. Out of a bare minimum structure the people have, with limited resources, turned this government housing project into their own community.
There is something special about this place. On the surface the project at first seems a bit bare, not quite as rich as one might expect or hope it to be or perhaps not meeting an internal image of what "good" architecture should be. Yet once inside and immersed there is an undeniable presence of a community spirit at work, a feeling that builds from the whole place. It is not one house or detail that is anything greatly spectacular, it is the combination of all of them that adds up and integrates into a place. The houses with their individuality and similarity begin to create an environment that grows not as an individual unit but as a whole. There is also an atmosphere of life, enthusiasm, pride, and sense of accomplishment from the residents that give the project a special vibrance.

As an architect, trained mainly as a designer, deciding how things should look and what they should be, I have acquired an interest in how non-architects, particularly people with low incomes create their own environments. The architect's role as an individual planner and designer works on the level of individual buildings but often fails when it is applied on the larger scale of a neighborhood or city. This is not to deny the importance of architects but rather to realize that many forces and voices create housing
environments. Buildings and environments change and mold in time. It is that dimension which requires the cooperation and commitment of people who use and live in those environments rather than the designer alone. Often these environments hold a special feeling, an attitude of the community that has been expressed into physical form. By grasping the essence that makes them hold together architects can contribute more effectively to them.

This thesis analyzes the development of a community that has grown from a structure of basic core units at Klender. The activities and interactions of the residents and their use of the physical environment are observed and documented as to where, how and why they occur. The physical environment is broken down by layers and elements are isolated. The elements are analyzed as to their importance and how they build up to form the total environment. One neighborhood block of the project has been explored in detail with several case studies of streets and individual houses. Specific houses were studied to learn the people's point of view. From this analysis conclusions are drawn as to what has made Klender a successful community, how improvements could be made to the existing community, and what lessons can be learned from it.
There are many important issues behind this project such as the role of site and service housing in meeting the needs of low income people, the role of user participation in public housing, income level relationships to affordability of public housing types, and a list of other housing and social issues. This thesis examines these, but only in their relation to the formation of the community, which is the focus of this thesis.

A framework was developed to understand how and why Klender functions and what makes it successful. As an architect and environmental designer I wanted to study what the physical environment had to offer as a means of understanding this community. Through a process of observation, documentation, interviews, and analysis the community is explored.

Analysis Framework

1. Activity patterns are analyzed through the plan and organization of each level of the physical environment, ie. the house, street, neighborhood, and community scale.

2. Physical patterns are analyzed by breaking them down into individual elements.
3. Unit case studies focusing on selected families to understand the issues and concerns of the residents in relationship to the physical environment and the community.

The goal of this process is to identify the priorities and values that the people have placed in their environment and to see how these and other forces have turned a project into a community.

To be able to observe the physical changes and to understand the physical evolution and expression of the community they must be looked at as a whole. Economic, social, cultural, political and historical as well as climatic and other environmental forces all helped shape this community. In this thesis the physical environment is broken down to see inter-relationships and to analyze them beyond their physical indications and observe them in the context of the society. From an understanding of these processes one can then arrive at the issues involved and hopefully create a better base on which to generate further design and policy.

Klender offered a ground for the exploration of the building of a community. The core house in this particular situation offers a basis on which to see how an environment
is created, especially over a period of time. Even though the plan was conceived by an external group the final environment is not. As each resident had basically the same core unit to build from, the project allows one to see changes taking place from a constant which helps obtain a clearer picture of those changes. The building process at Klender was also still occurring, allowing observation of it and providing a contrast of houses in various stages of completion. These factors can help provide greater insight into the processes behind the forming of the community.

In order to narrow the scope of the research within reason and without sacrificing accuracy the thesis focuses on one typical "neighborhood block" in the project. By limiting the research this way it will provide an opportunity to explore details more deeply.

The term "neighborhood" is used here as a loose definition. The project was organized around a system of "neighborhood blocks" with physical boundaries of roads, open space, and commonly shared facilities. This boundary is not set out to be absolute, but rather to act as a preliminary perimeter for a starting point, leaving the actual boundaries of the neighborhood to be explored in the study.
Several factors were used in the selection of which neighborhood block to study. The "core house" area, which represents the major portion of the project, has neighborhood blocks that are very similar in nature. The block chosen from the project needed to provide a representative picture of this area in social and demographic terms as well as in physical terms.

Demographically each block in the "core house" area is virtually the same in occupation type and income level. The units were distributed through a lottery system which placed economically qualified government workers and other low-income families randomly throughout the area. No one could choose where they wished to live, thus eliminating any demographic niches. The demographic differences were so minor that they didn't qualify one block over another.

The "core house" area was built and occupied at approximately the same time so that each neighborhood block had essentially the same amount of time to develop physically. After traveling through the entire project it was observed that each block had developed similarly. Here too, the differences were so minor that one didn't qualify over another.
These similarities between neighborhood blocks narrowed the selection down to a block that had the most common physical infrastructure and surrounding condition characteristics. Each block was planned to have a similar infrastructure such as surrounding roads, open space, access to community facilities and total number of units. However there are a variety of different conditions among blocks depending on their location in the site. A block was chosen from the ones that had the most common characteristics of the area.

The neighborhood block and the community at large is analyzed through a process that breaks down the physical environment into different scales. The various physical elements that make up a house, the house unit as a whole, the street block, the neighborhood block, and the whole community, are all studied individually and in relation to each other. Examples are given from the neighborhoods to illustrate these changes. The selection of these examples is based on ones that best illustrate the diversity of changes that are taking place. These were not limited to the best architectural examples but rather provide a cross section of what is occurring. This allows a fairly representative analysis of what is occurring within the limits of the physical context.
In observing the changes that have taken place, the original core house was used as a constant upon which all else was based. The changes that have occurred are looked at first in physical terms such as their location, shape, form, dimensions, material and color. They are then analyzed in their functional, economic and symbolic terms.

Several case studies are presented as a composite and synthesis of the elements. This is a way to observe the scales in their entirety and to show how they form the communities that they are a part of. Each scale is documented to show how its components build up to form a larger scale; ie: the house scale is a buildup of individual elements and is in turn a part of the street block scale. By using this method one can see the inter-relationships between elements more clearly. All the case studies are from the neighborhood block chosen and were selected on the basis of which represented the general pattern in the neighborhoods.

In summary this thesis describes, observes and analyzes the changes taking place in the project to determine how people with very little means have and are building their own environment and to see what lessons lay within these environments that can help generate future design ideas and
hopefully help designers and policy makers better understand how people create and use their communities.
part one: background

The public housing project of Klender is a direct response to the existing social and environmental problems of Indonesia. An ever increasing population, a high poverty level and deteriorating living conditions in the cities have caused the government, like many other nations, to look at housing as a solution. Klender represents the first step the government has taken to solve the country's problems through a physical solution.

The severity of the conditions in Indonesia, while a motivating force for the government to take action, is also a major influence behind the attitudes and motivations of the people towards creating their new homes and community.

A brief background of these issues and government policies are presented to help explain the forces behind the project and the development of the community.
city context

The tall shining modern office buildings and the air-conditioned shopping centers in the heart of Jakarta's banking district give the outsider the impression of a modern society with a thriving economy. Once one travels to the upper floors of one of those polished buildings another perspective can be seen. Looking out over the landscape one suddenly realizes the disparity that exists in the city below. Surrounding this enclave of glass and steel are hundreds of pockets of small clay tiled roofs sheltering the millions who can only dream of spending an afternoon in these "modern" places. Back on the street and out of the financial and hotel district the picture becomes more vivid. Traveling to one of the inner city low-income neighborhoods, or kampungs as they are called in Indonesia, one finds houses so packed together that there is little room to walk between them. Water is sold by street vendors as there are no municipal water lines and the people are too poor to afford the costs of installing a community
well. Sewage and garbage are dumped in the ditches around these houses as flies and rats scamper about. This is the other side of Jakarta, the side that most tourists don't see, or don't want to see. It is in this context that any study of housing in Indonesia must be seen as it is a primary force behind the motivations of people in creating a better place to live.

The environmental and social problems of Jakarta are not an isolated set of circumstances in the country but part of a larger problem that is occurring throughout Java. The island of Java is faced with an incredible population explosion and lopsided growth in comparison to the rest of the country. Java represents only 7 percent of the total land area of Indonesia yet is home to 90 million people, or 64 percent of the population. This pattern has made Java one of the densest places on earth with 700 people per square kilometer.

The lopsided growth on the island has created immense strains on both the landscape and the people and as a result has effected the growth and conditions in all urban areas, especially Jakarta. A major problem is that ever increasing demands on the land for the production of more crops for the expanding population is countered by a
decreasing capacity to produce more, as more agricultural land is used to house the expanding population. As the amount of land is reduced and the number of workers increases, agricultural job opportunities are diminished. This loss of opportunity in the rural areas and the promise of employment in the cities has caused a migration of rural people into the cities. This factor along with migration from other islands as well as from other cities into Jakarta has caused a burden on the city beyond its own natural rate of growth. This factor has caused increasing urbanization throughout Java. Population projections for Jakarta at the current rate of increase will place the city at an incredible 14 million people in the year 2000 with densities of over 1,000 people per sq.km.¹

Like so many other developing countries Indonesia's majority are very poor. Roughly 73 percent of the total population is considered to be poor.² The typical daily income in 1975 for the poor was between Rp.200 and Rp.300 averaging Rp.280.³ Unemployment and underemployment are major problems for the poor as well as very low wages.

For those who do have a job the possibility for economic advancement is difficult as the low income groups consume a large portion of their income leaving little for
A study showed that the lowest income sector of the poor spend 85 percent of their income on food and cigarettes, with the average of the poor spending 50 percent on these commodities. The remaining money goes towards shelter and clothing. The little if any that is left from these people's income is too small to make a substantial change in their lives if it were saved. Poverty in itself is expensive as the poor can only afford to buy items in small quantities making those items more expensive and consuming a larger part of their income than if they could buy in bulk. Many of the poor purchase cigarettes individually as they cannot afford to buy a pack and cannot stop smoking long enough to save up for one. This can cost much more over a period of time. Many necessities are also purchased on credit at high interest rates making them much more expensive than the original purchase price.

Compounding the problem of poverty is the large disparity in income distribution between income groups. A small portion of the population, only 20 percent, takes 53 percent of the total income of the country, while 40 percent receives 32 percent and the remaining 40 percent gets only 15 percent. This uneven distribution makes it much more difficult if one is poor to improve ones income.
even slightly. This disparity appears to be worsening as the proportion of wealth is declining for those in the bottom 60 percent, and increasing for those in the top 20 percent.7

The low income level of the people is largely attributed to the type of jobs available on the market coupled with the scarcity of well paying jobs. Most people take what jobs they can get to make ends meet and this is invariably in the trade and service areas of the "informal sector." The actual number of people in each sector and their occupations is extremely difficult to ascertain as many people in the informal sector also have jobs in the formal sector. The informal sector is not regulated making accurate statistics impossible.

Occupations can be grouped under the classification of income levels (see chart p.23).8 These occupations are not all inclusive but they give a fair representation of the occupations of the majority of the poor. These figures show that the poor are not a homogenous group. The top of low income level is three times that of the lowest income group (cigarette butt collectors, etc.). Within the kampungs there is a different classification of status or level along similar lines. The petty traders, construction
workers, service, government employees and teachers are considered along with prostitutes to be the wealthiest group in the community, even though they fall into the low income group for the overall society. The becak and bus drivers are considered as a middle level group within the poor. Shoe shiners, wastepaper collectors, cigarette butt collectors, daily laborers and factory workers are at the bottom economically.

The upward mobility for the large portion of people does not look very promising as 7,000 babies are added everyday to the Indonesian population and more than 50 percent of the population is under 19 years old, a yet unsurfaced escalation in the future, despite recent successes in reducing the birth rate.\(^9\)

Jakarta has not been able to absorb the consistently expanding impoverished population without its environment rapidly deteriorating. As the center of the city holds the most jobs and because the poor are not mobile they need to be close to job opportunities causing overcrowded and overloaded environmental conditions. People live wherever they can in the center of the city typically in the worst environments along the river banks and canals.

TYPICAL JAKARTA INCOME PER DAY BY OCCUPATION 1972

<table>
<thead>
<tr>
<th>INCOME GROUP</th>
<th>RUPIAH/MONTH</th>
</tr>
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<tbody>
<tr>
<td>LOWEST</td>
<td></td>
</tr>
<tr>
<td>Cigarette butt collectors</td>
<td>120</td>
</tr>
<tr>
<td>Wastepaper collectors</td>
<td>145</td>
</tr>
<tr>
<td>Shoe shiners</td>
<td>150</td>
</tr>
<tr>
<td>Daily laborers</td>
<td>180</td>
</tr>
<tr>
<td>Factory workers</td>
<td>210</td>
</tr>
<tr>
<td>LOW</td>
<td></td>
</tr>
<tr>
<td>Becak drivers</td>
<td>245</td>
</tr>
<tr>
<td>Bus drivers and recruiters</td>
<td>270</td>
</tr>
<tr>
<td>Service (servants, drivers)</td>
<td>270</td>
</tr>
<tr>
<td>Government workers</td>
<td>280</td>
</tr>
<tr>
<td>Construction workers</td>
<td>295</td>
</tr>
<tr>
<td>Teachers, sales, clerical</td>
<td>360</td>
</tr>
<tr>
<td>Petty traders/peddlers</td>
<td>365</td>
</tr>
<tr>
<td>MODERATE(one occupation listed)</td>
<td></td>
</tr>
<tr>
<td>Prostitutes</td>
<td>800</td>
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Source: Papanek p.25
Jakarta's neighborhoods are basically divided along class and racial lines which transect the various urban zones within the city. The wealthy upper class live either in well kept residential areas in the center of the city or in new developments on the outskirts. The middle class are somewhat dispersed living in pockets or among the poor in neighborhoods called kampungs which are in virtually every corner of the city. These low income kampungs can be classified into five different types: The inner city kampung, the woodland kampung, the marshland kampung, the peripheral squatter kampung and the urban-rural kampung.¹⁰

The inner city kampung is the oldest and densest and depending upon its location and extent of physical deterioration poses the greatest health problem to its residents. The inner city kampungs are drawn along racial and cultural lines. The Chinese community who make up the largest minority in Jakarta live in their own defined neighborhoods usually near or in the large commercial centers. The structures in these communities are two to three stories high which set them apart from the single story structures in other kampung types. Many of the inner city kampungs were former labor reservoirs for the Dutch colonialists that have now been transformed into extremely dense neighborhoods that have little room to expand as they are surrounded by commercial areas.
The most severe living conditions in the inner city are along the riverbanks and canals where the very poor live in crowded conditions as Jakarta's prime areas have long been occupied. In many of these dense areas both on the river and the canals as well as along railroad tracks and major roads people live in one story bamboo multi-family structures known as pondoks (one room per family with no kitchen or private yard) and petaks (several rooms with a kitchen and sometimes a private yard) that house up to six families or about 20 to 30 people per building. River conditions intensify the housing problems these people must face as these areas are prone to flooding which not only causes a loss of property but poses a much more serious problem of spreading water-borne diseases such as cholera, typhoid and gastroenteritis. The canal system that was built by the colonial Dutch to emulate their native Amsterdam and to reduce flooding and disease has under the severe pressures of the enormous population not only become a place to live but also a sewer and garbage dump. This area as well as the riverbanks pose severe environmental hazards to the people that live on or near them. Not all the inner city areas are as bleak as these water environments. Some inner city kampungs have access to utilities not present in other types of kampungs and most of the structures are built of masonry and timber lessening
the fire hazard and increasing their monetary value. Still the majority of the kampungs are not what one would regard as a healthy environment by any standard.

The woodland kampung lies in a transition zone between the city core and its nearby inner city kampungs and the outlying areas. It is far less dense than the inner city areas. Some neighborhoods are engaged in agriculture but most are tied to urban occupations. These areas are relatively healthier than the inner city kampungs but their character is rapidly changing due to the large increases in population and expansion.

The marshland kampungs along the coast are of lesser numbers. The primary occupation of these communities is fishing. Due to its marshy environment there has been little pressure to expand in these areas despite their close proximity to the city.

The peripheral squatter kampungs are in large part illegal migrant settlements on privately or publicly owned land on the urban periphery. These kampungs are still close enough to the inner city to make commuting possible. The general environment is much better than the inner city kampungs as they are more spacious averaging 170 sq.m per lot. This type of community is also transitional.
Another type of kampung is the urban-rural kampung located in the outermost area of the city that has been absorbed by the city boundaries. These areas remain primarily rural villages and towns and function as principal suppliers of fruit and vegetables to Jakarta. The kampungs are rural but are rapidly becoming urbanized as major new expansions are taking place in their primary centers.

Organic materials, such as bamboo and wood, are commonly used in the kampungs. Houses built with organic materials are a greater fire hazard and pose a potential health problem. A survey of housing conditions in Jakarta in 1969 showed that 44 percent of the total housing stock was built of bamboo mat walls, thatch roof, and earth floors; 32 percent was built of a combination of organic materials and non-organic; 24 percent had concrete block, brick or stone walls, asbestos or tile roofs and cement floors. These statistics show the type of materials used, but not the quality of the houses.

A much more crucial factor is utilities. Of the total number of houses in Jakarta only 35 percent had private toilets facilities, 20.7 percent electricity, and 10.6 percent had piped water connections. Only 8 percent had both electricity and municipal water. Together almost all
of Jakarta's kampung residents (80%) live outside of basic public services. Those that do have these services are usually near wealthy areas or have benefited from the government's Kampung Improvement Program (KIP).

Since Jakarta has no municipal sewer system, people without private or shared toilets are forced to use open ditches for defecating. Unfortunately these ditches are often used for laundering and bathing which increases the severity of the health problem. About 30 percent of Jakarta's garbage goes uncollected ending up in canals and rivers and roadside ditches clogging drainage systems and causing floods and disease in the rainy season.

Approximately 66.2 percent of all urban households use well water (1970). Of those wells 24.7 percent are private wells, 41.5 percent are public wells and another 19.3 percent of the population purchase their water from vendors. Almost all of the residents of some kampungs need to purchase their water in this manner, posing great difficulties.

A better indicator of the actual severity of the water problem in Jakarta is the quality of the water. Subsurface water in the Jakarta region is slowly being drawn faster
than it can be replenished and is being replaced with salt water from the sea as it seeps into the water table due to the low topography of the area. Water pollution by organic contaminants is another severe problem. A survey done of a cross-section of 42 wells in Jakarta showed 50 percent grossly polluted with more than 1,000 coliforms. Although this is not a complete survey it does point to a health problem that exists in many of Jakarta's neighborhoods.

Electricity is used primarily for lighting in residences in Jakarta. Those who do not have this utility (79.3%) rely on kerosene supplied by street vendors. Cooking fuel is provided exclusively by vendor suppliers as municipal gas lines do not exist. Major efforts by the government have been made to improve these conditions.

Densities in Jakarta are extremely high as we have seen. However determining actual conditions by using standards is difficult as density is culturally value based. Densities, many times, are an indicator of land value and scarcity of land than as an indicator of the economic condition of the people. However when densities result in the degradation of environmental health they must be carefully considered.
The picture painted thus far is at worst bleak and at best dismal. But there is one large factor that cannot be overlooked and that is the outlook of the people. The recent migrants and the residents of the city have an attitude of hope not despair. While living conditions are far from being ideal the people's aspirations make up for what their physical environment lacks. It is this attitude that keeps the kampungs functioning and plays a crucial role in improving the environment and making life bearable. This attitude has been taken to Klender and is the primary force behind its development and success.
Adequate housing and living environments have become several of the main development goals of the present administration. They are ranked in importance along with other major issues including land and resource development as well as being defined as an undeniable right of the people. So important is the regard for the problem that it is directly under the President's supervision.

Housing and all development policies are structured under five year plans, of which Indonesia is in its third during this study. The five year plan allows the original goals and objectives of the government to be tested and re-evaluated within a workable period and at the same time places pressure on the government to produce results within that time period.

The first five year plan, Repelita I (1969-1974) was essentially a first attempt at identifying problems and
structuring ways to solve them. Emphasis was placed on the development and construction of low cost housing prototypes primarily marketed towards the low and middle income groups which would later be implemented on a large scale. At the same time other areas of human environmental concern were addressed including the development of municipal water systems and technical assistance to self-help rural housing. Major emphasis was also placed upon research and the development of masterplans for major cities and their metropolitan regions.

Since these programs were first starts and experimental they were regarded as a testing of ideas rather than a final answer to problems. The second five year plan, Repelita II saw the previous program and policies consolidated and reorganized into specialized departments authorized to deal solely with housing issues.

The National Housing Authority (BKPN) was established to set the overall housing policy of Indonesia and to coordinate the activities of the various ministries involved with housing. Housing policy was established for urban areas in three major programs:
1) Low cost housing for "middle level" income families developed with local government and private organizations.

2) Site and service housing with core units for low-income families.

3) Kampung improvement programs for low-income communities.

These programs used strategies that the government determined were appropriate for each income group as incomes vary dramatically.

The goal of the Kampung Improvement Program (KIP) is to upgrade existing low-income communities in a way that will benefit the most people. It deals with only the most basic issues of sanitation and access for communities that could not afford the relatively inexpensive site and service projects. It does not attempt to provide new housing, but rather to improve existing communities through their infrastructure.

The site and service program, which Klender is a part of, is aimed at providing land and shelter with utilities for
families of the middle and higher sectors of the low-income group based on their capital resources. It was determined that limited housing could be possible for these people if their repayments could be kept the same as the group's existing expenditures for housing.

The low cost housing program is aimed at serving the middle income level. This program provides a completed house based on this group's capital resources, which is higher than the low income group but still out of reach without government assistance.

The goal of these government programs was to keep up with the need generated by urban population growth and later replace "sub-standard" housing with "permanent housing."\(^1\) The government estimated that once it was able to match the constant increase in the demand for new housing it could then proceed to replace the existing housing stock, that was determined to be sub-standard, with housing that met government standards. These goals were set to meet an overall national growth pattern.

Resources were spread across all income groups, with the exception of the upper income group, to meet the expected growth in each sector. It was estimated that in the five
year period of Repelita II that 440,000 new homes would be needed to house the increasing population.\textsuperscript{2} The government's objective was to match the estimated growth in needed housing in the area where it was presumed the private sector could not fulfill, with 210,000 new units or roughly half the expected demand.\textsuperscript{3}

To encourage the private sector to produce more low and middle level housing rather than just the lucrative luxury houses, duties on building materials would be waived and low interest finance provided for those developers who used the government's "1:3:6 formula". This formula, or ratio, requires that for every luxury home built the developer must build three "middle level" units and six "low cost" units to qualify for these benefits. This was one of several methods that the government has been experimenting with in order to encourage private industry to increase its input into the production of housing in all sectors of society.

The policies were implemented through a newly formed government corporation for housing development called PERUMNAS (National Housing Development Corporation). Its responsibility included managing the low cost housing and site and service projects. PERUMNAS as an executive arm of
the BKPN was given authority to acquire and develop urban land for housing and to construct low cost housing and site and service projects throughout the country.

The government began research to develop housing prototypes for mass production in order to make its housing policy cost efficient. It developed a core house unit for the site and service projects along with low cost house units which it implemented at Klender as part of a program to provide 26,000 new units of site and service housing in the Jakarta area for Repelita II.

Klender was the first large scale project which implemented the ideas developed by the government. It was to be a testing ground for new concepts and ideas and serve as a model for future projects. Klender was chosen as a site because of its relatively close proximity to the center of the city. This was done based on the experiences of other countries' projects that had failed as they were built on inexpensive land on the periphery of the city, too remote to attract and hold people. The Klender site also offered an established surrounding community which would aid in offering services to the new community in the project created. The project was planned to have a mix of different housing types to create a more economically
diverse community. Along with the site and service core units, low cost housing, and open market plots for middle level income groups were to be provided. This would establish a stronger tax base so that when the project was eventually turned over to the local municipal government it would not be faced with a low income community to support.

The Klender project was originally planned in conjunction with the World Bank. The original plan was to provide a simple site and service project with a core house of a wood structure, bamboo mat walls, a clay tile roof, and a dirt floor. Water was to be provided through community wells and there would be no electricity. These units would provide only a bare minimum in order for the resident to begin their own home. The unit was directed to people in the lowest income group of the overall population of Jakarta. However as complications of land acquisitions and inflation raised the costs it was determined that these plots would not be feasible to market to the lowest income group. A middle low income group, would have to be addressed. The government decided that the standards had to be raised in order to market them to this group. The plots had to offer the people something that had an appropriate status image for them. The standards were raised to provide batako block walls, an asbestos panel
roof with a steel frame and a cement floor. These materials, with the exception of the roof materials, are commonly used by this group. Bamboo and dirt floors are not what people use in their homes if they can afford it. Electricity was also added to make the units more marketable. Even though the differences in income between the sectors is minimal the government felt that it was necessary to have features that would attract this group.

The change to a more permanent core unit was also due in part to the government's desire to be able to direct and control where necessary the growth of the project. This was based on experiences in the Philippines where a simple plot without a core unit was not successful. People took up to half a year before they finally moved in as there was no original shelter to stay in while they built their final home. It was difficult to monitor the progress of construction as well as keep track of who lived where as people built at different rates and occupied them at different times. As it turned out many people were using the plots as rental income rather than living there themselves. Without a mandatory requirement and a means of insuring occupancy, it wasn't possible to monitor these violations. The government hoped that the core house, with the appropriate standards for the targeted income bracket,
and a mandatory residency in that core, immediately upon agreement, would insure that speculation would not occur. The core would also serve as a guide or control which would advert a "haphazard" development in the project. A coordinated expansion to the units would avoid problems of building conflicts between neighbors and the community and provide a more unified appearance to the project. This underlines the government's concern for the "image" of the project which has been a major force behind design and policy decisions in this program. Klender as a model project had to express a sense of progress both for the government and for the public in the field of housing improvements. Whether right or wrong these decisions on the image of the project have definitely made an impact on the development of these communities.

The government established strict criteria in determining residency at Klender in order to limit the number of people who could qualify. Due to the large demands generated by poor housing conditions in the city, hundreds of thousands of people in Jakarta alone would qualify based on the need of a subsidized personal home. However only a few of the many could be served by the first project and a selection process was needed to accomplish this.
The intent of the project was that the units would eventually be sold to the occupants. Home ownership rather than rent would allow the residents to use their home as a means of making a major capital investment to increase their personal assets. It was necessary to select a group of people who could purchase the units and to set up a method to insure that they could meet payments.

According to Presidential guidelines a certain percentage of the site and service units were to go to government employees. While the decision for this may at first seem questionable the reasons for it are clear. Indonesia is a labor intensive country and the government cannot afford to pay all its employees well. The government's objective is to employ as many people as possible offering them a steady and relatively secure job rather than helping fewer with higher pay. The lower paid government employees fall within the lower income group, justifying assistance from the government. Most of these workers are just above the subsistence level for the country. By offering subsidized housing to its lowest paid workers the government is able to reward them for their services.

Most government employees have stable jobs making them a lower risk for loans. Many jobs in the private sector,
especially in the low income brackets are highly unstable. Many people work day to day not knowing how much if any money they will make. If the entire project had constant loan repayment problems it could spell financial disaster for the project. Government workers on the other hand offered a relatively secure financial base while at the same time qualifying as a low income group. At the present moment to acquire land and loans one must go through a complex web of bureaucracy with great risk envolved, limiting those with modest means from acquiring a home. People in the low income group do not have enough capital resources to purchase a home without financial assistance and subsidy. They are too poor to be able to afford a unit of their own. They can afford to pay rents but purchasing even a core unit and a small plot of land is beyond their budget.

The general guideline for distribution of the site and service core units that was originally developed for Klender was that 50% was to go to low income groups of civil servants such as teachers, nurses, social workers and retired military personel and the other 50% was to be distributed among workers from the private sector including those from relocated areas and those who had resided within the site previously. The actual proportions of groups in
the project are roughly 75% government workers with 50% nonmilitary and 25% military, the majority of the military being on pensions. State owned company employees make up roughly 15%, and 10% are from the private sector. The exact reason for this revised distribution is unclear but it probably resulted both out of political pressure to provide more houses for government employees and also a financial decision to provide a more stable economic base to the project.

To qualify for the site and service units one had to be in the middle and upper sectors of the low-income group of Jakarta. One also had to work in the city (preference given to those living near the project), have a good employment record, and not already own a house. Home owners were excluded as the intention of the project was to house people who wanted and needed a home of their own. Absentee owners have been a problem in many site and service projects as they use the government subsidized units only as a means of making extra money for themselves. They also tend not to maintain their property resulting in unsightly development.

The selection process of the qualified applicants was done by lottery. All government departments, state owned
companies, their employees, and the general public in
Jakarta were notified of the lottery (public openings were
advertised in the city newspapers). The government gave
final approval to all selections.

Qualifying incomes were set at Rp 18,000 to 32,000 per
month for the 80 sq.m lot core house and Rp 32,000 to
65,000 per month for the 140 sq.m lot, placing the groups
served in the 20 to 42 percentile and the 42 to 73
percentile of Jakarta, respectively. The sub-core
qualifying incomes were raised to those under Rp 100,000 to
compensate for the high inflation rate occurring at that
time.

The government workers qualified for the site and service
housing are from two groups: the Golongan I and Golongan II
employees. These are classifications of the lowest level
civil servants and the ones lowest paid. The minimum
salary for a Golongan I employee is Rp 12,000 per month and
the maximum for a Golongan II employee (after 27 years) is
Rp 63,000 per month.5

These incomes are base incomes and do not include
allowances and other income which can be substantial.
Almost all families, both in the government and the private
sector, make additional income which is never accounted for. This can make up a substantial part of a families real income sometimes up to 30 percent of their total actual income.* Because these unreported incomes are next to impossible to verify they are not included in qualifying income for residency. If one assumes that this practice is commonplace across all income groups, which it probably is, then setting a base income for qualification will still serve the group intended as each group assumingly increases their salaries somewhat proportionally making their income relationship the same.

Long term financing was arranged through the national bank, BTN, for both house purchase and extension. Loans through the bank were for 10, 15, or 20 years with a downpayment of 10% or 25% both depending upon ones qualifications. Basically those who qualified to get a unit were also qualified for these loans as they were especially arranged for the residents of the project. However merely qualifying for a unit alone did not guarantee a loan. Credit for the loan was based on Indonesian citizenship, a steady source of income, and not being a home owner already. Priority was given to married couples and those in the lowest income brackets.
Before residents could be considered for a loan and be qualified to purchase a house they had to live in the unit and pay rent for a probational period of two years. This enabled the government to insure that the residents were both well intended about purchasing their new home and that they could also pay their rent and eventually their loan repayments. This probational period also allowed the government to more easily evict residents who violated their agreement, such as renting to third parties.

The actual costs of the core house units were much higher than what they were sold for, and therefore had to be heavily subsidized by the government. The units could not be sold at their actual price as no one in the targeted income group could afford them. The 200 sq.m open lots, which were intended to expand the tax base of the community, were to be sold at their market value. The empty commercial lots were also to be sold at their market value of Rp 8,000 per sq.m (minimum). These lots were sold at a higher rate in order to offset the high costs of the units, lowering the government's costs for the whole project.

The resident's monthly loan repayment on the units depends on the loan agreement with the bank. Typically a person in
a 80 sq.m lot unit would pay about Rp 4,300 a month with a 25% down payment. Those in the 140 sq.m lot units would pay between Rp 7,600 and Rp 9,100 depending on their down payments. Those in the sub-core area, the later version of the site and service core house, came at a later date and had to pay for an increase in the cost of the units due to the high rate of inflation. These amounts were determined to be within 10 to 15% of a families monthly income making it roughly what they would be paying if they were renting on the open market. During the probational two year period the rent charged is considerably lower than the mortgage repayment. These low payments helped the residents get started in their new homes. These rents were credited towards the resident's downpayment on their loan. If a person could not arrange a loan through the bank after the two year probational period they could still continue to "rent" the unit with the rent being credited towards repayment until they could get a loan signed.

Purchasing materials and labor to extend the house as well as utility and maintenance fees are all above these costs. There is a Rp.500 per month charge for the water meter at each unit plus a charge for the water used. There is also a Rp.800 per month charge for garbage removal and ditch maintenance which is deducted from the rent during the
probational period. Loans for expansion of the units could also be obtained.

Residents cannot sell their houses until after 7 years of occupancy. They must also occupy the units themselves; renting to another party will cause the owner to loose ownership privileges and be removed from the project.

These were the planning policies and the economic considerations that the government used at Klender. The impact of these decisions in their relation to the formation of the community will be studied in the conclusions.
part two: the base

The physical base and layout of the project were all predetermined by the government. It is upon this base that the people built their homes and their community. The physical base built by the government is presented separately from the observations so that the changes that have taken place on them can be seen with clarity.
The Klender housing project is located about 15 km east of central Jakarta in an area that at one time was an independent village called klender. This village like many other rural peripheral villages around Jakarta has been absorbed into the city's boundaries. Klender similar to other satellite communities has become mainly a bedroom community where land costs are much lower than in the center of the city. The agricultural character of Klender still prevails but it is rapidly changing as residential communities are expanding.

The project site, located about 4 km from the village center, was previously occupied by a small kampung. Located directly south of the main road and railway to Bekasi and Central and East Java, the project is easily accessible to central Jakarta.
The site is 152 hectares (375.6 acres) of relatively flat land that is typical of Jakarta. The only slightly distinguishing feature of the site is a stream that has been channeled into a canal and empties into a small river that runs along the west side of the project. The surrounding area is very rural in nature but shows evidence of the changing pattern occurring in the area. To the west, south and southeast of the site are rice fields that are worked by the local people. A high income housing estate lies directly to the east and several kampungs are to the north on the other side of the main road and railroad tracks. A large industrial estate of Pulo Gadung is on the northeast, but has little impact on the project as the physical plant is set back a considerable distance from the main road.

The project is conveniently located near numerous shops. A small concentration of shops in the adjacent northeast corner of the site along the main road, at one of the entrances to the project, serves the Klender project as well as the other nearby residential areas. The main market is only a few minutes drive from the project via the main road. This road is lined with furniture and construction oriented shops from which one could construct an entire house as well as furnish it. The market serves
UNIT TYPES

- CORE UNITS - LOW INCOME
- SUB-CORE UNITS - LOW INCOME
- TWO STORY WALKUP UNITS - MIDDLE INCOME
- FOUR STORY WALKUP UNITS - LOW INCOME
- GOV. OFFICIAL'S HOUSING
- OPEN MARKET LOTS

the whole Klender area. It consists of service shops as well as produce and products.

Aside from the main road, which serves as major access to the project, the site is also connected to central Klender by a secondary road on the east side of the site. These two roads are the only roads that service the project.

THE SITE BASE

The Klender project is organized around a system of neighborhood blocks which are served by a central spine of community oriented facilities and a ring road that runs through the site. The project is comprised of various unit types directed at different income groups. The majority of the project is site and service core units (the type studied in this thesis). Also built on the site were several other types of housing. A low cost single story walkup rowhouse was built in the first phase of the project and four story walkup apartments were being built during the course of the research.
Road System

The project's internal road system is divided into two categories. The main road is designed to serve as a ring road around the project and a secondary road serves the neighborhood blocks internally and feeds off the main artery. This secondary road system in each block terminates in a dead end at which parking spaces and an open space are provided. One must walk to one's unit along the footpaths.

ROAD SYSTEM

- MAIN RING ROAD
- SECONDARY THRU-WAY
- SECONDARY DEAD END
- PARKING AREA
Block System

There are a total of 36 neighborhood blocks each containing roughly 200 to 250 units. The project consists of 6965 core type units (5905 lots @ 80 sq.m. and 1060 lots @ 140 sq.m.), 190 sub-core units and 893 low cost houses. There are also 445 open market lots along the main road in the site and service. These lots were marketed towards middle income families.
Community Facilities

Community services for the project are located in a central spine which adjoins most neighborhood blocks. Space is provided for schools, markets, community services and playgrounds in this spine. There are a total of 12 kindergartens, 12 elementary schools, 3 junior high schools and one senior high school in the project which are located throughout the spine.

There is one planned central market intended to serve the entire project. In addition to this market there are spaces provided in each neighborhood block for small shops to serve the individual block.

Additional community services provided include a local administration building, a health center, a police station, a post office, fire stations, a bus terminal and five community centers. All with the exception of the community centers, which were to be built by the residents, were provided by the central or municipal government. Large portions of land were allocated for playing fields for soccer, badminton and other sports. Several playgrounds were also allocated in this spine. Space was also provided for a community mosque and a church, to be built by the residents.
THE NEIGHBORHOOD BLOCK

The typical site and service block, comprised of about 200 to 250 core units, is surrounded by secondary roads on two sides, the ring road on one side and the community spine on the other. These blocks are further structured within a system of small street blocks of 16 to 20 units accessed by footpaths. Each block has a central community open space for the use of the block's residents. There are no major differences between blocks in the project. The only difference is in the total number of units in each block, and the surrounding area, depending on its location.

The distribution of different lot sizes within the block is related to the road system. The larger, more expensive lots are directly adjacent to the road system.

1. The largest and most expensive lots are along the major ring road. These 200 sq.m open lots are sold at market rate to the general public. These lots were planned to help generate money into the project and to give a greater mix of income within the project so that at a later date when the project is eventually administered by the local government it will provide a higher tax base.
UNIT DISTRIBUTION

200 SQ.M. OPEN MARKET LOT
140 SQ.M. DUPLEX CORE UNIT
140 SQ.M. FOURPLEX UNIT
80 SQ.M. FOURPLEX UNIT

2. Along the secondary roads are lined the largest core house lots, of about 140 sq.m. These lots were aimed at the people who could afford a larger lot and who would desire frontage along a street.

3. The majority of the units are interior lots of 80 sq.m. These lots are accessed by footpaths that run between the units and they have no automobile access.

4. At footpath intersections within the interior of the core house block are additional 140 sq.m lots.

Footpaths are the main means of access to the units, typically the only means. These footpaths and the aligning drainage ditches are a total of 3m wide. The drainage system is constructed of trass lime block. Water runoff is served by this system. The resident must provide their own bridge over the ditch to connect to the footpath as well as their own path on their lot. Any separation between a lot and the public path is the option of the owner.

The block's central community open space serves several functions. One area in the space is allocated to small commercial ventures that must lease the land and construct their own buildings. The largest portion of the open space
is for a mosque which is an option for the community to build. The only area that doesn't have this specific space is the sub-core area. It instead has smaller spaces dispersed among the neighborhood.

These central open spaces are connected to the road system by the secondary roads and have a small space allocated for parking. Other community services and areas are located within the project's central spine.
The basic idea of the core house is to provide shelter for a family until they have enough money to purchase materials to complete their desired home. Since the core house was aimed at middle and upper bracket of the low income group who would be in need of such an approach to build their own home, the materials, the dimensions of the unit and the size of the land parcels were minimal to keep the initial cost of the units down.

Two different types of core houses were built at Klender. They are the "core house" type and the "sub-core house". The core house represents the major unit type in the project. It was planned in conjunction with the World Bank and it represents the first type of site and service unit implemented in Indonesia, serving as an experimental proto-type. All the original core units were finished at the end of 1977. The sub-core units at Klender were built in a single block in mid 1980. These units represent the newer standard government core house which is now referred to as a "starter house". This type of unit has been used at Depok, Tangerang and Bekasi as well as in other site and service projects in Indonesia. These sub-core units were not studied in this thesis in order to limit the focus of
the thesis and as they do not represent the larger community of Klender.

The original core unit was designed in two types, a fourplex unit that makes up the majority of the units and a duplex unit that is used in special situations along the secondary roads to make use of the site more efficiently. Both unit types were built with shared walls between units to reduce the initial building costs.

The concept and construction of the different core houses is essentially the same with the major difference being that the fourplex core house expands to the front of the lot and the duplex core expands to the side of the lot (the sub-core was built at the lot setback in the front directing expansion to the rear of the lot).

1. The typical core house unit consists of a single room of 20 sq.m. The dimensions of these units vary between 3.5m X 5.5m for the duplex core unit to 4.4m X 4.4m for the fourplex core unit.

2. Adjacent to the unit is a semi-detached bathroom of about 2 sq.m. which has a stoop type toilet connected to an individual pit privy.
3. Both the living unit and toilet are back to back to the adjacent units sharing a common wall in order to save on wall materials. The walls of the unit and the toilet are of batako block, a hand made cement type masonry unit produced locally. The floors of both areas are of concrete raised several cm. off grade. The living unit is covered with asbestos cement sheeting supported by metal joists while the toilet is open to the air. No ceiling was provided in the units.

4. The entrance to each unit is on the side through two wooden doors. This is the only means of egress. An awning type window is directly adjacent, providing a means of daylight. The toilet room has a thin metal door that faces the front of the lot.

5. Units are supplied either by deep wells or city tap water. Well water is distributed directly or by the large project water tower reservoir. City water is boosted by pump near the project site. Each unit has an individual line up to the house but the residents must complete the plumbing in order to use the line.

6. Each core house is supplied with 450 watts of electrical power which can be doubled by acquiring extra service from the electrical company.
7. The lots had no vegetation planted, only bare earth. Plantings were left up to the individual residents. Free trees were offered to the residents at the opening of the project to help "green" the area.

8. No path was provided from the unit to the footpath, as this was left to the owner to decide where the path should be.

The lot sizes vary according to the group that these units were marketed to. The lower income groups were offered 80 sq.m. lots, while lots of 140 sq.m. were aimed at the upper lower and the lower middle income groups.
UNIT ALTERNATIVES

Building permits are issued only through the DKI building code department. However a single blanket permit was issued for the site and service units at Klender. Individual building permits are then issued by PERUMNAS in accordance to the blanket permit. This simplified matters greatly for both the residents, as they could then get a building permit directly from PERUMNAS short cutting the long process of getting a permit from DKI, and for the government, as building types were limited, reducing the necessary paper work.

Owners of the core units could select from alternative floor plans, developed by PERUMNAS, or design their unit floor plan with the assistance and approval from the project housing office. Most of the plans are interchangeable for both the 80 sq.m. and the 140 sq.m. lots. However not all designs are appropriate for the larger corner lot as it has two elevations while the smaller lot has only one. The duplex core units have fewer designs than the other core types, but some of the other plans can be adapted.

After an alternative plan is selected a building permit can be obtained almost immediately from PERUMNAS. Residents
can change their unit alternatives or make alterations to them after they have received their permit.

REGULATIONS FOR EXPANSION

Individual unit expansion must follow the regulations established by PERUMNAS during the time period of probation and loan repayment. Once an individual or family owns the property they are no longer required to follow these regulations but they still must meet all the local building codes for any construction after this period.

The general regulations for expansion limit core house units along the community footpath to a 2.5 meter setback. Setbacks along the secondary road are 3 meters and along the ring road 5 meters. Both the 80 sq.m. lot and the 140 sq.m lot have the same allowable buildable area as the setback on the side of the 140 sq.m. The duplex core units along the secondary road have a larger buildable area than the fourplex units as their lot size is larger. Lots larger than 140 sq.m. are limited to 60% of their lot size, and must also follow the setback regulations.

Residents can choose their own type of building material as well as the location of doors and windows with the exception that the roof must be constructed of asbestos panels and the original core must remain unchanged.
The original height restriction of 3.75 m. high cannot be changed. The slope of the roof can be altered, but not beyond 2.70 m. Only one story is allowed but after an owner repays the loan he is only restricted by the DKI building codes.
part three: observation/analysis

The community that has developed upon the base that the government built at Klender has a character of its own, yet it is part of the character of the city. Even though the original base in large part has determined the physical outcome, the individual homes and the community created are theirs. This community represents their aspirations and hopes for the future.

The built environment of Klender can be perceived on various scales which form its identity. This observation begins on the level of the individual home. Each family has developed their own core shelter into an individual home which forms the basis of the neighborhood community. The individual houses and the life associated with them form a street pattern that is the general character of the environment. The composite of the streets and the shared outdoor spaces form the neighborhood unit. The neighborhood blocks combined with the shared support facilities form the community in its physical entirety.
The following observations and analysis examine the built environment of Klender to see how the people with their own initiative and resources have built their community. The study focuses on one neighborhood block in the project using several streets and houses within it as case studies.
The house scale is made up of the house plan and the elements that make up the front of the house, including the elevation and the front yard.

The house is the smallest component in the character of the project but it is the most important part not only because it is the home and shelter for the residents but also because it forms the basis for the character of the community.

UNIT EXPANSION

In the four years that have passed since the core units were first occupied and when this study was carried out considerable development had taken place. Most units had been totally finished and only a few were under construction or unexpanded.
The pattern of expansion has varied between units. Residents could build their unit all at once or room by room as they choose. One might think that the latter would be a more common practice as people could build as they saved up enough money to do so. In actual practice most people had completely expanded their unit at one time often after waiting a long period of time before doing so.

People at Klender are for the most part employed in stable jobs which does not leave much extra time for them to build their own homes. Most people hired workers to build their expansion. Some of these workers are residents who have taken construction on as a side job. Seldom do neighbors pitch in to help build someone else's home unless it is donating some material or footing the bill for a common wall if one cannot pay.

The residents of Klender appear to be at a level where their income allows them to hire construction workers rather than being economically forced to build their homes themselves. These people are by no means wealthy, they are in the upper level of the low-income group and at the bottom of the middle and upper level of the low-income group, yet they can still afford to hire someone else to build their unit. Home construction by the owner is rarely
done even in kampungs. People tend to hire others not only because they can afford to but also because it is common practice.

It was discovered in several interviews that many people could have never built as they had without the generous support of their relatives. What appears to be an individual family's achievement is really the combined effort of many families.

Building in increments is too expensive for many families as they couldn't spend the time to do it themselves and hiring workers to build one room at a time would be cost prohibitive. Instead they turned to their relatives and friends who lend or gave them enough money so they could build their home all at one time thus saving them money and time in the long run. These families did not take loans out to extend their homes as they could borrow from their relatives without having to pay interest. Such cooperation within families is a strong part of the social structure. While individual families are of a nuclear structure their extended family ties are equally strong making such participation quite common. The houses at Klender are in good part not representatives of the resident's real income which might be first assumed but really more a reflection of the pooled income of relatives and friends.
The time frame of expansion has also varied between units. Some residents built their expansions immediately upon occupancy. Others waited for several months or years before building theirs. Several residents expanded after living in their core unit for two years. The two year probational period may have had an effect upon this pattern.

While people are waiting to expand their units they have made certain additions to make the core unit and lot more functional. All residents have built some type of enclosure at the front of their lot and between lots to define their home. Most all these walls are personalized in some way or another. The building of this wall appears to be the first step in the building process. Once the property has been defined the next step is creating some type of a front yard. This is achieved mainly with vegetation.

The first step in turning the core unit into a working living quarters for those who have not expanded to any great extent is to enclose the kamar mandi (bathroom) with a front room. The core unit alone does not function as a home by itself because it combines formal and informal activities together which is contrary to normal living
conditions in Java. Enclosing the front of the mandi area with a roof creates a second space that can function as a formal living area while the original core acts as an informal living area combining sleeping, eating and cooking all in one space. This seems to be a workable compromise to the core unit without making a major expansion.

The form of the this room varies between units. Some have simply enclosed the space with a bamboo shade and covered it with a roof. Others have built a permanent wall that could be used later as an interior wall when the unit is fully expanded.

UNIT PLAN

Alternative Plans

Residents could select from several alternative floor plans, alter them or design plans of their own for the expansion of their units. Many residents designed their own unit plans with assistance from the project site office. Of the the alternative plans that the residents selected, some have been prefered over others. The popularity of the floor plans relates directly to the residents' functional and social needs.
Alternative plans that were not popular all basically have the same organizational problem of mixing formal living areas with the informal areas of the house. Plans that place the formal living area at the middle of the unit and the informal areas at the front were disliked and not used. The plans that were selected all clearly separate these functions.

Those plans that placed formal spaces at the front and informal spaces at the back were preferred. The residents like to have a formal sitting area where guests can be entertained that is shut off from the rest of the house. This space provides a means of maintaining a proper social image. This relationship appears to be the primary factor in the type of plan selected.

One plan (no. 12) that was popular placed the living area at the front of the unit and provided a separate entrance to the kitchen area at the back along the side of the unit. It is interesting that a second door is desired in such a tight unit. An extra door takes up extra circulation space, yet many people prefer to sacrifice this space to achieve a separation of activities. Separating these activities results in a relatively undisturbed formal space which is extremely important to the residents.
Because of the extreme heat and the poor cross ventilation in the unit many people find that spending their evening hours outdoors more pleasant than indoors. Several plans provided a deep outdoor sitting area for this to happen.

Many people in Indonesia hold several jobs and run small side businesses out of their homes. A protected outdoor sitting area can also be used as a place for a small shop, or warung, as a means of making extra income. This space can be quickly converted into an area that can receive people on a more formal level without them being required to enter the house.

Plan no.1 provides an outdoor sitting area at the front of the unit. This space functions as a semi-indoor area that can double as a family room or as a place to greet guests. It can also be used for a variety of purposes including use as a warung. This plan is one of the most flexible plans offered and the most popular plan in this block.

Use of Courtyards

The original plan of the core unit is a four-plex with shared wall between them. This arrangement does not allow
complete cross ventilation within the unit. To overcome this problem open courtyards were incorporated into the design of the alternative plans provided to the residents. This would allow cross ventilation at least to a good portion of the house with the back rooms getting their circulation from air passing through the courtyards.

Many people see the open courtyards as a security problem for their home. The long continuous roofs of the project make it easy for a thief to travel undetected. Having openings that could not be monitored by neighbors make it easy to be burglarized. Some people have solved this problem by placing iron bars across the courts to maintain ventilation while providing security.

The courtyards make an ideal location for cooking the hot and spicy traditional Indonesian dishes as it provides adequate room for movement and ventilation. Ventilation primarily for cooking is accomplished by raising the roof over the stove area. This area also doubles as a laundry area with access to the roof to hang the clothes to dry. The courtyards themselves are too small for the sun to penetrate so this space cannot be used for drying clothes. Units that have filled in courtyards are darker and much hotter. Houses that have retained the courtyard are dramatically cooler than those without.
Second Floor

The limited floor area has caused many people to consider building a second story. However all the site and service units at Klender are restricted to one story during the duration of the loan period. Of those interviewed all would like to have a second story someday. Some even have built foundations to accommodate two stories.

This is interesting because it represents a changing attitude towards multi-levels in residences. Traditionally multi-story structures are not used among Indonesians. Only Indonesian Chinese and the Dutch have built homes in the past of more than one story. Despite the densities in the city people still built only one story. This is probably due to a concern for damage done by earthquakes. A roof of clay tile is probably more survivable than a whole story of concrete coming down on you. However the concern with this factor seems less important to the residents even though earthquakes are no less common today than in the past.
Unit Height

The low heights of the units make the house hotter than it need be. Coupled with little cross ventilation and the thin asbestos cement paneled roof the units can become extremely uncomfortable. Some people have solved the problem of the restricted roof height by lowering the floor of their unit if the topography permits. Increasing the volume of the unit provides a larger space for heat to rise and eventually escape.

Another way of achieving a greater interior volume is by changing the slope of the roof. The roof height according to regulations must remain the same but the pitch can change. The roof line in all cases of major expansion has been raised towards the kamar mandi side with the original peak height unaltered. Although the amount raised isn't enough to substantially cool the unit it does make a difference.
HOUSE ELEMENTS

The character of the front of the house is essentially made up of two basic components: the house elevation and the front lot. These elements form the basis or visual backdrop upon which all else falls. They form an element of continuity that runs throughout the project while providing a rich vocabulary of variety within it.

HOUSE ELEVATION

The front elevation of the units are a means of projecting a certain status. Rarely is there a resident that hasn't in someway or another improved the image of their front facade. In many cases it is merely a facade, with little behind it that can match the investment placed in it. The elevations have an unproportional relationship to the amount invested in the total house. The residents have placed more money in the front of their homes than anywhere else. Many houses have carefully attended to their units' front elevation yet have invested little in the interior of the unit. Outward appearance seems to be of utmost importance to the residents. Yet the inside is actually quite different. The elevations provide a means of establishing a personal statement.
The typical front elevation of a unit comprises of a simple one story structure with a sloped roof and a structured overhang over the door and windows. The wall is made of concrete block finished with a cement coat and painted. The houses are modest in nature but attention has been given in varying degrees to these facade elements to make them personal. The windows, doors, wall materials, surfaces and colors are all selected and organized by the owner.

WALL MATERIALS

The unit external and internal walls typically are of concrete block. Concrete block is a material that has much more status than the cheaper and more traditional bamboo mat wall panels and structures. Concrete block provides more privacy, is more durable and is less of a fire hazard than bamboo. Concrete block as a major building material is replacing bamboo throughout Jakarta. This material because of its durability and extra costs makes a home more valuable. Even though bamboo is much more affordable, few find it attractive for a symbol of their new home.

The units that have not yet expanded have at least treated the exterior wall with a cement coating and have painted it
to give their unit some what of an image of a personal individual unit. Very few unexpanded units have the original uncoated surface exposed, which shows the importance of the elevation in creating an image of a personal home.

Units that are totally expanded have used a variety of surface materials including the painted cement stucco commonly used on the unexpanded units. Others have personalized their homes by using special veneers of cut stone, pebbles and rocks and inlaid tiles. These surfaces are for the most part the exception providing some diversity to the commonly used stucco. Those who have used cement stucco put their own personal touch through the use of color. Bright colors as well as white are popular. Aqua blue, purple and green are commonly used as a single color on the wall surface and trim of window and door openings. These colors are repeated throughout the neighborhood, and the pattern they create become less striking then if they stood alone. The dense vegetation of the front lots also softens these colors making them much more subdued.

Expanded units located on corner lots have in most cases developed the side wall similarly to the front wall with an
equal amount invested in it. The corner units, having two elevations as opposed to one and being seen from more than one vantage point, provide the greatest opportunity of presenting an image of a personal home. These units are typically owned by people with greater income than the inner lots.

Corner units that have not expanded are usually owned by residents with lower income. These lots were originally intended for people with larger incomes than the inner lots, but due to marketing problems the government might have had to sell these to people with lower incomes. Due to the extra amount needed to produce two finished elevations, particularly one very long side elevation, might have caused these units to have remained unexpanded. Residents have placed a high value on the front image of their home and tend to wait until they can afford to finish their home completely. Thus it appears that corner units because of their extra elevation are beyond the financial capacity of residents with lower income.

OPENINGS

Residents have also personalized their unit elevations through the style of openings and finish as well as determining their size and location.
Doors

Doors symbolize the act of entering a private space and serve as a means of indentifying the unit as an individual home. This is particularly important in a dense environment such as at Klender. Doors are personalized by the use of color and designs to make the exterior a personal statement.

All units have placed the door directly facing the footpath. This orientation provides the maximum exposure for security against break ins because neighbors can monitor the house more easily than if the door were located on the side of the unit. Many houses have an enclosed porch area where this condition occurs.

Doors are typically made of solid wood, probably for security reasons. It seems the solidness of the door is only to discourage burglars. When the owner is at home the door is often left open to allow air to circulate through the house. People seem quite secure when they are home, probably because of the close relationships that have developed between neighbors.
Window Openings

Window openings in the units tend to be large because they have become the only source of natural light into the units. The planned internal courtyard in many cases has been covered and converted into extra living space placing increased importance upon the front openings for light and air. A combination of a large non-operating panel of glass flanked by a special louvered window is quite common. The louvered window combines maximum ventilation and security with metal bars across small glass panels that allow air in but prevent entry. These louvered windows do not offer a very good view because of the obstruction of the metal bars and would be prohibitive in cost if they were very large. Thus this combination of a large sheet of glass with these louvered openings provide an optimum functional relationship. Double hung or simple awning type windows are rarely used as these offer little security against thieves.

This combination of window types is quite common in Jakarta and when used in the front elevations of the units at Klender helps give the units a locational character that ties it to the rest of the city. The openings of the units are quite important as an element in this regard.
Ventilation Strips

Ventilation is extremely important in the tropics not only for comfort but also for health reasons. Fungus and mold can grow quite rapidly in spaces that do not have adequate ventilation. Because of the high humidity level spaces that are enclosed and do not air properly are faced with this problem.

Additional ventilation is commonly achieved in the tropics with a ventilation strip above doors and windows. This is a standard means of getting more ventilation along a wall. Because warm air rises, these strips located at the top of the space can draw off this warm air efficiently. In wall surfaces that do not have window or door openings special type concrete blocks with vent openings are placed along the top course to provide ventilation. These vent blocks are used both on interior and exterior walls. Some units at Klender have used these blocks to create an entire wall or portion of a wall to achieve ventilation without the expense of a glass window. These blocks are made in different patterns which add to the diversity of the elevation.

The original core unit does not have any means of
ventilation directly facing the front of the lot, its door and window are placed on the side, thus it is not able to capture light breezes. The placement of these openings provide a more flexible floor plan when the unit expands but it doesn't accommodate proper ventilation. Residents have achieved ventilation in the front wall through the placement of a row of ventilation blocks above the block wall. These blocks will continue to be useful when the unit expands as the wall will become an interior wall and the space will still need ventilation.

FRONT COVERING

Many people have added an additional element to the front elevation of their homes with an overhang over the entire front. This covering built mainly to protect the house from rain and allow outdoor use of the front when it is raining also adds a strong visual character to the house. The strong horizontal line of the covering offsets the sloping line of the roof and visually enlarges the house. The overhang also encloses and focuses on the area of the doors and windows creating a sense of scale as well as enhancing the sense of entry into the house. It is a method that is commonly used in residences in Jakarta. This element along with common building materials and
openings make the elevation look much like many middle income houses in Jakarta. The residents have been able to create an image of success for themselves by emulating the middle class houses of Jakarta.

ROOFS

The final element of the elevation is the roof and the roof line. According to the building regulations the original pitch of the roof can change but the peak cannot. To achieve a larger elevation and a greater interior volume the roof slope has been raised in all the units that have expanded. Increasing the volume of the space reduces the amount of heat buildup and makes the unit appear much larger than it actually is.

For some reason all the roofs in the project must be made of asbestos cement panels. This is the only required building material in the regulations for expansion. The residents demonstrated a definite dislike for this building material. When a panel breaks or has a hole in it the whole panel must be replaced. These panels also offer little resistance to the heat. Even though asbestos is a heat resistant material it doesn't seem to work in this application.
The panels create an unusual edge condition to the roof. Because the panels are large in size and are tied down to the roof structure below they really do not require an edge board that is typical in wood framed roofs that use clay tile. The exposed edges of the panels are very thin and do not give the appearance of a firm roof overhead or of a "finished" house. The roof line is definitely an aesthetic element as it terminates the elevation of the house and is thus visually apparent. The thin edge of the panels do not adequately top the house. Many residents have solved this problem with the strong line of a fascia board making their unit look as if it had a more traditional roof.

One resident found the fascia board not enough to define a roof. He built a false metal panel mansard roof around the exterior of his house. Apparently, since the original roof height of the unit had not changed it met the regulations. In this way the owner was able to create a roof with more definition while staying within the rules. Although this is not a typical case it shows that people find the exterior of their units important enough to add extra expenses to make their house what they want it to be.
THE HOUSE LOT

The lot or the open yard in front of the unit, like the unit elevation, is an important element in presenting an image of the resident. The typical house has enclosed the boundaries of the property with an enclosure to define itself from its neighbors. Within the yard there are various plantings either in the soil or potted, which are carefully attended to. Directly in front of the unit there is usually a covered terrace with consciously arranged chairs and table.

Lot Enclosure

Each lot has been defined by a wall between itself and its neighbors and the public footpath. The lot enclosure is a strong linking element between units. This enclosure reflects the common theme in the community of a personal individualism that is set within a system of conformity. Much like the elevations people choose to build with similar materials in similar ways creating a sense of community yet at the same time the common element is personalized to make them identifiable to the owner.
The enclosure along the front of the unit is typically either a low wall of concrete blocks combined with decorative ventilation blocks and finished with a painted coat of cement or a low metal fence often combined with a half wall of concrete block. Many of these walls are painted the same color as the house making the walls seem to be an extension of the house rather than a separate element. Metal fences are mostly constructed from scrap metal from the core house. When the houses were expanded it was necessary to remove some of the roof structure to be able to expand the roof. These scraps were saved and combined with scrap from other units to make a fence. The reuse of building material in new ways shows that the residents are quite cost conscious.

The walls that were built to separate the units from each other are almost exclusively built of concrete block. These walls match the height of the wall at the front of the lot and increase in height near the unit. Most units have built terraces directly in front of the house and this raised wall at the unit provides visual privacy from one another. Usually little attention has been given to these walls as far as decorating is concerned. They seem to serve mainly as a definition of personal space and a means of creating privacy. Resources are directed in the front
wall rather than the side walls as this wall represents the public side providing an image of the residents to the whole community.

Vegetation

Plants have been used for a variety of functional uses as well as aesthetic ones. Trees play a very important role in controlling the ambient temperature of the yards and houses. Without shade the heat of midday Jakarta is oppressive. Shade is essential in this environment. Houses without large overhanging trees can become extremely hot in the late morning and afternoon. The low roofs and thin asbestos cement panels offer little resistance to the heat making shade trees even more important.

Fruit bearing trees are widely used at Klender as they provide multiple benefits: shade, ornament and food. Living in the tropics has the advantage of being able to grow many different types of fruits if one has the land to do so. Fruit trees are owned by many in Jakarta regardless of income. Fresh fruit from a tree is superior to that in the market place as one can pick the fruit at the optimum moment before eating it.
Vegetables are generally grown by people with the lowest incomes. In many cases these people may simply be taking advantage of an open lot as most that have vegetable gardens have not expanded their units. Most people who have expanded seem to prefer not to have a vegetable garden. This might be for several reasons. The space that is left in the front is not adequate for gardening and most use their front lot as a sign of their success, a vegetable garden could be seen as a sign of poverty. Several vegetable gardens have been created in unused spaces such as the open lots along the main ring road and along the edges of the neighborhood blocks suggesting that some people wish to have and perhaps need a garden but have not found their own front lot adequate.

Ornamental plants are also used differently between income levels in several applications. Both the wealthiest and the poorest people at Klender use vegetation as a method of creating an outer edge to their unit while those in the middle have used concrete walls for that purpose. The poorest people seem to have used plants as an edge because they cannot afford the expense of constructing a wall while the wealthiest have used plants as means of improving the appearance of their outer walls. Those in the middle probably do not use plants for this purpose because they
cannot afford the time necessary to maintain these type of plants while the concrete wall provides the necessary status. Plants are one way of achieving one upmanship.

Ornamental gardens have become a popular hobby among those having more money and thus in a sense have become a status symbol. The wealthiest have the most elaborate gardens complete with pools and well kept plants. But almost all the residents in some way or another have started or plan to have an ornamental garden in the front yard. Gardening has become a conscious effort among the residents as part of the image of their home. Dedicating time for gardening is a much more important factor than the actual cost of the plants as plants are inexpensive and grow very rapidly.

Green lawns in the city have, like in America, become associated with wealth. Plants play a very important role not only in making the community pleasant to look at and be in but also as symbol of one's position in the community. In the villages there is an old belief that grass is a sign of laziness. Bare swept earth is a sign of a well managed home. There is little grass at Klender but not because of this belief. Many people have attempted to plant grass but to no avail because the neighbor's chickens that run loose eat all the seeds as soon as they are planted.
Adequate top soil even in the tropics is essential for a green environment. Unfortunately there have been problems in several areas where the top soil on the original lot was too little or totally removed. Many people have had to add top soil at their own expense in order to get plants to grow. In one area soil on one side of the street was not as good as on the other side. This was clearly evident as hardly anything was growing on the side with poor soil while the other side was very green. The side with good soil was at a higher elevation suggesting that during grading the topsoil of the lower elevation was removed and dumped on the higher side creating this situation. Adequate topsoil is a significant need for the resident.
Houses by themselves are only part of the total environment. Together along with the interconnecting public footpath they form the basis of what one perceives as the character of the neighborhood. Because of the close proximity of each house to one another each unit flows on to the next to create a total street structure. The elements of each house play an important part in linking this structure together. The footpath also links each house to another and forms another dimension of outdoor activity. This pattern of house and lot elements and the interconnecting footpath and activities create the general character of the neighborhood.
PHYSICAL PATTERNS

The street character that has developed in the project is one of a self-regulated uniformity with great diversity. Residents have chosen to build similarly using a common palette of materials, colors and elements. These elements form a common vocabulary which gives continuity to the environment while at the same time generates a wide range of variation for personal expression. This pattern along with the footpath has created a character with a strong identity. It is at this scale where the project has been most successful.

Spatial Patterns

The street environment is made up of two basic areas: the units and their front lots and the common footpath.

The units have developed a semi-completed form as unexpanded units have created recesses in the building mass along the common setback line. This discontinous pattern is not a major visual problem in the continuity of the street as other elements of the house and yard enclose the street spatially. This pattern directly shows the process of expansion and probably has a positive impact in
encouraging residents to build as an undeveloped lot is quite apparent.

Each block is defined by corner lots at path intersections. These units have two planned elevations which helps create a continuous pattern through the neighborhood by linking the side elevations and defining an entry to the street block.

The front yards play an important element in the total environment as they form the major outdoor space of the units. These yards, like the elevations, act as a common linking element in the total environment. The yard spaces in the expanded units form a continuous space in front of the units. Corner units also have side yards which with the elevation creates a consistent space on the side pathways similar to the front yards.

The narrow footpath creates a close and intimate feeling. Surrounding walls of consistent height and material reinforces the compactness of the path by giving it spatial definition. Trees along the path provide a canopy which further defines the path as a passage and provides crucial shade.
Elevation Patterns

With almost complete freedom, there is a remarkable conformity present in the elevations. The combination of variety and conformity create a special character that holds the image of the community together.

Building materials used at Klender fall within a small range even though many different types can be used. This narrow range of materials in large part adds to the continuity of the elevations providing a common denominator which ties all the units together. This might not have been a conscious decision but it definitely contributes to a unified yet diversified appearance.

Elevation openings, which include doors, windows and ventilation openings, play an important part in the street elevation. The use of standardized sizes create continuity and the diversity of size and application of the openings prevents any monotony from occurring.

The building form has changed from the original core unit of fourplexes to a relatively continuous pattern of houses. Roofs have been consistently altered to the same slope and all are at the same height, which gives further unity to the street.
The front covering is another major linking element in the elevation as well as providing protection from the weather. The horizontal line of the covering has been built at a consistent height forming a continuous line across the elevations offsetting the roof line. The uniform pattern of the roofs and coverings along with the diverse pattern of materials and openings create a harmonious character which holds together as a unit.

Lot Enclosure Patterns

The front walls play an equally important role in the physical character of the street. Commonly repeated materials, colors and height form a interconnected edge along the footpath that helps unite the houses and yards. Whether the unit has expanded or not, if it has a front wall or fence it is still visually tied to the street pattern. This wall also spatially defines the yard and the footpath. These walls as seen in the previous chapter are commonly made of cement block coated with a painted cement.

Vegetation

Trees, bushes and other vegetation provide a very important element in the total environment of the project. At the
unit level vegetation greatly helps create an individual home. It can provide shade, food and an aesthetic character for each unit. Plants soften the architecture with a rich variety of line, form, color and texture that is unique to itself. The round form of trees and bushes create a soft contrast to the straight lines and planes of the units, greatly increasing the diversity of the visual environment.

Brightly colored flowers and the varying hues of green leaves further adds to the total scene. Without the richness of vegetation the units themselves appear stark. Plants are probably the single most important element, especially when considering the little cost investment needed, that a resident can use to improve his home and community.

At the beginning of the project, PERUMNAS planted shade trees along the footpaths in the neighborhoods. Free trees were also supplied by PERUMNAS to the residents at the opening of the project. These trees have become important not only in generating a visual character but also in helping form the social character as well.

These trees have, in the years since the opening of the
project, grown quite large. Their large overhead canopies have added to the formation to the footpath as an outdoor space. The trees give the path another element that helps make the space feel personal, by providing a sense of scale and texture to the street scene that would be lacking with only the facades of the houses and the front lots and their enclosures. These trees helped make the lots look more lived in as well as providing shade. This was an important first step by the government at getting the community started with growing plants. Residents of Klender either purchase their plants at the local market in the project, the main Klender market, or get clippings from their neighbors.

Trees play an important part in the social functioning of the public paths. By providing shade these trees make sitting out on the path during the day time possible. Without shade the footpath might not be used to the extent it is as the intense heat of the fully exposed sun is unbearable. Trees provide this protection and the area that is shaded becomes an space in itself, a comfortable outdoor "room". Benches are located under trees as evidence of the importance of trees.
Trees have also doubled for several other uses. People have used the trunk of the tree as a part of the structure of the bench to save on materials and to insure the bench remains where it should. Trees also are used as clothes line poles to support the morning's daily load of wash. One resident has used a tree in the path as a place to house his pigeons. Trees in this regard serve as a multi-functional element whose value cannot be overestimated.
ACTIVITY PATTERNS

The path and the front yard are the center of social life in the neighborhood. The active use of these spaces provides the life that make the project a special place. Without it it would be merely a collection of houses and yards. No two yards are the same, yet like the elevations their common form and use create a continuous environment that has a great diversity.

Lot Activities

The intense use of these outdoor spaces is partly the social character of the people and a result of the limited interior area of the units. Together these factors create a focus of family and community life that far exceeds the uses of the planned community areas in the central spine.

Most of the residents had previously lived in low income areas in Jakarta and have taken many of their social attitudes with them to Klender. People in the city kampungs and villages have a strong community identity. Many problems are shared and worked out together. This mutual cooperation in Indonesia is called "gotong royong" and summerizes the strong community spirit in many
neighborhoods. Even though gotong royong appears to be diminished as families climb the "economic ladder" and are less dependent on their neighbors it still exists in various forms in Klender. For this neighborly relationship to function people must communicate their needs to each other on a frequent basis. The dense crowded conditions of the kampungs allow this to happen quite easily where people live a good part of their lives in the street, forced out of their homes by the intense heat and small interior spaces. This type of environment of shared poverty helps people survive daily crisis but intrudes upon their private lives as neighbors' eyes and ears are everywhere.

The residents of Klender have maintained their neighborly relations and through the design of their units they have minimized unwanted contacts. Several people interviewed who had lived in dense kampungs in Jakarta mentioned their pleasure at having their neighbors leave them alone but still having friendly and cooperative relations with them. The dense living conditions at Klender even though considerably less than in the inner city kampungs still generate enough personal contact to keep people close together but their personal designs, mainly the development of wall enclosures, provide them with privacy.
Lot Enclosure and Activity

The front wall is crucial in establishing private space and strengthening the edge between the yard and the public path. This wall eases the feeling of trespassing through someone's property when walking on the path as the path and the front yard are very small with originally only a drainage ditch separating them. With the construction of a wall along the path, the ditch becomes a stronger separation, as it is difficult to step across it to look over the wall. To approach a unit one must go to the gate. This enables the yard to become much more private.

These walls form boundaries of territory but they also create outdoor "rooms". By making the path comfortable to be in, a usable public space is created. People sit and talk and play in these paths. Without the wall separating the unit and the path people might feel uncomfortable in using the path as a social place as they would feel as if they were intruding on someone's personal space and they might not use them as freely.

This enclosure at the same time creates a semi-private room in the front of the unit that can be used more freely by the resident than if no wall were there. Having no
separation of space would cause constant interruption of one's privacy as the units are so close together. The wall also enables the residents to use the path as an extension of their yard. Residents have placed small benches in front of their units and use the front gate area as a social meeting space in the evening hours.

So important is the identification of personal space and the separation of private and public space that most people have constructed these walls before they made any improvements to their units. The front wall serves both as division of space and a means of identifying one's own space.

The active use of the front lots is also due in part to the climatic environment of Jakarta and the limited living quarters. Both the finished houses and the original core house have no backyard space or internal outdoor space because of the original design and the fact that people have built on every possible area they could. The actual interior floor area of the units is be small and because of this many activities that would usually or preferably take place indoors or in a backyard, such as doing the laundry, are done outdoors in the front yard. The intense heat and humidity that lingers over the city also forces many people
out of their small houses into the front yards and footpaths to escape its oppressiveness.

The front yards are used in different ways at different times of the day. This space becomes both a formal front yard and an informal backyard combining activities that would usually not go together. These incompatable activities however, usually take place at different times of the day.

In the early and mid-morning, after most people have left for work or school, the lot is used to wash and dry clothes. The fact that the main water lines, personal hand pumps and community pumps are at the front of the lot has also encouraged the use of the front for washing. The washed clothes are set out to dry in any available space, many times stretched on lines across the path or draped over the front fences and walls. Laundry is the main external activity of the day.

This time also provides a moment of contact with the neighbors who stay at home tending the house and children. Most adult males have full time jobs (employment was a necessary qualification for acquiring a unit at Klender). Transportation in Jakarta is long and tedious causing few
workers to return home during the lunch hour creating an absence of males during the working hours of the day. Thus the community is occupied by housewives and small children.

During the evening hours and at night the front yard and path transforms from a utilitarian space into a social area. While the day was relatively quiet the evening becomes quite active. During this time of the day the front yards and footpaths have reached their saturation point of activities and interaction. Everyone has returned home at this time and are busily getting into the way of each other. The front terraces are used by families to sit and talk with each other and with their neighbors and friends while children are off playing. These activities spill over into the pathways where the front gate doubles as a sitting area. Community benches along the path become central meeting areas as do the local warungs. Street vendors add to this array of activities offering almost every type of food imaginable.

Many residents have used their homes as a second means of earning an income typically through the use of the front yard or the front of their unit as a warung, or small shop. At the opening of the project warungs were not allowed in the units but this constraint has been relaxed. The only
requirement on house warungs is that they must be inconspicuous and have no signs. Most of the warungs offer food and dry goods for the residents in the nearby area. They function much like an American mom and pop neighborhood store. These warungs are small focuses of community life where neighbors meet each other during the day. They play an important role in providing a social meeting place for the community, a place were social ties can be maintained.

The front yard in this community like many other residential areas in Jakarta is the focus of community life. This aspect makes the project very much a part of the larger part of the city of Jakarta rather than an aberation of it. The fact that this community is able to engage in activities that are typical of the city in general helps make the project sucessful both as a community and as a housing project.

Footpath Activities

The footpath has in many ways become an extension of the house as well as a public throughway. People use the path, as seen from the use of the front lots, as a place to socialize and as an area for doing daily chores. People
use the path for drying their laundry, pumping water from community wells, setting up little warungs as well as a place to sit and talk with neighbors. Children use the path as a place to play and the street vendors use the path as a place to sell their goods. The footpath in many ways is the center of neighborhood life in Klender, constantly used and active. The footpath has become an outdoor public room with various uses and zones of definition.

Activity Zones

An area that has developed as a semi-private place on the path, sort of an extension of the yard, is the area directly in front of the gate into the yard. Many people have built low concrete edges to their footbridge that spans the open gutter to connect their unit to the path. These edges appear to be more a place to sit on than as a protection against falling into the gutter. As a place to sit these edges provide an extension of the house to the neighborhood where residents can visit without the necessary formalities of inviting a person into one’s home. In Indonesia when someone is invited into a home it is expected that the owner formally entertain the guest. However many people want to visit briefly without intruding in such a way. This private/public interface allows this
interaction to happen. If the owner is sitting on this front "stoop" and a neighbor comes along the owner will immediately offer out of politeness to invite him into the house. The visitor must determine whether to do so would be an intrusion at that moment because the owner will never refuse someone into the house. If the visitor determines that it would be an intrusion he can refuse saying he really can't but can still remain and talk at this interface without insulting anyone.

Another zone is on the section of path between the unit gates. This area is an undefined zone where neighbors can sit and socialize on a neutral ground without interfering with a personal space. Benches have been built in these areas and can be used by anyone. While both the front gate area and these sitting areas are on a public path one feels that they belong to someone. One has the feeling of being in a semi-public/semi-private area, even when one is on the footpath.

The feeling of being in a semi-private area generated by this path and its enclosure allows social interaction to take place much easier. It also provides an opportunity to extend the use of the small lot into the path as people feel secure with the path as being part of their own
personal community. This feeling also gives one the sense of a tight knit community, one that is quite secure with itself. This undoubtably plays an important role in ones attitude towards ones neighbors and the community, an attitude that has made this community work.

Other Activities

Added to the life of the path is the street vendor. The street vendor is a classic part of city life in Jakarta. Vendors typically travel several kilometers to sell their goods in the project. They belong to a much lower segment of the income structure of Jakarta, yet they too have benefited from the creation of this community. They offer the convinience of a mobile restaurant or a dry goods store at ones front door. Vendors are a constant link with neighbors as when the vendors pass by calling out their wares several neighbors might come out of their homes simultaneously and gather around to eat, drink or buy something. This gives them a chance meeting to stop and socialize.

Different types of vendors visit the project at different times of the day responding to the available market in the neighborhood. In the morning vendors selling kerosene,
vegetables, brooms and brushes and a host of other household necessities pass through the neighborhood. Handymen, who can repair shoes, stoves and anything else, also come through during the day. Most housewives will be at home at this time and since the children and husbands are away the vendors will not interrupt their family life and will have a better chance of selling their goods. Another frequent vendor is the ice cream man. He comes by several times during the day to sell a nice cool refreshment that most children cannot refuse.

During the evening when the whole family is at home a different type of vendor passes through. These are the food vendors. They come by during the evening hours after everyone has eaten and is just getting hungry again. They sell noodles, sate, soup and many other items that are favorites of the residents. The footpath becomes a favorite place to sit and relax with one's neighbors and enjoy a late evening snack.

The path is also used by some of the residents to set up small table warungs. While many people have built warungs into the front of their homes some have not made such a major investment. Some people have setup a simple bench and table in their front yards and along the path that need
be tended to by the owner only when he is there. Placing a little food or drink warung along the path increases the chance of a spontaneous decision to buy something. This type of small footpath warung enables a resident to make some extra income while placing a minimum amount of investment into the venture. It also creates another area of community focus.

The narrowness of the path creates a feeling of personal space but its dimension also limits the type of activities that can take place on it. Because it is so narrow only a few people can gather around the benches and socialize. This might not be such a problem as the residents have found other places to meet as well and meetings along the path tend to be spontaneous and between only a few people not necessitating a larger space.

This narrow dimension also makes it difficult for children to play on in large groups. Small children have found the path to be adequate as their play is in small groups and on a small area, usually around the front gate of the house. Older children and teenagers seldom use the path as a play area as it cannot fit the large size groups that they meet in. These children have moved into the streets on the edge of the neighborhood or onto the vacant lots and community
open space that also border the block. This is probably a blessing as the activities of these children are quite loud and if taken place on the footpath in front of the houses it would create a disturbance to the adults in the community. Since there are many children in the project, like in any Indonesian community, it is important that there is a separation between the activities of children and adults in order to reduce family and social tensions. Several residents expressed their like for the neighborhood because the children were well behaved and didn't create problems. This might be in large part because of this separation of activities between age groups. If this changed the community might not be as cohesive.

Water, as seen in the previous chapter, is a major concern and problem for the residents. Many of the units, even though they have water lines, receive no water at all because the lines don't work. Affording a water pump as an alternative means is quite expensive. Many people have pooled their resources together and have installed community pumps in the footpath for everyone to use. This is one aspect where gotong-royong, or mutual cooperation between neighbors, was at work. These pumps, by the nature of their community use, act as another means of maintaining social contact. Even though water can only be drawn by one
user at a time it still creates a chance to see neighbors as one must pass by their houses to get to the pump. This use of the path like the many others is a major force in creating the character of the community.
The neighborhood block as an identifiable unit plays an important part in the formation of the community. It is an area that is personally identifiable to the individual resident and his neighbors from the larger overall project. It also is an area where smaller community issues and needs can be taken care of on a local and more personal level.

The physical character of the block is much like the other core unit blocks at Klender. Each block's character is in large part formed by the physical base built by the government. The size, layout and organization of units, streets and footpaths as well as the open spaces and surrounding areas were all predetermined by the government (for a more complete description see the chapter on the base provided). While the original spatial and social definition of the neighborhood as a unit hasn't changed the intended uses have. This layout as rigid as it might seem has changed significantly with an overlay of activities and
uses that make it a working community for the residents. The major changes that have taken place at this level have occurred in the internal block, or the main area of residences, the central neighborhood community space, and the edges of the block, including adjacent neighborhoods, the central community spine and the main ring road.

EDGES

Spatial Definition

The edges around the neighborhood define the block as a separate area from other the blocks. The surrounding edges of streets and open space are fairly open contrasting the closed narrow feeling of the interior of the block with its footpaths and small front lots. This difference in character helps give the block spatial definition. The character difference becomes apparent when traveling into the neighborhood. A progression of spaces adds to the feeling of entering a defined space. To enter any neighborhood block one must travel on the main ring road that runs through the entire project. This road at the present moment is quite open as the adjoining lots that are meant for open market sale have remained unsold and undeveloped. From this open main road one must enter a
secondary road which separates one neighborhood from another. This road is much narrower than the main road and it has core units built along it. Entering this road one has a feeling of entering into the neighborhoods. From this road one can enter any of the connecting footpaths or the block on a smaller road which terminates in a parking area at the block's central open space. Upon entering the neighborhood block on the footpaths the character of the place changes dramatically. One has a closed in feeling as if one were entering a personal space. This progression of space is a main element in separating one block from another and creates a sense of place for each block.

Secondary Road Edge

The secondary road edge is lined with 140 sq.m. corner lots and 140 sq.m. or larger duplex core units marketed for the upper lower income group. These edges have developed much like the lots in the interior of the block. Some units have been completely finished while others have remained unexpanded or only slightly expanded. Many of these units have large gates in their front wall so an automobile can be parked in the yard. Residents who have cars tend to park them in their yards rather than on the street. This is to protect them from vandals and thieves.
as well as the natural elements. Car canopies have been constructed in some lots for this purpose.

Houses on the secondary road are part of separate blocks even though they face onto a common road. These houses actually relate more to the road than the block which they are part of, creating a separate zone. The street acts as a spatial divider between blocks but the adjacent edges overlap creating a continuity to the residential area.

Ring Road and Central Spine

The edges along main ring road and the central spine have not developed as planned. These spaces have developed in a way that is directly reflective of the people's social life.

The vacant open market lots that line the ring road have created a vast open space with a slightly discontinuous appearance. Since these lots are still open the back of the core units are exposed to the road. These walls were intended to be masked by houses built in these frontal lots but they remain in full view. The walls have not been developed in any way, not even painted. It is difficult to tell whose back wall belongs to whom, thus not making it an
important elevation as the other elevations of the house are. This undeveloped elevation is the only remaining original part of the project that hasn't changed. As an elevation it creates a vast long row of monotonous structures, which makes the project look unfinished.

The vacant open market lots have not remained unused however. They have become a major area for social gathering, more than the planned central open space spine that lies on the opposite side of the neighborhood block. These open lots have become convenient places to socialize and are used as extra yard space.

Some of these lots have been taken over by residents who live directly adjacent to them. They serve as extra outdoor yard space for vegetable gardens, laundry and to even as parking areas. Many people have built doors at the back of their units to have direct access to this space. The heavy use of these spaces further points to the inadequate outdoor space that is provided to each unit. While it is true that some of these people might be simply taking advantage of this extra space, the intensity and type of use suggest that there are problems in the amount of allocated space for each unit.
Children have also claimed large portions of this territory for their games. Soccer, volleyball, badminton, as well as kite flying dominate the vacant lots after school hours and on Sunday. Children prefer to use these lots even though there is adequate space provided for these activities on the central spine open space. One reason might be because the open lots provide a containable area that has physical boundaries that can be controlled by individuals or groups where the vast unbounded central spine makes this difficult to happen.

Another probable reason why the vacant lots are preferred over the planned open spaces both by adults as well as children is the fact that these lots face the main road, making these spaces highly visible as they are in the location of the main entry into the neighborhoods. Many games as well as other social interactions take place on a spontaneous basis. Social interaction is more than likely to take place where people have the chance of meeting one another. The vacant lots have provided an ideal place to meet and play because of this factor. Most husbands and students work and go to school outside the project. Since the main road is the main means of entering the neighborhoods people have the greatest chance of meeting one another. The central spine along these neighborhoods
on the other hand is not served by any means of transportation and is not a means of entry. There is less opportunity of chance meetings in this space.

The small warungs that have sprung up along the road and concentrated at the road entries into the project provide a place for people to meet. A concentration of small warungs has developed on the vacant lots at the intersection of where the project's secondary entry road meets the main ring road of the project. These little shops offer a variety of foods and drinks for returning workers and students at the end of the day. The warungs along the road are different than the ones in the residences in that they serve mainly as food and drink vendors rather than selling products. They are typically small little stands made of wood that have a front panel that serves as a roof covering when used and as a locked front panel when not. Warungs tend to be semi-permanent and portable.

These places are a favorite place to sit and chat and meet people. They also provide a place to unwind. Here one can find people of all age groups sitting around relaxing over a cigarette and some food served by the warung.

All of these warungs are there illegally and most are
operated by people who do not officially live in the project. They were not anticipated or planned for. The warungs, street vendors and the street life that is associated with them are an integral part of the life in Jakarta and have managed to establish themselves upon a base that wasn't planned to accommodate them. These activities are evidence of a growing and functioning community. They might be an "eyesore" to some planners but they are the life of the community. With them they bring to the project the chaos and scattered life of a bustling community not the nice neat orderly community with everything in its place fitting in to an outsiders version of what a residential area should be.

The vacant lots have also served as garbage dumps. Dumps are a major problem in the project, mainly it appears resulting from mismanagement and costs of removal. There is an government maintainence program responsible for removing wastes but it hasn't always worked successfully. Often the neighborhood's garbage gets dumped in the most convenient place usually in the vacant lots.
CENTRAL SPACE

Each neighborhood has a central common space allocated for three commercial lots, a mushola (a small mosque) and parking area. Several shops have been built in this open space as planned as well as the mushola.

The original organization of the project intended that this central space serve the intermediate needs of the community while the main market serve the larger ones. This organization has not entirely worked out this way. People buy their "occasional need" products mainly from their neighbors who have set up warungs in their homes, rather than a larger central store. If they need something more or need to do some major shopping they go to the central market in the project or at Pasar Klender. This pattern of buying has probably hurt the profitability of any shop competing with the house warungs.

The mushola is the focal point of this central space as it is larger in size and has more lot area than the commercial area and as it is used as a place for religious and social gathering by the neighborhood.

The location of the mushola in the center of the
neighborhood appears to work well. The mushola is used as a small convenient place to pray for a small group of people. Providing a space for this activity is needed in order for the project to work well. Most of the residents are moslems and their faith requires them to pray five times a day preferably in a group. Using a local mushola to pray in is traditional in Islam as it offers a convenient place for people to pray in a group without going to the larger masjid. The local mushola also provides a place for people to meet and relax and serves as an important place of social gathering particularly among neighbors. Praying in groups is one way that neighbors maintain their social bonds with one another.

Each neighborhood must build their own mushola with their own resources. Because a mushola belongs to the neighborhood and is primarily intended to serve its residents, a location in the center of the block works best as it provides equal access to for the residents and gives the sense of belonging to the neighborhood.

The parking area that has been allocated to this neighborhood is used by very few cars. Few if any of the residents who live in Klender own automobiles. Those who do usually have larger incomes and can afford the higher
priced lots that abut the streets on the edges of the block. These residents are able to park their cars in their own lots as the lots are larger and there is a deeper setback from the property line. Although some people might acquire a car in the future it seems that the central parking space will remain unused. Few outside people frequent the shops in the central block space so parking for this activity is not needed as it is not needed for the mushola since its users are from the neighborhood.

INTERNAL BLOCK

The varying development of the units creates an image of a changing and growing community. The following diagrams illustrate how the previous patterns of development and activities have formed the character of the block. The pattern of lot enclosures frame the individual houses and footpaths and create a definite and consistent edge throughout the block. Lot and path activities, along with the activities along the edges of the block, create an atmosphere of life and vitality.
LOT ENCLOSURE

••••• WOOD
••• STONE
••••• METAL FENCE
••• BAMBOO
•• HEDGE
•• PLANTS
■■■ UNFINISHED CEMENT BLOCK
■■■■■ BRICK
■■ FINISHED MASONRY
HOUSE DENSITY

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### ACTIVITIES

- **Covered Terrace**
- **Chairs**
- **Cot**
- **Vegetable Garden**
- **Comb. Veg/Ornam. Garden**
- **Ornamental Garden**
- **Street Warung/Becaks**
- **Dry Goods Warung**
- **Food/Drink Warung**
- **Poultry Cages**
- **Bird Cages**
- **Laundry Lines**
- **Laundry Wash**
- **Water Storage**
- **Water Hand Pump**
- **Yard Light**
The Klender project has gained its own identity within the city. People know it as PERUMNAS Klender. This is probably because of the novelty of the project, being the first project of its kind and because of its physical form and location. The project is an enclave surrounded by rice fields on the city outskirts making it relatively isolated from the rest of the city.

This separate identity was intended as the project was organized to be its own semi-independent community. It was planned with its own central market, schools and other community facilities. The large population and immense area enabled the project to be designed this way. Klender in a way is a predetermined community as its size and basic organization was predetermined by the government but in several ways it has deviated from the intended organization and developed a character of its own.
The location and general organization of the major areas of the project remain as planned. These areas are the neighborhood blocks, the central service spine, and the central market. The project is perceived as various zones within these areas and as a combination of them. The ring road and central spine have divided the neighborhood blocks in various segments separated from one another as well as having a distinct character of their own. The surrounding edges of the project have also developed their own character.

Neighborhood Blocks

The core house neighborhoods, which are the body of the project, have a rather nondescript character seen from the ring road. The edge conditions of all these blocks have open market lots facing the road. The first view of these blocks is the exposed blank back walls of the core units which abut the lots. Coupled with the uneven development of these lots as some are being developed creates a discontinuous appearance. The discontinuity of this area makes it very difficult to distinguish one neighborhood from another. The only guide into the blocks are the street signs and these are small and difficult to read from the road. In this environment it is quite easy to become
disoriented, particularly for a stranger.

The only landmarks along the road are the little clusters of warungs. Disorientation is probably not a problem for residents, but for a visitor coming by car could be frustrating. Secondary roads leading into the neighborhoods have dead ends. A wrong turn means going back to the main road and starting over. One can drive a long time before one finds his destination.

This lack of identity of individual neighborhood blocks doesn't reinforce the feeling of a belonging to a certain segment within the larger project. It is only until one is within the block does one get a sense of the community.

Ring Road

The ring road as seen in the previous chapter has developed a character quite different than intended. The vacant lots have been taken over by residents and warung owners. The activities on the vacant lots run throughout the project concentrating at major intersections. These activities directly relate to the life patterns of the people and the city.
Central Spine

The central service spine in concept and on paper is a clean logical solution to providing community services. The spine, however, instead of becoming a link for the community has become a barrier between neighborhoods. This is in part due to the concept of centrally locating activities that actually should be dispersed and localized. Community areas in the city are mostly interdispersed within the neighborhoods, many times on easily accessible land. Extracting activities such as playing fields and placing them together in an area that is out of easy reach goes against the pattern of daily life of the people and has little chance of being successful. This area instead of becoming a central gathering point is not fully utilized, making it more of a barrier between neighborhoods than a link.

Roads do not cross the spine, except at the central market, making it difficult to move from one area of the project to another. The spine ends up dividing the project into isolated segments. The vastness of the open areas also make it difficult and inconvenient to cross on foot. For a visitor these separations make finding an area extremely difficult. If one has wishes to go from one side of the
central spine to the other, one must go back onto the ring road and travel all the way around the project and back to get there. This separation of large areas of the project coupled with the disorientation of the ring road make traveling and locating a place extremely difficult.

Crossing the spine on foot is uncomfortable as the space is vast and open with little vegetation providing no protection from the sun. This might make social contacts between these areas less likely to occur than if blocks were closer together. It is questionable whether dividing the project up into smaller segments serves any purpose as one doesn't perceive these areas as an individual unit like the neighborhood block.

While the central spine does not exactly form a total physical barrier between neighborhoods it does create a disjointed character with rigid boundaries and with space vastly out of scale with the rest of the community.

Central Market Area

The central market area in the project identified by the project's looming water tower has become an area booming with activity. This area contains the bus terminal adding
to the concentration of activity. The pasar has developed into an area that looks much like any other central market in Jakarta. A vast amount of produce and goods can be purchased from vendors inside the market structure or outside. So successful is this market place that its activity has spilled over into the streets adjoining the adjacent residential area. Stalls and becacks are jammed along these roads making it difficult to pass by. Small warungs have also been established in front of the residences along the roads leading into the market area concentrating at the road intersections.

The activity in this area almost seems out of control. The only major problems it poses are for the people traveling by car through this area and for the fire trucks which are also located in this area as well as for the people who live directly adjacent to the market area.

Surrounding Edges

The surrounding edges of the project, which are mostly open fields, have been used by residents for planting vegetable gardens and as a garbage dump. From the number of vegetable gardens it appears that many people would like to have one. It appears that each garden is individually
owned rather than a community run garden. These gardens are grown directly adjacent to the units.

The open fields surrounding the project leave the community unprotected. An uncontrolled edge makes it quite easy for thieves to enter neighborhoods that align it undetected. In an attempt to make the neighborhood more secure the community has established night watch stations along the edge. Neighbors also operate night watches, similar to those in the city kampungs, where residents take shifts in patrolling the community. This is another area where neighborhood organization is very important in maintaining a safe and functioning community.

Activity Patterns

Street vendors and warungs are a major component in the structure of the community of Klender. The act of buying and selling goods is a pattern that is part of the society. This activity is structured to serve the immobile and poor in the following way.

1. Street Vendors. Vendors who sell door to door provide an invaluable service to those who are immobile such as the elderly, the sick, pregnant mothers and others who cannot
afford to travel far to shop. They also provide a convenient source of goods and services to the community in general.

2. House Warungs. These little shops provide day to day necessities for the neighborhood. Like the street vendors they fill a need for a local source of goods and services as the community in general is without transportation.

3. Street Warungs. These warungs cater to specific activities and needs of the residents. Most are coffee shops and cigarette stands located at major intersections where people are most likely to congregate.

4. Small Commercial Areas. These are concentrations of little shops along the main road that serve the larger community located in areas distant from the central market. They offer a wide variety of goods and services but not at the same level as the market. Similar to the street warung they are located in areas that can attract a large market.

5. Central Market. This area serves the larger community by providing specialized services and general items.
The site plan accommodated for only a part of this system. While a central market and areas for small commercial establishments on the main road were provided for, smaller scale activities were not. House warungs were not originally allowed in residences and street warungs occupy land intended for residential development. The neighborhood central space for commercial use doesn't fit into the total pattern of purchasing goods, being duplicated by the house warung. And the central market area is overcrowded with small warungs that occupy the street around it. All these activities were not anticipated. However, because of the flexibility of the plan, these activities were still able to establish themselves.

Summary

The Klender project in many ways has developed into a microcosm of Jakarta. The residents have adjusted the neatly organized site plan into something other than what the planners had originally envisioned. This alteration has made the plan function for the people. The original plan had never anticipated these changes and if they did it hadn't worked out as planned. Inadvertently there was enough flexibility in the plan so things could change.
The success of Klender has been on the level of the house and street much more than on the larger level. The micro scale of home and street has developed into a cohesive pattern that functions well. The macro scale of the community at large has fallen short of developing into a strong visual and cohesive unit. This is in large part because the plan hadn't accommodated the life pattern of the residents on the larger scale.
The following case studies examine how five individual families have built and use their homes at Klender. These cases give insight into the residents' point of view of the project and the community and the reasons why they came to Klender to live.
UNIT 1

Not all the people in Klender have been able to materialize their dreams into complete reality. Still after four years of occupation there are units that have not been expanded. Even though everyone is within roughly the same economic group not all have been able to put priority upon their personal environment.

One such family, a retired merchant marine and his wife and three children, live in a slightly expanded core house. All their money has been invested towards their children's education and very little into their house. Even though the costs of public education for their teenagers is quite low, it is still enough for them to forestall construction on their home. They have very few older relatives that can help them out financially like many of the younger couples in the project and their children are too young to work and help them out.

Even though the house is not completed, care has been given to the little things that are possible in the present circumstances. Like many other residents one of the first things added to the property was a concrete wall built at the front of the lot to define the house and to create an
personal image to the house. This wall was built one year after the family moved in. One year later the small addition was added. Both were built by the father of the family. These small additions were very hard on their budget but they wanted a nice appearing house and lot. The side walls of the neighbor's units were built solely by the neighbors as they didn't have any money to contribute. Usually the costs of these common walls are shared, but in many cases such as this one, neighbors will pay for the whole or a larger share of the costs if they can.

The family has set up a small bakso (a type of soup) warung at the front of their lot to make some extra income in addition to the small pension that the father receives. This extra source of income provides the family with enough bus and lunch money for their children to go to school. The schools in the project were planned to serve only 60 percent of the projected need for the community, so many of the children must go to schools outside the project, which adds up to an extra expense in transportation and food.

The yard has been carefully landscaped with hedges, vines, potted plants and fruit trees. A concrete footpath cuts across the lot to the front sitting room which is the only expansion aside from the side wall which was built by their
neighbors. This room, which in many of the unexpanded houses lies semi-outdoors, is jammed with neatly arranged furniture. The core unit serves as both a dining and sleeping area for all five of the family members. A small table for studying has also been squeezed into this room. Dressers and curtains separate the two bunk beds from each other and the rest of the room. The kitchen lies in one corner carefully organized with everything in its place. The house is run and organized like a tight little ship.

Water when it runs on the installed lines comes only around 5 o'clock for about one hour requiring quick action to fill the storage tanks that sit in the front yard. Water is rationed to the project from a center tower but most residents find the amount to be too little and for too short a period of time requiring them to install their own pumps. Many families have combined their resources and have built community shared water pumps. However the neighbors of this family have enough income individually to have been able to install their own pumps leaving them with no one to share the costs of a community pump. Fortunately their neighbors let them have access to their pumps whenever they need it.

Despite the fact that their present living conditions are
quite tight to say the least they are very happy to have the small house that they now have. Before moving to Klender they moved around constantly between relative's homes serving as house sitters when they were away or managing to share a small space when they were not. They had always dreamed of owning their own house a dream shared by most people from Jakarta but realized by few.

Now that the first portion of their dream has been fulfilled they haven't forgotten the rest. Once their children move out of the house they plan to devote their resources to finishing their home. They are planning to build plan no.1 with a front porch as it has only two bedrooms which will meet their future needs with the children away. Their ideas about what their house will be like abound and the way they describe them is as if they existed already. Perhaps they do exist in their minds as they watch their neighbors build and expand only waiting to be able to do the same.
UNIT 2

Several homes in the neighborhood were being constructed at the time of this study. This house was almost completed when visited, with only the floor, window glazing, and room finishes remaining to be finished.

The family who lives in this house moved in like most of the other residents four years earlier at the opening of the project. The parents with their three children, now four, lived in the core unit for two years until they expanded to the present condition. After three months in the project they added a kitchen to the core unit and relocated one of the two front entrances to the front of the house to allow some air into the unit as well as constructing a wall on the footpath. After two years of saving and borrowing money from relatives they accumulated enough money to build the structure of the final house. They are still saving money for the third phase of their plans, which is of course to finish the entire house.

Some of the construction work was done by the father of the family but the major work was done by hired workers. Material was purchased by the family and hired help from outside the project was used to build the house. Their
home is on higher ground than the path so they were able to lower the floor to achieve a greater volume to their unit, since raising the roof is not allowed. It cost them about Rp 15,000 (about half a months pay) just to haul the earth away from the house. The 25 cm depth of earth was dug up by the father in his spare time. The cost of the two common side walls of unit were shared with their neighbors. The total cost of the house when finished will have cost the family about Rp. 1,500,000, not including the purchase of the lot and core house.

Before moving to Klender the family had rented a house in Jakarta. They were not able to afford a house of their own until the government offered a subsidized unit.

Unit variation no.1 was chosen by the family because it was roomier than the other plans. They didn't like plans with corridors as they felt they take up too much space, making the sitting room very small. This type also had a bedroom at the front which they did not like. No.1 was a better plan for them because it separated the bedrooms from the living areas at the front of the unit. Like all their neighbors they prefered to be able to build their unit from the back towards the front, which allows some flexiblity in what they can do with the floor plan and enables them to design their own fronts to their homes.
Their home at the moment still has signs that it is under construction. The windows are boarded up and there are piles of wood and sacks of cement stored in the living room. Some furniture is placed in this area but most of the family's valuable furniture and belongings are in the room at the back (the original core). Two of the children sleep in the front of the house while the other two sleep with the parents at the back. The kitchen area is very tight, taking up the area that was supposed to be a courtyard. Even though the house is not completely finished the family feels that they could use more space. They would like to add another floor to their home when and if they could afford it, but they feel that financially that it will not be possible.

The front of the house despite the interior condition is well finished. On one corner there is a small space for drying clothes. A bench and chair face a small garden with a fish pool. A hand pump also occupies this area. A marine corp emblem, a symbol of the father's occupation, is on the side partition wall under the overhead covering further personalizing the front of the house. The small area that is semi-enclosed with an archway will serve as an outdoor sitting area when the house is complete.
The layout of the house when it is finished is planned to be rather open yet have separate spaces. The main living area at the front will remain open but a cabinet will serve as a room divider to create a separate space for a formal sitting area at the front and a space behind the divider for the children to play and to serve as a sleeping area. The area adjacent to this space will serve as the family dining area.

While this family never mentioned any hardship of living in a house under slow construction it did seem that the family was cramped for space. Living day in and day out with construction material all over the house is frustrating especially for the emaculately clean. Many people decided that it was better to build all at once if they could and finish their home so they could live in it immediately. Having this flexibility in choosing how and when to build according to one's resources allows a family to acquire and live in a home at a pace that they can afford. While most people didn't build as slowly as this family the plan allowed for it to happen.
UNIT 3

The owners of this house built their home incrementally but within a short period of time. The family of six, now seven, lived in the core house for a period of two years while they saved enough money to build their home. The first thing that was built was the front enclosure wall followed three months later by a sitting room, now the master bedroom. One month later the entire house was finished. The family is still saving money to put glass in the windows on the side entry. The house was built by a contractor from the neighborhood who builds houses on the side.

The mother of the family choose variation no.12 but changed it to make the rooms larger for the children. She added more windows to the plan to make the house brighter. The main reason she choose this plan type was because it has a separate access way to the kitchen, by-passing the main living area. Like most residents she finds the floor space too small for her family and would like to have a second story when they have enough money and when it is allowed. She liked being able to design the front of the house as it could be what she wanted rather than being stuck with a front that she could not change.
The entire house was lowered 30 cm to make the house larger in volume to enable better ventilation than the original height. This was possible because the house is on a higher elevation than the footpath. They felt lucky that they could lower their floor to make the house larger as many people couldn't because their lots were level with the path and would flood if they were lowered.

Water is a constant problem for them and the community in general. The waterlines that were installed by the government either provide water occasionally when there is enough pressure or not at all. They like many others have had to put in their own wells. They have installed an electric pump which is more expensive than the more common hand pump but the family decided that the convenience of an electric pump outweighed its extra costs.

The floor plan of this unit like the others places the formal living area at the front of the house, visually separated from the other family activities. Even though the sitting area of this space is tight because of the space lost to the second entry the extra window area will make the space seem larger. The courtyard area has been divided up into a wash area and a dining space. The kitchen is placed in the back area combined with the
children's bedroom. A small ladder goes to the roof from the wash area where the laundry is placed in the sun to dry. Three children sleep in the back room and two sleep with the parents in the front room. This arrangement works out somewhat because of the ages of the children. Once the children become older the layout of the house will pose some problems and will probably have to be altered, as there is presently no individual privacy for children or parents.

Lack of space is a problem that the family has managed to live with. Many of these homes work out in the short term for space requirements because the children are small and spaces can be shared. When they grow older lack of space will become an increasing problem.
UNIT 4

The owner of this house is a retired cook and general helper for the state radio station. He lives with his three children and grandchild. The family had formerly lived in a kampung in Jakarta but their neighbors had bought all the surrounding property and had locked them in forcing them to sell their property and look for a new home. The father of the family likes Klender much better than the kampung they lived in because he feels it is a much safer place to live and the neighbors tend to mind their own business and do not disturb them. He also likes Klender because it is a very orderly community with everything in its place, neatly laid out and supplied with utilities.

During the first year they finished the core house with a cement coat and painted it to make it look presentable. The front enclosure wall was constructed several months later. About one year later they had enough money saved up and they built the entire house at once. They bought the material themselves and hired two skilled workers and one unskilled worker to build the house. One of the workers was a neighbor who does construction in the community as a side job. It took about 20 days and about Rp.1,300,000 to complete the house.
The family choose unit type 8 for their plan as they thought it was roomier than the other plans. The father liked the fact of having a core unit to live in because they didn't have enough money in the beginning to be able to build the whole house.

The father said that many people from the other site and service projects wish that they could move to Klender because it is much closer to the city and because the houses are more personal than the fixed fronts the government has provided. The new plan (similar to the sub-core plan) places the core house at the front of the lot not making it possible to design one's own front. The toilet is also located to the front of the house. It was beyond the imagination of the father of how someone would even consider placing a bathroom at the front of the house. The front of the home is the most important place in the house, according to him, it is where guests are entertained and it is very important to have a nice front. A toilet at the front is an affront to visitors. In fact many people have begun to move their bathrooms, or kamar mandi, to the back of their units because of this very reason, he said, making it an extra cost to the owner.
Lack of water is the major problem for this family. Like many units in the project their water lines do not function. They and four other families pooled their money and installed a hand pump and placed it in the path so everyone could use it. The second concern they have is the limited floor area of their house. They wish they had more space because the plan is very tight. They would like to be able to build a second story so each member of the family could have their own bedroom as the present arrangement doesn't allow that to happen.

This family has closely adhered to the plan making only minor changes. There are several conflicts of use in this plan. There are not enough bedrooms for everyone causing the dining and living rooms to double as sleeping areas. The kitchen has been located at the back room similarly as in the alternative plan. Rather than use this space as another bedroom and place the kitchen in the courtyard, like many other houses, it is used instead for cooking and storage. The courtyard is used for the sole purpose of doing laundry. The kitchen, which is the most unsightly area of the house was removed from the rest of the house as far as possible. The courtyard space can be seen from the living room in the design of this unit which might explain why the kitchen is not located there. Order and appearance
are major concerns for the father and it can be seen by the organization of the furniture and use of the spaces. This sense of order appears to override a more functional plan and is evidenced in where money has been invested in the home. The front of the house including the elevation, garden and the front sitting room are all well finished. Those areas where visitors would not normally see such as the bedroom at the back and the kitchen and wash area are not finished. The wash area even though it is not finished is carefully organized as it can be seen from the living area. Like many residents at Klender concern for image takes priority in the investment and functioning of the house.
UNIT 5

One of the requirements PERUMNAS makes upon its residents is that they must occupy their core units immediately upon agreement to purchase the lot and core house. This is not always practical especially if one has a large family and desires to expand right away. Some people have found that to occupy the core unit while it is under construction is very difficult because of the condition the house is in.

This family choose to move in as soon as they had finished construction with the whole house which took two months to complete. Since their family is very large, a total of 8 people, they decided that it wasn't practical for them to live in the core house while the house was being built. While this in principal is a violation of the rules, PERUMNAS has let these situations go.

The original concept of requiring residents to live in the units to discourage people from using the lots as rental income is sound in principal. However in many cases such as this one it isn't practical to move in immediately if one is going to first build the house. Fortunately for the residents the local project office has taken each case individually and has made exceptions.
This family had lived with their parents in Jakarta as they didn't have enough money to purchase a home for themselves. The husband of the family was one of two of the two hundred who had applied from his office for housing at Klender.

Once the family got into the project they borrowed from their parents to build the house immediately. The subsidized core house and lot as well as the government loan lowered the cost of the house enough for them to be able to afford to build their home. They bought all the materials themselves and hired workers from outside the project to build the house. The husband supervised the construction afterwork to make sure the house was being built correctly.

The plan they choose was alternative no.1 with alterations made to suit their specific needs. They choose this plan because they could use every space while the other plans weren't as efficient. Like all the other residents interviewed, they liked the fact that they could choose the design of the house and change it if necessary and to be able to design the front of their house.

They also find the space of their completed home inadequate for their daily life and would very much like to build a
second story to their home. The house plan like all the plans in the project is extremely tight. There is a common sitting area, carefully separated from the rest of the house, having direct access to the front. The family dining area is combined with a bunk bed and the planned courtyard space has been used instead as a kitchen and wash area. A separate hallway to the bedrooms by-passing the kitchen area was constructed in the core section of the house. Most houses use the converted courtyard space as a means of getting to the bedrooms but this alteration gives the bedrooms some more privacy even though it sacrifices floor area.

Everyone manages to sleep somewhere in this small house. Two children sleep in the bottom bunk and one in the top in one of the backrooms while the parents sleep in the other. The three others sleep out in the front room, two in the bunk bed and one on the floor. Clearly this space doesn't work very well for such a large family. The maximum size family to be allowed in the project was set at five. However that figure was abandoned somewhere down the line because many families are much larger. Even if the nuclear family is small, the family will often be much larger because relatives will come and live with them. Since the living conditions in the city are far from ideal, many
families will extend their good fortunes with their relatives providing them with a better place to live. Many families are very large and their houses in the kampungs are not large enough for everyone to live in so often some of the children will go and live with their relatives, such as in the case of this family where two nephews have come to live with the family. This sharing of one's home with relatives often makes the family larger than on paper. Even though the space might seem cramped the living conditions in the kampungs makes Klender relatively a much better place to live in.

The space in the front of the house that is now used as warung was not originally planned for that use. When the house was built four years earlier their children were much younger and this space was used as a play room. Once the children started to play away from the house the family decided that the area could be used for a small warung to provide them with some extra income. The front lot which is now tiled and covered with a canopy was once a garden. Since the family has moved to Klender they have become involved in many community affairs which has required them to convert their garden into a reception area for those occasions. The front yard now doubles as an area for neighborhood events such as circumsions, weddings, and occasionally for the neighborhood rotational lottery.
The neighborhood rotational lottery is one of the ways neighbors help each other out. Everyone in the neighborhood puts in a few rupiah every month and a rotational winner is drawn by the local RT (community leader). The amount placed in the pool is small but the amount received makes a significant difference in spending power as it is difficult to save on a small income. It would take several years for an individual to accumulate the same amount of money. Bank loans are not commonly used as they are very difficult to get and one has to pay interest on them. With a pooled resource every resident can borrow from all his neighbors without having to go to a bank.

The lottery is only one way the community works together. A special community fund has been set up by the residents and held by the RT to help out those people in the neighborhood who are in need of emergency funds. The local Rt, who is elected by the residents serves about 40 homes in the block and holds a term for two years. The RT in this area has arranged to take care of garbage removal and ditch repair, which is the jurisdiction of PERUMNAS, but has failed to carry out. A monthly collection by the RT of about Rp 800 from each resident covers the extra expense of taking care of these essentials. Community organization is
very strong, taking care of the residents and their physical environment.

The community spirit and the cooperation among residents is one of the things that this family likes most about Klender. If there is a problem, according to the mother of the family, neighbors will work it out among themselves until everyone is satisfied. One aspect of the community that she likes very much is that most of the people have a similar daily routine and life style which makes a homogenous community. Most all of the household heads are government employees, working the same hours and coming home at the same time. Their children have a similar schedule with their school. This creates a pleasant community in her eyes, as it offers quite times in the day and times when there is family life. In the kampung where people have different types of occupations, people come and go at different times of the day, creating constant noise and irritation. Neighbors seldom cross each others path and never really become close as they have here, according to her. The sense of an orderly and friendly community is very important to her. This feeling has been expressed on numerous occasions by various residents. It is a major part of the community.
part four: conclusion/recommendations
CONCLUSIONS

Studying the changes that have taken place in the physical environment of Klender has pointed to a series of important issues and factors that have in large part contributed to the formation of this community. Each one of these factors is an integral part of the whole and have important implications relating to the design and policy of the project. The following is a summarization of these factors followed by a discussion of what these mean in relation to policy and how the government might utilize them.

1. The exterior of the home is an important part of status and image for the resident and is a means of self expression. Status and image are catalysts to the formation of the community and helps form the character of it.

2. The building process is a combination of both available income and status. People build in those areas that have
maximum public exposure and tend to build their homes all at once rather than incrementally over a long period of time.

3. The physical image portrayed by the exterior of the house is not necessarily representative of the income of the resident. People often borrow money from relatives in order to build their home.

4. The house is often used as a means of acquiring a second income responding to the larger context of the family and social life of the community.

5. A strong sense of community exists in the project which bonds people together and helps them resolve problems. This feeling commits people to their neighbors' needs and also helps generate enthusiasm to build one's own house.

6. There exists a self-regulated code of conformity and individualism within the community that has in large part formed the character of the neighborhood.

7. The public path is an important area for social interaction and has become an extension of the house. The path acts as a physical and social connector for the community.
8. Public activities tend to concentrate in areas of high exposure, where people cross paths rather than in areas that were planned for those activities, but are not highly visible.

9. People tend to maintain their life patterns in a new setting and adjust the environment to fit those patterns. The pattern of city life has infiltrated into the project and the plan of the project has been altered in its intended uses to adjust for these activities.

Recommendations:

1. The ability to choose the design of the house and its exterior ranked high in the priority of what the residents liked most about their homes. Everyone that was interviewed wanted to expand their unit towards the front of the lot rather than have the core at the front and expand towards the back, which the new prototype uses. All the residents in the subcore area in the project which uses this type of design also preferred to have the core at the back so they could design their own fronts.

Self image or the image portrayed to the community is an integral part of the society and having the freedom to
express oneself through one's home is very important. The core houses offered an opportunity for the residents to create their dream to build their own home. The residents had lived in the kampungs of Jakarta where the opportunity to own a home, especially in a safe and clean environment, is quite difficult. Having come from this context to a clean slate, as if it were, these people have an intense enthusiasm to make a place that is their own and one that is much better than the place they have come from. The ability to determine one's own plan and exterior elevation allows a fulfillment of those dreams and sparks an energy that creates an environment where everyone is a participant and involved. A unit in the back of the lot gives the resident this opportunity. Perhaps it is not necessary for all people to design their own units but for the people of Klender it is an essential part of the formation and the spirit of the community.

The government's role as an organizer of the base and setting general regulations for the building of the community as well as making suggestions for the design of the houses has worked successfully because it was flexible enough to let the people work within it to create their own environment. The base acted only as a temporary shelter and general framework within which to work. It allowed
enough flexibility for the community to develop on its own. However once the government goes beyond a role as organizer and begins to fix the final image of the community, eliminating any input by the residents, it severely limits the richness and diversity of the environment and in the end could reduce the enthusiasm behind the community. Any less involvement by the government would also have an adverse effect upon the final outcome as the residents could not provide the infrastructure of roads and utilities on the level that the government could. The original concept of lot and site organization works well and should be used again as a basis for future projects.

2. Status or image is an integral part of the building process. Investments in the home appear to be in the order of what can be seen by the public. This priority has followed a general pattern outlined below:

Major investments:
1. The outer wall enclosure.
2. The front yard.
3. The front elevation.
4. The front sitting room.
5. Material possessions, displayed in the sitting room.
6. Bedrooms at the front.
Minor or no investments:
1. Bedrooms at the rear.
2. The kitchen or cooking area.
3. The bathroom (kamar mandi).

From this order one can see that the front of the unit is very important to the resident which further reinforces the argument for the resident to determine the final outcome of the exterior.

Little investment has been placed at the back of the house where the original core unit was built suggesting that the placement of the core in this area was appropriate. Since the core cannot be changed, placing it in an area that has little impact on the image of the unit enabled the resident to invest more effectively in the building of the home.

Assistance could be given to those residents who have not been able to expand in areas where they would benefit most. Assistance in building an exterior wall would help define the home as well as define the path. Assistance in constructing the front elevation would also aid those who have not been able to expand. The most effective way to aid these residents would be through a subsidy of cement which is the most popular building material.
Residents have typically built their homes at one time rather than incrementally over a long period of time. Some have built their homes entirely after a period of two years. This was partially because they didn't have enough money to expand, but it may have also been due to the two year probational period. To invest before the probational period was over could have risked any investment placed in the house if one was evicted. The probational period does serve a useful purpose in enabling the government to monitor a resident's financial stability and remove people who violate the general rules. Reducing the probational period instead of abandoning it might encourage these residents to build sooner while still maintaining some control in the initial period of occupancy.

3. The fact that most of the houses have a single elevation enables the resident to focus investments into it, making the house appear much more well established than it really is. This is evident by the undeveloped conditions of the interiors. People borrow heavily from their relatives which enables them to build much faster and sooner than if they had to depend on their personal income alone, which also gives the appearance that the residents are wealthier than they actually are.
Even though the affluent appearance of the inner units suggests that the residents could afford much more, they really cannot. The small lot and single elevation enables the resident to obtain an image of success much earlier and with less money than if they had a larger lot or more than one elevation. More than one elevation would put the house beyond the means of the people as can be seen by the undeveloped condition of some of the corner units that have two elevations.

Providing larger or more expensive units on the basis of physical appearance could result in an undeveloped project. Thus it is very important in establishing a base framework which is possible for the people to build on based solely on the residents' financial abilities. The government knew this and they were close in their estimate of what income groups could afford.

There appears to be a distinction between what a group can afford and what a group desires. In spite of the limited space that is afforded to the residents it appears that due to their limited resources and their pattern of investment the inner lot core house meets the ability of the residents to build a finished home. If the monthly loan repayments were more than the resident's previous expenditures for
housing they probably would not be able to afford to live at Klender. As it is many residents must obtain additional assistance from their relatives in order to build and pay back the loan. People with less income would not be able to afford these already heavily subsidized units. People with more income, those targeted for the corner lots who cannot afford the more expensive low cost housing which is directed at the middle income groups, find the core units too small and unattractive. Only careful analysis can provide an accurate picture of the range of income that can afford the units and how large the units should be.

In the case of the corner units, a larger buildable floor area might well have solved the marketing problem of these units to the higher income group rather than totally abandoning the idea of a corner house which plays an important role in establishing a continuous environment at intersections.

4. One consistent problem that runs throughout the project is the misunderstanding of how peoples' lives really function. For many people, especially the low income groups, a second job is essential for the family to make ends meet. The home is the most convenient and practical location for acquiring a second means of income. Typical
jobs that are run out of homes are sewing, tailoring, catering, and running food or drygoods warungs. The residents of Klender are no different, in fact now that they are home owners they need an extra source of income even more. None of the designs provided by the government accounted for the establishment of warungs in the front of the houses. It was more by accident that some of the alternative plans offered flexibility for this use. The original policy of the project did not allow warungs in the homes. For some people, particularly those on pensions, the warung and other house occupations is their main source of income. Fortunately the people's needs were finally recognized. Warungs also help create a social bond between neighbors as they provide a place where they can get together further strengthening the community.

Understanding the needs of the people and how those needs translate into physical terms are crucial to the success of future projects. Anticipating and planning to incorporate those functions into the home will result in a more flexible plan and policy for the needs of the people. For this reason it is important that people be able to plan and design their units themselves within a flexible framework, as at Klender, as it is they who are best able to determine their actual space requirements. It is particularly
important that the front of the unit which serves as an area for these functions be determined by the occupant. The government's best role is to act as organizer of the basic framework and let the people do the rest.

5. Klender holds together as a social unit in large part because of the cultural character of the people, a relatively homogenous group having similar incomes and occupations. This factor tends to made the people feel close together as they have many things in common.

With this closeness a strong community has developed where people work problems out between themselves and through the neighborhood organizations they have formed. This sense of community has made people secure with their neighbors and their community in general. People know each other and help each other out in times of difficulty. The government's policy of implementing a housing type that allows for self determination and selecting a group of people with similar backgrounds, has in large part helped create the base for this community atmosphere to occur. The government had originally selected this group as it is financially stable. However, the similarity in income and occupation type has added to the cohesion of the community. Selecting residents on a basis of similar background as well as a basis of need can help insure a strong community.
The social structure of the people and the community organizations that have formed could be utilized by the government in order to decentralize some of the maintenance responsibility of the project (see recommendations on utilities/sanitation). In future projects the government should help establish community organizations immediately upon occupancy and delegate responsibility to them.

6. A strong binding element in the creation of the physical environment is the element of conformity and individuality. The various elements of the house, the lot wall enclosure, the yard, the elevations, etc. all fit within a pattern that links the houses together yet allows the residents at the same time to express themselves. This factor is extremely important in creating the character of the community.

This element could not be totally planned for if one is to allow the residents freedom to create their own homes. The policy implemented at Klender encouraged a uniform plan and elevation by providing alternative plans and a standard setback line as well as a uniform building height. The project office provided daily assistance to the residents and monitored construction which also aided the people, but the final form and appearance was for the resident to
decide. One might have expected a haphazard development of elevations and materials but the opposite has occurred. It appears that the where the government left off in establishing conformity the people picked up and completed the project with skill and thought. No written government regulations were necessary to insure an orderly elevation or yard. This suggests, at least in this situation, that the residents had a clear picture of what their house and community should be like. Klender has proven that the residents when given the opportunity can build a successful community within a limited government framework and assistance.

The flexible base and policy that the government had implemented at Klender created a balance between government intervention and user determination that has worked quite successfully. The residents have proven that through their own unwritten regulations of building the government need not intervene totally. However, whether the people could have managed to organize their own plots and utilities as well as road systems appears unlikely. Klender has demonstrated that it was necessary for the government to intervene on a basis of an organizer but not as a determinant of the final house.
The role of providing alternative floor plans for the purpose of helping the residents formulate ideas for their home as well as active daily assistance to the residents including design assistance should be maintained in future projects. The professional attitude and helpfulness of the workers of the project site office has helped the people build their homes and gave them confidence in the project particularly in the beginning when the project was only a collection of concrete shells.

7. The public footpath is an important element in the social cohesion of the community. The path alone, as built by the government, functions only as a means of access. However this limited development allowed the residents to define and develop the path themselves, creating their own spatial and social boundaries. This aspect of the project was crucial in establishing an environment that functions around the residents requirements. Flexibility in the area of social interaction in the plan has strengthened the project by allowing the residents to determine its definition themselves.

The path can only function as a social space if the residents can physically define it. Most people seem to prefer cement as a building material both for its status...
and its permanence. However, the cost of cement has risen dramatically in recent years making it more difficult to build a front wall. The government could encourage the construction of these walls by subsidizing the cost of cement.

The dimension of the paths at Klender is 3 meters, which is a bit tight as it limits the use of the path as a place to gather. However widening it too much would alter the feeling of it being a controlled space. An extra one half meter would be enough to allow a person to sit on a bench without obstructing vendors and others from passing and still maintain a close knit atmosphere.

8. The active use of the vacant lots along the ring road contrasted to the much less utilized planned central spine suggests some possible alterations to the plan which could utilize the existing open areas more effectively. When the open market lots are eventually sold the vitality of the street life in this community will undoubtably be diminished. This will be a loss for the community as having areas that are frequented are important in maintaining and extending friendships, which strengthens the community.
A solution which would maintain this activity and strengthen the relationships between neighborhood blocks would involve the following:

A. Allocate areas of vacant land along the main road at intersections for the use of playfields, warungs, and other activities and allow the remaining land to be developed as housing. This would consolidate the existing activities presently on this land but not eliminate them as this land develops in the future. Maintaining these activities here would allow the present pattern of strong social interaction to remain intact, yet still allow much of the land to be developed for housing.

B. Interconnect neighborhood blocks by continuing the secondary roads across the central spine rather than terminate them in dead ends. The present condition of an isolated central spine can be changed if people had better access to it. Connecting blocks will allow the spine to be accessed more easily and be used more as people use areas where they travel. This will also make it easier to get from one place in the project to another with less disorientation. Once used as a major circulation path, the central spine has a better chance of becoming used as a community space. If children and adults passed along the
spine daily on their way to and from home the spine would be used much more. Allowing warungs to establish themselves along this street would insure its use. Establishing large groves of trees along these connecting roads would also help this space to be used as a place to meet.

C. Integrate community facilities into the community by placing new planned facilities along the main road and develop some of the central spine for more housing. This will create a more integrated community, not unlike the existing pattern in the city, which does not centralize community facilities into one area or remove them from the main circulation flow.

Planned together these three alterations to the existing plan can incorporate the patterns and uses of the residents to further develop the community.

9. Klender has developed as part of the city incorporating its good points and leaving behind most of its bad. A part of the city not anticipated was the wide spread development of warungs. Warungs for the most part are little unattractive shacks which do not offer an image of a neat neighborhood. The government appears to have
intended these small businesses to be centralized in the main market, but they have developed throughout the project nevertheless. A central market to serve the overall needs of the community is appropriate but to centralize the activities of warungs entirely in one place is not.

Decentralized warungs as they now exist serve several purposes already discussed. They also provide job opportunities for people outside of the project. They provide a place to sit and relax and a place to keep contact with neighbors and friends becoming a vital link in community life. Their location for success is directly dependent on where people are and thus they are found along the main roads where people are most likely to use them. Warungs should be looked as an asset rather than a liability and they could be incorporated into the plan of the project.

Allowing these warungs and planning for them not only makes the project function as a better place for the residents but also makes the project serve a wider group of people than originally planned for. The warung owners and street peddlers are people with extremely low incomes who must struggle on a day to day basis to survive. The housing in this project is way beyond their means, for them a job is
of utmost importance, shelter is second. However they can benefit from the community as a source of income and as a place to live as most of the owners live in their warungs.

Providing space for these activities is important but it is also important that the owners of these warungs can use the land they occupy without charge as their small profits could not justify paying rent. For the government to subsidize corner parcels for these people would well be worth the small expense for the benefits achieved for all outweigh these costs. The government could construct toilet and water facilities for shared use in these allocated areas since people tend to live there, which would create a much healthier environment for all concerned. Rather than eliminate the warungs they should be consolidated and given services so the whole community can benefit from them.

The strength of this project has been its ability to remain flexible to the life patterns of the resident and the city. These patterns are not something to be ignored but can be and should be used as a tool to help the project develop beyond being a just a housing project into a community integrated with the city, serving not only its residents but the whole of society as well.
RECOMMENDATIONS: OTHER ISSUES

There are a set of other issues relating to basic problems of the infrastructure of the community which are important to cover as they relate directly to the physical environment. The following areas are problems where the government could intervene to further improve the community.

House Space/Volume

1. Floor Area

Both the core house and the lot have proven to be too small for the needs of the typical family of five plus. Setting lower limits on the sizes of families who could qualify would not represent the typical family of Jakarta. Enlarging the dimensions might not be possible because of the high cost involved, but lowering them, as is now being done in the newer projects runs the risk or creating a
transient community. If the house is too small to meet the needs of the residents they will eventually be forced to find new living quarters. This could result in the project serving only as short term housing, not meeting the long term goals of the residents and discouraging investments in the home. The house size must meet peoples' basic space requirements if a family is expected to invest in it.

Most of the residents who had expanded their units complained that the floor area was too small. Almost all would like to have a second story as there is no other way to expand their units. Presently the government will not allow second story expansion until the owner has completely paid off the loan on the core house and lot. A second blanket permit could be arranged like the first to cover the construction of those units which were to expand before the loans were totally repaid. This would also have to be cleared with BTN, the national bank, which gave the loans as this was one of the loan requirements. While people are presently able to afford their presently expanded homes they might be over extending themselves if they were to build another level. However many families could afford another level or partial level. Enabling the residents to build up is really a matter of paper work which the government might not want to involve itself in. However
with the success of the local site office in regulating the project it might be possible for some of these decisions to be made at this level lowering the costs for the city. A review of the families who wish to expand could be done by the local office and recommendations sent to the bank which would make the final decision. Because of the expressed importance and the evidence of inadequate space, the government should investigate ways to allow people to expand to a second story before their loan period is up.

2. Roof Heights

Presently the roof heights of the units is set at a government standard that clearly does not meet the needs of the residents as demonstrated by the evidence at Klerder. People have changed the slope of their units to achieve a greater height but were not allowed to raise the peak. Permitting the residents to raise the roof peak by as little as half a meter would create a much more comfortable house. The government could still achieve a uniform height by allowing the residents to change the roof to a maximum height from the original house, saving the costs of providing a higher roof. Since this height is extremely important to the people it is more than likely that all the residents will built to this maximum height.
For those units that have not expanded the difference in roof height will not be noticeable because the core house is set back from the front of the lot. From the evidence of the uniformity of the elevations it is clear that the residents are concerned with the physical appearance of their homes much more than anticipated. The government should be able to give them more freedom to build as they will more than likely build harmoniously as they have done so far.

Ventilation

The typical house at Klender has used the courtyard space for extra living space, often filling in the area that was intended to serve as a means for cross ventilation. Rooms at the back, particularly the original core area, are left with no means of ventilation. This situation could be resolved if vents were placed in the roof in the corner of these spaces. These would allow air to circulate throughout the house. A common vent structure could be built in the corner of the core area to reduce costs. The government could encourage and assist residents in building this vent.
Materials

1. Roof Materials

The roof materials of the core house have caused one of the biggest problems for the residents. The asbestos cement panels which are required as a roof material are clearly disliked. The government should allow the people to be able to choose what material they can build with, like the rest of the house, rather than dictate what should be used. Using asbestos as a building material is not a sound decision especially because of the health hazards involved with this material. Removing the people from the hazards of the city kampungs only to subject them to carcinogenic materials is substituting death by germs with death by cancer. Clay tile is a easily affordable and replaceable as well being a healthier material. People claim that clay tile is a much better insulator than the asbestos panels. Clay tile is semi-pervious and can act as a cooling agent when moisture is evaporated from it. Asbestos cement is impervious and cannot function this way.

The roof structure of steel in the core house is another inappropriate material. People have found it difficult to attach their expanded roof to it as it is difficult to
alter and hard to cut. It is also difficult to buy short pieces or small amounts as it is not a common building material. Obviously, wood is much easier to build with. It is the main material used for the expansion of the roof structure. Constructed the core house with a wood structure would have been much more practical for both the government and the residents as it is much cheaper to build. When implementing new "progressive" materials and techniques in government housing projects the practicality of these materials must be considered.

2. Cement

Cement is a common building material in Klender as well as in Jakarta. It has been used to construct the outer enclosure of the lot, the walls of the house, the finish of the walls, paths and a list of other uses. This is one industrialized material that is extremely practical for use by the people. Unlike the asbestos cement panels and metal joists, cement is associated with higher income making it desirable as a building material.

The cost of cement is directly related to the amount of construction that can be done, as it is the main material of the house. The cost of cement has increased
dramatically since the project opened. For those residents who have not yet built their homes doing so now will be more difficult. The single biggest decision the government could make to encourage the finishing of these homes would be to lower the cost of cement for these people. The government has subsidized so much of the project already a little more to help the community along is justified. The money saved by using cheaper more appropriate building materials for the core house could be directed towards lowering the cost of cement.

Utilities.

1. Water supply.

Most of the units of the neighborhood block studied received inadequate water supply or none at all from the lines installed by the government. This issue should be examined to see if the lines can be repaired and if there is enough water pressure to service the units. Apparently the central water tower cannot supply enough water to the units. The government could establish zones where water can be serviced and where it cannot in the present condition. In those areas where water is not working properly the surcharge for water should be dropped from the
resident's monthly charges. This extra money will help pay for the hand pumps that people have had to install for themselves. The government could further aid people without hand pumps in these areas by installing community pumps in the path and providing subsidized pumps for private use.

Water is an essential need for any community and if it cannot be supplied by a central source then the people must obtain it another way. A considerable amount of money was placed in the water infrastructure in the project that unfortunately has been in large part for nothing. An infrastructure of this sort requires a large capital investment for both installation and maintenance. If the system cannot be maintained then it serves little purpose.

A much more appropriate means of supplying water is by installing wells, the common practice in Jakarta. If a well breaks down then only one small part of the system is in trouble. Project costs can also be lowered considerably by supplying several community wells in the path to insure that everyone gets water as soon as they move in. Residents who want to have their own wells can install them at their own expense or be provided with a low cost loan. Those that do not have enough money will be able to use the
well in the pathway. This way the government will save money through a lower infrastructure cost and the residents will save as they will not have to pay for the same thing twice as they do now.

Unfortunately wells in a dense situation like Klender can cause the water table to be lowered in dry spells resulting in the wells running dry. One way to avoid this from happening would be to plan areas for water lines and wells establishing a balance between the two to achieve a constant water table and minimize costs. This would create a system that could be easily maintained.

2. Water/Sanitation

A major issue that hasn't surfaced at the present moment is the effect of pit latrines on the groundwater. The design of the present system relies on earth filtration to clean the waste water in the latrine. If the water is not filtered properly then contaminated water will seep into the ground water subsequently drawn up by the wells. The original water lines were installed to resolve this problem but since for the most part they do not function people have had to install their own wells. At the present moment there is little one can do to resolve this problem other
than a major rehabilitation of the water lines, but this is unlikely to happen because of the costs involved. Well water should be periodically checked for levels of pollutants to prevent any major health problems from occurring. Regulations should be established for the location of these pumps to insure that they are not placed directly adjacent to the latrines.

The newer prototype design places the core and the toilet to the front of the lot. This places the latrine too close to the path placing community pumps in jeopardy. Another problem with this design is that people have moved their toilets and latrines to the back of the lot because a toilet at the front of the house is not socially acceptable. This could contaminate wells that have been installed at the back. One must assume that people will install wells in their units. The design of the units must account for this. Placing the latrines in a group of four at the back of the lot as in the design of the core house at Klender is the best all around solution as it places the latrine the furthest possible distance from the path were community wells will probably be placed and it is in a location that meets the social needs of the people insuring that the latrines will not be relocated.
3. Sanitation/Maintenance

Many centralized functions in this community do not work as in the case of garbage removal and ditch repair as well as the water supply. Residents have established their own system through electing a local leader, the RT, to take care of these matters. Residents have ended up paying for these services twice, once to the government for services on paper, and again to get it done themselves. The main reason the government has not taken care of these services is because it has subcontracted them out to individual companies who have not carried through their jobs. The project is extremely large, with more than 7,000 units and to insure that the whole community is serviced properly is extremely difficult.

A very simple solution to this problem is to decentralize these functions to the community and drop the existing contracts and charges. This would provide many families who have very little money to place more of their resources into their homes rather than paying for the same services twice. For future projects a brief initial service could be provided until the residents have organized themselves as they have done here. The cultural characteristic of gotong royong can be utilized by the government much more
effectively if the present centralized services were
de decentralized and given to the community outright.

Vegetation

1. Plantings

One of the most effective decisions PERUMNAS made was to
supply the residents with plants in the beginning of the
project. This not only helped provide shade for the
community but also helped the visual image of the place as
well. This program should be continued as it is relatively
inexpensive and has a major beneficial impact on the
environment. A relatively inexpensive way to maintain this
would be to periodically supply the local RTs with more
plants to be placed in the community areas particularly
the along the paths.

2. Topsoil

Several areas of the neighborhood have had their topsoil
removed during the construction process which has resulted
in infertile soil. Plants play an important role in
providing comfort, food and status. Houses that do not
have fertile topsoil are not as environmentally comfortable
as those that do because they do not have large shade trees. Large exposed open lots can become very hot and uncomfortable. Vegetables cannot be grown easily and plants that do grow are not very large or full sized creating a sparse looking environment.

Topsoil is the most important factor in a creating a green environment. Plants are inexpensive and if the soil is good they will grow rapidly. The government should supply these houses with new top soil for the front yard to enable shade trees to grow. If each unit was supplied with good topsoil or had the opportunity to purchase it at a low cost it would help insure that each unit and lot had shade and a means of growing vegetables and fruits.
GENERAL CONCLUSIONS

Several important lessons can be learned from Klender that relate to the larger context of planning and providing housing for the poor. While Klender is Indonesia and not necessarily representative of the rest of the third world, it is possible to see general implications for housing policy in similar situations.

The success of Klender can be attributed to several major factors. 1) The base and policy used by the government was flexible enough for the people to work within. 2) The housing type is within the means of the people to build. 3) There exists a strong social unity and common cause towards the home and the community.

Much of the success of Klender has been due to the role the government has played. It provided a framework and infrastructure which would not have been possible for the people to construct. It also made the framework flexible
for change to occur in areas that meant the most to the residents, mainly final design of the units themselves. This flexibility is the major strength of the government's policy and a major reason for the project's success. Klender has proved that government intervention can work successfully when it incorporates a flexible plan that allows a dialectic relationship between the users and the plan (both the house plan and the overall site plan). Even if the plan is deficient in areas it can still be flexible enough for the people to adapt. The core house in this instance has provided that flexible base upon which the people can build upon successfully.

A crucial factor at Klender was the compatibility of housing type and income group. Klender would not have developed as successfully as it did if the people did not have enough money to build their houses. The poor of Indonesia are not a homogenous group. Their income varies dramatically and this corresponds directly to what they can and cannot build. The very poor of Jakarta could not afford to pay the rent on the already heavily subsidized core houses, and they could certainly not afford to build their own home at least not to the levels created at Klender. The middle class find the core house lot too small and not attractive. The groups targeted were the
middle to the upper end of the low income group with just enough money (including all family resources) to afford this type of housing. They have relatively secure jobs which enabled them to plan their investments in their home as well as guarantee the government that they could pay back the loans. The very poor or those with unstable jobs are unable to make the same commitment. Thus the core house can work successfully if it is directed towards people who can make it work. It cannot be expected to work for all of the low income group. Alternative means must be used to help the other segments of the poor which is done in Indonesia through the Kampung Improvement Program (KIP).

The third major factor to the success of Klender is that it has developed as a strong community. The residents of Klender all have similar occupations and background. This might have been more to create a stable financial base than a homogenous community but it nevertheless has resulted in a community that has common interests and concerns. This similarity has helped the community hold together through personal relationships and neighborhood organizations and in the end made the project successful. The residents also have a common cause of building their home and community. This has lead in time to a strong community bond that has generated an enthusiasm which has helped make Klender
successful. Without the people's commitment to their homes and community the project could not work. A stable and relatively homogenous group of people with a strong common bond have been of key importance in the development of Klender.

The one major area where the project fell short was in its ability to realize the patterns and lifestyle of the city and people. The site plan did not anticipate the development of warungs or the use of space along the main road for community activities. If the plan had originally anticipated and incorporated these activities the project would have worked much more efficiently spatially and socially. The site plan must represent city patterns in order for the project to become a workable community. It must have some flexibility for change as well.

A housing project of this scale must be looked as part of the city not just a grouping of houses. It must be located in an area that has close ties to centers of employment not only for the residents but also for others in the city to be able to come to the project and work. The project must function as working community integrated with its urban context and it must represent the uses and the needs of the residents.
Klender has shown that government intervention can be successful and necessary. Future projects can be equally successful if the government creates a base upon which the people can make their own decisions in areas that are most important to them. A fine balance must exist between regulation and self determination if a community is to develop a strength of its own. It is the role of the government to make sure that this balance is maintained. Once the residents have committed themselves to their community the project will succeed.
footnotes

Chapter One: City Context


2 From combined figures in chart "Jakarta's Income Group Structure," from Misra. Absolute poverty if measured by comparing average per capita expenditure with cost of minimum nutritional intake (recommended by FAO/WHO) places 60% of Java's population below this standard (World Bank 2nd Urban Dev. Project, p.3).


4 Papanek.


8 Data compiled from Papanek.


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12 Krausse.

13 Krausse.


15 Survey Biaya Hidup as compiled in Chatterjee, p.46.

16 Krause.


18 Survey Biaya Hidup as compiled in Chatterjee, p.46.

19 WHO Report on Sewage and Sanitation quoted in Misra.

20 Utility figures from Survey Biaya Hidup in Chatterjee, p.46.
Chapter Two: Policy.

1 The government defines "permanent" housing as one made out of a roof of concrete, sirap wood, metal, asbestos, or tile; walls of concrete, stone, brick or brick mold; floors of tiles, stone, brick or cement. A house of "sub-standard" materials contains bamboo walls, earth floor, and thatch roof.

2 This was based on an increase of 3.5% per year growth rate over the five year period.

3 Due to unexpected costs and a high inflation rate, these figures had to be revised to meet the government budget. Only about 75,000 new units were implemented in Repelita II.

4 Personal interview with PERUMNAS President Director Soenarjono Danoedjo, 29 July, 1982.

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