

OPEN SPACES IN URBAN DWELLING ENVIRONMENTS:
Regulations and Realities; Taipei,
Taiwan.

by
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REGULATIONS AND REALITIES:
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Submitted to the Department of Architecture on May 7, 1982, in partial fulfillment of the requirements for the degree of Master of Science in Architecture Studies.

ABSTRACT

Because the population density is so high and people need interior spaces so urgently, the open spaces in Taiwan are always limited to the minimum acceptable standards, set by regulations.

Open spaces are not considered as important urban components, and are usually misused, and, in addition, regulations in Taiwan put emphasis on the control of the quantity rather than the quality of the spaces. The issues of land utilization concerning encroachment, physical controls and maintenance are critical and require careful scrutiny with regard to open spaces.

The study analyzes the existing land utilization of the open spaces in the residential areas of Taipei and compares it to the current regulations. The objectives are: 1) To determine the reasons for the mismatches between the existing environment and the "legal environment" resulting from the regulations, and 2) To acquire feedback from the environment concerning revisions of the regulations. The intent throughout is to be descriptive and expositive rather than critical.

Thesis Supervisor: Horacio Caminos
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CONTENTS

PREFACE	6
INTRODUCTION	8
ANALYSIS	12
1. Streets, accesses, lanes	12
2. Arcades, sidewalks	14
3. Front yards	15
4. Back yards	16
5. Fire lanes	17
COMPARISON/CONCLUSIONS	18
TENTATIVE RECOMMENDATIONS	22
APPENDIX	24
URBAN CONTEXT: TAIPEI	24
CASE STUDIES:	28
1. Chung Hsao East Road	28
2. Ming Sheng East Road	34
3. Wu Feng Pu	40
4. Sang Chang Li	46
5. Nai Hou	52
OPEN SPACE REFERENCES IN THE BUILDING CODE	58
GLOSSARY	60
BIBLIOGRAPHY/EXPLANATORY NOTES	64

PREFACE

During 1981, several conferences were held and numerous articles were published in Taipei, Taiwan, on the relationship between regulations and land utilization in the urban area. These were held in preparation for the installation of a new zoning code and the revision of the existing Building Technology Rules (Building Codes). As the primary concern of the participants was on the dwelling unit which can be sold, bought or rented, the majority of the conferences and articles were focused on the total dwelling area. Only a few participants emphasized the use of open spaces on the lot or block level, which, in terms of size, come to almost the same area as the dwelling units.

On the one hand, it is necessary to check land utilization of the built environment from the view point of regulations; on the other hand, it is important to acquire some feedback from the environment about the regulations. Therefore, the efforts in this analysis of the utilization of open spaces is placed on the comparison of the existing situation to the "legal environments" implied by the regulations. The objective is to determine the reasons for the mismatch between the existing environment and the "legal environment" and to provide "feedback" on the regulations while they are being revised. Consequently, the work is descriptive and expository rather than critical.

This thesis has been divided into two parts: the first section describes the current situation of open spaces and how regulations control the utilization of such

spaces. Next, the issues raised are analyzed and tentative recommendations are suggested. The appendix provides supplementary background information, including five case studies, relevant regulations, a glossary and references.

For advice, help and firm criticism during the two years of study at MIT, I wish to thank Professor Horacio Caminos from whom I have learned so much - not simply solutions to urban settlements issues but also a way of thinking. I also wish to express my grateful thanks to Reinhard Goethert for his invaluable suggestions, generous assistance, and friendship. Without his help, this work would hardly have been finished on time.

I am grateful to the comments and company of my classmates: Chih-chien Wang, Rajagopalan Palamadai, Aminul Khan, Hae-Seong Je, Nora Aristizabal and Yousef Alohal. Thanks also go to David K.Y. Fang, Dori Fang and Chin-Oh Chang for their help and in collecting information.

Above all, I particularly would like to express my gratitude to my parents for their endless encouragement and their strong support for my studies.

PHOTOGRAPH (OPPOSITE PAGE):

General view of the residential area in the eastern part of Taipei. The view shows the building types and the density of development which are directly affected by the regulations.



INTRODUCTION

In 1960, the urban population of the Taiwan Metropolitan area was 5,420,000 which represented 50% of the total population. In 1976, the urban population increased to 11,000,000 representing 66% of the total population. The rate of increase, 4.5% per year, was much greater than the rate of increase of the total population, which was 3.1% per year, during the same period of time.

Because the government has placed much emphasis on the development of the economy and business, urbanization will become a much more significant phenomenon in the near future. According to the government estimates, by 1996 the urban population will reach 18,550,000 which will represent 83% of the total population of Taiwan.

However, in the Taiwan area, excluding mountains and hills, only about 1/3 of the island is suitable for development. Of this land, the majority is reserved for agricultural uses. Clearly, the land available for urban development is limited.

As a result of this situation, it is imperative to use urban land in an economical and effective manner. Here "economical and effective" means "proper, not over use nor under use". For example, to have all the urban land covered with buildings does not result in economical and effective use, for it will jeopardize the physical aspects of the environment and lead to other problems.

Among the different uses of urban land, one of the more critical issues is the use of open spaces in residential

areas, because these spaces require a large portion of the urban land and directly influence people's everyday lives. Improper use, arrangement, or location of such spaces can cause serious problems and therefore they require careful study. This issue is especially critical as buildings become higher and open spaces required by regulations become larger; as land becomes more scarce and land prices increase; and as the population increases in density and more and more dwellers share smaller and smaller lots.

In Taiwan, however, open spaces in residential areas are not considered important urban components. They are treated as areas complementary to buildings, and inevitably, become misused. What is worse, the issues raised from these areas are often ignored.

In general, the functions of open spaces can be categorized into three kinds: First, dedicated functions: for example, fire lanes for fire separation; arcades for protection from direct sunlight and rain; sidewalks for the use of pedestrians. Second, physical functions: for example, open spaces between buildings used for ventilation and natural lighting. Third, social and psychological functions; for example, open spaces providing places for more social interaction and increased privacy.

It is important to note that spaces in dwelling environments always have multiple functions. This is also true for open spaces which by no means are limited to one unique function. For example, backyards can be used for both laundry and as children's playgrounds, they also can be used as separations for fire protection and ventilation. The multipurpose use of open spaces is par-

ticularly critical in low income communities where people are not able to afford different spaces for different uses.

By observing the utilization of open spaces in the Taipei area, one can find that open spaces fail to provide, or only have very limited provision for the functions mentioned above. For example, most of the fire lanes contain illegal constructions or are left as waste land, they scarcely have or only have the function of fire separation, and do not provide for the other functions.

There are several factors that influence the utilization of open spaces: 1) Economical factors: for example, dwellers of different income levels use open spaces differently; in higher income communities, people tend to use their front yards as gardens, whereas in lower income communities, people tend to use them to increase their income by using the space for shops, etc. 2) Social factors: for example, dwellers of different professions use open spaces differently. Streets in communities of government employees are much cleaner than in the other communities. Despite these factors, regulations are still the main factors that effect this use of open spaces, since they are built according to the specific dictates of the regulations.

Because the population density is so high and interior spaces are so small, open spaces in Taiwan are always limited to the minimum acceptable standards set by regulations. This occurs both in low and high income communities. For example, people build arcades exactly 3.64 meters in width and have fire lanes exactly 1.5 meters in width on their own side of the lots without considering meeting the needs of the intended uses of these

spaces. What is more important for them is the amount of area for the actual dwelling unit. In this sense, controlling the utilization of open spaces and maintaining minimum acceptable standard of dwelling environments becomes the main role of the regulations.

There are three mechanisms through which regulations control the quality and quantity of open spaces: First, by controlling the intensity of development. For example, in residential areas, the total area of open spaces on one lot should not be less than 40% of the lot; if the building of the lot is higher than 4 stories or 12 meters, for each increase of one story or 3 meters, the area of the open space should increase by 2% of the lot; etc. Second, by controlling the dimension of each open space directly. For example, the minimum width of arcades should not be narrower than 3.64 meters. The minimum width of the fire separation on one side of the interior boundary should not be narrower than 1.5 meters and the total width should not be less than 3 meters. Or by controlling the dimension indirectly. For example, for the purpose of acquiring direct sunlight, the setbacks of buildings from the interior boundary should not be less than 1/4 of the building height; etc. Third, by controlling the specific characteristics or functions of open spaces. For example, the surface of fire lanes should be flat; the ground level of arcades should be 10 to 15 cm higher than adjacent streets, etc.

It is obvious that regulations in Taiwan put emphasis on the control of the quantity rather than the quality of open spaces, there is little concern for the utilization of these spaces.

Although the study concentrates on the regulations of "Building Technology Rules", it must be recognized that the utilization of open spaces is also affected and regulated by many other instruments and ordinances. Such as: Land Laws, Administration Rules of Illegal Constructions, Environmental Sanitation Rules, etc., regarding the ownership of land, the control of illegal construction, and the responsibility and maintenance of open spaces, but they are separated as different systems of regulations and are carried out by many non-ordinated political units. As a result, the terms used and the definition of spaces vary to serve different purposes. It is difficult to find the relationship between them, and, after careful scrutiny, some contradictions can be found. Inevitably, problems arise from these differences and incoherences.

Only by bringing together all the regulations, existing conditions, and issues can one achieve a clear idea on what the real problems are and where the necessary revisions are needed.

PHOTOGRAPHS:

General views of the open spaces in residential areas.

(RIGHT) Front yards are encroached by buildings; streets are used for car parking, children's playgrounds, and storing goods.

(OPPOSITE PAGE, LEFT) Arcades and sidewalks along the major roads. They are interrupted by motorcycles, raw materials, and tools.

(RIGHT) Back yards and fire lanes. These spaces scarcely allow their function for fire separation.





ANALYSIS

The purpose of this analysis is to clarify the issues that are raised about each urban component studied, and to determine the problem areas arising from existing regulations. This analysis follows the sequence described below:

1. DEFINITIONS: a clarification of the general characteristics of each component and the terms of reference for discussions. The definitions included are from Webster's New Collegiate Dictionary (Merriam-Webster, 1981) or have been translated/interpreted from Building Technology Rules of Taiwan. (R.O.C. Ministry of Interior, Taipei, 1975).
2. REGULATIONS: pertinent laws and codes, presented to assist in checking and in understanding the issues raised and discussed.
3. ISSUES: primary problems based on observations and surveys made by the author during the summer of 1981.
4. CAUSES AND DESCRIPTIONS: a description of the situation, importance, reasons or influences of the issues raised. They will be discussed within the terms of reference set in "DEFINITIONS" and "REGULATIONS".

After the analysis, all the components will be reviewed together. Then, several common issues will be summarized and the main reasons for these issues will be presented through a set of comparative diagrams.

1. STREETS, ACCESSES, LANES

1. DEFINITIONS: STREET, (dictionary), a thoroughfare especially in a city, town or village that is wider than an alley or lane and that usually includes sidewalks
STREET, (regulations), a public thoroughfare which is designed in accordance with city planning laws or other by-laws and determines building lines for private properties.
LANE, (dictionary), a narrow passageway between fences or hedges
LANE, (regulations), a private passageway used by the public but not recorded on City Planning Maps or other official documents
ACCESS, (regulations), a private passageway provided to connect the entrance of a building to a planned street, when the building site is not abutting the building line or when the building site is abutting the building line but the entrance of the building is not adjacent to the building line. (see sketch)
2. REGULATIONS: summarized in appendix.
3. ISSUES: Streets are overcrowded in residential areas, they serve as parking lots, places for unloading goods, stores for small factories as well as markets, children's playgrounds or even garbage dumps.

Private lanes and accesses are required to reach single or a few housing units and they are always enclosed by chains, stone posts or are even encroached upon by illegal constructions for private uses.

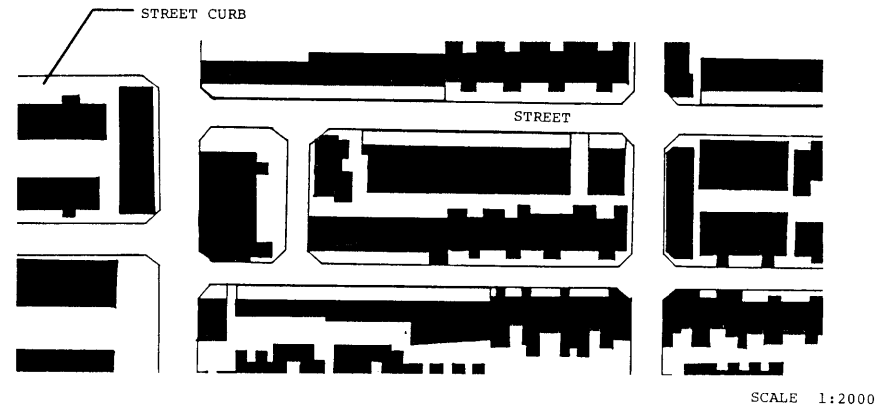
Private lanes and accesses are narrow and in the form of cul-de-sacs; they do not have public functions as defined by regulations. If they are not encroached upon, they tend to be poorly controlled.

4. CAUSES AND DESCRIPTIONS: Confusion in definition and incoherent relationships between land utilization, ownership and responsibility are the main causes of the problems. Different terms: streets, lanes, and accesses, are applied to unique kinds of open space. According to regulations, all of the above are public spaces, everyone can pass through them, and the City Government should take responsibility for their maintenance. Actually, because of bureaucratic difficulties, some of the accesses and lanes still belong to private owners. Inevitably, these spaces have been encroached upon and are maintained by the owners. This incoherent relationship makes it difficult to keep these open spaces from being encroached upon and poorly controlled.

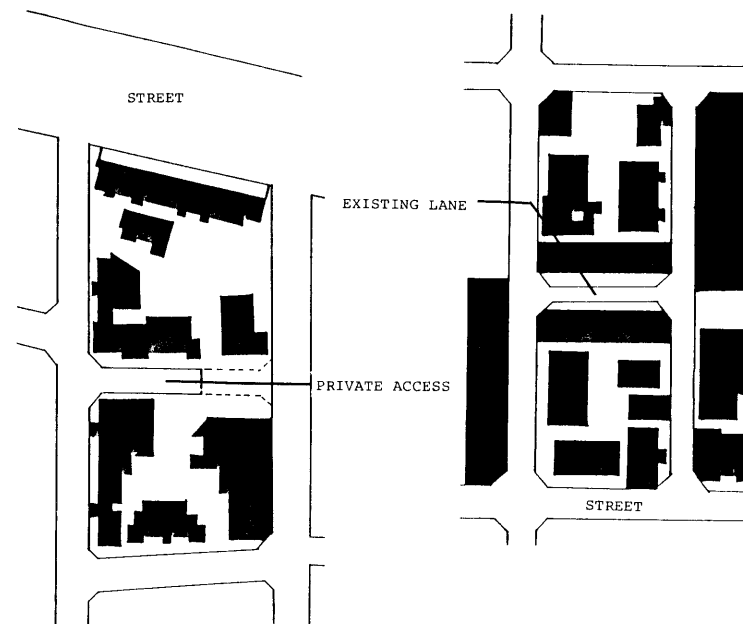
The main reason for the overcrowded streets is the misuse of other open spaces, such as yards which are intended by regulations for private parking lots and children's playgrounds. However, such yards are encroached upon or fenced in, and therefore, the streets themselves become the actual parking lots and children's playgrounds.

In a group of clustered buildings, a dead-end private lane does not necessarily have to reach the door of each housing unit. Besides, a private lane or access in a small block will create a short cut through the block and it will jeopardize the property rights of the neighborhood. In urban areas, streets are planned

in a deliberate pattern, the additional lanes within a block will be considered as wasteful. Since each lot has to be adjacent to a street in a large development, a more flexible regulation system is needed to make these open spaces more useful. (see sketch)



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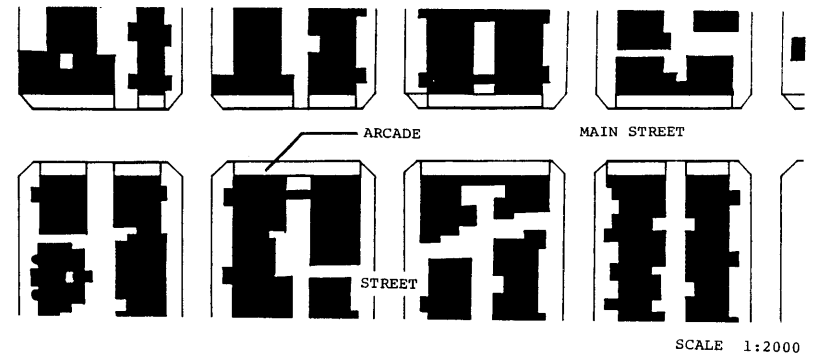
2 . ARCADES, SIDEWALKS

1. DEFINITIONS: ARCADE, (dictionary), an arched covered passageway or avenue, as between shops
SIDEWALK, (dictionary), an usually paved walk for pedestrians at the side of a street. (see sketch)
2. REGULATIONS: summarized in appendix.
3. ISSUES: As the ownership of arcades or sidewalks is private, landowners usually encroach on them by extending their houses, shops or small factories into such places. The interruption of arcades or sidewalks as a result of the encroachments jeopardizes the intended function of these urban components. The lack of a clear definition of responsibility results in arcades and sidewalks being poorly maintained.
4. CAUSES AND DESCRIPTIONS: Because of the specific climatic conditions and social and cultural needs, arcades and sidewalks become an unique feature of urban areas, especially in areas which have commercial potential. They, as a special feature of this area, provide important economic support to family based shops and should be encouraged.

Arcades or sidewalks are required by code along streets of commercial areas or streets which are wider than a certain width. They should be designed in accordance with regulations and open for public, though their ownership is still private. In doing this, landowners can have the advantage of

increasing the land coverage of their buildings.

In other areas where arcades or sidewalks are not required by codes, people may have arcades or sidewalks in front of their buildings. As they are of private ownership, the landowners do not have the advantage of increasing the coverage of their buildings, hence, they do not necessarily open the land to the public. The confusion of defined utilization between these two kinds of arcades or sidewalks encourages encroachment on the land. Also, the ambiguous relationship between ownership and utilization makes this land difficult to control and clearly define responsibility towards it.



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3. FRONT YARDS

1. DEFINITIONS: YARD (dictionary), a small, usually walled and often paved area open to the sky and adjacent to a building
YARD, (regulations), the uncovered land on the same site with the building
FRONT YARD, (regulations), yard between the two side property lines and abutting to the property line. (see sketch)
2. REGULATIONS: summarized in appendix.
3. ISSUES: According to regulations, yards are always misused. As dwellers need more spaces to live in or to use to increase their income, front yards, instead of being used as open spaces, are generally encroached upon for other uses.
4. CAUSES AND DESCRIPTIONS: The dimensions of these spaces are determined by the setbacks of the buildings, which, in residential areas, vary from 2 to 5 meters. In most of the cases, this land is designed for private parking lots. But, partly because of the social and cultural considerations of the dwellers and partly because of their economic conditions, the land tends to be encroached upon.

The encroached upon spaces are used to serve various private purposes, such as spaces for living and small shops or factories. From one point of view, such encroachments do jeopardize the dwelling environments which are mainly based upon regulations. For exam-

ple, streets become overcrowded as private properties no longer provide private parking spaces.

Besides, the ownership of these spaces is shared by all households who live on the lot. The encroachments force the dwellers of upper floors to use streets as their open spaces, and consequently increase the service load of public and semi-public land.

From another point of view, the narrow setbacks of buildings, always 2 to 3 meters, are difficult to employ for any proper or communal use except when encroached upon or fenced in as part of the private spaces.



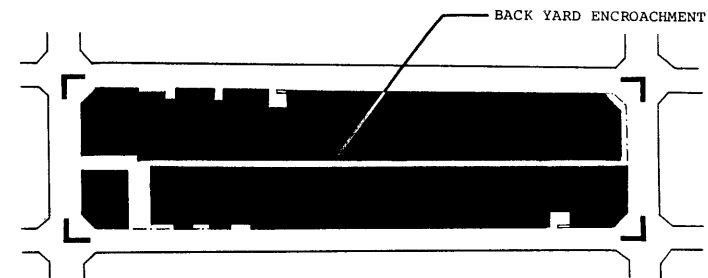
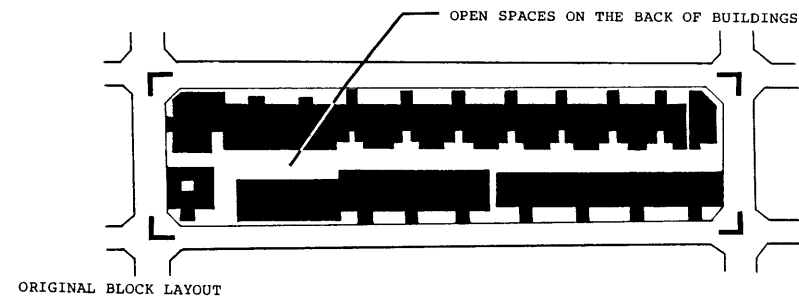
4. BACK YARDS

1. DEFINITIONS: BACK YARD, (regulations), yard between the two side property lines and abutting to the rear property line. (see sketch)
2. REGULATIONS: summarized in appendix.
3. ISSUES: In addition to the issues raised on front yards, that is, fences, encroachments, no communal use, etc., the use and maintenance of back yards tends to be harder to control than front yards.
4. CAUSES AND DESCRIPTIONS: Back yards, similar to front yards, are private property. In terms of land utilization, back and front yards have the same characteristics implied by regulations. But, there are some negative factors which make the conditions of the former even worse than the latter: First, the land used for back yards is much smaller than that used for front yards. The dimensions of back yards depend upon the required distances between the exterior wall of the buildings and the rear property lines of the building sites. Such distances, in residential areas, can be less than two meters, or, non-existent if fire lanes are excluded.

Second, as back yards are usually separated from streets by rows of buildings, the land is difficult to be reached without passing through other private houses. Not being connected to public streets, such yards cannot provide communal service to the neighborhood.

Third, shape also becomes one of the critical factors that influence the utilization of the back yard land. For example, back yards are easily encroached upon or of no use when their sizes become too small. Unfortunately, in suburban areas, land was subdivided for agricultural uses that sometimes not suit urban layouts. In addition, since a large percentage of the land is developed by small contractors, land consolidation is impossible. Consequently, lots of irregular shapes and undersized are the most prevalent situation in this area.

As a result of the above situations, the encroachments of back yards become inevitable and are normal occurrences in the dwelling environments of this area.



EXISTING BLOCK LAYOUT

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5. FIRE LANES

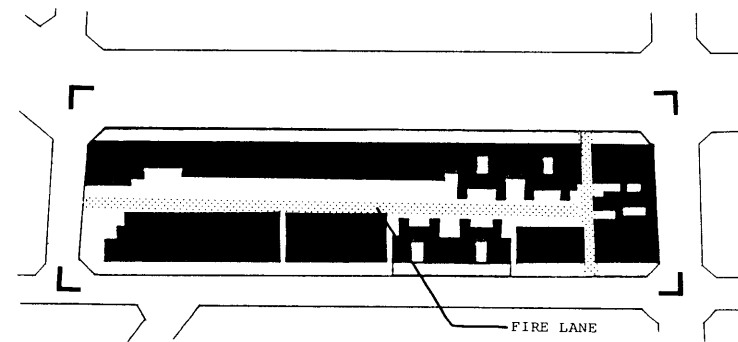
1. DEFINITIONS: FIRE LANE, (regulations), for fire protection requirements, refers to the separation between an exterior wall of a building and an interior property line or the exterior wall of another building, all measured at right angles to the exterior wall. (see sketch)
2. REGULATIONS: summarized in appendix.
3. ISSUES: Fire lanes are encroached upon by illegal construction or used to store goods and as garbage areas. For these reasons, fire lanes lose their function of fire separation and for security purposes.
4. CAUSES AND DESCRIPTIONS: Fire lanes are required by regulations to be located along the interior of the block. Although they are legitimate open spaces, they are private, and, like yards, as well as other open spaces, they should be open to the public.

Unlike yards, they tend to be treated as private properties and encroached upon. Fire lanes, because of the mis-interpretation of the word "lane", are always regarded as public passageways. In fact, as mentioned above, they are private open spaces.

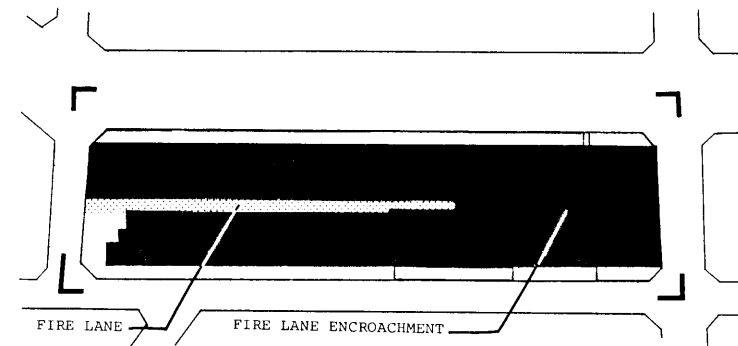
On the one hand, since the land is for public use and almost always excluded from private areas, no household wants to clean or maintain such lanes. But, on the other hand, as the land is private, it is not possible for the lanes to be cleaned by street

sweepers. Also, as each dweller fences or covers his own back yard, fire lanes become too narrow for communal or service use.

In terms of the installation of fire lanes, the regulations themselves are impractical, they do not have enough flexibility to avoid the irregular shape of sites. Zig-zag shaped fire lanes are often encroached upon, and rarely function as fire lanes.



ORIGINAL BLOCK LAYOUT



EXISTING BLOCK LAYOUT

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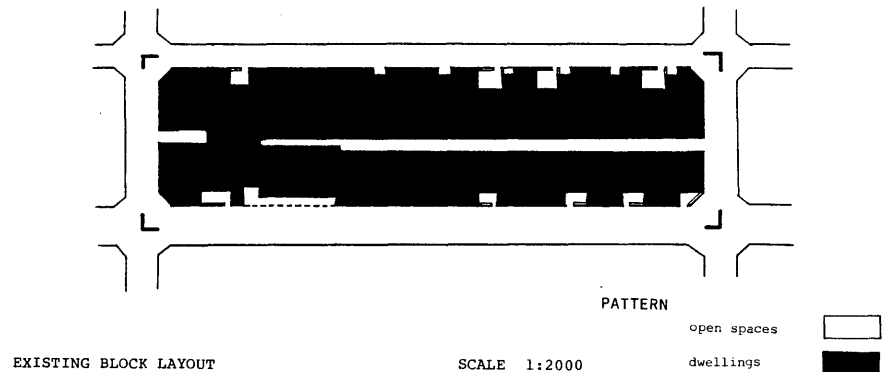
COMPARISON / CONCLUSIONS

Five sketches are juxtaposed to identify the problem areas mentioned above:

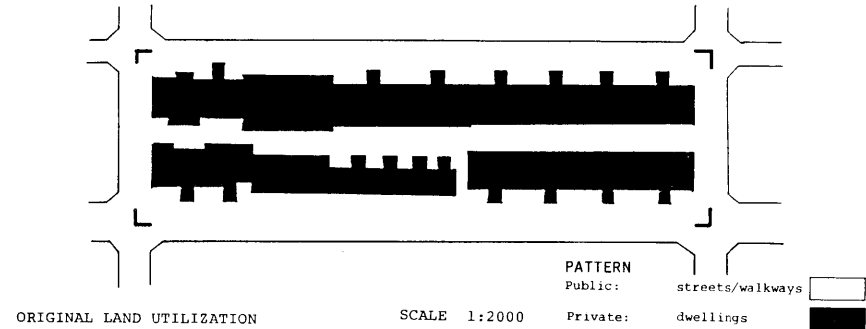
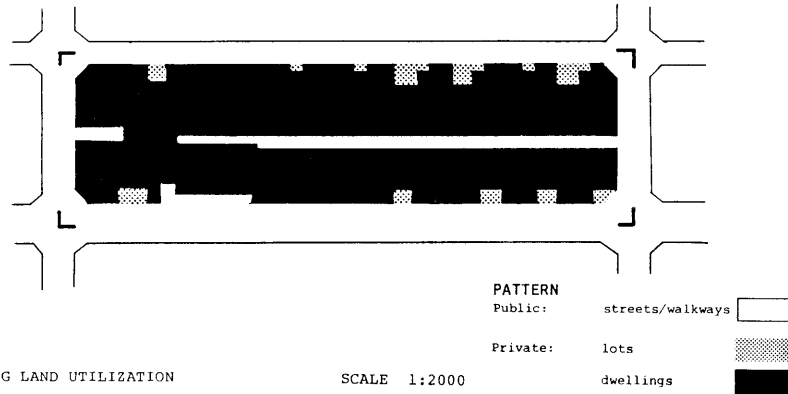
1. The existing layout of a typical block in residential areas, which indicates the location of fences, gates, buildings and accesses describing how the dwellers use or change their environments to adjust to their own purposes. The layout reflects the users' living habits and needs directly.
2. The existing land utilization, qualifying the land around the dwellings in relation to the users, physical controls, and responsibility.
3. The original layout of the block, showing the "legal" environment which was designed and planned according to the regulations. This layout is documented on the City Planning Map of the Public Works Bureau of the City Government.
4. The original land utilization interpreting the "legal" uses of the block which are implied in regulations.
5. The mismatches between the existing land utilization and the original land utilization, identifying the problem areas which are the results of the incoherence, impracticality and the ignorance of the regulations.

The selected study block is located on Wu Feng Pu, a low to middle income community with a considerable mixture of family-based industry. (For more information see Case 3.)

The existing block layout: The streets around this block are six meters wide, they are used for car parking, unloading goods, and the storage of raw materials. Front yards and back yards are encroached upon for factories. The fire lane in this block is also encroached upon. It is less than 3 meters wide and there is considerable difficulty in passage.

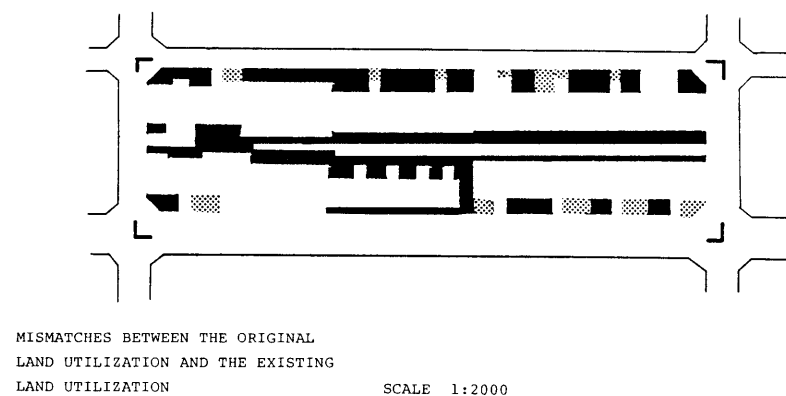
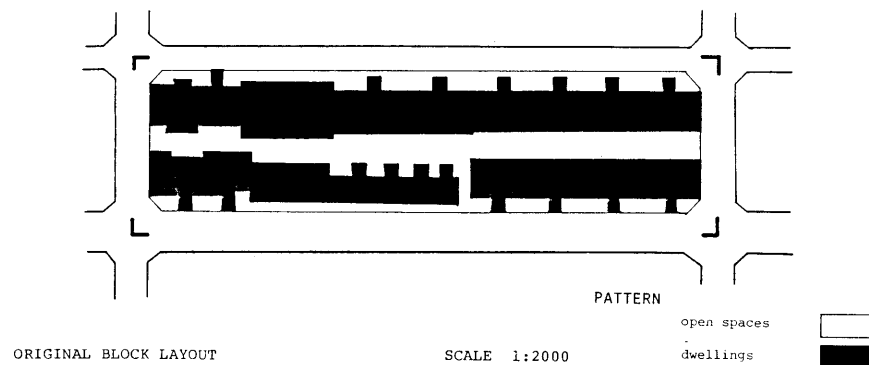


The existing land utilization: Except for the surrounding streets and part of the fire lane, which are uncontrolled and used by the public, the rest of the land in the block is for private uses.



The original block layout: As it was designed under regulations. It was essentially two rows of buildings and a few abstract lines indicating the location of the property lines and fire lane. Because of the requirements of the regulations, any additional construction, such as a fence, may be considered as "illegal", if the land was designed for a certain use, such as parking.

The mismatches of the two sketches of land utilization: The main problems are the inversion of the public used spaces (i.e., open spaces surrounding the buildings), into private used spaces (such as yards, encroached dwellings), which happens on the privately owned land. The causes of the mismatches, as mentioned before, are mainly because of the incoherence, impracticality and the ignorance of the regulations. These have been discussed separately in the previous sections.



The original land utilization: In terms of the users, physical controls and responsibility of the land: Buildings are private, the other land is public.

SUMMARY OF ISSUES ON OPEN SPACES

In looking at the urban components as a whole, the common issues of the dwelling environment in this area can be summarized as follows:

1. Illegal construction on private land;
2. No control or maintenance of public land;
3. Lack of communal spaces;
4. Waste of land.

The issues are especially true in low income communities where, since the dwelling units are very small, people living on the ground floor always expand their houses on their private land and leave all their trash or goods on the public land.

In addition, the people living on the upper floors do not have the opportunity to use the private open spaces even though the property is of condominium ownership. Also, as people do not have resources and time to clean the public land, the more public land required means the more land uncontrolled and poorly utilized. This wasteful practice puts a heavy burden not only on the dwellers, but also on the City Governments.

SUMMARY OF CAUSES ON OPEN SPACES

As a mechanism to maintain and to shape the physical environment, existing regulations have proven to be inadequate to a certain extent. Such regulations not only fail to impose an effective means to prevent the encroachment either upon public or private land, but also are unable to contemplate the multiplicity of situations created in dwelling environments.

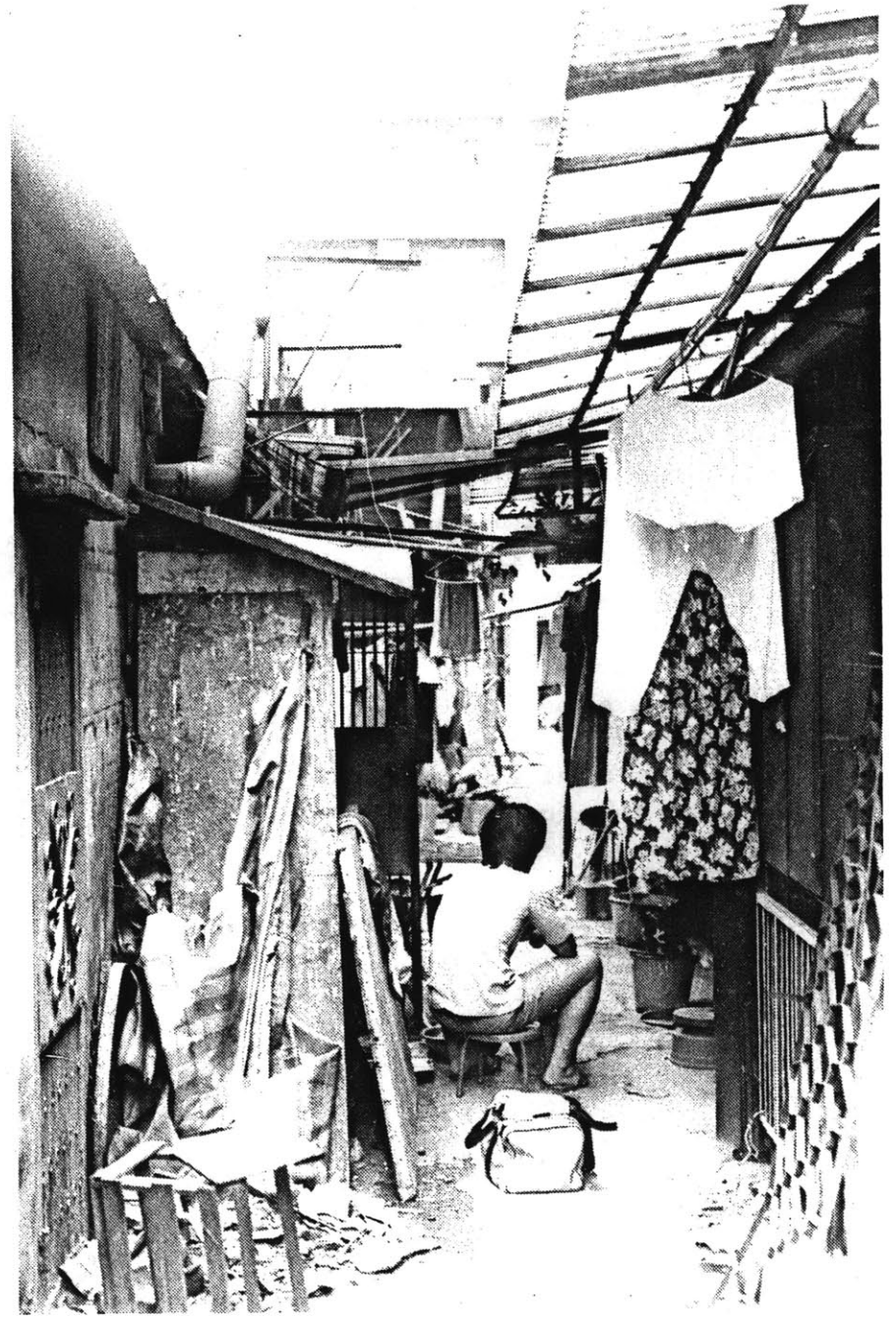
The major problem areas of regulations to which revisions should be directed can be summarized as follows:

1. Inconsistent relationship among private ownership, utilization and responsibility brought about by regulations;
2. The use of different terms and regulations applied to similar kinds of urban components;
3. Ignorance of existing conditions;
4. A lack of flexibility in addressing different situations.

The vagueness of the regulations are also reflected by the continuous questions raised concerning the regulations on the utilization of urban land by the users, particularly on the interpretation and clarification of the regulations by the government.

Except for the requirements that regulations should be clear, realistic and flexible, they also should be able to encourage the potential for a good environment, rather than be limited to restrictions to prevent the environment from being misused.

PHOTOGRAPHS (OPPOSITE PAGE):
 (LEFT AND RIGHT) Fire lanes of different areas with different kinds of uses. However, both of the spaces are unkept and have little maintenance.



TENTATIVE RECOMMENDATIONS

The basic conclusion of the study is that the existing Building Technology Rules should undergo major revision. The tentative recommendations for the revision are proposed as follows:

1. Clarify the definition of each open space in terms of its functions, boundary, etc.
2. Foster the coherent relationship between users, ownership and responsibility of each open space.
3. Increase the flexibility of regulations to conform to the changing situations of each lot, that is, to allow different kinds of developments based on different requirements, income levels, etc.
4. Encourage the communal use of open spaces within a block or several lots by demonstrating to owners and developers the advantages of consolidating open spaces.
5. Recognize cultural and social facts that are critical in shaping the urban dwelling environments, such as fences, arcades, encroachment, etc.

It should be noted that the "Building Technology Rules" are currently being revised (Spring, 1982). From the draft of the revision the following changes are noted: eliminating the sunlight incident angle in front of buildings; changing the term "fire lane" into "fire separation"; clarifying the terms "private access" and "existing lane"; and adding regulations to encourage large scale developments and communal use spaces; etc. The reasons for doing these can clearly be understood. Without question, the revision will beneficially affect

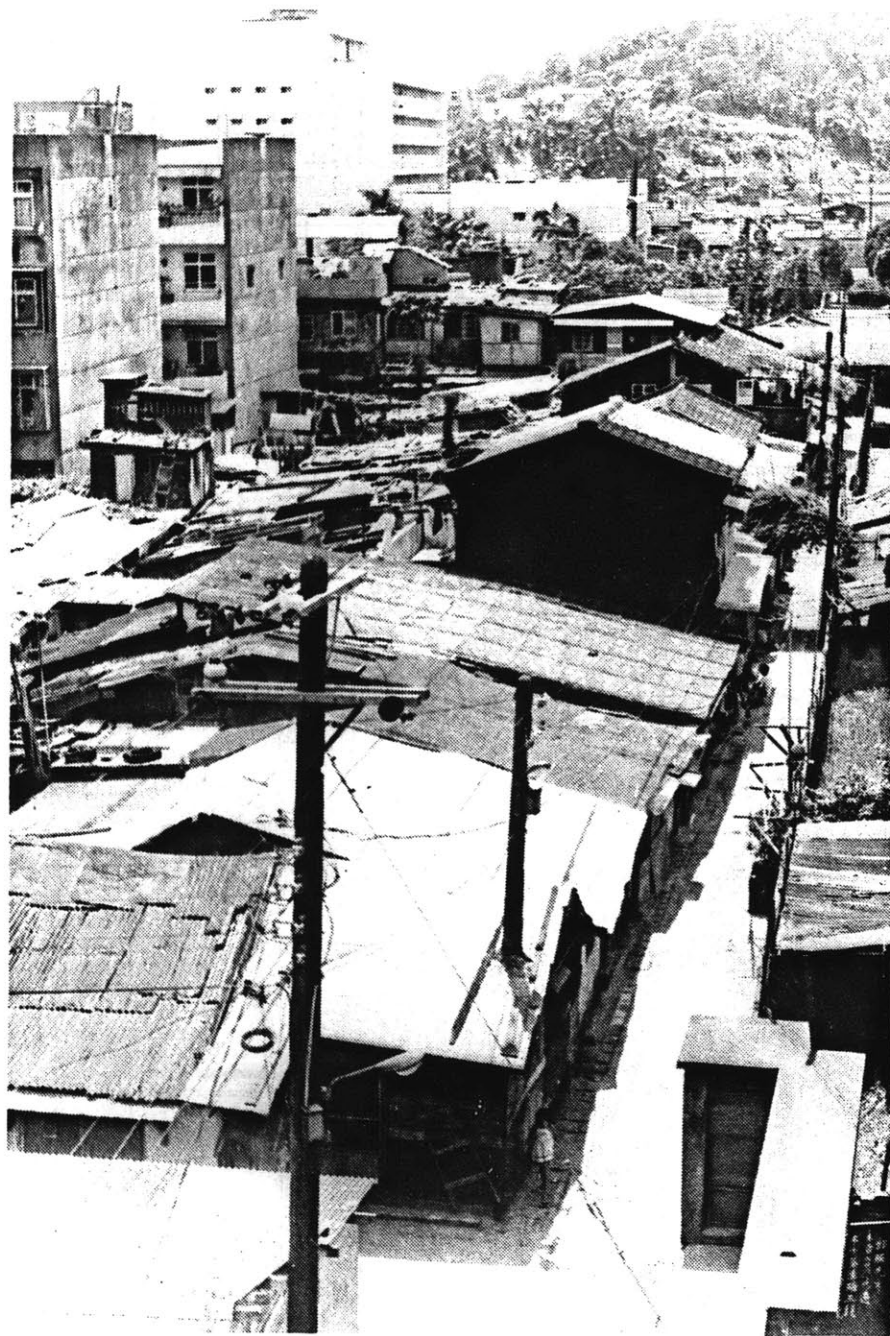
the use of open spaces to some degree.

However, these factors only take into account problems on a piecemeal level without the consideration of other social, cultural, and economical factors. For example, fences are necessary for dwellings; encroachment is inevitable in low-income communities. Therefore, the results of encroachment, fences and some undefined open spaces still can be predicted.

Although some of these problems can be solved by the new zoning codes, for example, to control different quality of environment by controlling different mixtures of land use in order to adjust the needs of different income level dwellers. Nevertheless, to have thorough and practical solutions to the existing conditions of dwelling environments and regulations monitoring should be undertaken continuously.

PHOTOGRAPHS (OPPOSITE PAGE):

(LEFT) On a few areas, main streets are still encroached by squatter settlements.
(RIGHT) Rear facades of buildings. In order to acquire extra spaces, people living on upper floors project their window grills into the back yards.



APPENDIX

URBAN CONTEXT: TAIPEI

1. PRIMARY INFORMATION: The Taipei basin is located at latitude 25° north, longitude 121° east. It is surrounded by mountains on the south, east, north and by Linkou Plateau on the west. The basin is triangular in shape and has an area of 234km². Tam Sui River, Kee Long River, Hsin Tain River and Ta Ko Kan River are the four rivers which cross the basin floor and connect the parts of the basin.

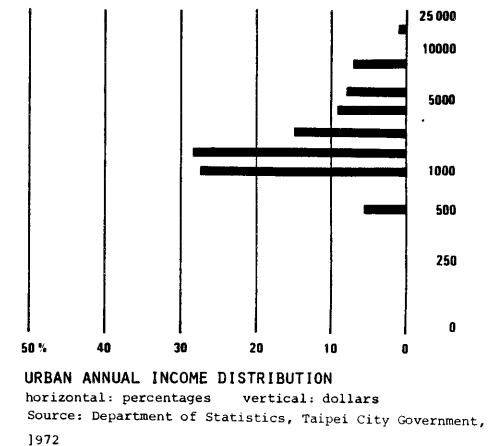
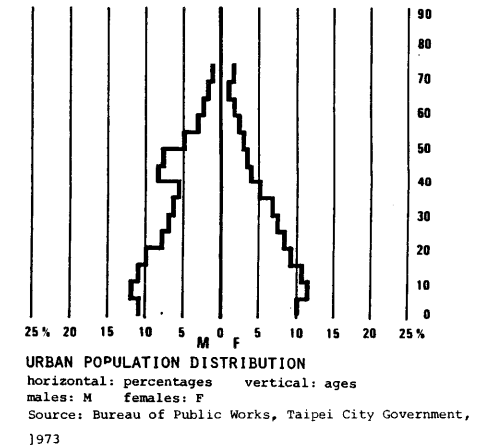
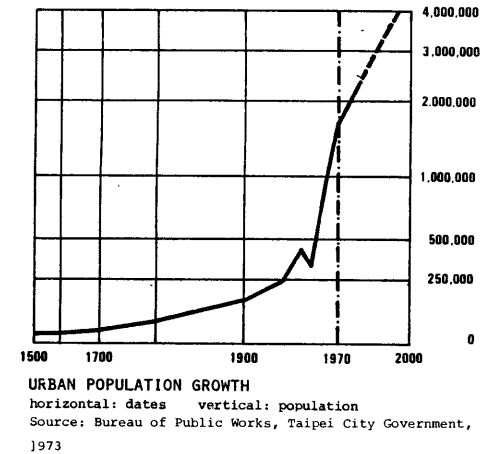
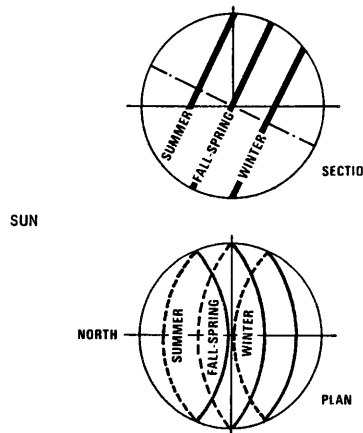
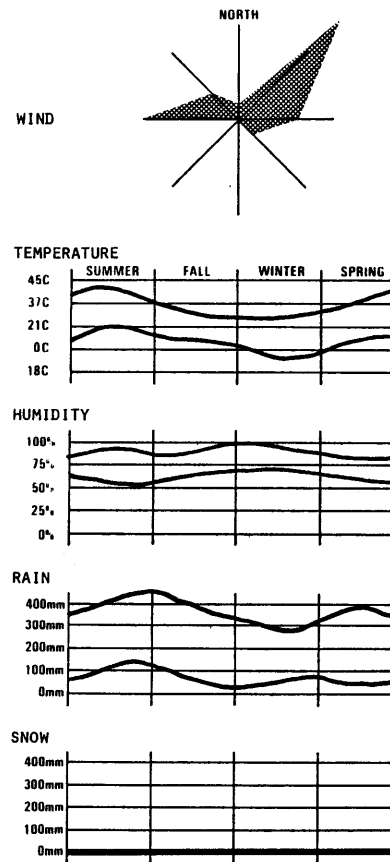
Taipei City shares the northern and eastern part of the Taipei Basin, it is bounded on the west by the Tam Sui River, and on the north, east and south by mountains and hills with over 15% of slope. Funnelled by this topographical restriction, the development of Taipei City sprawls from the river bank to the east, west and south.

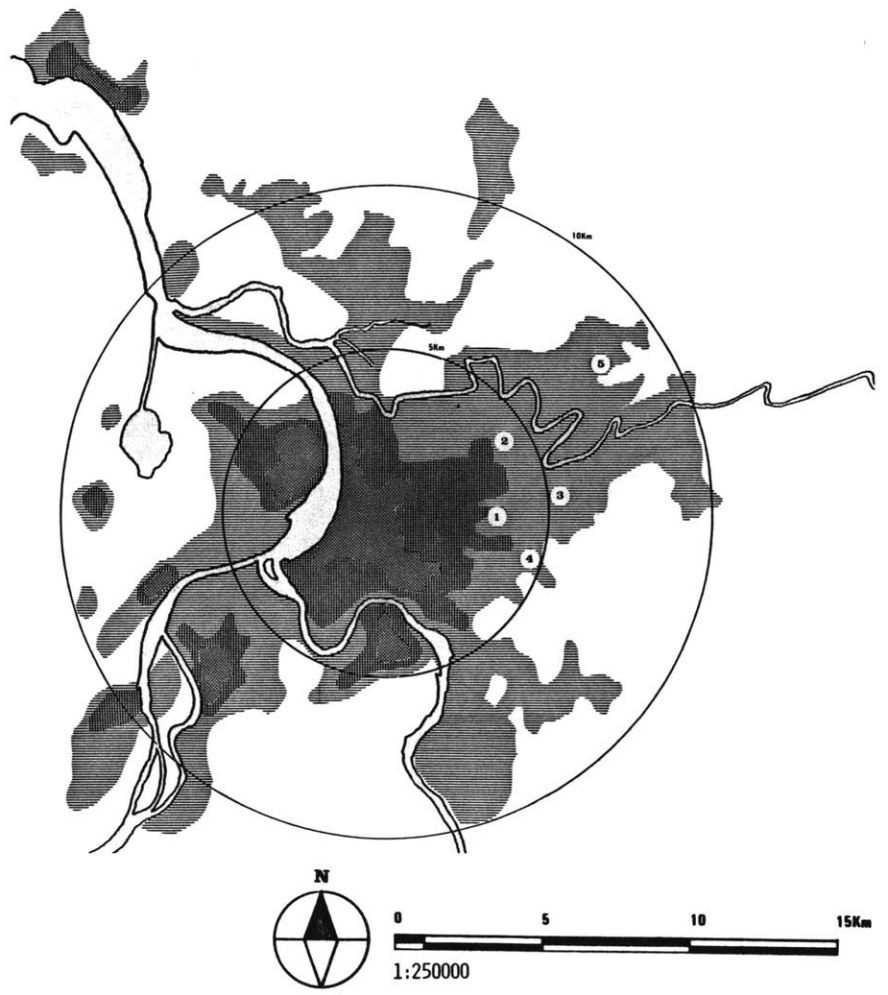
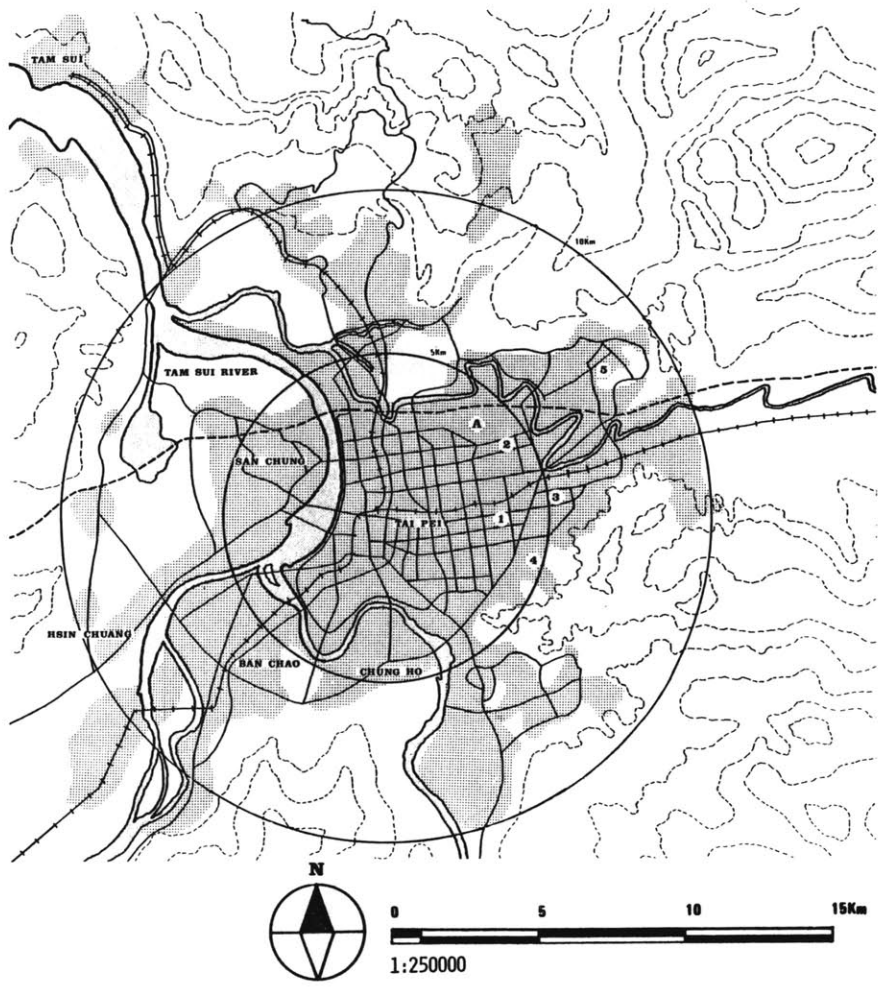
2. HISTORY: Taipei was made a prefecture in 1885, and an area of 441 hectares was laid out as its administrative district. Initial construction started in 1895. The development objectives at that time were primarily farming, irrigation and transportation. In 1895, 4,424 hectares were added to the original district. And in 1932, another 1,833 hectares were added. Taipei was made a provincial city in 1945, when Taiwan was returned to the Republic of China from Japanese occupation. In 1967, Taipei became a special municipality and the city area was expanded to include six surrounding districts. The present city plan was drafted after Taipei was made a special municipality. At present, it is the political, cultural and economic center of the Republic of China.

3. TAIPEI METROPOLITAN AREA: In considering the services and job opportunities that Taipei City provides, the influence area of the city covers the whole Taipei Basin. According to the Comprehensive Plan of Taipei (1976), this influence area includes: Tam Sui, San Chung, Hsin Chuang, Lin Kou, etc., and 14 other small cities and towns. In 1976, the population of this area was 3,800,000 (including 2,100,000 in Taipei City). In 1996 the population is projected to increase to 5,300,000 (including 3,500,000 in Taipei City). It is estimated that, as the result of the improvement of transportation, communication and the development of the economy, the influence area of Taipei City will be expanded and the characteristics of the city as the center city of the Taipei Metropolitan area will be enforced.

CASE STUDIES:

1. Chung Hsao East Road
2. Ming Sheng East Road
3. Wu Feng Pu
4. Sang Chang Li
5. Nai Hou





- KEY
- A** Airport
 - Primary Road
 - +—+— Railroad
 - Rapid Transit
 - ▒ Built-up Area

URBAN TOPOGRAPHY AND CIRCULATION

- DATES
- ▒ 1920
 - ▒ 1956
 - ▒ 1978

URBAN GROWTH PATTERN

4. THE RESIDENTIAL AREA OF TAIPEI CITY: The total area of the city is 27,000 hectares, of which only 12,000 hectares is flat and suitable for development. In 1975, the developed area was 6,500 hectares, 40% of which was for residential use (2,600 hectares). According to the City Plans for 1996, the area for residential use will expand to 7,000 hectares, an increase of 4,400 hectares for residential use. 80% of this area is located to the west and east of the city.

One of the purposes in choosing case studies in the eastern part of the city is that they represent the future type of development of the city.

5. THE GROWTH OF THE RESIDENTIAL AREA: The development of the residential area coincided with the development of the city. It is estimated that by 1996 the city will house 3,500,000 residents. All factors considered, to meet this growth, 700,000 new housing units will be needed. Although until 1976 the difference between the housing stock and housing need was quite small, it was still difficult for low-income people to acquire houses through their own efforts. The objectives of the current housing policy are to help low-income people to own their houses as well as to promote the quality of the dwelling environments.

Another reason for choosing case studies in the eastern part of the city is that the sites were developed during the past 15 years and they were designed according to the existing regulation system.

6. LAND USE IN THE RESIDENTIAL AREA: Mixed land use is the character of the city. A "proper" mixture of land use which allows small shops and family-based workshops to be located in the residential areas, will improve the convenience of living, increase job opportunities and also provide other social advantages. But an "improper" mixture will be detrimental and jeopardize the livability of the environments.

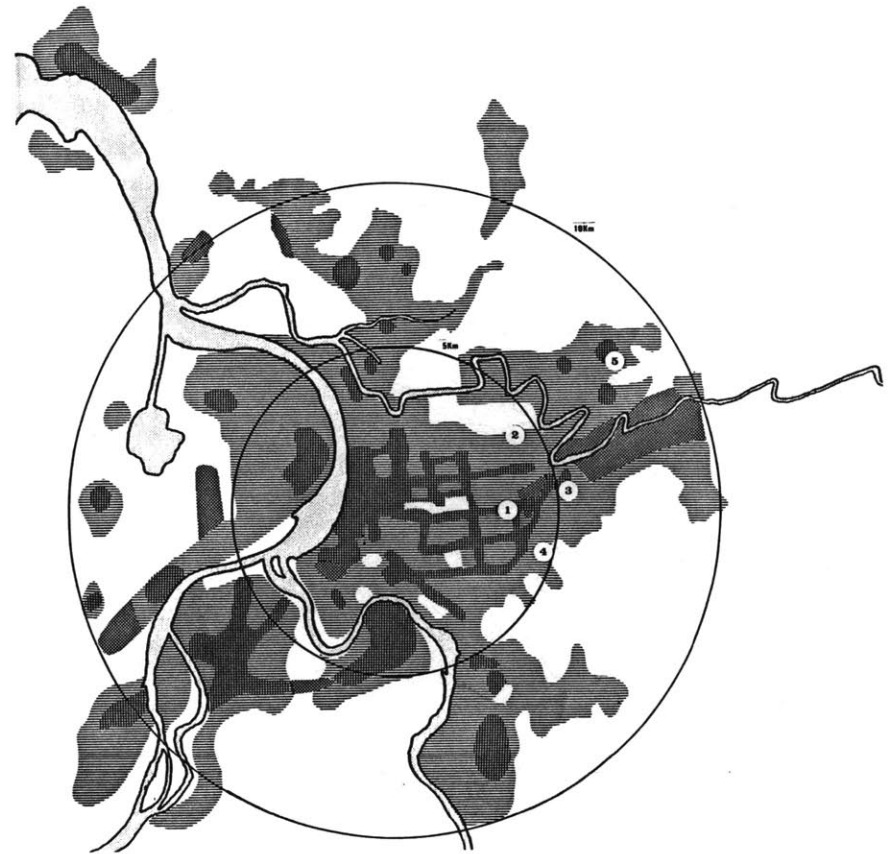
In accordance with the Comprehensive Plan of the City, by 1996 the land planned for residential use will meet the housing requirements from the growth of the population. The problems arise from the land use in the residential areas which are in the difficulty in acquiring land by the authorities and in the inefficient use of private land. To provide enough land for residential use, efforts should be directed toward the coordination between the various government offices to encourage full development of land as well as to prevent the price of private land from escalating randomly and excessively.

Although the case studies in this study are located in planned residential areas, they represent the range of characteristics stemming from different income levels and different mixtures of land use.

URBAN CONTEXT SOURCES

- Topography and Circulation: (accurate) THE REFERENCE MAP OF TAIPEI CITY PLAN. December 1973.
- Land Use Pattern: (accurate) THE ZONING PLAN MAP OF TAIPEI CITY PLAN. October, 1973.
- Growth Pattern: (accurate) THE COMPREHENSIVE PLAN OF TAIPEI. UDEPI of Tam Kang College, Taipei, 1978.
- Photographs: By the Author
- General Informations: THE COMPREHENSIVE PLAN OF TAIPEI. UDEPI of Tam Kang College, Taipei, 1978. URBAN DWELLING ENVIRONMENTS: TAIPEI, TAIWAN. Chu-Tzu Hsu, 1976.

PHOTOGRAPH (OPPOSITE PAGE): General view of the residential area in the eastern part of Taipei. Most of the building were constructed under Building Technology Rules during the past 15 years.



CASE STUDIES:

1. Chung Hsao East Road
2. Ming Sheng East Road
3. Wu Feng Pu
4. Sang Chang Li
5. Nai Hou

AREAS

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL

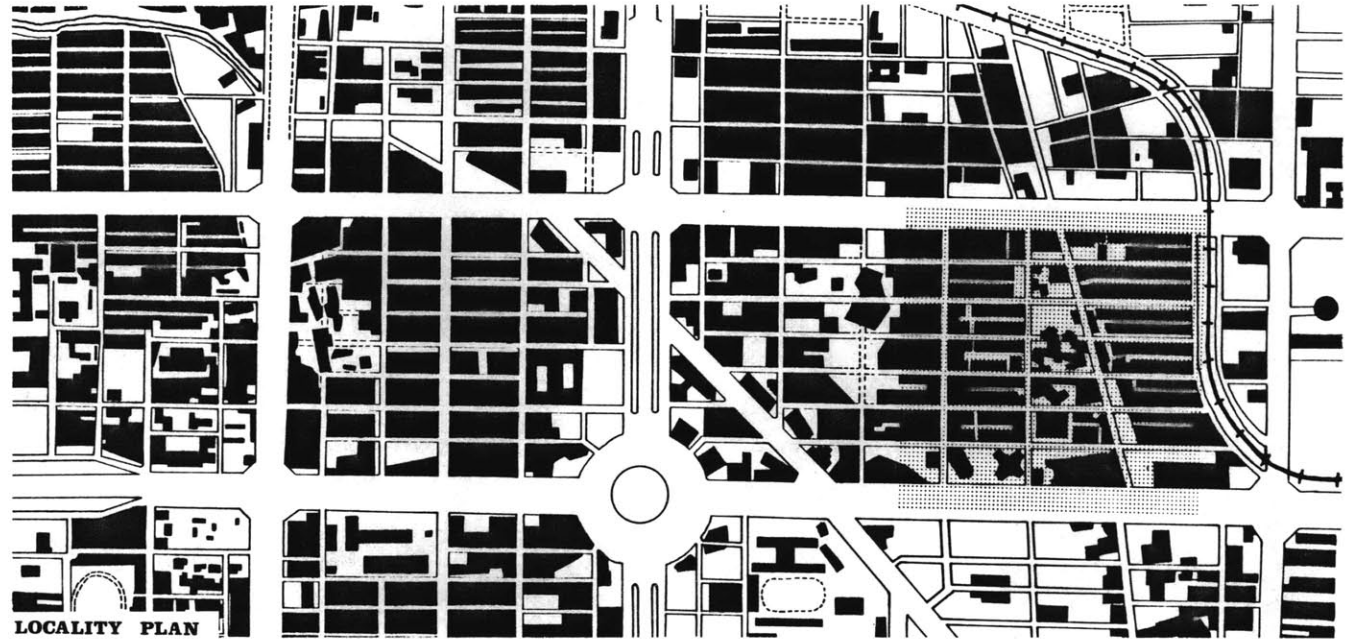
URBAN LAND USE PATTERN



CASE STUDY:





1. CHUNG HSAO EAST ROAD

The site is located along Chung Hsao East Road, a major spine connecting an old developed area and the newly developed area of the city. It is about 15 minutes away from the C.B.D. by bus. Except for the commercial land along the main roads, it is surrounded by residential land uses.



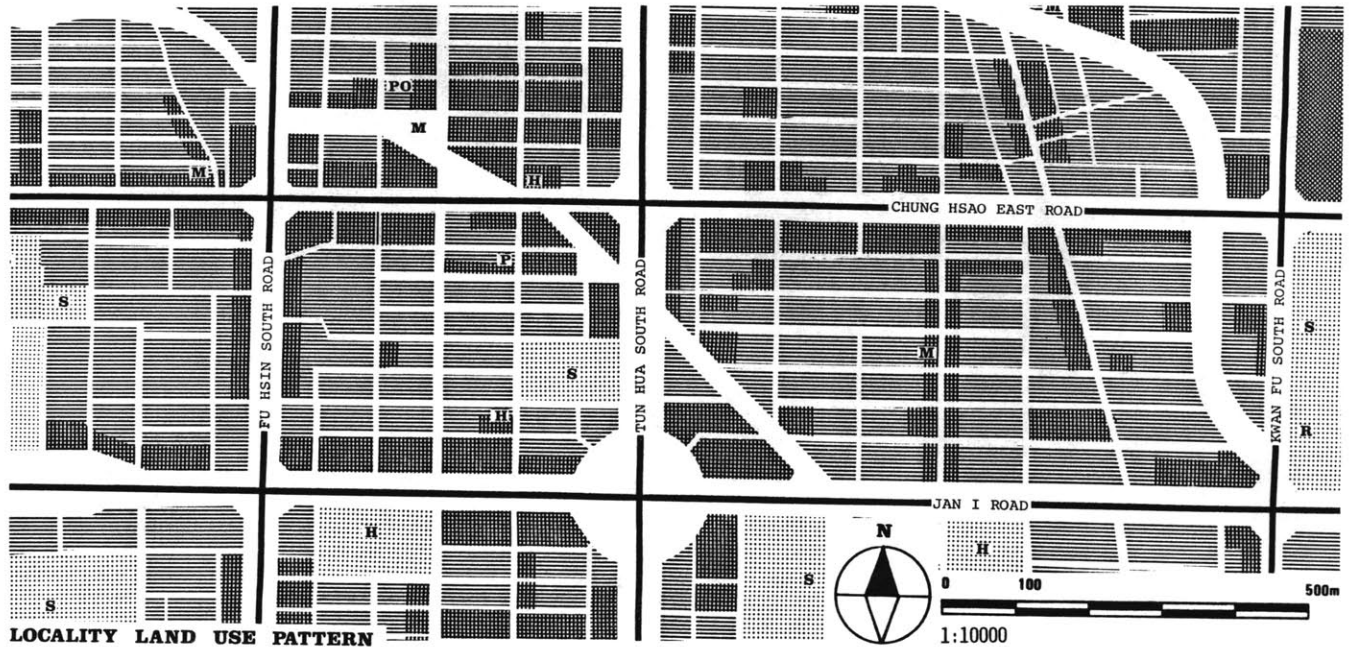
SELECTED SEGMENT

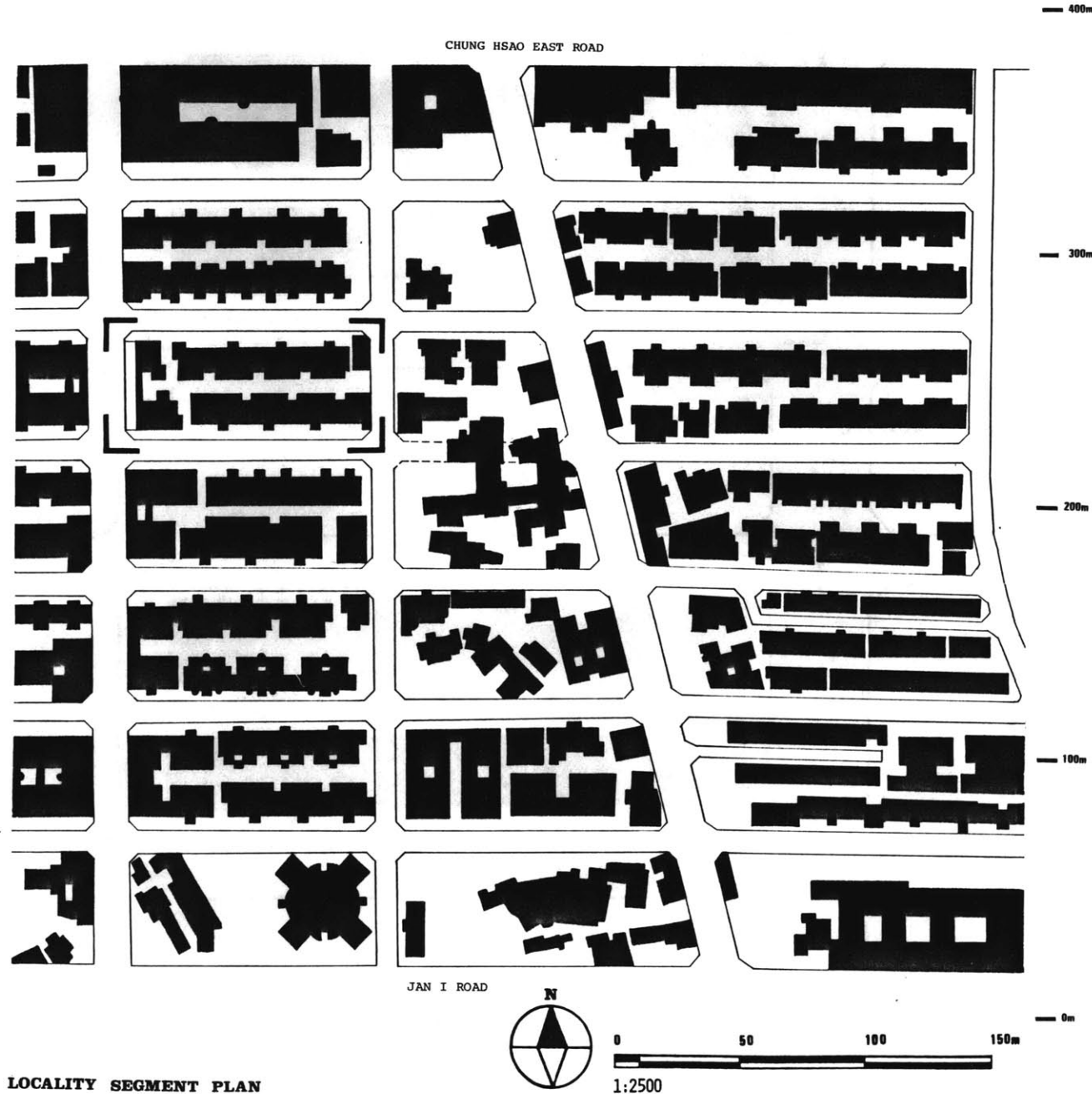
AREAS

-  RESIDENTIAL
-  COMMERCIAL
-  INDUSTRIAL
-  OPEN SPACES

KEY

- Pk** Parking
- P** Police
- F** Fire Department
- S** School
- Ch** Church
- R** Recreation
- L** Library
- U** University
- H** Health
- PO** Post Office
- SS** Social Services
- M** Market
- C** Cemetery
-  Bus





The site is also called "Pacific Community", a name given by a big developer "Pacific Construction Company". It is one of the so-called high income communities, not only because it has a good location but also because it provides sufficient public facilities such as large parks, good hospitals, good primary schools, and it is convenient to public transportation.

Most of the buildings in this area are seven story condominiums. Compared to other condominiums, the dwelling units are much larger in area and better in quality.

The residents can afford to hire laborers to clean the public and semi-private land in the community, therefore the open spaces are well maintained.

Since a government center will be moved to the east of this area in the near future, the area is intended to be developed into a subcenter of the city. This has resulted in serious problems in land utilization: almost all the dwelling units on the ground floor are being converted to offices and shops, and the streets are crowded with parked cars and traffic. The key issue in this area is how to provide for the mixture in land use and still maintain a good quality of environment.

LOCALITY SEGMENT PLAN

SELECTED BLOCK

LOCALITY BLOCK LAND UTILIZATION DATA

DENSITIES	Total Number	Area Hectares	Density N/Ha
LOTS	18	0.55	33
DWELLING UNITS	126	0.55	230
PEOPLE	630	0.55	1,145

AREAS (ORIGINAL)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.31	56%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.24	44%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.55	100%

AREAS (EXISTING)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.16	29%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.32	58%
SEMI-PRIVATE (cluster courts)	0.07	13%
TOTAL	0.55	100%

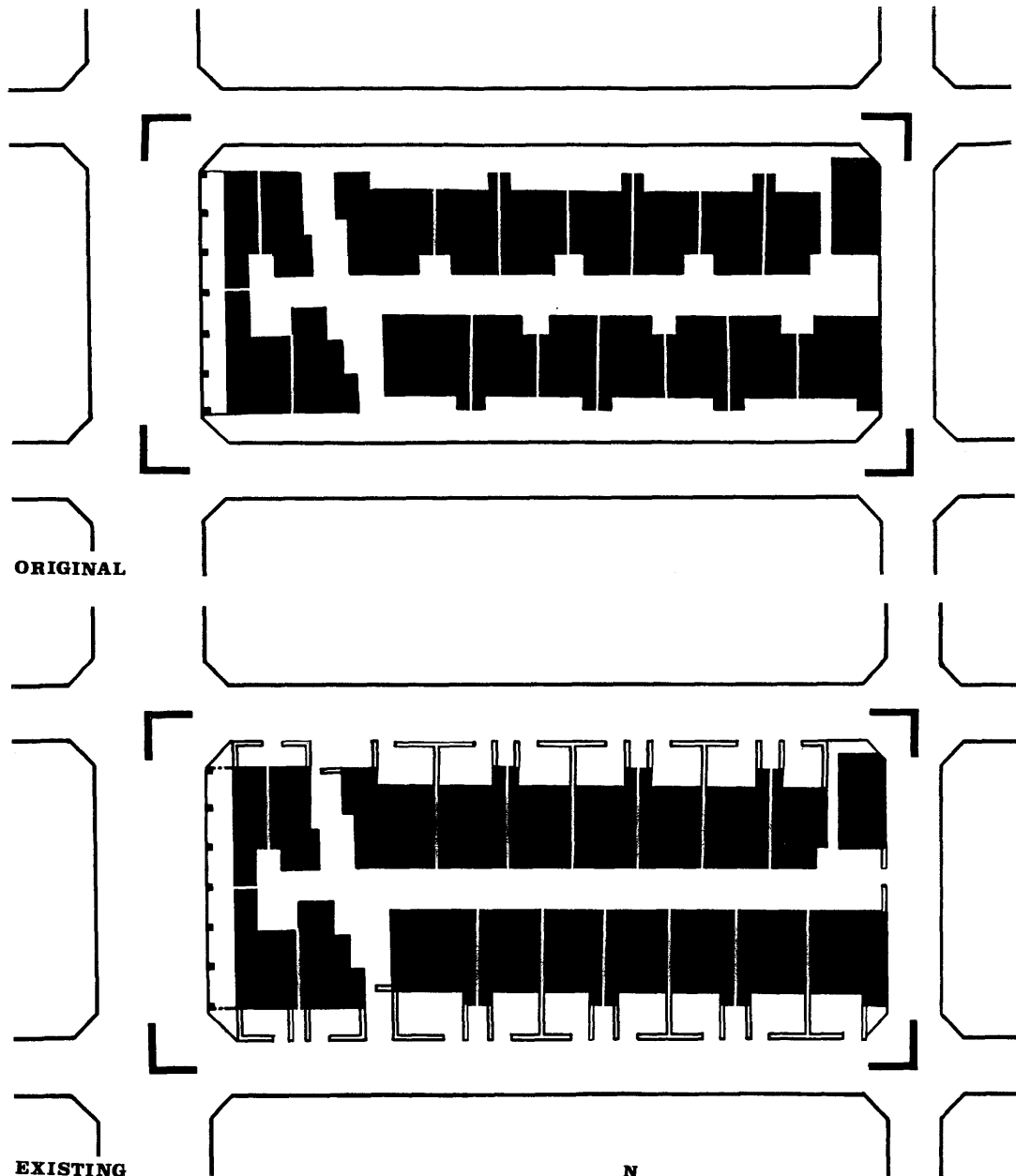
NETWORK EFFICIENCY

Network length (streets, walkways) = 290 m/Ha
 Areas served (total area)

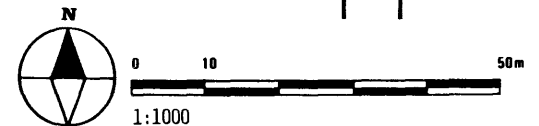
LOTS
 Average area, dimensions = 230 m²

CASE STUDY SOURCE

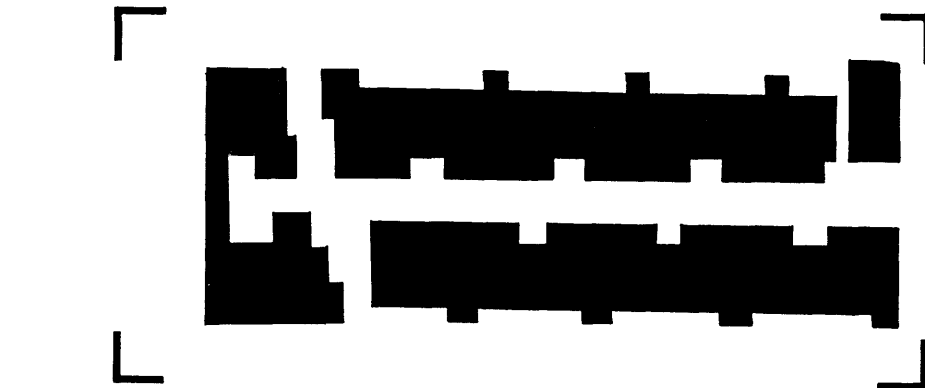
- Locality Plan: (accurate) STREETS MAP OF TAIPEI CITY PLAN. June, 1977.
- Locality Land Use: (accurate) LAND USE REPORTS OF TAIPEI CITY. 1978-1982.
- Locality Block Plan: (accurate) CITY PLANNING MAP. unpublished document.
- Block Land Utilization: (accurate) Field Survey by the Author. July, 1981.
- Typical Dwelling: (accurate) Field Survey by the Author. July, 1981.
- Physical Data: (accurate)
- Social-Economic Data: (approximate)
- Photographs: by the Author
- General Informations: (approximate)



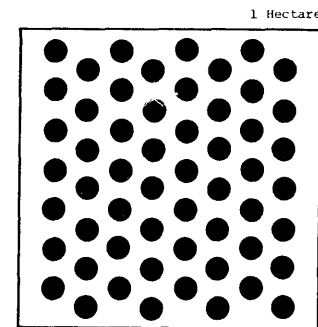
LOCALITY BLOCK PLAN



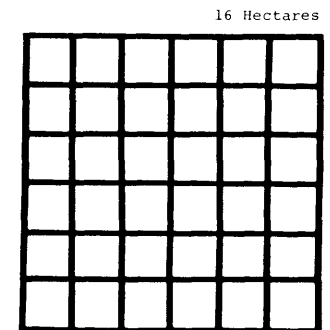
LAND UTILIZATION DIAGRAMS



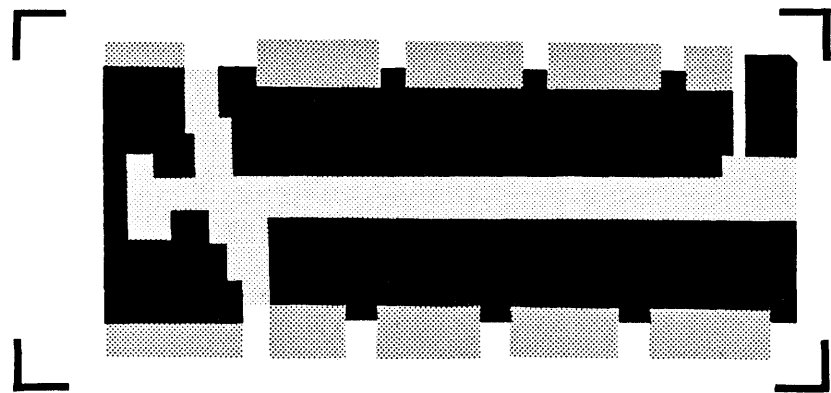
ORIGINAL



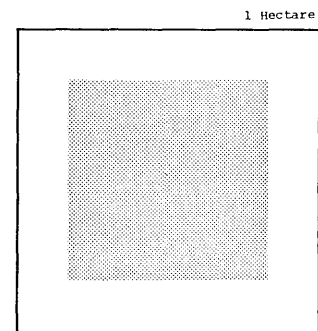
DENSITY Persons/Hectare
 ● 20 Persons 1145



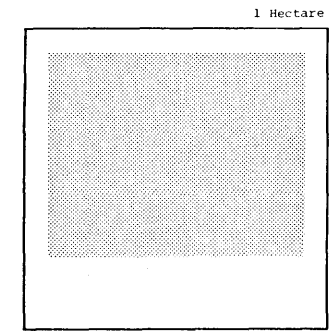
CIRCULATION EFFICIENCY
 Unit Length m/ha 290



EXISTING

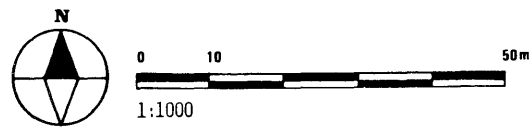


PERCENTAGES Streets/Walkways 56
 (ORIGINAL) Playgrounds -
 Cluster Courts -
 Dwellings/Lots 44



PERCENTAGES Streets/Walkways 29
 (EXISTING) Playgrounds -
 Cluster Courts 13
 Dwellings/Lots 58

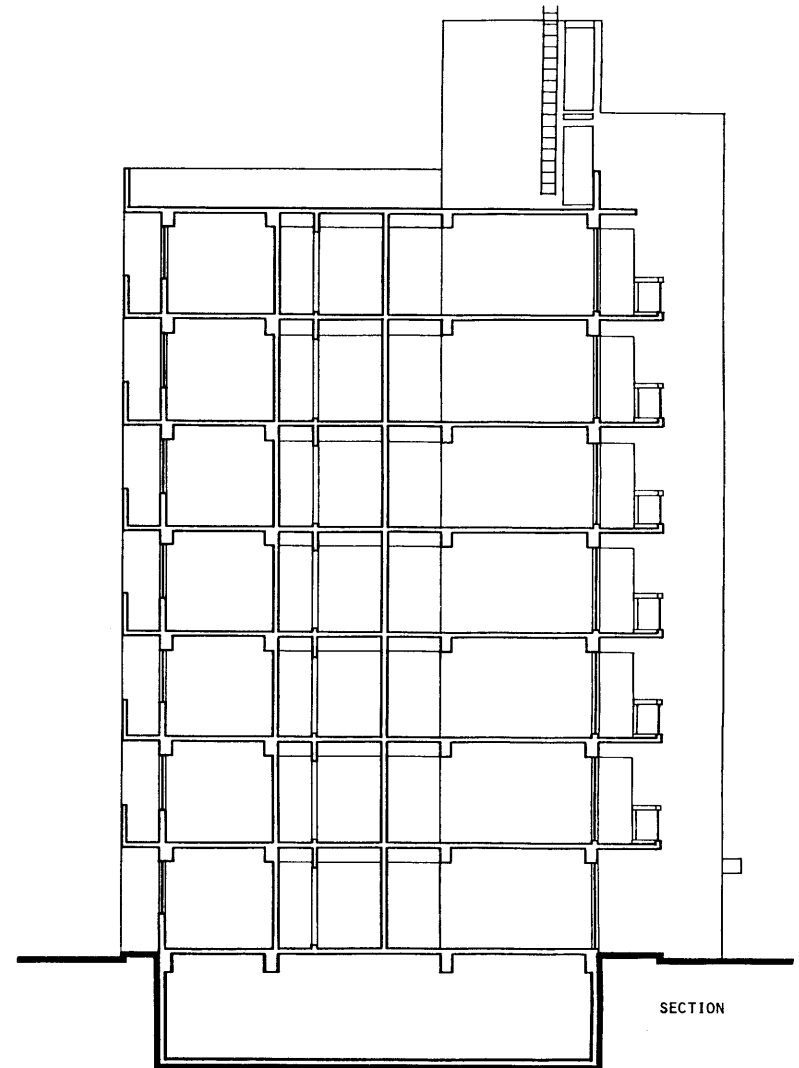
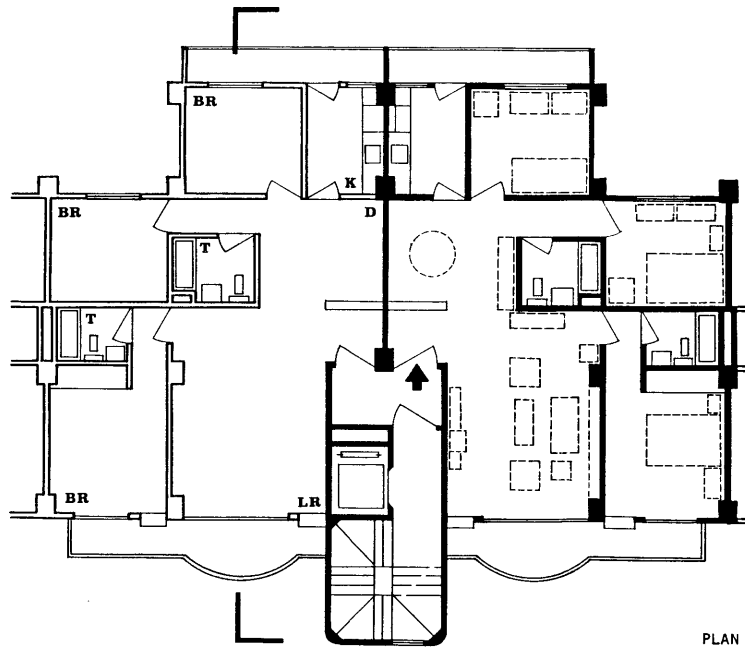
PATTERN
 Public: streets/walkways
 Semi-Public: playgrounds
 Semi-Private: cluster courts
 Private: lots
 dwellings



PHOTOGRAPHS (OPPOSITE PAGE):
 (TOP LEFT) General view of the Pacific Community, showing the building type, the utilization of streets and front yards.
 (BOTTOM LEFT) Arcades and streets on this area, used for commercial activities.
 (RIGHT) A narrow fire lane seen from above shows the functions of this open space.

KEY

- LR Living Room
- D Dining/Eating Area
- BR Bedroom
- K Kitchen/Cooking Area
- T Toilet/Bathroom
- L Laundry
- C Closet
- S Storage
- R Room (multi-use)



PHYSICAL DATA

(related to dwelling and land)

DWELLING UNIT

type: APARTMENT
 area (sq m): 111
 tenure: LEGAL RENTAL / OWNERSHIP

LAND/LOT

utilization: PRIVATE
 area (sq m): 200
 tenure: LEGAL RENTAL / OWNERSHIP

DWELLING

location: CITY CENTER
 type: ELEVATOR
 number of floors: 7
 utilization: MULTIPLE
 physical state: GOOD

DWELLING DEVELOPMENT

mode: INSTANT
 developer: PRIVATE
 builder: LARGE CONTRACTOR
 construction type: R.C.
 year of construction: 1970

MATERIALS

foundation: CONCRETE
 floors: CONCRETE
 walls: BRICK
 roof: CONCRETE

DWELLING FACILITIES

wc: 2
 shower: 2
 kitchen: 1
 rooms: 5
 other: NONE

SOCIO-ECONOMIC DATA

(related to user)

GENERAL: SOCIAL

user's ethnic origin: TAIWAN
 place of birth: TAIWAN
 education level: COLLEGE

NUMBER OF USERS

married: 2
 single: 0
 children: 4
 total: 6

MIGRATION PATTERN

number of moves: 1
 rural - urban: -
 urban - urban: 1978
 urban - rural: -

why came to urban area: BETTER ENVIRONMENT

GENERAL: ECONOMIC

user's income group: HIGH BUSINESS
 employment: -
 distance to work: 5 KM
 mode of travel: PUBLIC TRANSPORTATION

COSTS

dwelling unit: \$ 100,000
 land - market value: (TOTAL COST)

DWELLING UNIT PAYMENTS

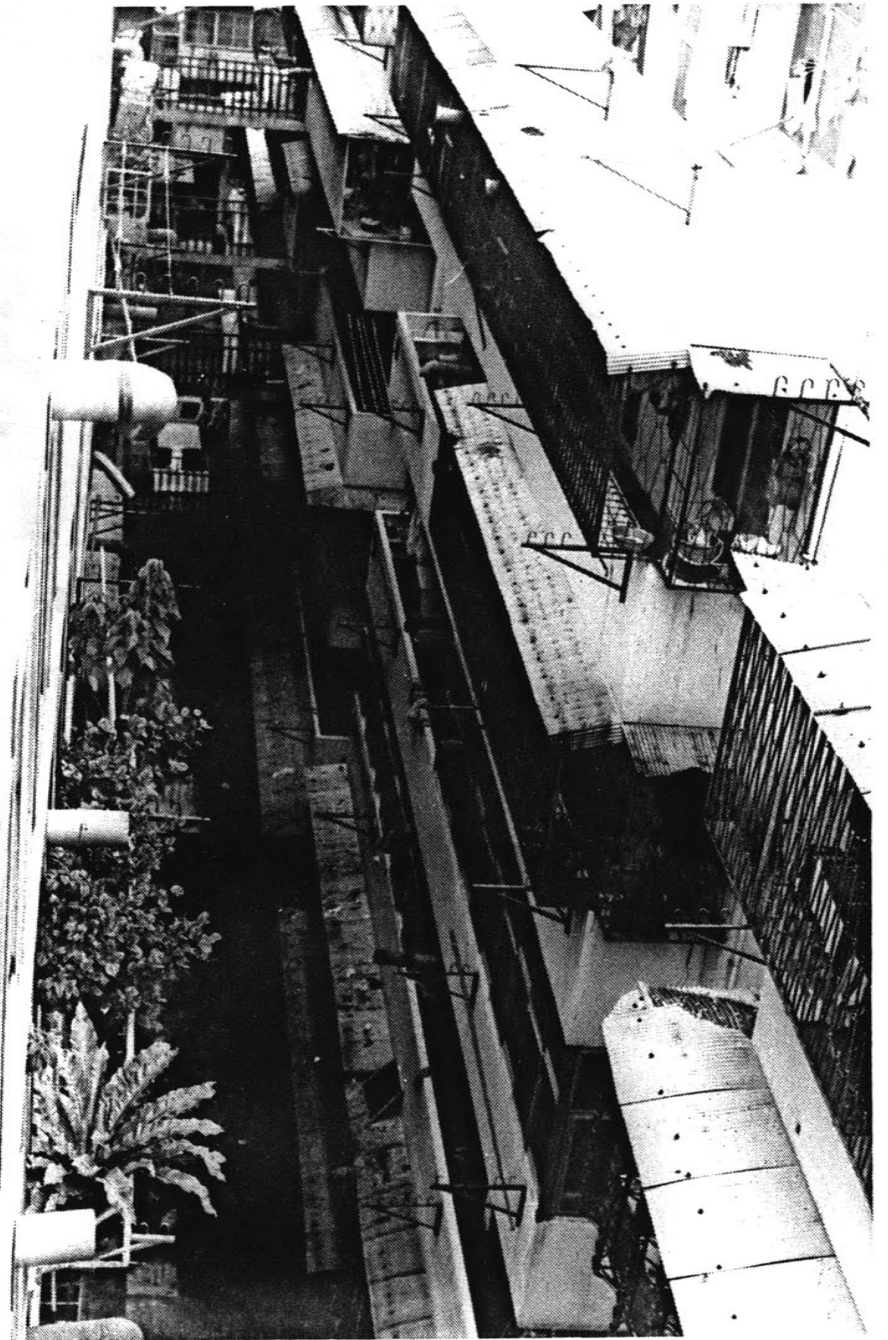
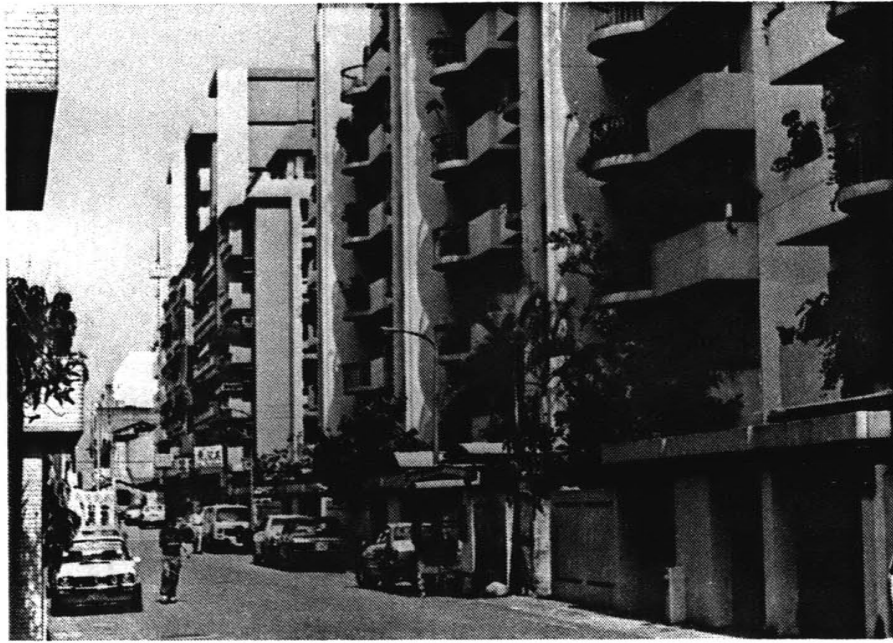
financing: LOAN
 rent/mortgage: -
 % income for rent/mortgage: -



0 1 5 10m

1:200

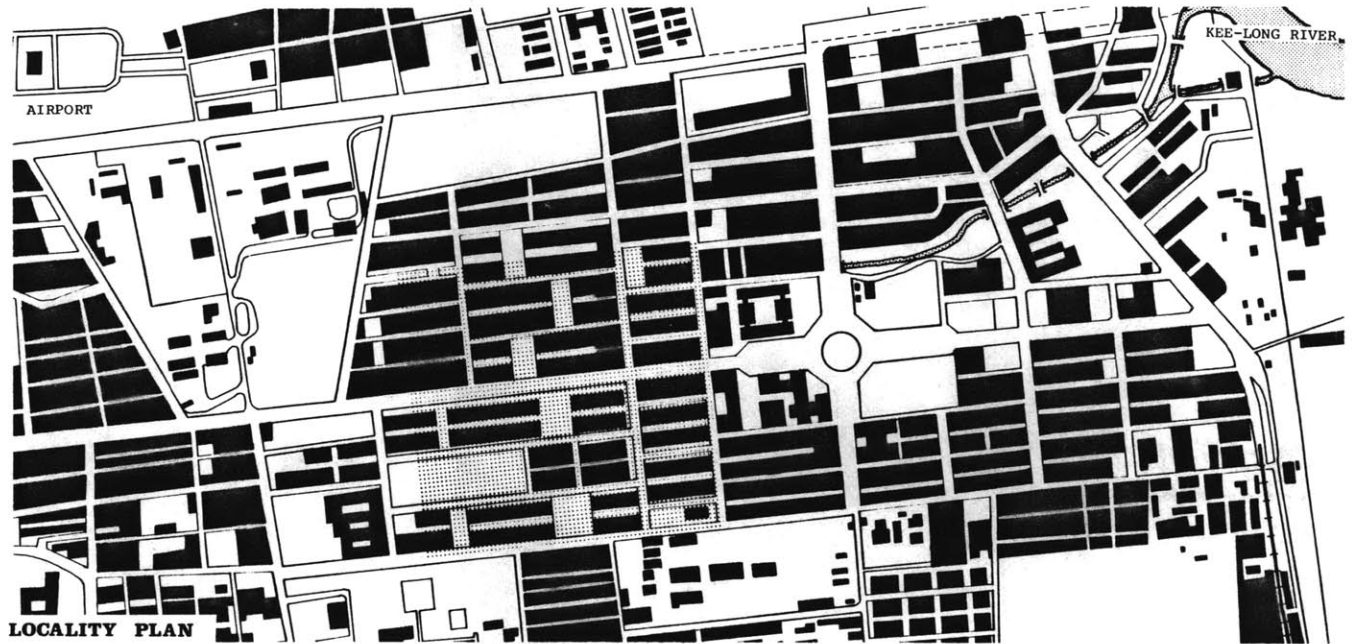
TYPICAL DWELLING



CASE STUDY:

2. MING SHENG EAST ROAD

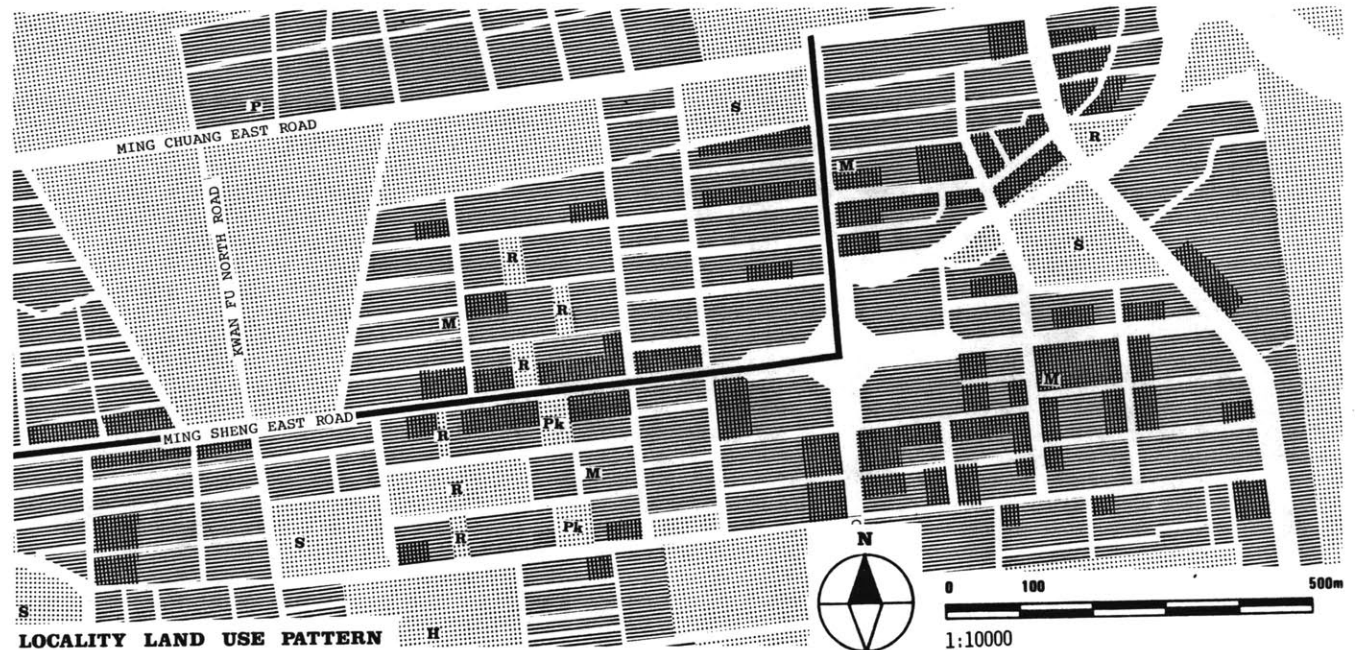
The Ming Sheng Community is located along Ming Sheng East Road, 30 minutes distant from C.B.D. by bus. The site is surrounded by residential areas on the east, west and south, and by the Taipei Airport on the north.



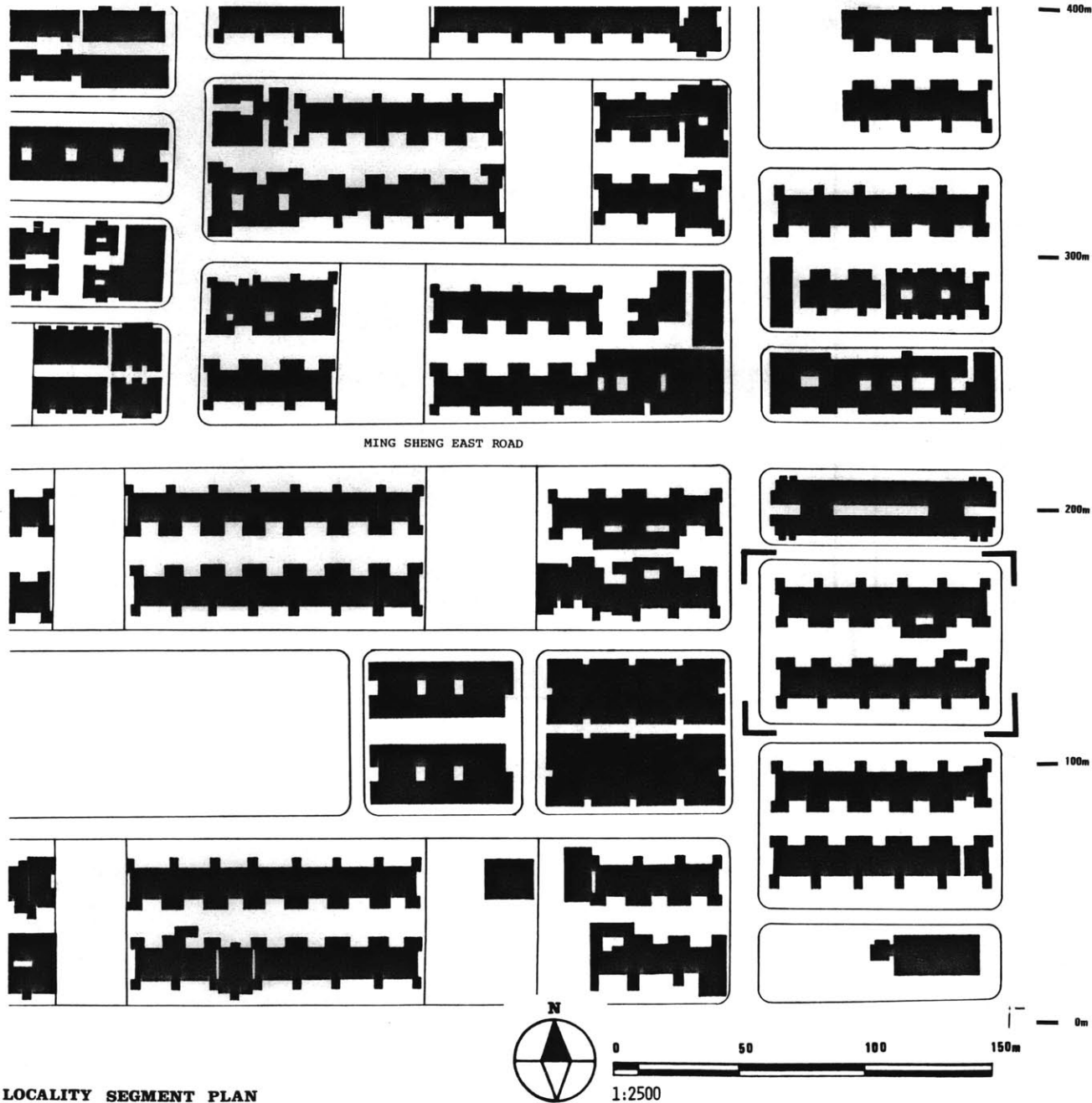
SELECTED SEGMENT

- AREAS**
- RESIDENTIAL
 - COMMERCIAL
 - INDUSTRIAL
 - OPEN SPACES

- KEY**
- Pk Parking
 - P Police
 - F Fire Department
 - S School
 - Ch Church
 - R Recreation
 - L Library
 - U University
 - H Health
 - PO Post Office
 - SS Social Services
 - M Market
 - C Cemetery
 - Bus



LOCALITY LAND USE PATTERN

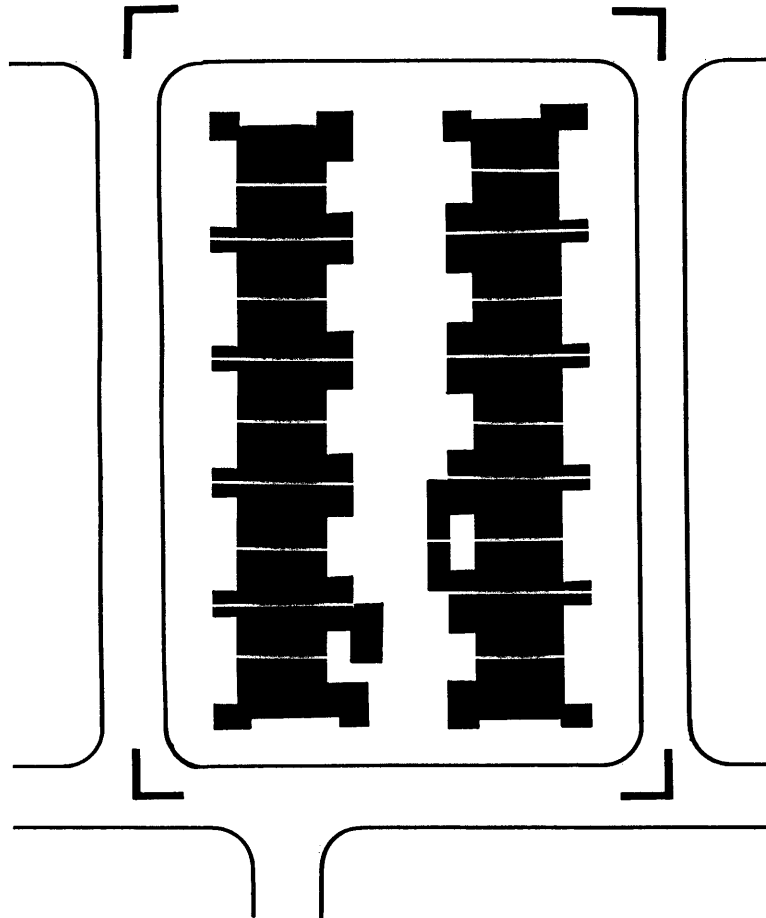


Ming Sheng Community was built by the government with the financial aid of the U.S. and sold to government employees with long-term, low interest loans 15 years ago. It was planned and designed according to the old "Public Housing Codes", which required higher standards than the current regulations. Compared to the other residential areas built by the private sector, this community has higher standards in the quality of the environment. The buildings are simply separated, and the area has sufficient community parks and good community facilities. But since the distance between the buildings is so large - about 12 meters wide - and every household is given a small back yard for their own use, these large "fire lanes" are completely useless and become garbage dumps.

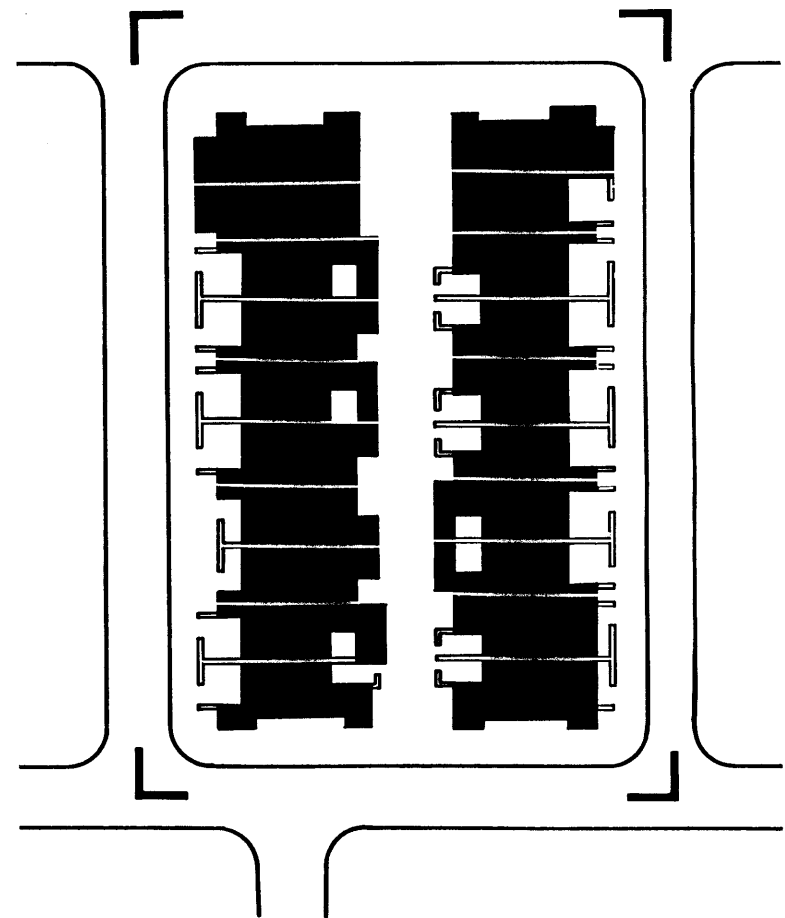
When the old Public Housing Codes were ended, some "legal constructions" have taken place on the open spaces between the buildings and back yards. It can be predicted that the land will resemble the fire lanes seen in every other community in Taipei.

LOCALITY SEGMENT PLAN

ORIGINAL



EXISTING



CASE STUDY SOURCE

Locality Plan: (accurate) STREETS MAP OF TAIPEI CITY PLAN. June, 1977.
 Locality Land Use: (accurate) LAND USE REPORTS OF TAIPEI CITY. 1978-1982.
 Locality Block Plan: (accurate) CITY PLANNING MAP. unpublished document.
 Block Land Utilization: (accurate) Field Survey by the Author. July, 1981.
 Typical Dwelling: (accurate) Field Survey by the Author. July, 1981.
 Physical Data: (accurate)
 Social-Economic Data: (approximate)
 Photographs: by the Author
 General Informations: (approximate)

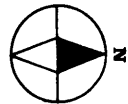
LOCALITY BLOCK LAND UTILIZATION DATA

	Total Number	Area Hectares	Density N/Ha
DENSITIES			
LOTS	20	0.77	26
DWELLING UNITS	80	0.77	104
PEOPLE	400	0.77	519
AREAS (ORIGINAL)		Hectares	Percentages
PUBLIC (streets, walkways, open spaces)		0.51	66%
SEMI-PUBLIC (open spaces, schools, community centers)		-	-
PRIVATE (dwellings, shops, factories, lots)		0.26	34%
SEMI-PRIVATE (cluster courts)		-	-
TOTAL		0.77	100%

AREAS (EXISTING)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.39	51%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.38	49%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.77	100%

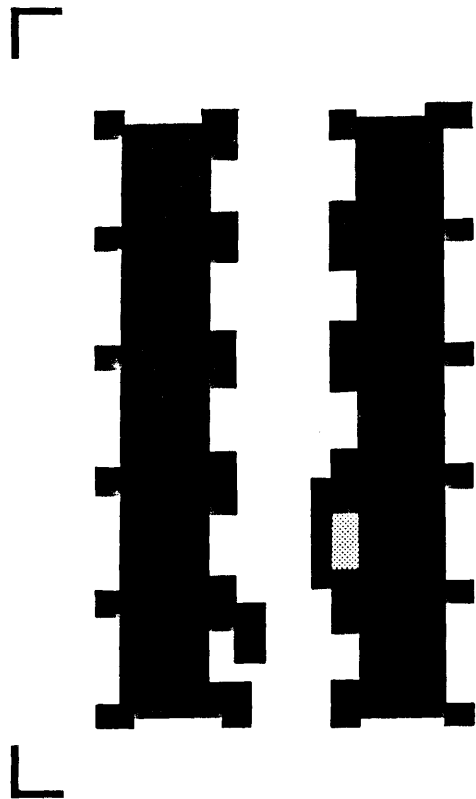
NETWORK EFFICIENCY
 Network length (streets, walkways) = 232 m/Ha
 Areas served (total area)

LOTS
 Average area, dimensions = 312 m²



LOCALITY BLOCK PLAN

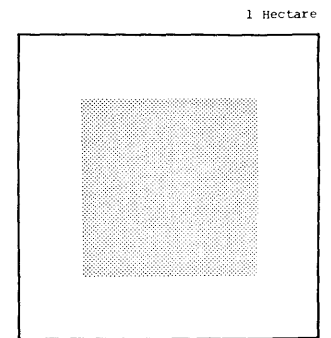
ORIGINAL



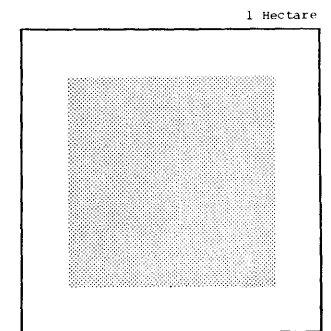
EXISTING



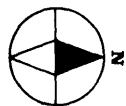
LAND UTILIZATION DIAGRAMS



PERCENTAGES (ORIGINAL)		
Streets/Walkways	66	
Playgrounds	-	
Cluster Courts	-	
Dwellings/Lots	34	

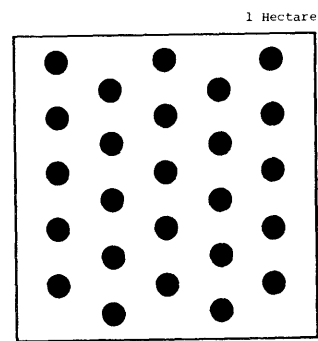


PERCENTAGES (EXISTING)		
Streets/Walkways	51	
Playgrounds	-	
Cluster Courts	-	
Dwellings/Lots	49	

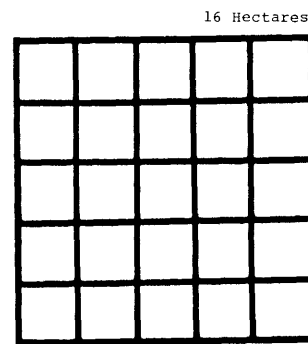


1:1000

LOCALITY BLOCK LAND UTILIZATION



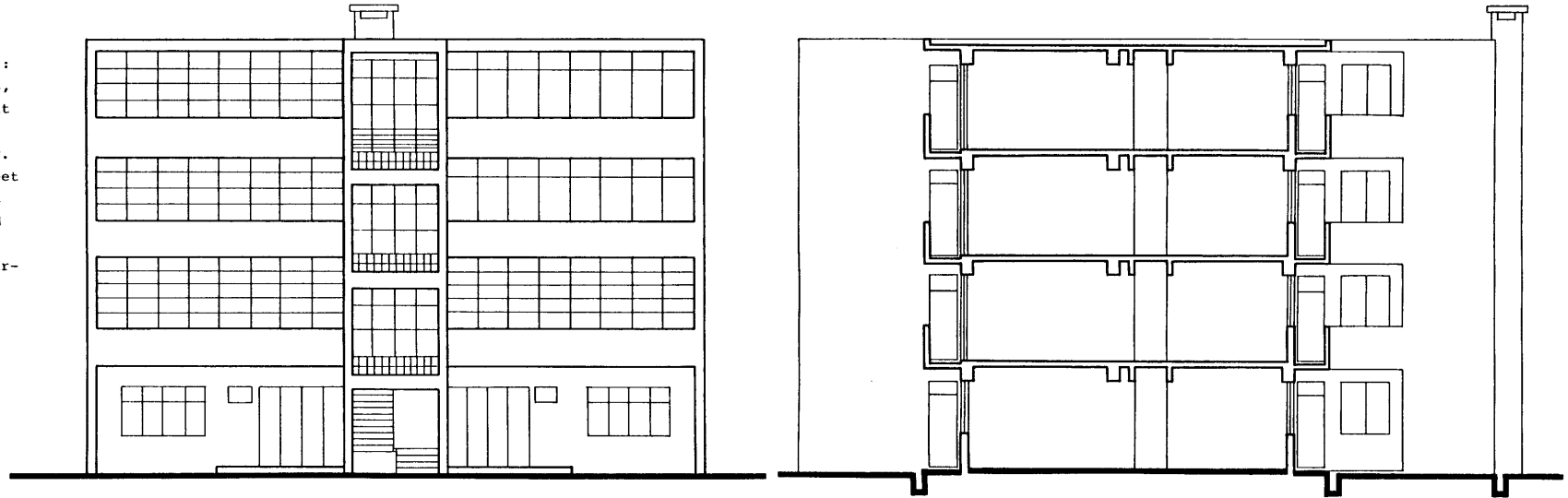
DENSITY		Persons/Hectare
●	20 Persons	519



CIRCULATION EFFICIENCY		Unit Length	m/Ha	232
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PATTERN		
Public:	streets/walkways	
Semi-Public:	playgrounds	
Semi-Private:	cluster courts	
Private:	lots	
	dwellings	

PHOTOGRAPHS
(OPPOSITE PAGE):
(RIGHT) Streets,
sidewalks, front
yards in Ming
Sheng Community.
(TOP LEFT) Street
near the market
place. (BOTTOM
LEFT) Wide fire
lane becomes gar-
bage dumps and
garage.



ELEVATION

SECTION

PHYSICAL DATA
(related to dwelling and land)

DWELLING UNIT
type: APARTMENT
area (sq m): 125
tenure: LEGAL RENTAL / OWNERSHIP

LAND/LOT
utilization: PRIVATE
area (sq m): 300
tenure: LEGAL RENTAL / OWNERSHIP

DWELLING
location: CITY CENTER
type: WALK-UP
number of floors: 4
utilization: MULTIPLE
physical state: FAIR

DWELLING DEVELOPMENT
mode: INSTANT
developer: PUBLIC
builder: LARGE CONTRACTOR
construction type: MASONRY/CONCRETE
year of construction: 1965

MATERIALS
foundation: CONCRETE
floors: CONCRETE
walls: BRICK
roof: CONCRETE

DWELLING FACILITIES
wc: 2
shower: 1
kitchen: 1
rooms: 4
other: STORAGE

SOCIO-ECONOMIC DATA
(related to user)

GENERAL: SOCIAL
user's ethnic origin: MAINLAND CHINA
place of birth: MAINLAND CHINA
education level: COLLEGE

NUMBER OF USERS
married: 2
single: -
children: 2
total: 4

MIGRATION PATTERN
number of moves: 3
rural - urban: -
urban - urban: 1970 (RECENT)
urban - rural: -
why came to urban area: EMPLOYMENT

GENERAL: ECONOMIC
user's income group: MIDDLE
employment: GOVERNMENT EMPLOYEE
distance to work: 5 KM
mode of travel: PUBLIC TRANSPORTATION

COSTS
dwelling unit: \$ 85,000
land - market value: (TOTAL COST)

DWELLING UNIT PAYMENTS
financing: LOAN
rent/mortgage: -
% income for rent/mortgage: -

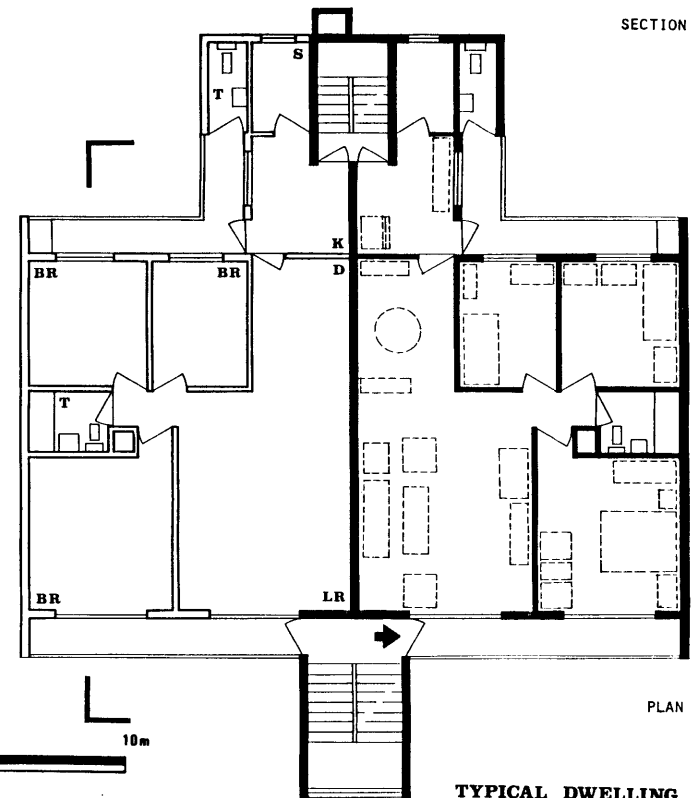
KEY

LR Living Room
D Dining/Eating Area
BR Bedroom
K Kitchen/Cooking Area
T Toilet/Bathroom
L Laundry
C Closet
S Storage
R Room (multi-use)



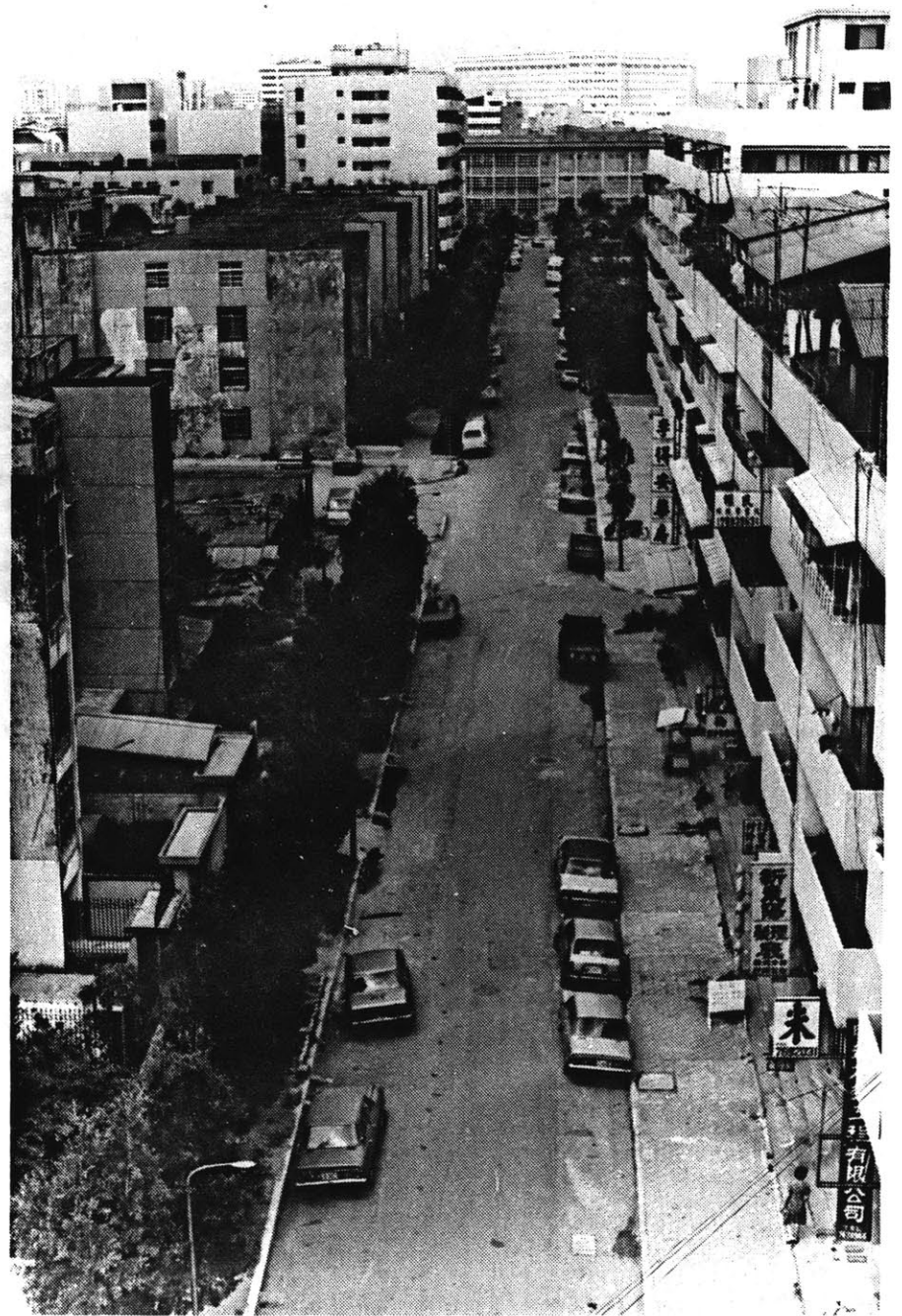
0 1 5 10m

1:200



PLAN

TYPICAL DWELLING



CASE STUDY:

3. WU FENG PU

Wu Feng Pu is located at the intersection of Yung Gi Road and Kee Long Road. The former is the most important provincial highway and the latter is the major road connecting Taipei to the north-south freeway. The site is surrounded by industrial areas on its north, east and northwest sides.



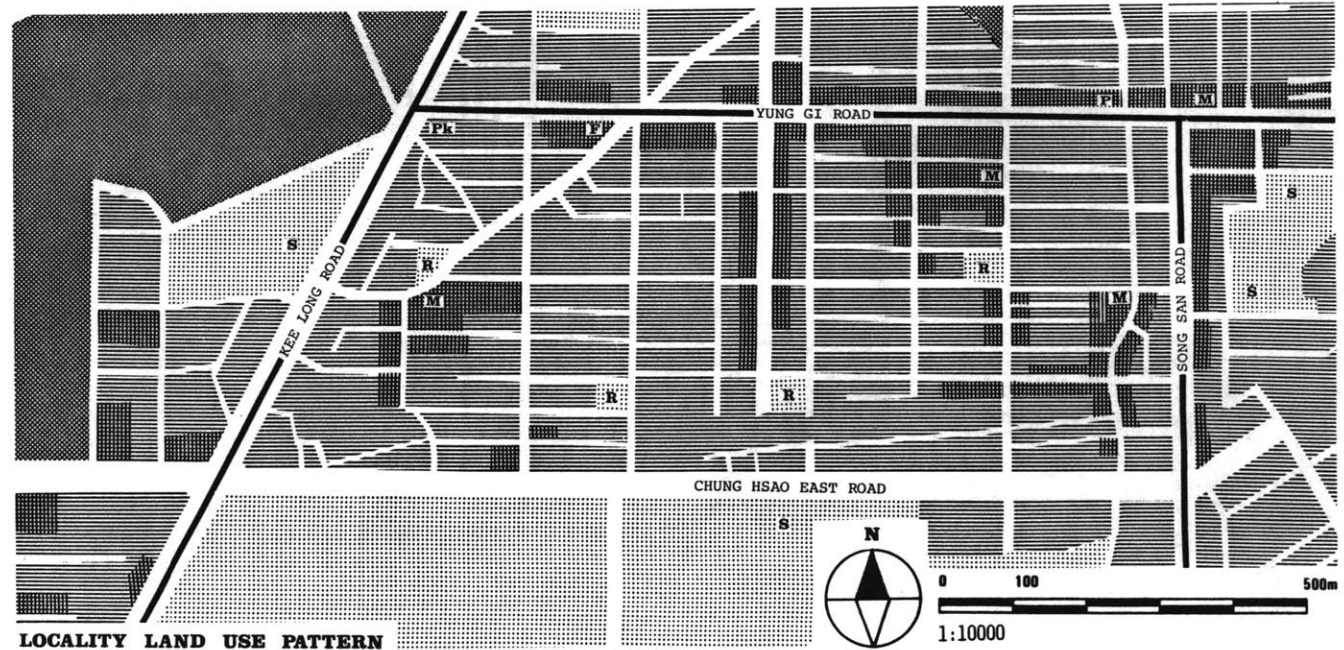
SELECTED SEGMENT

AREAS

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- OPEN SPACES

KEY

- Pk Parking
- P Police
- F Fire Department
- S School
- Ch Church
- R Recreation
- L Library
- U University
- H Health
- PO Post Office
- SS Social Services
- M Market
- C Cemetery
- Bus



LOCALITY LAND USE PATTERN

1:10000



Wu Feng Pu has been developed as a middle-low to low-income community during the past 10 years. The buildings are 4 story walk-up condominiums. As the price of land continues to increase, some 7 story elevator condominiums are now being constructed in the area.

Although all public utilities are provided, the open spaces in the community are very scarce, only a small park is located in the center of the site. In the afternoons, it is so crowded with children that many have to play on the streets. The spaces allocated for markets are also very small and the nearby streets are crowded by peddlers.

Because of the location of this area, the dwellers often change their private open spaces or dwelling units into family based factories. This mixed use of land jeopardizes the quality of the environment in this area.

LOCALITY SEGMENT PLAN

1:2500

SELECTED BLOCK

LOCALITY BLOCK LAND UTILIZATION DATA

DENSITIES	Total Number	Area Hectares	Density N/Ha
LOTS	39	0.66	59
DWELLING UNITS	142	0.66	215
PEOPLE	781	0.66	1,183

AREAS (ORIGINAL)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.39	59%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.27	41%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.66	100%

AREAS (EXISTING)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.27	41%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.39	59%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.66	100%

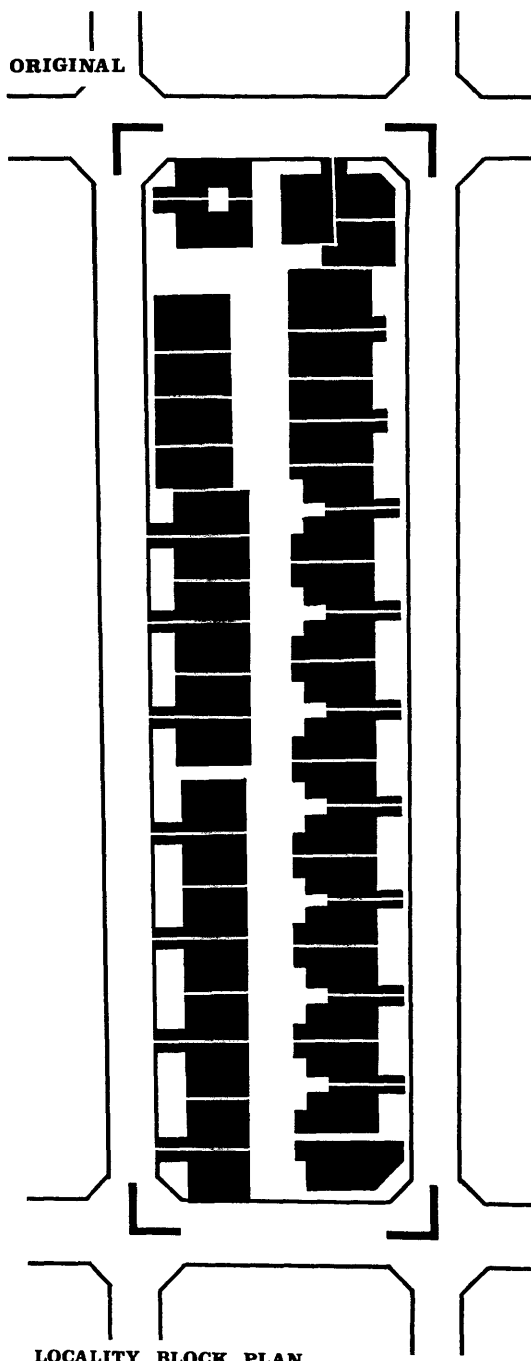
NETWORK EFFICIENCY

Network length (streets, walkways) = 357 m/Ha
 Areas served (total area)

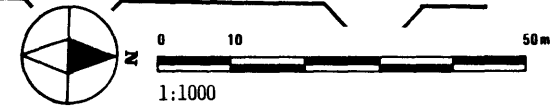
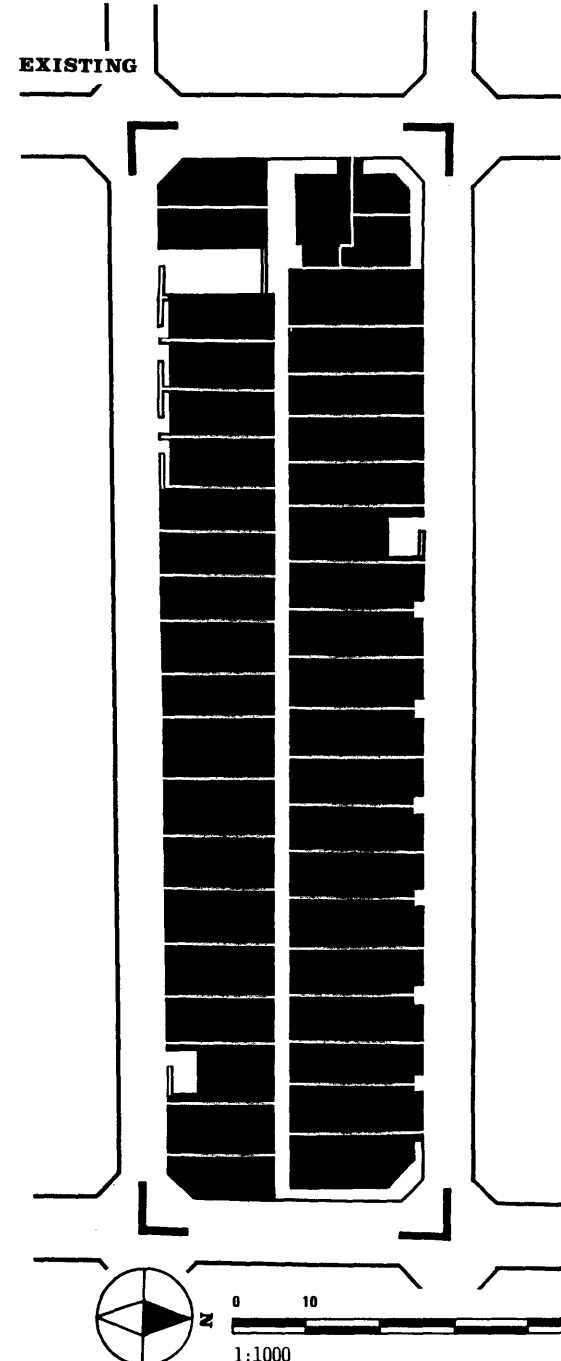
LOTS
 Average area, dimensions = 121 m²

CASE STUDY SOURCE

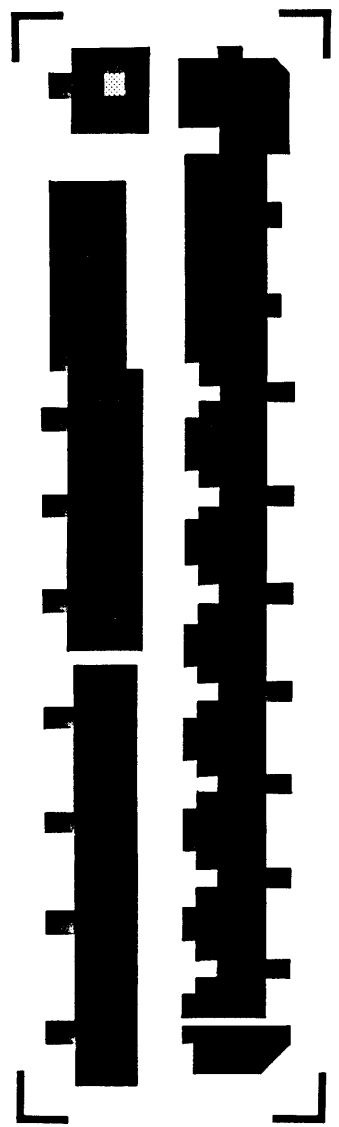
- Locality Plan: (accurate) STREETS MAP OF TAIPEI CITY PLAN. June, 1977.
- Locality Land Use: (accurate) LAND USE REPORTS OF TAIPEI CITY. 1978-1982.
- Locality Block Plan: (accurate) CITY PLANNING MAP. unpublished document.
- Block Land Utilization: (accurate) Field Survey by the Author. July, 1981.
- Typical Dwelling: (accurate) Field Survey by the Author. July, 1981.
- Physical Data: (accurate)
- Social-Economic Data: (approximate)
- Photographs: by the Author
- General Informations: (approximate)



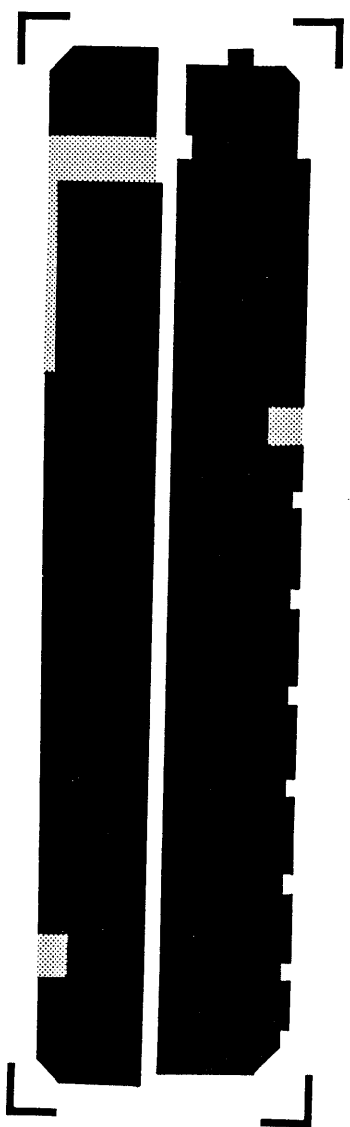
LOCALITY BLOCK PLAN



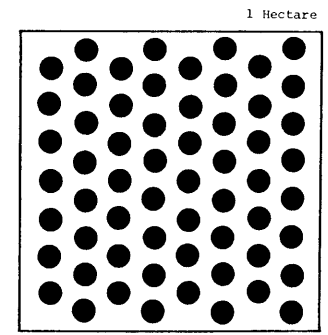
ORIGINAL



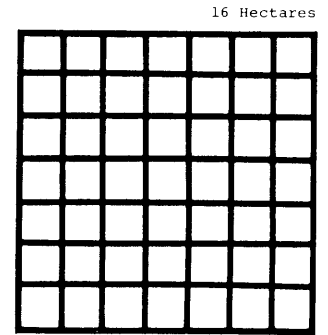
EXISTING



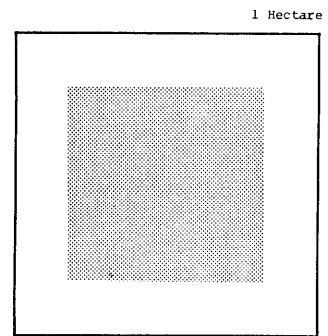
LAND UTILIZATION DIAGRAMS



DENSITY Persons/Hectare
 ● 20 Persons 1577

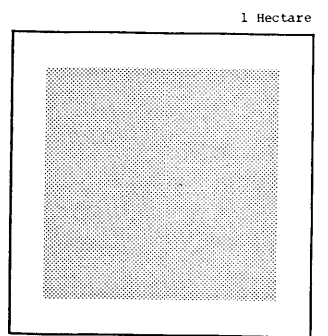


CIRCULATION EFFICIENCY
 Unit Length m/Ba 357



PERCENTAGES (ORIGINAL)

Streets/Walkways	59
Playgrounds	-
Cluster Courts	-
Dwellings/Lots	41

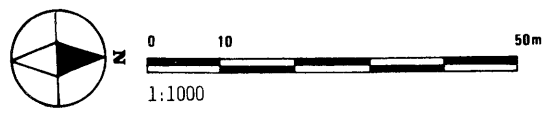


PERCENTAGES (EXISTING)

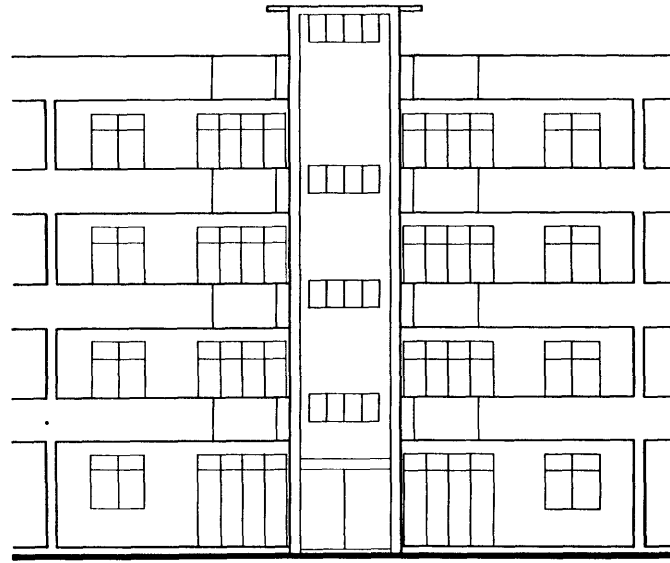
Streets/Walkways	41
Playgrounds	-
Cluster Courts	-
Dwellings/Lots	59

PATTERN

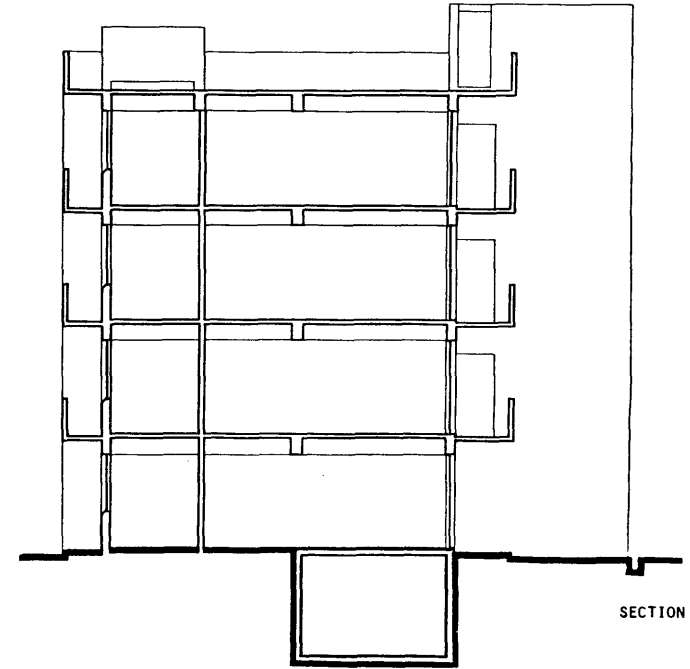
Public:	streets/walkways	
Semi-Public:	playgrounds	
Semi-Private:	cluster courts	
Private:	lots	
	dwellings	



PHOTOGRAPHS (OPPOSITE PAGE):
 (TOP LEFT) Arcade along the main streets are crowded with motor-cycles, goods, vanding carts of the adjacent shops.
 (BOTTOM LEFT) A street near the market place, crowded with peddlers in the morning.
 (RIGHT) A general view of this area showing the building type, the use of narrow streets, and the encroachment of front yards.



ELEVATION



SECTION

PHYSICAL DATA

(related to dwelling and land)

DWELLING UNIT
 type: APARTMENT
 area (sq m): 95
 tenure: LEGAL RENTAL / OWNERSHIP

LAND/LOT
 utilization: PRIVATE
 area (sq m): 130
 tenure: LEGAL RENTAL / OWNERSHIP

DWELLING
 location: CITY CENTER
 type: WALK-UP
 number of floors: 4
 utilization: MULTIPLE
 physical state: BAD

DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: MASONRY/CONCRETE
 year of construction: 1970

MATERIALS
 foundation: CONCRETE
 floors: CONCRETE
 walls: BRICK
 roof: CONCRETE

DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: 1
 rooms: 4
 other: NONE

SOCIO-ECONOMIC DATA

(related to user)

GENERAL: SOCIAL
 user's ethnic origin: TAIWAN
 place of birth: TAIWAN
 education level: HIGH SCHOOL

NUMBER OF USERS
 married: 4
 single: 1
 children: 1
 total: 6

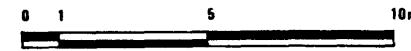
MIGRATION PATTERN
 number of moves: 1
 rural - urban: 1978
 urban - urban: -
 urban - rural: -
 why came to urban area: BETTER ENVIRONMENT

GENERAL: ECONOMIC
 user's income group: LOW
 employment: SALES
 distance to work: 2 KM
 mode of travel: PUBLIC TRANSPORTATION

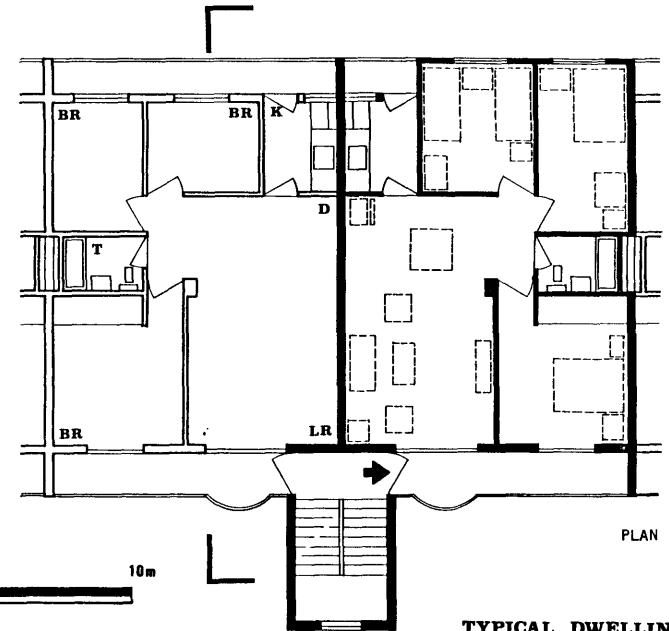
COSTS
 dwelling unit: \$ 75,000
 land - market value: (TOTAL COST)

DWELLING UNIT PAYMENTS
 financing: LOAN
 rent/mortgage: -
 % income for rent/mortgage: -

KEY
 LR Living Room
 D Dining/Eating Area
 BR Bedroom
 K Kitchen/Cooking Area
 T Toilet/Bathroom
 L Laundry
 C Closet
 S Storage
 R Room (multi-use)



1:200



PLAN

TYPICAL DWELLING



CASE STUDY:

4. SANG CHANG LI

San Chang Li is located in the most eastern part of Taipei, thirty minutes away from the C.B.D. by bus. The site is surrounded by residential areas. Chuang Ching Road connects the area to the city center.



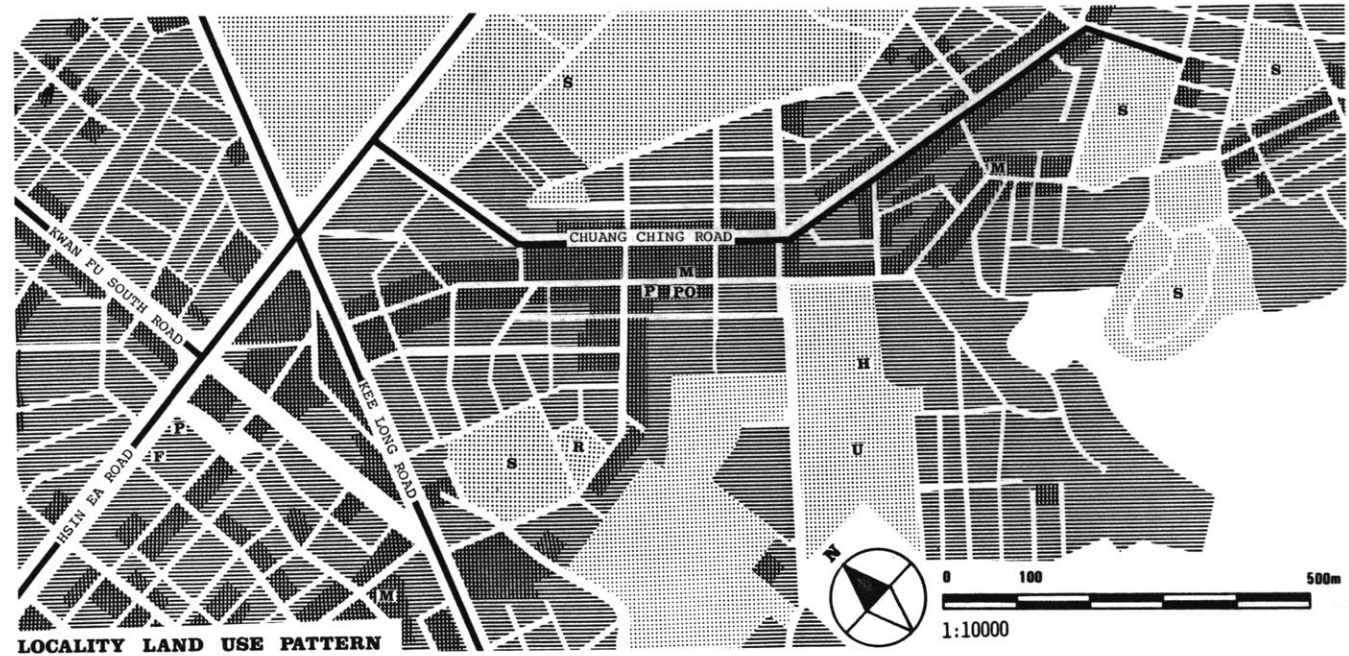
SELECTED SEGMENT

AREAS

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- OPEN SPACES

KEY

- Pk Parking
- P Police
- F Fire Department
- S School
- Ch Church
- R Recreation
- L Library
- U University
- H Health
- PO Post Office
- SS Social Services
- M Market
- C Cemetery
- Bus



LOCALITY LAND USE PATTERN

1:10000



LOCALITY SEGMENT PLAN

Originally, the site was intended for agricultural use, and part of it was occupied by military squatters. These shacks are inhabited by the wives and children of the soldiers from the military base nearby. After the government upgraded this squatter settlement and built major roads in this area years ago, this section has developed into a middle-low to low-income community. Except for a few 7 story elevator condominiums along Chuang Ching Road, the majority of the housing is 4 story walk-up condominiums.

Like all the other low or middle-low-income communities, the streets in San Chang Li are narrow and public open spaces are scarce. But, since this area is mainly for residential and only has a few commercial sections, the environment is better than Wu Feng Pu. However, like Wu Feng Pu, almost every fire lane and yard has been encroached with other uses.

An old established market in the community is located along the main street and caused this road to become very crowded. To remedy this problem, the government built a new market in the center of the community. However, all of the dwellers prefer the old market and leave the new market unused, even though it has better facilities, and therefore this crowded situation is still unimproved.

SELECTED BLOCK

LOCALITY BLOCK LAND UTILIZATION DATA

DENSITIES	Total Number	Area Hectares	Density M/Ha
LOTS	43	0.60	72
DWELLING UNITS	172	0.60	287
PEOPLE	946	0.60	1,577

AREAS (ORIGINAL)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.29	48%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.31	52%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.60	100%

AREAS (EXISTING)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.15	25%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.45	75%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.60	100%

NETWORK EFFICIENCY

Network length (streets, walkways) = 315 m/Ha
 Areas served (total area)

LOTS

Average area, dimensions = 117 m²

CASE STUDY SOURCE

Locality Plan: (accurate) STREETS MAP OF TAIPEI CITY PLAN. June, 1977.

Locality Land Use: (accurate) LAND USE REPORTS OF TAIPEI CITY. 1978-1982.

Locality Block Plan: (accurate) CITY PLANNING MAP. unpublished document.

Block Land Utilization: (accurate) Field Survey by the Author. July, 1981.

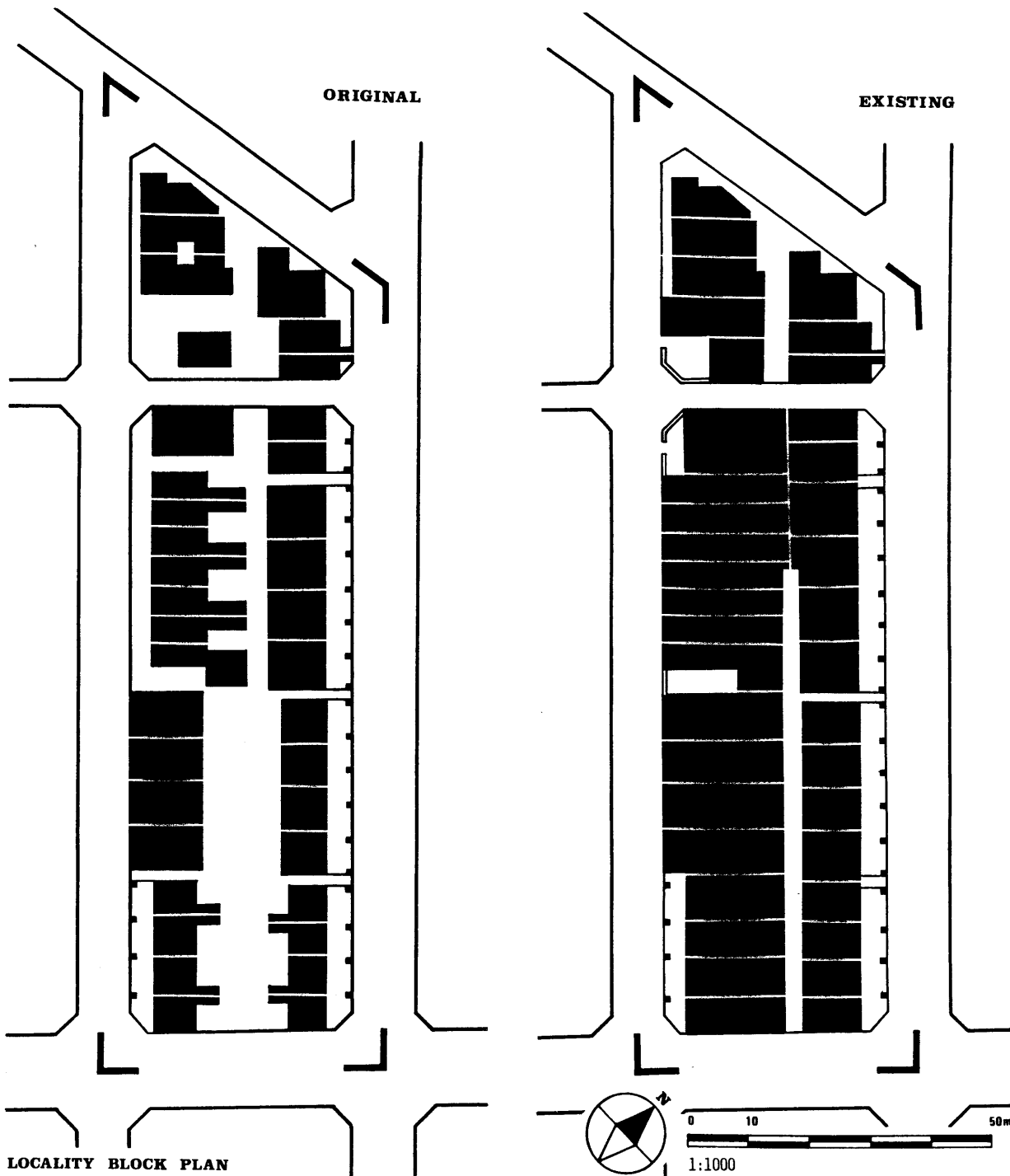
Typical Dwelling: (accurate) Field Survey by the Author. July, 1981.

Physical Data: (accurate)

Social-Economic Data: (approximate)

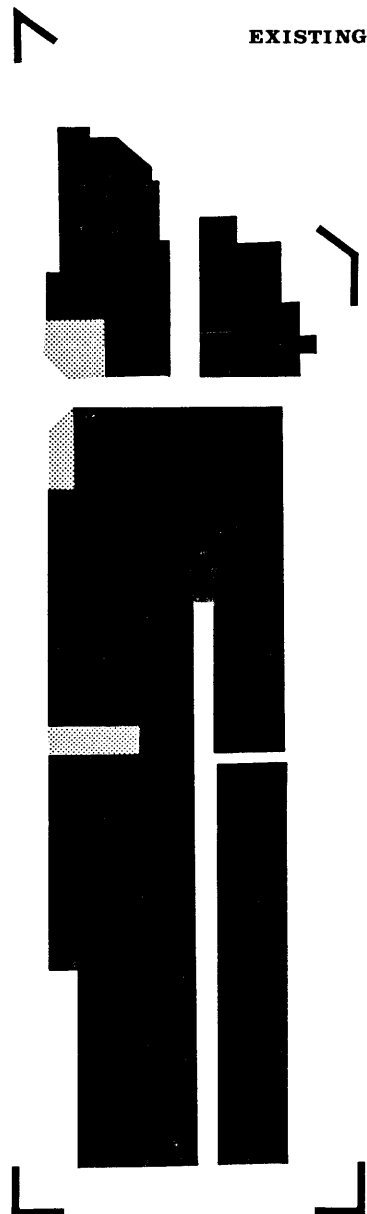
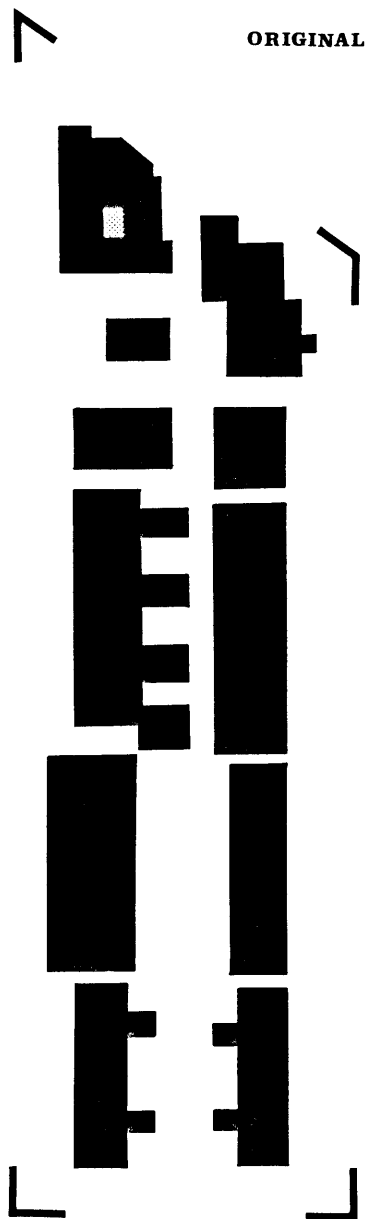
Photographs: by the Author

General Informations: (approximate)

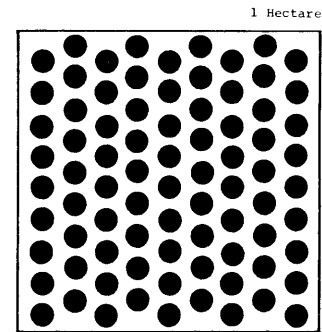


LOCALITY BLOCK PLAN

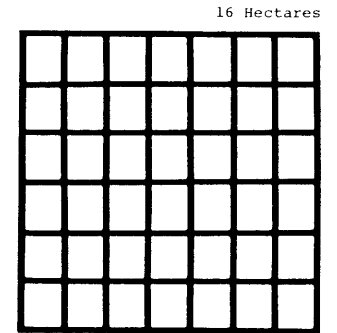
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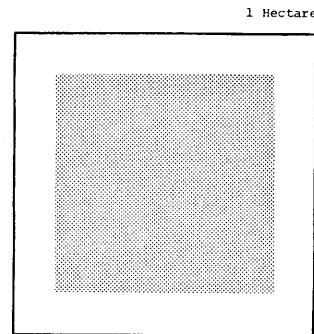
LAND UTILIZATION DIAGRAMS



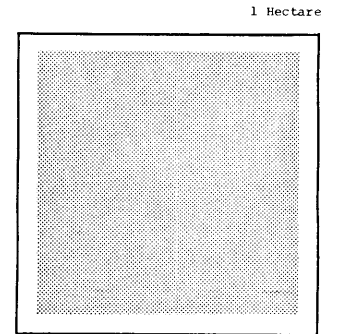
DENSITY Persons/Hectare
 ● 20 Persons 1183



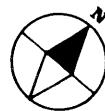
CIRCULATION EFFICIENCY
 Unit Length m/Ha 315



PERCENTAGES Streets/Walkways 48
 (ORIGINAL) Playgrounds -
 Cluster Courts -
 Dwellings/Lots 52



PERCENTAGES Streets/Walkways 25
 (EXISTING) Playgrounds -
 Cluster Courts -
 Dwellings/Lots 75

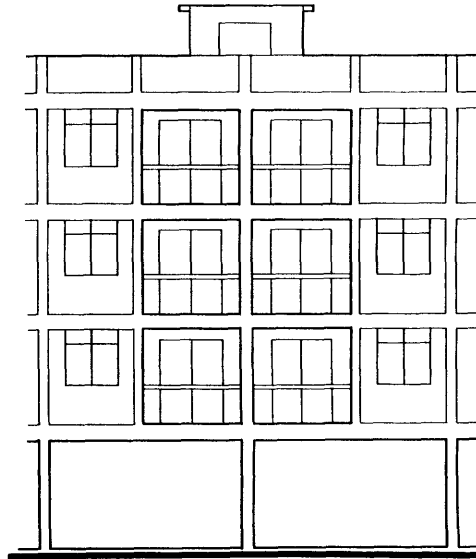


1:1000

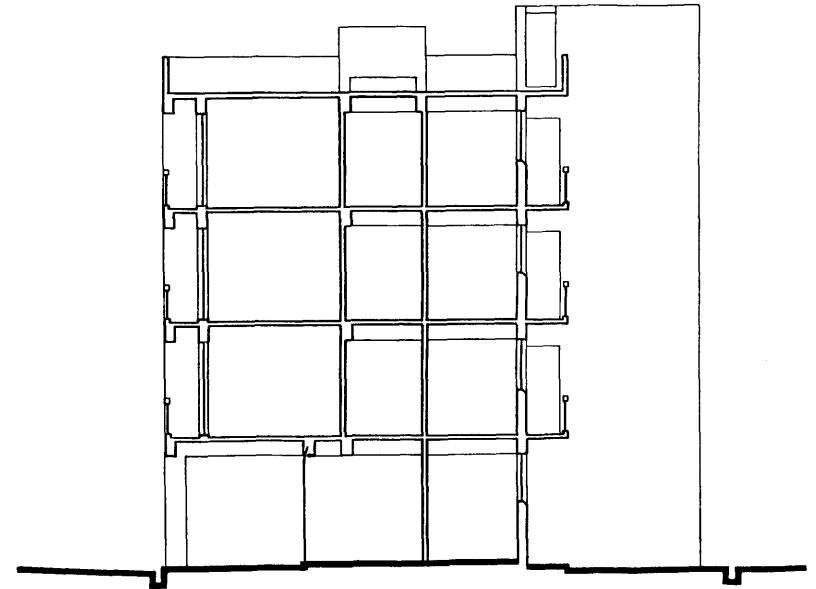
PATTERN

Public:	streets/walkways	
Semi-Public:	playgrounds	
Semi-Private:	cluster courts	
Private:	lots	
	dwellings	

PHOTOGRAPHS (OPPOSITE PAGE):
 (LEFT, TOP AND BOTTOM) Arcades
 along the main street packed with
 motorcycles, they are difficult
 to pass through.
 (RIGHT) Fire lane encroachment.



ELEVATION



SECTION

PHYSICAL DATA

(related to dwelling and land)

DWELLING UNIT
 type: APARTMENT
 area (sq m): 63
 tenure: LEGAL RENTAL

LAND/LOT /OWNERSHIP
 utilization: PRIVATE
 area (sq m): 97
 tenure: LEGAL RENTAL

DWELLING /OWNERSHIP
 location: CITY CENTER
 type: WALK-UP
 number of floors: 4
 utilization: MULTIPLE
 physical state: BAD

DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: MASONRY/CONCRETE
 year of construction: 1965

MATERIALS
 foundation: CONCRETE
 floors: CONCRETE
 walls: BRICK
 roof: CONCRETE

DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: 1
 rooms: 3
 other: NONE

SOCIO-ECONOMIC DATA

(related to user)

GENERAL: SOCIAL
 user's ethnic origin: TAIWAN
 place of birth: TAIWAN
 education level: HIGH SCHOOL

NUMBER OF USERS
 married: 2
 single: -
 children: 3
 total: 5

MIGRATION PATTERN
 number of moves: 1
 rural - urban: 1975
 urban - urban: -
 urban - rural: -
 why came to urban area: EMPLOYMENT

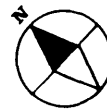
GENERAL: ECONOMIC
 user's income group: LOW
 employment: SALES
 distance to work: 5 KM
 mode of travel: MOTORCYCLE

COSTS
 dwelling unit: \$ 35,000
 land - market value: (TOTAL COST)

DWELLING UNIT PAYMENTS
 financing: -
 rent/mortgage: -
 % income for rent/mortgage: -

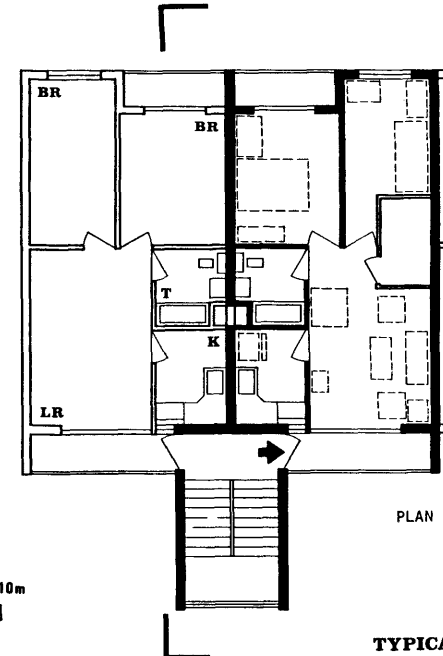
KEY

- LR Living Room
- D Dining/Eating Area
- BR Bedroom
- K Kitchen/Cooking Area
- T Toilet/Bathroom
- L Laundry
- C Closet
- S Storage
- R Room (multi-use)



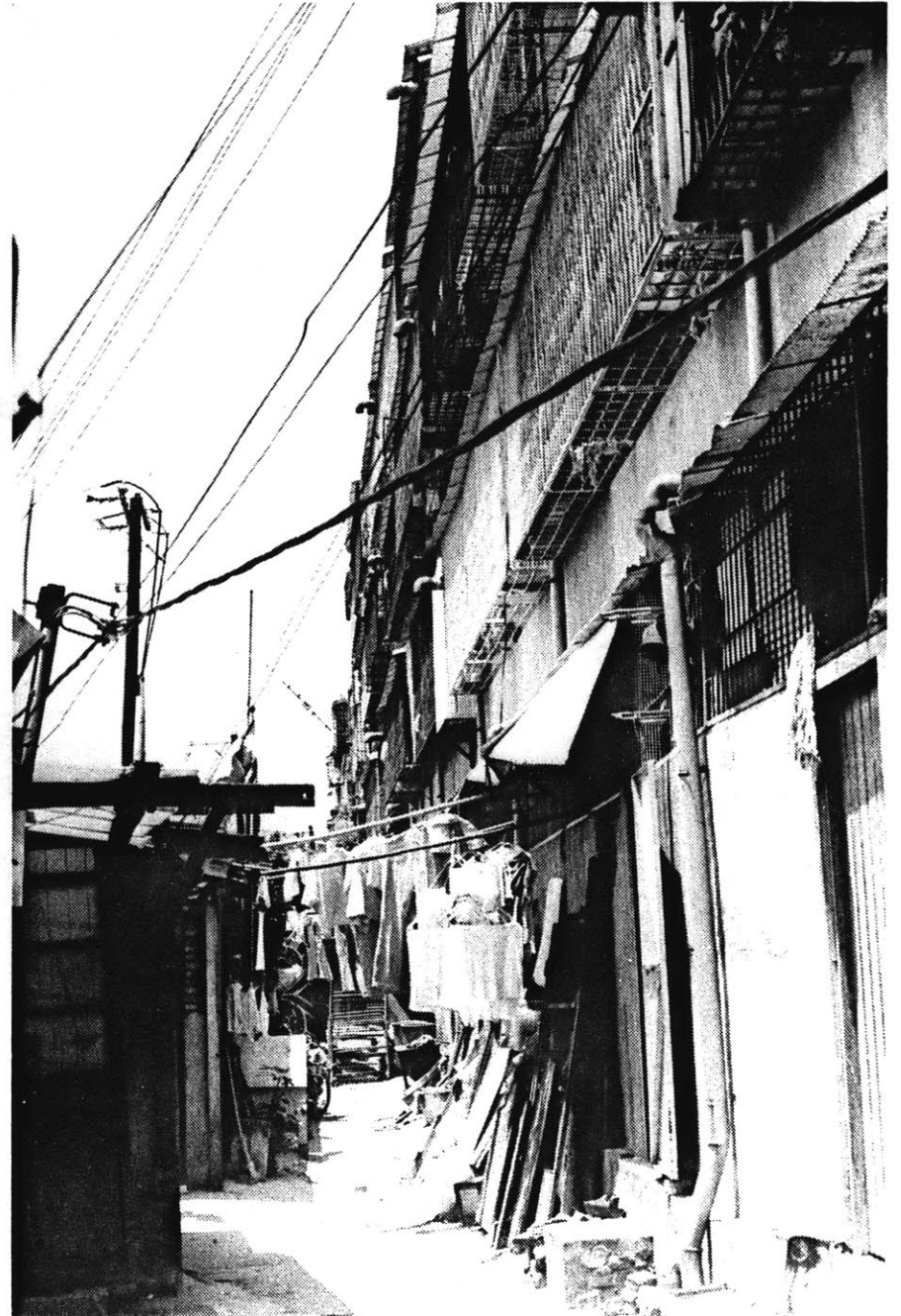
0 1 5 10m

1:200



PLAN

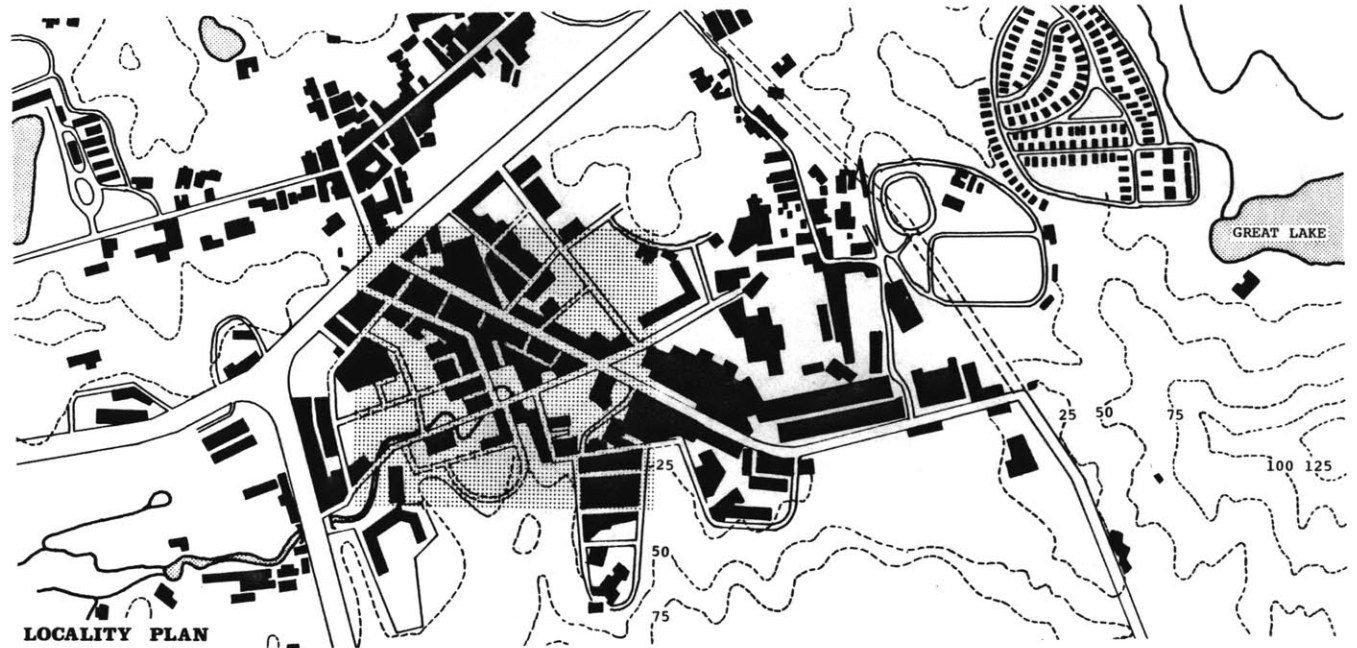
TYPICAL DWELLING



CASE STUDY:

5. NAI HOU

Nai Hou is located on the outskirts of Taipei, about one hour away from the C.B.D. by bus. Since it is separated from the city center by the Kee Long River, its development was very slow. Except for some old settlements, the site was originally used for agriculture.



LOCALITY PLAN

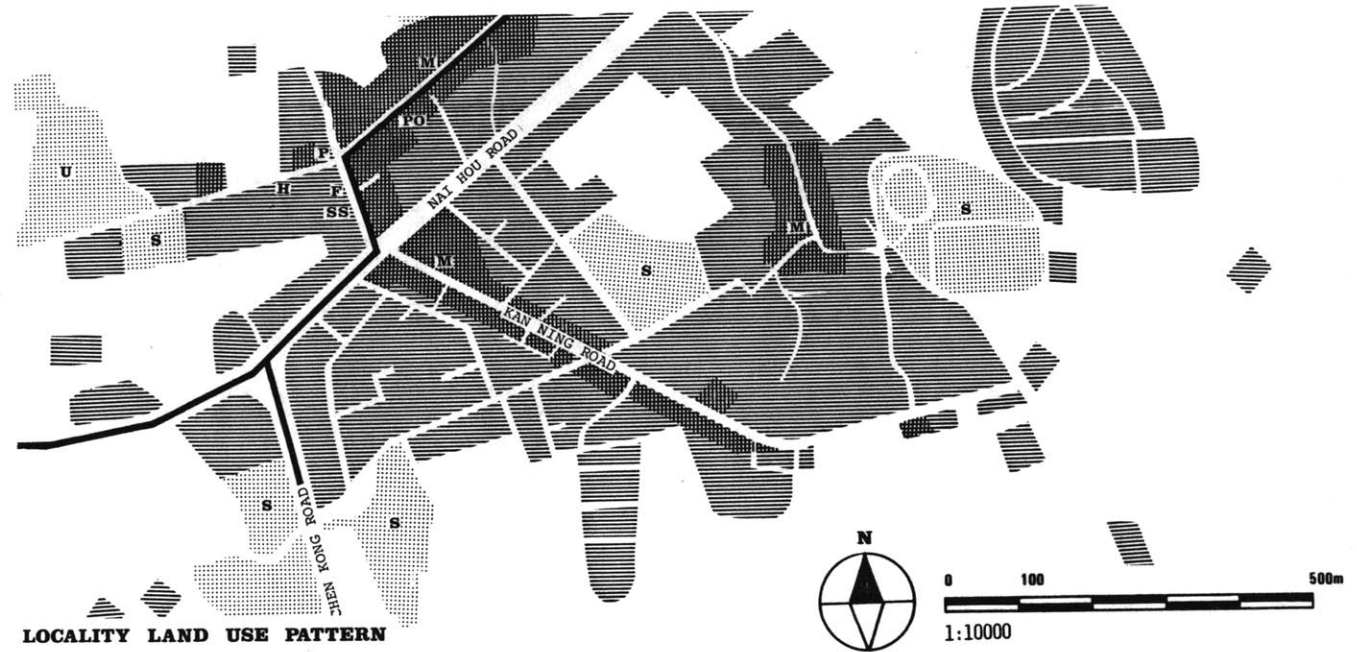
SELECTED SEGMENT

AREAS

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- OPEN SPACES

KEY

- Pk Parking
- P Police
- F Fire Department
- S School
- Ch Church
- R Recreation
- L Library
- U University
- H Health
- PO Post Office
- SS Social Services
- M Market
- c Cemetery
- Bus



LOCALITY LAND USE PATTERN





LOCALITY SEGMENT PLAN

Nai Hou has been accepted into the City plan only recently. Before acceptance, new construction had been prohibited for several years. However, after this, during the past 3 years, the area has developed rapidly. Most of the buildings are 4 to 5 story walk-ups. Along the major road some 7 story condominiums are already under construction.

Although arcades are not required in this area, since they are only prescribed for stores along a main street, they are built here anyway. Even their width is only 2 meters, still, they function well. Fire lanes in this area have been used in the design to adjust to the change of contours and obviously they then violate the regulations.

The houses in the center of the community were developed by large contractors. They are not developed based on the layout of blocks, but based on the existing property lines. Therefore, private lanes are occasionally needed to provide access to the houses.

LOCALITY BLOCK LAND UTILIZATION DATA

DENSITIES	Total Number	Area Hectares	Density N/Ha
LOTS	22	0.35	63
DWELLING UNITS	88	0.35	251
PEOPLE	484	0.35	1,383

AREAS (ORIGINAL)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.17	48%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.18	52%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.35	100%

AREAS (EXISTING)	Hectares	Percentages
PUBLIC (streets, walkways, open spaces)	0.12	35%
SEMI-PUBLIC (open spaces, schools, community centers)	-	-
PRIVATE (dwellings, shops, factories, lots)	0.23	65%
SEMI-PRIVATE (cluster courts)	-	-
TOTAL	0.35	100%

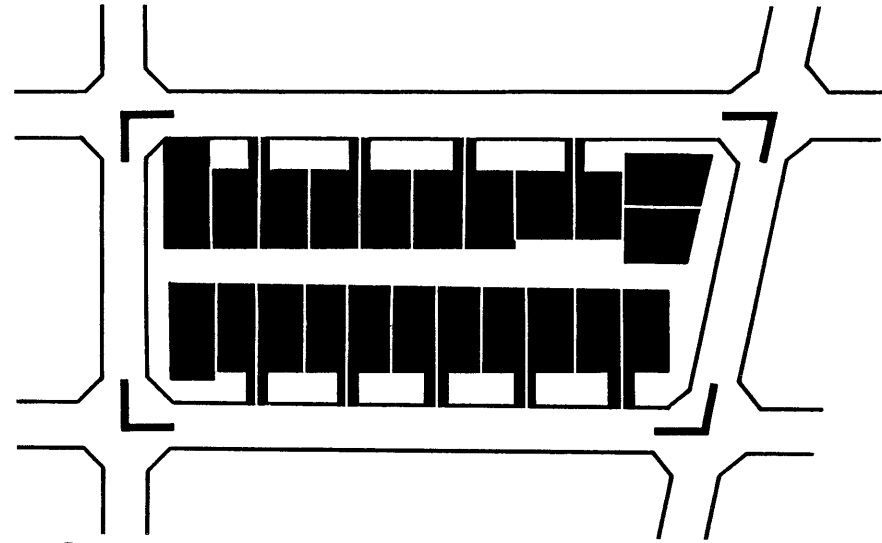
NETWORK EFFICIENCY

$$\frac{\text{Network length (streets, walkways)}}{\text{Areas served (total area)}} = 360 \text{ m/Ha}$$

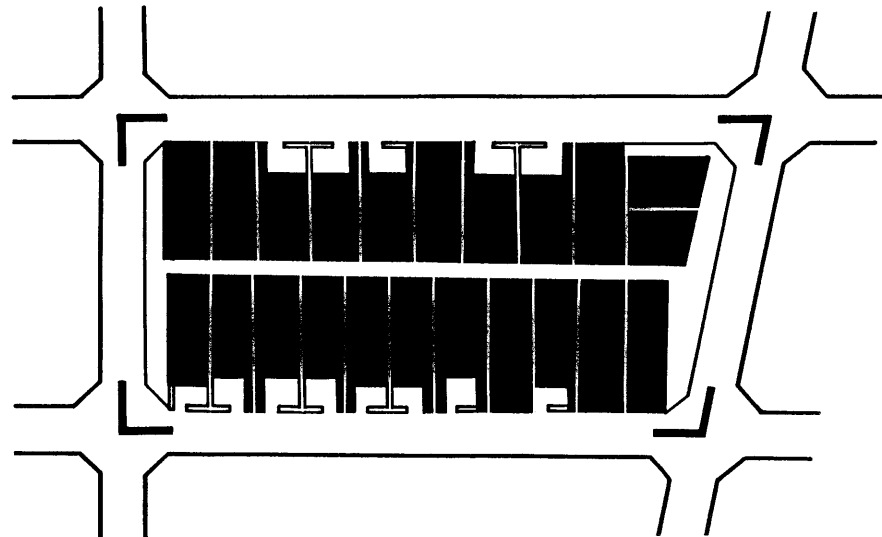
LOTS
Average area, dimensions = 128 m²

CASE STUDY SOURCE

- Locality Plan: (accurate) STREETS MAP OF TAIPEI CITY PLAN. June, 1977.
- Locality Land Use: (accurate) LAND USE REPORTS OF TAIPEI CITY. 1978-1982.
- Locality Block Plan: (accurate) CITY PLANNING MAP. unpublished document.
- Block Land Utilization: (accurate) Field Survey by the Author. July, 1981.
- Typical Dwelling: (accurate) Field Survey by the Author. July, 1981.
- Physical Data: (accurate)
- Social-Economic Data: (approximate)
- Photographs: by the Author
- General Informations: (approximate)



ORIGINAL



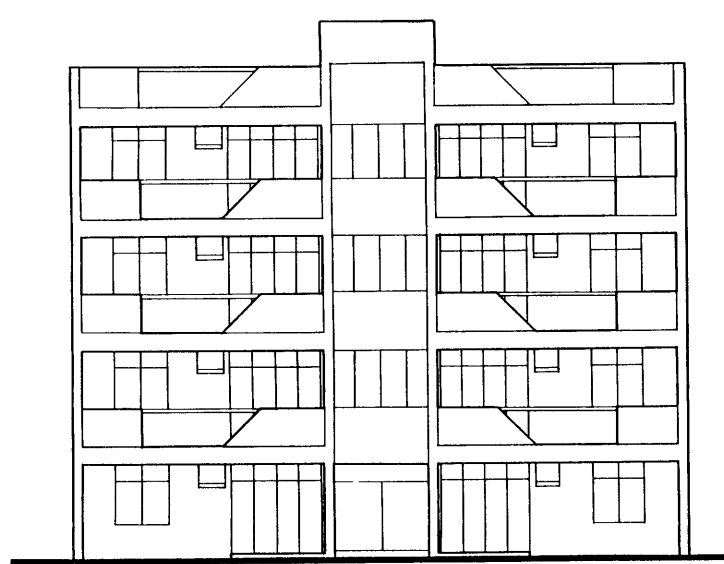
EXISTING

LOCALITY BLOCK PLAN

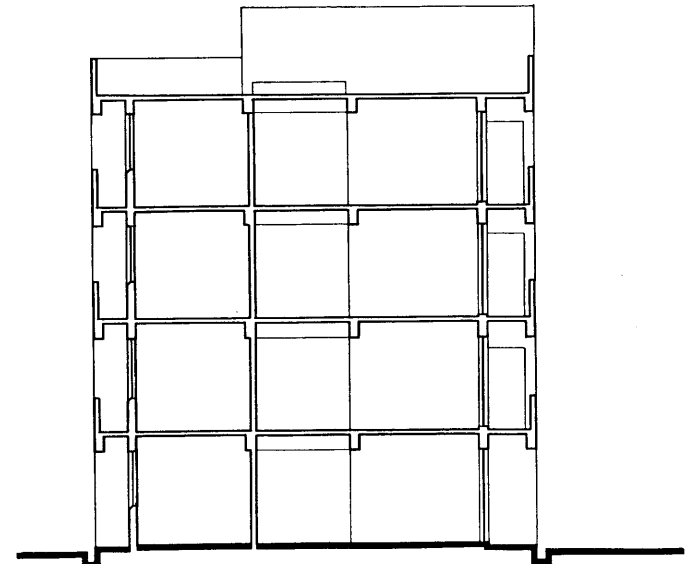


1:1000

PHOTOGRAPHS (OPPOSITE PAGE):
 (TOP LEFT) typical Walk-up
 apartments in this area show how
 the sunlight incident angle regu-
 lation affects the shape of
 buildings.
 (BOTTOM LEFT) A crowded street
 near the market place in the
 morning.
 (RIGHT) Projected window grills
 on the rear facades of buildings.



ELEVATION



SECTION

PHYSICAL DATA
 (related to dwelling and land)

DWELLING UNIT
 type: APARTMENT
 area (sq m): 90
 tenure: LEGAL RENTAL / OWNERSHIP

LAND/LOT
 utilization: PRIVATE
 area (sq m): 150
 tenure: LEGAL RENTAL / OWNERSHIP

DWELLING
 location: PERIPHERY
 type: WALK-UP
 number of floors: 4
 utilization: MULTIPLE
 physical state: BAD

DWELLING DEVELOPMENT
 mode: INSTANT
 developer: PRIVATE
 builder: SMALL CONTRACTOR
 construction type: MASONRY/CONCRETE
 year of construction: 1978

MATERIALS
 foundation: CONCRETE
 floors: CONCRETE
 walls: BRICK
 roof: CONCRETE

DWELLING FACILITIES
 wc: 1
 shower: 1
 kitchen: 1
 rooms: 4
 other: NONE

SOCIO-ECONOMIC DATA
 (related to user)

GENERAL: SOCIAL
 user's ethnic origin: TAIWAN
 place of birth: TAIWAN
 education level: HIGH SCHOOL

NUMBER OF USERS
 married: 2
 single: 3
 children: 2
 total: 7

MIGRATION PATTERN
 number of moves: 1
 rural - urban: -
 urban - urban: 1978
 urban - rural: -
 why came to urban area: OWNERSHIP

GENERAL: ECONOMIC
 user's income group: LOW
 employment: LABOR
 distance to work: 2 KM
 mode of travel: MOTORCYCLE

COSTS
 dwelling unit: \$ 35,000 *
 land - market value: (TOTAL COST)

DWELLING UNIT PAYMENTS
 financing: LOAN
 rent/mortgage: -
 % income for rent/mortgage: -

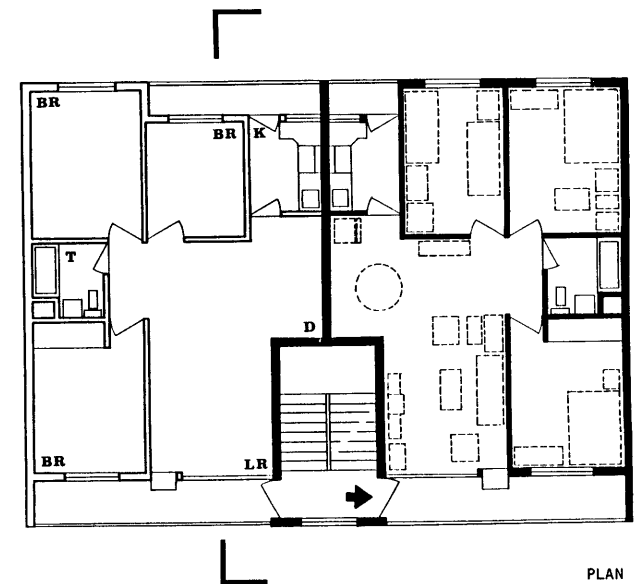
KEY

- LR Living Room
- D Dining/Eating Area
- BR Bedroom
- K Kitchen/Cooking Area
- T Toilet/Bathroom
- L Laundry
- C Closet
- S Storage
- R Room (multi-use)



0 1 5 10m

1:200



PLAN

TYPICAL DWELLING





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DISCLAIMER

MISSING PAGE(S)

Pages 58-59 do not exist. It appears to be a pagination error by the author.

GLOSSARY

The criteria for the preparation of the definitions have been as follows:

- FIRST PREFERENCE: definitions from "Webster's Third New International Dictionary", Merriam-Webster, 1971.

-SECOND PREFERENCE: definitions from technical dictionaries, text books, or reference manuals.

-THIRD PREFERENCE: definitions from the Urban Settlement Design Program (U.S.D.P.) Files. They are used when existing sources were not quite appropriate/satisfactory.

Words included for specificity and to focus on a particular context are indicated in parenthesis. Sources of definitions are indicated in parenthesis. (see also REFERENCES)

ACCESSES: the pedestrian/vehicular linkages from/to the site to/from existing or planned approaches (urban streets, limited access highways, public transportation systems, and other systems such as: waterway, airlines, etc.) (U.S.D.P.)

APPROACHES: the main routes external to the site (pedestrian/vehicular) by which the site can be reached from other parts of the urban context. (U.S.D.P.)

BLOCK: a primarily residential area bounded and served by public streets, walkways.

COMMUNITY FACILITY: something that is built/established to serve some community need (school: education; police: order/protection; etc.).

DEVELOPMENT SIZE: there are two general ranges of size: **LARGE:** may be independent communities requiring their own utilities, services, and community facilities; **SMALL:** generally are part of an adjacent urbanization and can use its supporting utilities, services, and community facilities. (U.S.D.P.)

DEVELOPMENT: gradual advance or growth through progressive changes; a developed tract of land (U.S.D.P.)

DISTANCE: the degree or amount of separation between two points (the site and each other element of the urban context) measured along the shortest path adjoining them (paths of travel). (Merriam-Webster, 1971)

DWELLING: the general, global designation of a building/shelter, containing one or more dwelling units in which people live.

DWELLING BUILDER: four groups are considered:

Self-Help Built: where the dwelling unit is directly built by the user or occupant.

Artisan Built: where the dwelling unit is totally or partially built by a skilled craftsman hired by the user or occupant; payments can be monetary or an exchange of services.

Small Contractor Built: where the dwelling unit is totally built by a small organization hired by the user, occupant, or developer; 'small' contractor is defined by the scale of operations, financially and materially; the scale being limited to the construction of single dwelling units or single complexes.

Large Contractor Built: where the dwelling unit is totally built by a large organization hired by a developer; 'large' contractor is defined by the scale of operations, financially and materially; the scale reflects a more comprehensive and larger size of operations encompassing the building of large quantities of similar units, or a singularly large complex.

DWELLING CONSTRUCTION TYPES: primary dwelling construction types and materials are grouped in the following categories:

Shack

Roof: structure - rods, branches.
infill - thatch, mats, flattened tin cans, plastic or canvas sheets, cardboard and/or scrap wood.

Walls: structure - rods, branches, poles.
infill - thatch, mats, flattened tin cans, plastic or canvas sheets, cardboard, scrap wood, and/or mud.

Floor: structure/infill - compacted earth.
Mud and Wattle

Roof: structure - wattle.
infill - thatch, flattened tin cans, or corrugated iron sheets.

Walls: structure - wattle.
infill - mud.

Floor: structure/infill - compacted earth.
Wood

Roof: structure - wood rafters.
infill - thatch, flattened tin cans, or corrugated iron sheets.

Walls: structure - wood frame.
infill - rough hewn wood planks.

Floor: structure/infill - compacted earth, wood joists, flooring.

Masonry/Wood

Roof: structure - wood rafters.
infill - corrugated iron or asbestos sheets, or terracotta tiles.

Walls: structure/infill - murrum, stone, brick, block or tile masonry without columns.

Floor: structure/infill - poured concrete slab on/off grade, wood joists, flooring.

Masonry/Concrete

Roof: structure/infill - poured reinforced concrete with tar and gravel, or terracotta tiles.

Walls: structure/infill - murrum, stone, brick, block or tile masonry without columns, or with columns for multi-story dwellings.

Floor: structure/infill - poured concrete slab on/off grade.

Concrete

Roof: structure/infill - poured or precast reinforced concrete with tar and gravel, or terracotta tiles.

Walls: structure - poured or precast walls or frame.

infill - metal, wood, masonry, plastic.
Floor: structure/infill - poured or precast concrete slab.

DWELLING DENSITY: the number of dwellings, dwelling units, people or families per unit hectare.

DWELLING DEVELOPER: three sectors are considered in the supply of dwellings:

Popular Sector: the marginal sector with limited or no access to the formal financial, administrative, legal, technical institutions involved in the provision of dwellings. The housing process (promotion, financing, construction, operation) is carried out by the popular sector generally for 'self-use' and sometimes for profit.

Public Sector: the government or non-profit organizations involved in the provision of dwellings. The housing process (promotion, financing, construction, operation) is carried out by the public sector for service (non-profit or subsidized housing).

Private Sector: the individuals, groups or societies who have access to the formal financial, administrative, legal, technical institutions in the provision of dwellings. The housing process (promotion, financing, construction, operation) is carried out by the private sector generally for profit.

DWELLING DEVELOPMENT MODE: two modes are considered:

Incremental: the construction of the dwelling and the development of the local infrastructure to modern standards by stages often starting with provisional structures and underdeveloped land. This essentially traditional procedure is generally practiced by squatters with de facto security of tenure and an adequate building site.

Instant: the formal development procedure in which all structures and services are completed before occupation.

DWELLING FINANCING: the process of raising or providing funds.

Self Financed: provided by own funds
Private/Public Financed: provided by loan
Public Subsidized: provided by grant/aid

DWELLING FLOORS: the following number are considered:

One: single story; generally associated with detached, semi-detached and row/grouped dwelling types.

Two: double story; generally associated with detached, semi-detached and row/grouped dwelling types.

Three or More: generally associated with walk-up and high rise dwelling types.

DWELLING/LAND SYSTEM: a distinct dwelling environment/housing situation characterized by its users as well as by its physical environment.

DWELLING LOCATION: three sectors of the urban area are considered:

City Center: the area located within a walking distance (2.5 km radius) of the commercial center of a city; relatively high residential densities.

Inner Ring: the area located between the urban periphery and the city center (2.5 to 5 km radius); relatively lower residential densities.

Periphery: the area located between the rural areas and the urban inner ring (5 or more km radius); relatively low residential densities.

DWELLING PHYSICAL STATE: a qualitative evaluation of the physical condition of the dwelling types: room, apartment, house; (the shanty unit is not evaluated).

Bad: generally poor state of structural stability, weather protection and maintenance.

Fair: generally acceptable state of structural stability, weather protection and maintenance with some deviation.

Good: generally acceptable state of structural stability, weather protection and maintenance without deviation.

DWELLING TYPE: the physical arrangement of the dwelling unit:

Detached: individual dwelling unit, separated from others.

Semi-Detached: two dwelling units sharing a common wall (duplex).

Row/Grouped: dwelling units grouped together linearly or in clusters.

Walk-Up: dwelling units grouped in two to five stories with stairs for vertical circulation.

High Rise: dwelling units grouped in five or more stories with stairs and lifts for vertical circulation.

DWELLING UNIT: a self-contained unit in a dwelling for an individual, a family, or a group.

DWELLING UNIT TYPE: four types of dwelling units are considered:

Room: A SINGLE SPACE usually bounded by partitions and specifically used for living; for example, a living room, a dining room, a bedroom, but not a bath/toilet, kitchen, laundry, or storage room. SEVERAL ROOM UNITS are contained in a building/shelter and share the use of the parcel of land on which they are built (open spaces) as well as common facilities (circulation, toilets, kitchens).

Apartment: A MULTIPLE SPACE (room/set of rooms with bath, kitchen, etc.). SEVERAL APARTMENT UNITS are contained in a building and share the use of the parcel of land on which they are built (open spaces) as well as common facilities (circulation).

House: A MULTIPLE SPACE (room/set set of rooms with or without bath, kitchen, etc.). ONE HOUSE UNIT is contained in a building/shelter and has the private use of the parcel of land on which it is built (open spaces) as well as the facilities available.

Shanty: A SINGLE OR MULTIPLE SPACE (small, crudely built). ONE SHANTY UNIT is contained in a shelter and shares with other shanties the use of the parcel of land on which they are built (open spaces).

DWELLING UNIT AREA: the dwelling unit area (m^2) is the built-up, covered area of a dwelling unit.

DWELLING UNIT COST: the initial amount of money paid for the dwelling unit or the present monetary equivalent for replacing the dwelling unit.

DWELLING UTILIZATION: the utilization indicates the type of use with respect to the number of inhabitants/families.

Single: an individual or a family inhabiting a dwelling.

Multiple: a group of individuals or families inhabiting a dwelling.

GOVERNMENT/MUNICIPAL REGULATION: in urban areas, the development of the physical environment is a process usually controlled by a government/municipality through all or some of the following regulations: Master Plan, Zoning Ordinance, Sub-division Regulations, Building Code. (U.S.D.P.)

ILLEGAL. that which is contrary to or violating a rule or regulation or something having the force of law, (Merriam-Webster, 1971)

INCOME GROUPS: a group of people or families within the same range of incomes. (U.S.D.P.)

LAND OWNERSHIP: the exclusive right of control and possession of a parcel of land. (U.S.D.P.)

LAND UTILIZATION: a qualification of the land around a dwelling in relation to user, physical controls, and responsibility.

Private: (dwellings, lots)

User: owner/tenant/squatter

Physical Controls: complete

Responsibility: user

Semi-Private: (cluster courts)

User: a group of owners and/or tenants

Physical Controls: partial/complete

Responsibility: users

Semi-Public: (open spaces, playgrounds, schools)

User: a limited group of people

Physical Controls: partial/complete

Responsibility: public sector, users

Public: (streets, walkways, open spaces)

User: anyone/unlimited

Physical Controls: minimum

Responsibility: public sector

LAND SUBDIVISION: the division of the land in blocks, lots and laying out streets. (U.S.D.P.)

LAND UTILIZATION: PHYSICAL CONTROLS: the physical/legal means or methods of directing, regulating and co-ordinating the use and maintenance of land by the owners/users.

LAND UTILIZATION: RESPONSIBILITY: the quality/state of being morally/legally responsible for the use and maintenance of land by the owners/users.

LAND VALUE: refers to: 1) the present monetary equivalent to replace the land; 2) the present tax based value of the land; or 3) the present commercial market value of the land.

LAYOUT: the plan or design or arrangement of something that is laid out. (Merriam-Webster, 1971)

LOCALITY: a relatively self-contained residential area/community/neighborhood/settlement within an urban area which may contain one or more dwelling/land systems.

LOT: A measured parcel of land having fixed boundaries and access to public circulation. (U.S.D.P.)

LOCALITY SEGMENT: a 400 meter by 400 meter area taken from and representing the residential character and layout of a locality.

LOT COVERAGE: the ratio of building area to the total lot area. (U.S.D.P.)

MASTER PLAN: a comprehensive, long range plan intended to guide the growth and development of a city, town or region, expressing official contemplations on the course its transportation, housing and community facilities should take, and making proposals for industrial settlement, commerce, population distribution and other aspects of growth and development. (Abrams, 1972)

MUTUAL OWNERSHIP: private land ownership shared by two or more persons and their heir under mutual agreement. (U.S.D.P.)

NEIGHBORHOOD. a section lived in by neighbors and having distinguishing characteristics. (U.S.D.P.)

PERCENT RENT/MORTGAGE: the fraction of income allocated for dwelling rental or dwelling mortgage payments; expressed as a percentage of total family income.

POPULATION DENSITY: it is the ratio between the population of a given area and the area. It is expressed in people per hectare. It can be:
GROSS DENSITY: includes any kind of land utilization, residential, circulation, public facilities etc. **NET DENSITY:** includes only the residential land and does not include land for other uses. (U.S.D.P.)

PUBLIC SERVICES AND COMMUNITY FACILITIES. includes: public transportation, police protection, fire protection, refuse collection, health, schools, and playgrounds, recreation and open spaces, other community facilities, business commercial, small industries, markets. (U.S.D.P.)

PUBLIC UTILITIES. includes: water supply, sanitary sewerage, storm drainage, electricity, street lighting, telephone, circulation networks. (U.S.D.P.)

RESIDENTIAL AREA: an area containing the basic needs/requirements for daily life activities: housing, education, recreation, shopping, work. (U.S.D.P.)

SETTLEMENT: occupation by settler to establish a residence or colony. (U.S.D.P.)

SIZE: physical magnitude or extent (of the site) relative or proportionate dimensions (of the site). (Merriam-Webster, 1971)

STANDARD: 1) something that is established by authority, custom or general consent as a model or example to be followed. 2) something that is set up and established by authority as a rule for the measure of quantity, weight, extent, value or quality. (Merriam-Webster, 1971)

SUBDIVISION REGULATIONS: regulations governing the development of raw land for residential or other purposes. (Abrams, 1972)

SUBSISTENCE INCOME: average amount of money required for the purchase of food and fuel for an average family of 5 people to survive.

TENURE: two situations of tenure of the dwelling units and/or the lot/land are considered:

Legal: having formal status derived from law.
Extralegal: not regulated or sanctioned by law.

Three types of tenure are generally considered:

Rental: where the users pay a fee (daily, weekly, monthly) for the use of the dwelling unit and/or the lot/land.

Lease: where the users pay a fee for long term use (generally for a year) for a dwelling unit and/or the lot/land from the owner (an individual, a public agency, or a private organization).

Ownership: where the users hold in freehold the dwelling unit and/or the lot/land which the unit occupies.

URBAN CONTEXT: an urban area/environment within which dwelling/land systems develop.

URBANIZATION: the quality or state of being or becoming urbanized; to cause to take on urban characteristics. (U.S.D.P.)

USER INCOME GROUP: based upon the subsistence (minimum wage) income per year, five income groups are distinguished:

Very Low: (below subsistence level) the group with no household income available for housing, services, or transportation.

Low: (at subsistence level) the group that can afford limited subsidized housing.

Moderate: the group that has access to public/private commercial housing (rental).

Middle: the group that has access to private commercial housing (ownership).

High: the most economically mobile sector of the population.

UTILITY/SERVICE: the organization and/or infrastructure for meeting the general need (as for water supply, wastewater removal, electricity, etc.) in the public interest.

ZONING ORDINANCE: the demarcation of a city by ordinance into zones (areas/districts) and the establishment of regulations to govern the use of land and the location, bulk, height, shape, use, population density, and coverage of structures within each zone. (U.S.D.P.)

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EXPLANATORY NOTES

QUALITY OF INFORMATION

The quality of information given in drawings, charts and descriptions has been qualified in the following manner:

- Approximate :when deducted from different and/or not completely reliable sources.
- Accurate :when taken from reliable or actual sources.
- Tentative :when based upon rough estimations of limited sources.

QUALITY OF SERVICES, FACILITIES AND UTILITIES

- None :when the existence of services, facilities and utilities are unavailable to a locality.
- Limited :when the existence of services, facilities and utilities are available to a locality in a limited manner due to proximity.
- Adequate :when the existence of services, facilities and utilities are available to a locality.

METRIC SYSTEM EQUIVALENTS

Linear Measures

1 centimeter	=	0.3937 inches
1 meter = 100 centimeters	=	39.37 inches or 3.28 feet
1 kilometer = 1,000 meters	=	3,280.83 feet or 0.62137 miles
1 inch	=	2.54 centimeters
1 foot	=	0.3048 meters
1 mile	=	1.60935 kilometers

Square Measures

1 square meter	=	1,550 square inches or 10.7649 square feet
1 hectare = 10,000 square meters	=	2.4711 acres
1 square foot	=	0.0929 square meters
1 acre	=	0.4087 hectares