

**HOMEBUYERS' STRATEGIES FOR PROGRESSIVE
RESIDENTIAL INFRASTRUCTURE IMPROVEMENT IN
BANDUNG, INDONESIA**

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Signed Declaration

I, Sugiyantoro, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

DATE: September 2021 SIGNATURE: _____

Abstract

Middle-income households in Bandung, Indonesia – usually not realising that service infrastructure was inadequate when they purchased newly developer-built houses – have made on-plot improvements individually and neighbourhood improvements collectively. Implemented in increments, these improvements resulted from a series of decisions made at various points in the process of obtaining and occupying a house. They were planned and executed without being driven by agents outside the community.

This study found value in broadening the traditional focus of household housing strategies to include infrastructure. The case shows the capability of households to solve infrastructure problems embedded in the new houses they acquire. It provides rare insights into the behaviour of middle-income households regarding residential infrastructure strategies: the separation into individual and collective actions; the range of services covered; decision-making; expectations of local government and land developers; community participation; the importance of group leadership; and the use of neighbourhood quasi-administrative institutions. Consistencies and inconsistencies with concepts drawn from observations of low-income households are revealed, including concepts of the housing package commonly found in policies, of progressive infrastructure improvement as formulated by Choguill, of Turner's freedom to build, of the need for external agency, of household housing strategies and decision making, and of the roles of local government.

Impact Statement

The material in this PhD Thesis is part of an exhaustive inquiry that contributes to the advancement of knowledge about the behaviour of homebuyers of middle-income that contributes to the provision of residential infrastructure and has shown new insight into Choguill's concept of progressive improvement of infrastructure provision.

Formal housing development is understood as a package or a bundle consisting of a shelter-providing structure and the necessary basic service facilities to make a suitable environment for habitation. Contradict to the common understanding; middle-income homebuyers bought houses with poor infrastructure conditions. The case of this thesis shows the household housing strategies and the capability of households to solve infrastructure problems embedded in the new homes they acquire.

This thesis contributes to the knowledge of collective action, residential infrastructure provision, and household housing strategies. First, the case shows, contrary to the common knowledge that collective action needs external leverages to work, the communities studied in this research showed self-driven empowerment without external actors. Therefore, the continuous occurrence of infrastructure improvement was possible without external leverages. Second, this study shows that infrastructure improvement practised by middle-income, that resemble Turner's 'freedom to build' for low-income –and by this Choguill's concept of progressive infrastructure improvement was based on— have existed. Surprisingly, this practice of improvement occurred in a middle-income planned housing area. Third, this study shows that middle-income household housing strategies consist of shelter-focused strategies, social-economic focused strategies, and infrastructure-focused strategies. The findings challenge the belief that households are incapable of including infrastructure provision within their strategies for housing. In addition, as commonly existed in low-income housing areas, the middle-income respondents of this study formed strategies to use their new houses for income-generating activities.

This thesis clarifies policy implications in developing countries that the local government should accept and accommodate middle-income homebuyers' practices of infrastructure improvement with flexible regulation to support them in contributing to residential infrastructure provision in the newly built area.

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Abbreviations and Glossary

BAPPEDA	: The local planning board (<i>Badan Perencanaan Pembangunan Daerah</i>)
BHTV	: Bandung High Technology Valley
BKPN	: National Housing Policy Board
BMA	: Bandung Metropolitan Area, the official name of the metropolitan area
BMR	: Bandung Metropolitan Region, a name chosen by academicians referring to recent physical urban growth
Botabek	: Bogor – Tangerang – Bekasi, the extended metropolitan region surrounding DKI Jakarta. The regions were part of West Java Province before 2000, except Tangerang which joined Banten Province afterward. The emergence of the new autonomous city of Depok updated the name as Bodetabek (Bogor-Depok-Tangerang-Bekasi).
BPN	: National Land Agency (<i>Badan Pertanahan Nasional</i>)
BTN	: State Savings Bank (<i>Bank Tabungan Negara</i>)
BUDP	: Bandung Urban Development Project (<i>Proyek Dewi Sartika</i>)
BUMN	: Government or State Owned Company
City	: Municipality which is an autonomous city (<i>kota</i>) or self-governed city; before Law 25/1999 this was recognised as <i>Kotamadya</i> (or <i>Kodya</i> , — Example: <i>Kodya Bandung</i>)
CoBUILD	: Community-Based Initiatives for Housing and Local Development
CP	: Community Participation
Decree	: Government’s Decree or <i>Peraturan Pemerintah (PP)</i>
DKI Jakarta	: The Jakarta province, the capital, that consists of five local administrations, which are Jakarta Pusat, Jakarta Utara, Jakarta Timur, Jakarta Selatan, and Jakarta Barat
DTK	: Building and Planning Agency (<i>Dinas Tata Kota</i>)
EIA	: Environmental Impact Assessment

GBHN	: National Development Guidelines (<i>Garis-garis Besar Haluan Negara</i>)
GOI	: Government of Indonesia
IBRA	: Indonesian Bank Restructuring Agency or BPPN (<i>Badan Penyehatan Perbankan Nasional</i>), dissolved under Keppres 15/2004
IDR	: Indonesian Rupiah, local currency
INMENDAGRI	: Home Ministerial Directive (<i>Instruksi Menteri Dalam Negeri</i>)
IUIDP	: Integrated Urban Infrastructure Development Programme (<i>or P3KT</i>)
Jabotabek	: Jakarta – Bogor – Tangerang – Bekasi, a major extended metropolitan region of Jakarta and its surroundings. Recently it was named Jabodetabek after Depok became an autonomous city and was included within the area
KEPMENPU	: Public Works Ministerial Decree (<i>Keputusan Menteri Pekerjaan Umum</i>)
KEPPRES	: Presidential Decree (<i>Keputusan Presiden</i>)
Kabupaten	: Regency (<i>or Kab. — Example: Kab. Bandung</i>)
Kecamatan	: District
Kelurahan	: Subdistrict
KIP	: Kampong Improvement Programme
Kota	: see City
KPR	: Credit for housing ownership (<i>Kredit Pemilikan Rumah</i>), a mortgage system to support buyers of newly-built formal houses which is supported by lending institutions, such as the BTN or the PTPS
Law or UU	: Law or Act (<i>Undang-undang or UU</i>)
MOHA	: The Home Office Ministry
MRRA	: Margahayu Raya Residential Area, a new formal housing area that consists of several housing projects owned by a single private developer, Raya Incorp. The area is locally known as Perumahan Margahayu Raya. The name ‘MRRA’ is chosen for this study
P2LDT	: Rural housing programme

PDAM	: The local government's water company (<i>Perusahaan Daerah Air Minum</i>)
PERMENDAGRI	: Home Ministerial Regulation (<i>Peraturan Menteri Dalam Negeri</i>)
PERUMNAS	: National Housing Development Corporation, a state developer
PLN	: National Energy Company (<i>Perusahaan Listrik Negara</i>), a state company
PTPS	: PT Papan Sejahtera, a non-bank lending institution specialising in housing finance, a private company, which collapsed after the economic crisis in 1998
REI	: Real Estate Indonesia (a private developers' association)
REPELITA	: Five-Year Development Plan (<i>Rencana Pembangunan Lima Tahun</i>)
RW	: Community Unit (<i>Rukun Warga</i>), normally consists of 5-15 RTs
RT	: Neighbourhood Unit (<i>Rukun Tetangga</i>), normally consists of 40-50 households
Sqm	: Square-meter
TELKOM	: a public telecommunication company, a major provider
YKP	: Foundation for Development Finance (<i>Yayasan Kas Pembangunan</i>)
YLKI	: The Indonesia's Institute of Consumers, a consumers' watchdog (<i>Yayasan Lembaga Konsumen Indonesia</i>)

Chapter 1

Residential Infrastructure Provision in a Formal Housing Area: The Research Focus, Relevance and Hypothesis

1.1 Introduction

The provision of housing by the private sector in Bandung, Indonesia has been flawed. According to the country's laws, the provision of infrastructure in a new formal housing area is mandatory. Nevertheless, the national mass media have reported many cases of neglect and avoidance of this obligation by land developers throughout the country. Such issues have risen from being local ones to becoming national concerns, because of the magnitude of formal housing development in the main urban centres. Here, the role of the news media has been significant in drawing attention to the issues of infrastructure provision in new formal housing areas (Kompas, 1996b; Kompas, 1996c; Kompas, 1997a; Kompas, 1997b; Kompas, 1998a; Kompas, 1998b; Kompas, 2000a; Kompas, 2000c; Kompas, 2000d; Kompas, 2000e).

In Bandung and its surroundings, as in other major urban centres in Indonesia, the local government has not responded adequately to the magnitude of infrastructure deficiencies in new formal housing developments. Only some local governments, particularly ones in the Jabotabek area (Jakarta-Bogor-Tangerang-Bekasi), have been able to produce accurate reports on the quantity and quality of infrastructure provided to a new housing development and on that which is needed. In the absence of adequate provision by land developers and of local government action in response, buyers of new housing have practiced self-help improvement of the on-plot and on-site infrastructure. This study examines how middle-income buyers in an area of Bandung have filled the gaps between the provisions of the builder and their own immediate needs.

1.2 Focus of the research

The research was driven by evidence - in contrast to common experience - that developer-built houses lacking service infrastructure sufficient for their needs were

purchased by middle-income households, who responded to this insufficiency by making additions and improvements themselves. It focuses on the way middle-income house-buyers dealt with the inadequacy of infrastructure provided by the land developer, either on-plot or on-site. Their actions showed that these buyers recognised the importance of service infrastructure to improving their living conditions, particularly when they required potable water and good sanitation, as well as social and public facilities. Learning the way they behaved in making the provision was an opportunity to reduce some major deficiencies in the existing knowledge. Of particular interest was the prevailing thinking about housing strategies and that about the collective improvement of infrastructure.

The paramount role of service infrastructure in creating a good housing environment is often underplayed in that household strategies are seen traditionally as shelter-focused. Infrastructure and services are commonly viewed as the responsibility of government and house builders. The high cost of some infrastructure and services makes them impossible for households to think about (Rakodi, 1993; Lee, 1998). Studies centred on middle-income housing in Less Developed Countries have focused on the physical extension or transformation of the structure (Arimah, 1999; Kardash, 1999; Tipple, 1996; Tipple, 2000; Tipple et al., 2000). Although they explored the decision-making and behaviour necessary to carry out the transformation, particularly to meet basic needs for space, they largely ignored the roles and perceptions of households with regard to their housing strategies, and they did little to explore the use and position of service infrastructure within the transformation. Instead they have shifted to a concern for the use of a dwelling unit by both middle and low-income groups as the centre of economic activity, e.g. the study of Home-Based Enterprises (HBEs) (Gough and Kellett, 2001; Gough et al., 2003; Kellett and Tipple, 2000; Mahmud, 2003; Tipple, 1993; Tipple, 2000).

Regarding collective improvement, it has been held that external leverages are essential for a community to be able to make infrastructure improvements which are beyond the capacity of an individual household (Bryant, 1980; Lee, 1998). As Abbott (1996a: 138) pointed out, *"Effective community participation almost always requires some form of intervention by outside parties."* Similarly, the involvement of external leverages is prescribed to make the concept of progressive improvement of infrastructure by a community (Abbott, 1996b; Choguill, 1996a).

The lessons of community action on service infrastructure improvement have been learnt mainly from low-income communities. Lee (1998: 994) argued that

external actors are important because “...*there are limits to what low-income groups can achieve for themselves, individually or collectively, without some form of technical support and other resources from external agents.*” and that external agents support communities in gaining access to key inputs. In a middle-income situation, particularly in a formal housing area, where service infrastructure is normally a given element of the housing package (Achunine, 1977; Crooke, 1983; Njoh, 1998; Shroder, 2002) provided by the developer (Van Huyck, 1987), it is uncommon that house-buyers have to do such collective work.

It is possible that the formal housing market in Indonesia has created a situation that gives liberty to many housing developers to provide inadequate infrastructure. However, the circumstances may not give buyers the option to compel developers or local governments to make good the provision of infrastructure. Whether or not it is beyond the capacity of house-buyers to challenge that system, this study investigated the evidence that buyers nevertheless carried out their own strategies to achieve a better housing environment.

The residential infrastructure which is the concern of this study consists of two categories: on-plot and on-site infrastructure. The use here of the terms on-plot and on-site follows authors who have differentiated between off-site and on-site infrastructure. Off-site infrastructure is made up of any network facilities outside the formal housing development. Its provision is usually the responsibility of the public services, which include government and its partner. The provision of on-site and on-plot infrastructure in a new housing area, as stated in Indonesia’s housing regulations, is the responsibility of the developers.¹ The on-site infrastructure is composed of all social and public facilities within the site boundaries, and the on-plot infrastructure is composed of the non-networked services installed within the housing plot (Cotton et al., 2002; Sivam et al., 2001; Verhage and Needham, 2003).

Individual housing projects in Indonesia vary in their provisions of infrastructure. Particularly this depends on the approval of the local authority to the proposal of development. For example, approval might be for a housing project with networked services (e.g. piped water supply from a public source) or with non-

¹ The regulations are Law 4/1992 (*Housing and Settlement Law*), Kepmenpu no.378/kpts/1987 (*Public works ministerial decree on the provision of infrastructure, facilities and utilities by a developer as a prerequisite for a development’s approval*), Permendagri no.1/1987 (*Home ministerial regulation on the handing over of neighbourhood infrastructure, public utilities, and social facilities of a new residential area to a local government*), and Inmendagri no.30/1990 (*Home Ministerial Directive on the handing over of neighbourhood infrastructure, public utilities, and social facilities of a new residential area to local government*), (see Public Works Ministerial Decree, 1987; Home Ministerial Regulation, 1987; Home Ministerial Directive, 1990).

networked infrastructure (e.g. a well on each housing plot). Within this study, the on-site infrastructure includes networked infrastructure attached to individual housing, such as drainage/sewerage, the road network, and other communal infrastructure and services. The on-plot infrastructure consists of water supply (well with hand pump), septic tank, open ditch drainage/sewerage next to the housing plot, and garbage bin.

In this study, a housing strategy is seen as the decision of an individual household to buy a house in a new formal housing area, to live in that area, to improve the house, to improve the on-plot infrastructure through individual self-help action, and to contribute to the provision of the on-site infrastructure through mutual self-help. The inclusion of decisions about infrastructure expands those familiar definitions of housing strategies that are concerned only with the structure-giving shelter and the land on which it sits. Because it views infrastructure as an essential element of what constitutes housing, this definition remains consistent with that of a housing strategy being the way an individual acquires a house and handles his/her housing situation, a definition held by many authors (Gough, 1999; Larsson, 1989; Van Lindert, 1997; Moser, 1982; Schlyter, 1988; Schlyter, 1989; S holt, 2001).

1.3 Relevance of the research

By investigating the strategies of people who are not poor for providing themselves with certain elements of service infrastructure when they decide to buy houses and to live in a new housing area, this study strengthens a number areas of knowledge that have been weak, especially regarding developing countries.

Firstly, studies of housing strategies have covered cases in developed as well as in developing countries, but that they are mainly from the government's point of view, and they lack the voices of households. Hence, to achieve a more complete and balanced understanding, it is important to examine housing strategies from the perspective of households themselves and to respond to criticism that too much attention is paid to strategies from above (Dennis, 1994). Most national, top-down shelter programmes have been unable to fulfil the needs of the growing number of people (see Van Lindert and Van Westen, 1991 for Less Developed Countries; and Dennis, 1994, for Developed Countries).

Some studies on housing strategies have focussed on strategies used by households to cope with housing problems under adverse circumstances. Some have

concentrated on the behaviour of low-income groups when searching for housing and when making their housing a centre for economic activities (Gough, 1999; Gough and Kellett, 2001; Larsson, 1989; Van Lindert, 1997; Moser, 1982; Schlyter, 1988; Schlyter, 1989; Schlyter, 2001). Some studies are based on the behaviour of people in developed countries (Crow and Hardey, 1991; Forrest and Kennett, 1996; McLaverty and Kemp, 1998; Munro and Madigan, 1998; Pickvance and Pickvance, 1994; Søholt, 2001). Just a few have looked at the behaviour of households in a poor urban area in a developing country while they are carrying out their housing strategies, notably that of Moser (1982).

Secondly, while a significant number of studies have been made of shelter-focused strategies, those of housing strategies that cover infrastructure are limited. Even then, most of the literature on the relationship between infrastructure and housing development in developing countries deals with low-income households (Choguill, 1985; Choguill, 1996a; Choguill, 1996b; Choguill, 1999; Choguill et al., 1993; Choguill et al., 1994; Gilbert, 1993; Van Lindert, 1997; Mayo, 1987; Ogu and Ogbuozobe, 2001; Ozo, 1990; Taylor, 1987). In addition, much research on infrastructure development for low-income households has focussed mainly on the improvement of basic infrastructure, such as infrastructure within site and services, and slum upgrading programmes (Maskrey and Turner, 1988; Payne, 1984). Studies of infrastructure provision which emphasise the case of formal housing construction are still rare (see cases in Permata and Bonar, 1999; Rukwaro and Olima, 2003).

However, authors have emphasised the importance of infrastructure provision to support housing development. For example, Choguill (1989) argued that urban residential physical infrastructure is a prerequisite to good housing and living conditions and to good health. Moreover, infrastructure is associated with the action to combat inequalities in urban areas (Werna, 2000), and from the economic side, good infrastructure improvement is associated with its multiplier effect on housing value and investment, as seen in Indonesia's Kampong Improvement Programme (Taylor, 1987). Other authors understand that (low-income) households' spending on housing improvement is also associated with the improvement of infrastructure (Strassmann, 1984). However, provision of infrastructure – even the essential minimum – is, next to the acquisition of land, the most important obstacle to meeting shelter demand for all income groups (Van Huyck, 1987).

Thirdly, the involvement of households and communities in infrastructure provision is not confined to poor people. Many authors have reported on various forms

of individual and community contribution to infrastructure in the low-income urban areas of developing countries (for example, Abbott, 1996b; Abbott, 2002; Choguill and Choguill, 1996; Choguill, 1995; Choguill, 1996a; Choguill, 1996b; Choguill, 1999; Choguill et al., 1993; Choguill et al., 1994; Cotton and Franceys, 1988; Cotton and Franceys, 1991; Cotton and Franceys, 1994; Glennie, 1982; Glennie, 1983). Yet few studies examine how and why households plan and carry out self-help provision of infrastructure, and those that involve middle-income households are rare.

This study considers that *'the phenomenon of self-help improvement and provision of on-plot and on-site infrastructure'* is action taken by individuals and groups of households (or communities) to fulfil their needs for infrastructure. Little has been learned about 'why' and 'how' this might happen in a non-poor neighbourhood. It is logical to think that buyers must expect to receive some service infrastructure components along with the shelter structures in the housing 'bundles' that they purchase (Crooke, 1983; Shroder, 2002). In the end, if they undertake to provide themselves with infrastructure components that are not in the bundle, then it has not been clear what process they go through to do it.

Fourthly, few researchers have focused their housing studies on middle-income groups of the developing countries. Not only can these groups be faced with significant difficulties when seeking the housing environment they desire, their actions can produce unwanted and unexpected consequences for the low-income groups that are most often the subjects of policy. For example, some analysts have observed that the middle-income group was the layer of buyers which, because they have the better affordability, can eventually occupy houses targeted for low-income households (Bhattacharya, 1990; Hardoy and Satterthwaite, 1989; Lee et al., 2001).

Indonesia, so far, has placed houses for middle-income families in the centre of its policy, despite criticism that it neglects those who are low-income (Dijkgraaf, 2000b). Under this policy, middle-income groups improved their position in formal housing markets through having better affordability and access to houses than the low-income groups. Another result was an increase in middle-income housing production during the 1980s and 1990s so large that the policy was further criticised for creating too many vacant houses even while the demand was still high. Yet the many flaws in this provision have only recently attracted the attention of the authorities, particularly those regarding the installation of infrastructure.

It is questionable, however, whether some middle-income buyers would recognise such flaws in the housing provision process, particularly at the time of

purchase. As observed in this study, buyers of newly-built houses can behave as if it is normal for them to improve the infrastructure they receive. A further question is whether buyers have set up their strategies for infrastructure improvements before or after the purchase. Then there is the question of what processes buyers have carried out to make the self-improvement of infrastructure possible.

1.4 Objectives, research hypothesis and questions

The objective of this study was to explore the phenomenon of the provision for themselves by middle-income house buyers of residential infrastructure presented by a situation in Bandung, Indonesia. This was seen as an opportunity to produce new knowledge that could test and inform theory, as well as be useful in formulating policy, by contributing to several areas of understanding that seemed to have been neglected.

In the beginning, a four-stage process of purchasing and living in new houses was recognised. In the first stage, a decision was made to buy the house. The second stage was the purchase of the house. In the third, improvements were made to the house structure and to on-plot infrastructure. In the fourth and final step, the buyer moved into and lived in the house (or area). It was the last period that seemed to lead to a decision, if any, to provide on-site infrastructure through actions involving other members of the community. However, it was not clear if buyers understood and were aware of the inadequacy of service infrastructure when making the decision to buy.

This study uses these stages of a buying and occupying to identify the behaviour of buyers when purchasing houses and improving infrastructure. To explain the behaviour of these buyers, a hypothesis was proposed as follows:

Middle-income households can choose to make significant improvements to the service infrastructure of new housing that they purchase. They do not require the intervention of external leverage. These infrastructure improvements can be elements of strategies that the households create for housing themselves. This can be so whether or not a household recognises that the infrastructure provision is unsatisfactory before purchasing the house. Strategies can use both individual and collective approaches to infrastructure improvement. Improvements can be made progressively, yet without any intention to connect them with formal municipal networks. The behaviour of homeowners regarding on-plot improvements and on-site improvements can be substantially different.

In order to test this hypothesis the following set of questions needed to be answered:

1. When did house-buyers' strategies on infrastructure improvement emerge, before or after the purchase of houses? How did they realise the need to make improvements? What were the reasons for buyers to make a decision on self-help provision or improvement of residential infrastructure?
2. What kinds of residential infrastructure would house-buyers provide and improve themselves? How did they manage to carry out the improvement of on-plot and on-site infrastructure? How far would they carry out the improvement of on-plot and on-site infrastructure?
3. How did the structure of the situation determine the limitations and constraints (if any) on new residents to perform individual and mutual self-help infrastructure provision? How far and in what ways did the structure compel new residents to undertake individual and mutual self-help infrastructure provision?
4. What kinds of external supports, when available, did they receive to make the collective work possible? When not available, what kinds of efforts were used to replace the functions of external supports?

1.5 Background and case study

1.5.1 Background

Housing policy in Indonesia, through formal housing development, has aimed to serve the high, middle, and low-income groups. An instrument to ensure adequate provision of housing for the middle-income and low-income groups which form the majority of urban population² was the decree issued by the National Housing Authority on 12 September 1974, and its reformulation in 1992 (the Decree of 16 November 1992).³ That decree stated a formula of 1:3:6, which requires private developers to build medium and small housing for every large house (luxury house), in a proportion of one unit of luxury housing to three units of medium housing and six units of simple housing.⁴ It is an instrument to ensure adequate provision of housing

² Almost 71 per cent of the Indonesian urban populations were those from the middle-low and low-income groups (Struyk et al., 1990).

³ See Lee et al., (2001).

⁴ Simple-medium-and-luxury housing types were defined by plot size, therefore a *simple house* was one occupying 54 to 200 m²; a *medium house* occupied 200 to 600 m²; and a *luxury house* occupied 600 to 2,000 m² (Lee et al., 2001). The 1:3:6 formula is still valid today, but many new formal housing schemes occupy land quite modestly, using plot sizes of between 54 to 200 m² because larger plot sizes will raise housing prices significantly.

for middle-income and low-income groups, which form the majority of urban population.

In reality, even the smallest size, the simple house, has not been affordable to low-income households, but it has been affordable to those that are middle and lower-middle income (Lee et al., 2001). This is actually not a new phenomenon. Similar situations have occurred in other countries (Bhattacharya, 1990; Hardoy and Satterthwaite, 1989).

In Indonesia, there are two kinds of problems related to infrastructure provision with which homebuyers usually have to deal. First, many have to improve the on-plot infrastructure to make their houses liveable before they move in. A very important need is for clean water. Sometimes houses are provided with a hand pump for a shallow borehole that is not properly installed and which provides water unsuitable for domestic use. Hence, a buyer has to install a deeper borehole, an electric water pump and plumbing inside the building. Another on-plot infrastructure need is for a sanitation system; usually that provided is a septic tank that is inadequate.

Second, homebuyers have problems concerning the availability of neighbourhood facilities. For example, from the very beginning of living in an area, they will need a way to dispose of domestic waste. Usually, a system of waste collection has not been established or provided by the developer. After living for sometime in an area, homebuyers might feel the need of further community facilities that were not provided, such as a mosque, any kind of sport facilities, education facilities (such as kindergarten), and a security system.

In general, there has not yet been a clear response to that situation. It seems that only local governments in Jabotabek have considered the flaws as serious failures to create good residential environments, and therefore they have required developers to provide what has been missing. Moreover, housing regulations aiming to ensure the quality of new housing areas have not anticipated these flaws, and hence they have been ineffective in enforcing the adequacy of residential infrastructure. It has been up to the buyers themselves to deal with the problems. However, heretofore it has not been certain that buyers were conscious of these circumstances when they purchased their houses.

1.5.2 Case study

The case study was located in the city of Bandung, the capital of West Java Province that hosts around two million people. It is situated 180 km southeast of

Jakarta and can be reached by train in three hours or by car via a toll road in two hours. Bandung is the site of strategic industries and several famous universities. As the third largest city in Indonesia, after Jakarta and Surabaya, Bandung is an important destination for urban migration.

The selection of the location for the case study was based on the following considerations. Firstly, Bandung is one of the major urban areas in the country that has shown recent growth in new housing, and this development has even spilled over into the neighbouring area (the Bandung Regency). Over twenty years, more than 96,000 houses have been built in Bandung and its surroundings within 302 housing projects that covered an area of 3,750 ha (Baradin, 1999). Secondly, it was observed that infrastructure provision within many newly-built housing areas was inadequate and this raised the need for an investigation. The period for observation of this study was mainly between 1980s and 1990s, which was the period when housing development was booming in the city and before this development reached a saturation point during the economic crisis in 1998.

Study area

The study area was the Margahayu Raya Residential Area (the MRRA), the flagship project of Raya Incorp, the developer. Continuous development had been underway for almost twenty years in the location since the early 1980s until it stopped due to the economic crisis in 1998. This termination is an example of the actions of many developers in the country who could not survive during the crisis.⁵

The MRRA was situated in Bandung's urban periphery during its initial development. After the expansion of the city boundary in 1987, the MRRA has been considered as part of the City of Bandung. It covers an area of approximately 305 ha. However, many parts of the area had not been fully developed, and this left some pockets of vacant land inside. In reality, this area consisted of several stages of housing development undertaken over the years, each considered as a distinct housing project marketed in different time periods.

⁵ Enormous formal housing developments in major urban areas were one of the triggering factors for the economic crisis in 1998. During and after the crisis, most small and many big developers terminated their activities. In 1999 most of the 2,400 member of the real estate association were paralysed (Larasati et al., 2003; Winarso and Firman, 2002).

After twenty years of development, no part of the area had been handed over to the local government as it was required by the country's housing regulations. This happened because there was an inconsistency between the housing development plan approved by local government and the actual development on the ground, and in this included failures of planned infrastructure provision. Any delay in the handing over could be disadvantageous to the residents, since by law the local government would not then have responsibility for the maintenance of the new housing area, and the builder may not take care of the area, considering that the development has been accomplished.

There were reasons for selecting the MRRA for the case study. Firstly, its long span of the development could provide pictures of the processes of formal housing development in Bandung, particularly in terms of homebuyers' struggles with infrastructure problems. For the MRRA, three groups of buyers were targeted: high, middle, and low-income. However, the field investigation revealed that no low-income buyers could have ever afforded houses in the area, even the smallest type of house and with the subsidy that was offered by central government. Hence, it is logical to say that the smallest types of houses actually were suited for lower-middle income buyers.

Secondly, the MRRA is a rich case study where new buyers have contributed both on-plot and on-site infrastructure. The fact that buyers have significantly improved service infrastructure does not indicate that this area was a sort of core home development. It was a regular formal housing development in which the market situation influenced prices and housing types. However, certain types of houses, particularly the small ones, were subsidised by the central government to help lower-middle income households to afford them. This was done by offering low interest rates on housing credits through a lending bank and non-bank agencies.⁶

1.6 Organisation of the thesis

This thesis titled "*Homebuyers' Strategies for Progressive Residential Infrastructure Improvement in Bandung, Indonesia*" consists of seven chapters.

⁶ In the 1990s the interest rate was around 14%, which was below the market rate of 18%. This applied to T21 (21 sq. m. house and 60 sq. m. land plot), the smallest housing type.

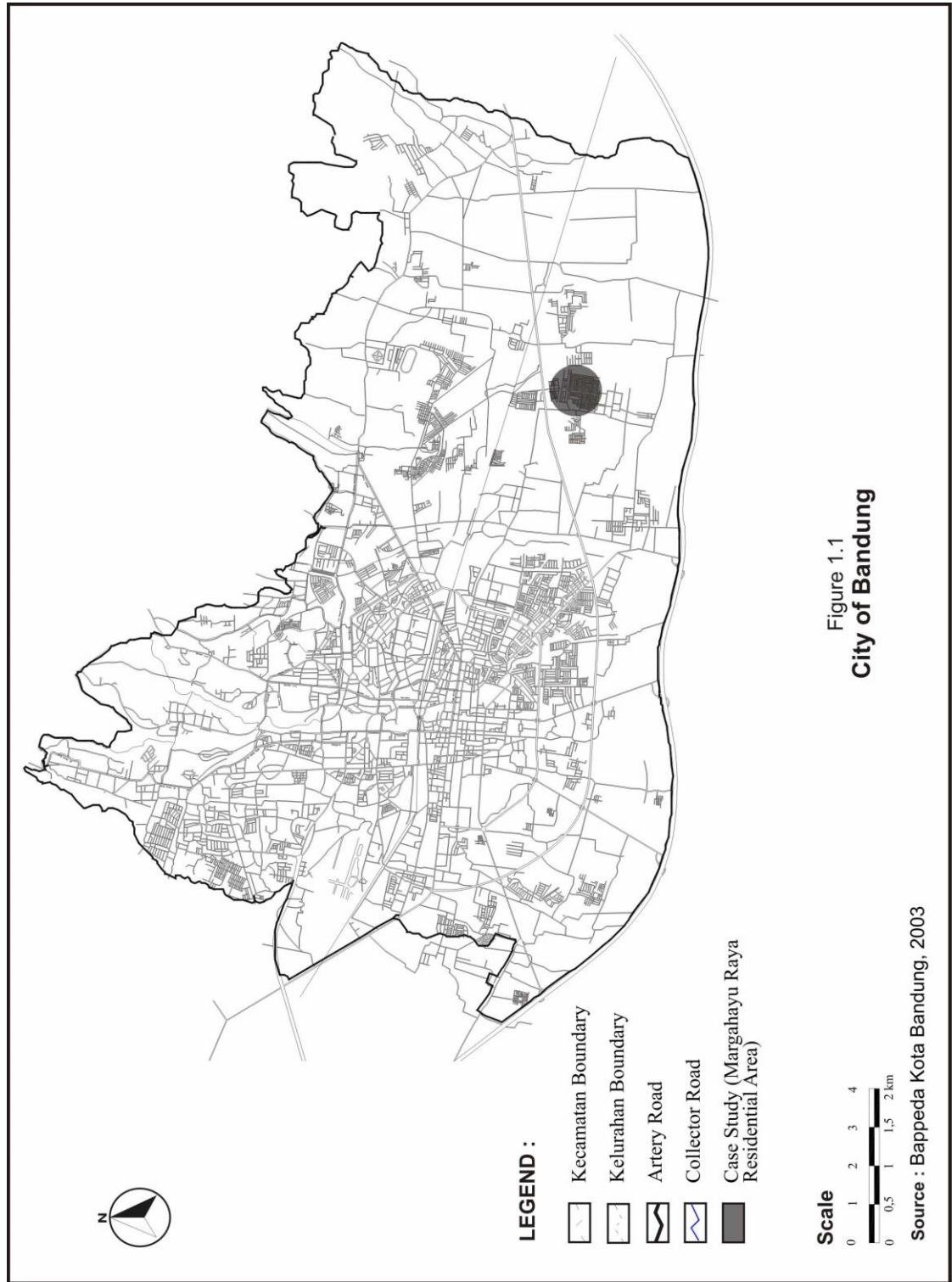
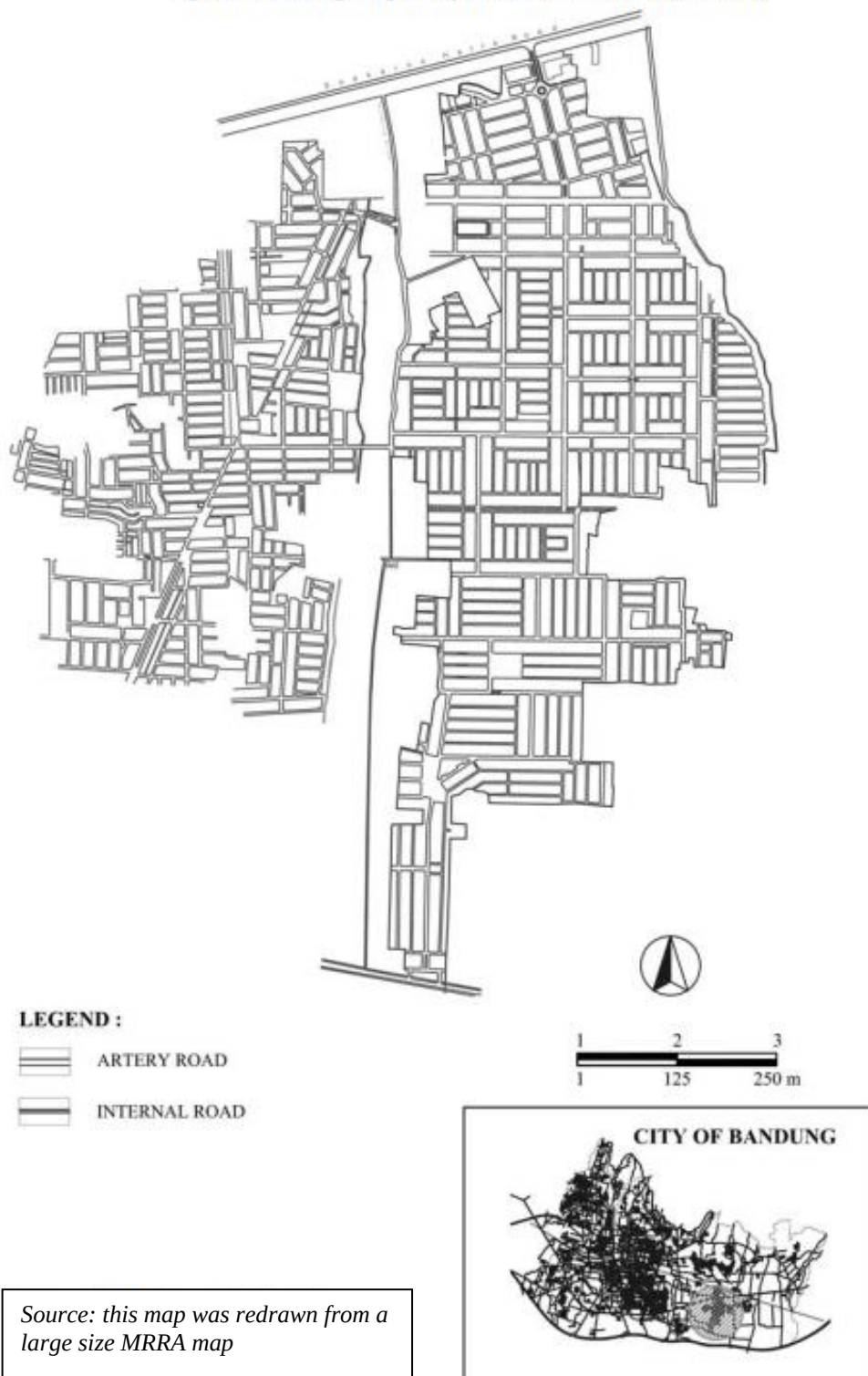


Figure 1.1
City of Bandung

Figure 1.2 Margahayu Raya Residential Area (MRRRA)



The first chapter presents the background and focus of the research, its relevance and its hypothesis, and its case study. The focus of the research is the behaviour of middle-income house-buyers when providing themselves with infrastructure in a new formal housing area in Bandung, Indonesia. This study examines a hypothesis regarding the housing strategies employed by these buyers in response to the absence of good residential infrastructure, that which was on-plot as well as on-site. The research questions explore how and why these buyers coped with the lack of good infrastructure.

Chapter Two presents a review of the relevant literature and conclusions concerning the existing knowledge of progressive improvement of residential infrastructure, collective action and housing strategies. It elaborates the housing strategies practiced by households in various housing situations. These elaborations are essential tools for analysing the case study.

Chapter Three presents the strategy and methodology for conducting the research. It explains the importance of understanding the nature of the case study and the study population. The special features of the case study and study population required specific strategies for carrying out surveys. A 'sequence model for interviews' is created. This model assumes that there must have been important events during the process of obtaining the house and living in the area. The model calls for the respondents to look back at their past experience. This section also explains the methods and steps of conducting the research, including the pilot study. The pilot study aimed to test the survey tools while understanding the nature of the case study. This section also presents the methods and difficulties of discovering the original homebuyers. For this, snowballing methods have been employed. This section also explains the methodology of primary and secondary data collections, and includes a review of the survey tools.

Chapter Four explains the context of improvement as a framework in understanding buyers' improvements. This provides an overview on two aspects: first, housing policy and residential infrastructure development in Indonesia; and second, the case study and a profile of the house-buyers within it. The first describes the housing policy in the country and the policy on the provision of residential infrastructure within formal housing development. It is followed by some issues of and weaknesses in the implementation of housing development and residential infrastructure provision. The second part describes urban development in Bandung, with particular emphasis on the roles of formal housing development in the expansion

of the city. It notes that urban infrastructure programmes and formal housing development have contributed to the development of infrastructure in general. The views of land developers and local government agencies provide a context for the infrastructure provision actions of house-buyers. House-buyers' profiles complete the background for the analysis of the following chapter.

Chapter Five examines the house-buyers' behaviour, starting from their assessments of the conditions of residential infrastructure and extending to the evidence of their behaviour regarding the provision. This investigation starts from the transformation of initial assessments and extends to decisions to undertake self-help improvement, individually and collectively. This section provides the results of investigations of the house-buyers' background, their behaviour, and their awareness that make the progressive improvement possible.

Chapter Six analyses the way housing strategies are practiced by house-buyers. It shows that they followed general strategies which were shelter-focused as well as strategies which were infrastructure-focused. The strategies of shelter-focused buyers not only dealt with general improvement of their houses, but also involved using houses for income generating activities. The actions of the infrastructure-focused buyers showed how individual and collective strategies were formulated and practiced. This chapter also reveals the importance of housing strategies in making the improvement happen. The absence of external leverages and external actors indicates that strategies were self-driven. Finally, the chapter explores and questions the sustainability of buyers' practices and the uniqueness of this behaviour.

Chapter Seven concludes with the findings of this research and its contributions to the knowledge. It asserts that the main hypothesis of this thesis was right: that individual and community improvement of infrastructure could be carried out on the basis of self-help, and without the involvement of external leverages. This chapter also answers the research questions on how buyers of new houses could cope with infrastructure problems. It showed that the buyers changed their pre-purchase decisions on the basis of perceptions that they acquired after they possessed their houses. They expanded the boundaries of their housing strategies to include aspects of infrastructure. Finally, this chapter describes the implications of this research for housing and residential infrastructure policy, and identifies areas for future research.

Chapter 2

Progressive Improvement and Housing Strategies for Residential Infrastructure Provision: A Review of Literature

2.1 Introduction

Service infrastructure has been widely studied in the area of housing and services. Many studies cover the attempts and efforts of governments, NGOs, or local residents in service infrastructure improvement. They commonly focus on low-income communities and rarely on middle-income communities. The relations among actors and their success stories have been accompanied by many methods for supporting the process of infrastructure improvement. A few studies delve more deeply than others by looking at gender roles and positions (Moser, 1987) and at the individual and collective strategies of local residents (Moser, 1982; Rukwaro and Olima, 2003).

The need to study service infrastructure, or residential infrastructure in particular, stems from the view that a community has the rights and freedom to have services (Choguill, 1996; Hardoy and Schusterman, 2000). Most importantly, a community has the right to have the best form of services, from their perspective, when a normal provision is not available. This view goes along with the studies of household housing strategies that promote the freedom of residents to express themselves regarding housing, and it contrasts with the line of those studies devoted to housing strategies from above (Van Lindert and Van Westen, 1991; Dennis, 1994). This freedom to build has now been extended to the provision of infrastructure, especially to support the poor (Choguill, 1995).

Traditionally, service infrastructure provision has come from government through its public agencies, or other agents acting on its behalf. This delivery system has been reviewed and criticised by many studies, and various new methods of delivery have arisen. They run the gamut from a total privatisation method to the latest method of partnership between the private sector and the community (Batley, 1996; Marvin and Guy, 1997; Marvin and Laurie, 1999; Otiso, 2003). Voluntary provision by a community, which is still mainly unexplored, is at the other end of the spectrum of these methods. It focuses on the role of households as individual or collective

actors. However, many studies argue that external leverages must take a central role to make community provision work. This could be in terms of the involvement of external agents and institutions, particularly to empower by raising the awareness, as well as to establish institutions and to fund (Bryant, 1980; Lee, 1998; Lopes and Rakodi, 2002). However, this view has a flaw similar to the one in housing provision: it sees households or communities as incapable of fulfilling their own needs, i.e. it ignores self-awareness and self-driven empowerment.

Many studies devote little attention to the housing strategy of a household, as strategies from above are dominant. The attempts to promote a housing strategy from the people's point of view were started by a critical examination of the dominant government housing policy (Van Lindert and Van Westen, 1991). Most of the available studies focus on low-income households in Less Developed Countries. However, this idea is an important consideration in a housing policy for the non-poor living anywhere, including households in the developing countries.

Yet, only a few authors have studied the role of residential infrastructure in a household housing strategy. The term 'residential infrastructure' has only been mentioned by the World Bank (Ogu and Ogbuozobe, 2001; World Bank, 1993). According to the Bank, residential infrastructure covers all infrastructures inside and outside the area of housing development. By outside is meant that infrastructure which can support the private sector construction of orderly residential areas (Ogu and Ogbuozobe, 2001). Choguill (1996a) defined infrastructure as having two main different components, *social infrastructure* and *physical infrastructure*. Social infrastructure includes educational and health care facilities, while physical infrastructure includes water supply, sanitation facilities, drainage, urban roads, solid-waste disposal facilities and land management. Other authors have defined infrastructure within residential facilities as on-plot infrastructure and on-site infrastructure. On-plot infrastructure is completely within the plot of a housing unit, and it is a non-networked service in nature. On-site infrastructure is infrastructure within one residential area, and commonly is understood as neighbourhood infrastructure and services (Choguill, 1996a; Cotton et al., 2002; Sivam et al., 2001; Verhage and Needham, 2003).

Studies on residential infrastructure provision became increasingly more important as an awareness of environmental health increased, particularly with regard to low-income housing areas. Research and a number of projects have been conducted in many parts of the world for improving the quality of health in low-income

communities. At the same time, other projects have tried to improve the infrastructure provision at an urban level, such as through urban infrastructure and management projects (Choguill and Choguill, 1996; Choguill, 1996a; Choguill, 1996b).

The change of housing policy in developing countries follows the housing market situation and contributes to many aspects of housing and infrastructure provision. A boost in the private construction of formal houses through an enabling strategy is an indication of housing policy changes (Ogu and Ogbuozobe, 2001). However, houses in a formal housing market usually are only affordable to middle and high-income groups and considerably less affordable to low-income groups (Bhattacharya, 1990; Hardoy and Satterthwaite, 1989; Lee et al., 2001). Yet, studies on housing for middle-income groups in developing countries are still rare in comparison to those on low-income housing. Even rarer are those on the relation between middle-income housing and the provision of residential infrastructure.

This chapter discusses the behaviour of residential land developers, its responses to market situations and its conjunction with the provision of infrastructure provision. There is a discussion of *progressive improvement of infrastructure provision* and of *housing strategies* that aims to explain the roles of households as individual and collective entities in their attempts to provide themselves with infrastructure and to use housing strategies.

2.2 Regulation and the strategies of housing developers

2.2.1 The regulatory aspect

Discussion on regulation places emphasis on maintaining compliance by the developer with public service requirements through land use control. The developer has significant roles in providing houses to the public, but regulation must make sure that the developer follows land use planning and therefore provides sufficient public services (Healey, 1998). However, a developer might avoid this responsibility. Therefore, methods have been developed to anticipate such possibilities, for instance those of developer contributions (Cardew, 2003; Ennis, 2003; Healey et al., 1995; Neutze 1997) and planning gain in the UK or development impact fees in the USA (Healey et al., 1995; ULI, 1989).

Apart from that discussion, some writers believe that there is a clear division of tasks between private sector developers and public agencies in providing

infrastructure. The developer is responsible for the provision of on-site infrastructure in its project area, while the agencies are responsible for the provision of off-site infrastructure outside or in between development areas (Sivam et al., 2001; Nicholas et al., 1991; ULI, 1989). This division comes from different views. The first is from a public administration perspective, because it is a delineation of responsibility between public agencies and developer (Sivam et al., 2001).

The second view believes the creation of a new residential area should include a complete set of facilities necessary to support a good housing environment (Achunine, 1977; Crooke, 1983; Van Huyck, 1987; Njoh, 1998; Shroder, 2002; see also Solesbury, 1990, and Kaiser and Weiss, 1970). This view sees service facilities as a component within the housing bundle. Hence, buyers should receive the supporting facilities within the project area along with their dwelling units.

A third view is based on the idea that a developer should contribute service infrastructure within a newly built housing area. Some authors call this contribution a linkage (Neutze, 1997). It is basically a delegation of responsibility from government to private developer. When new housing is built, the developer automatically has the responsibility of providing service infrastructure within the area. In the USA, this is called developer obligation (see Alterman, 1990). There is an equivalent in England which is achieved through ‘planning gain’ negotiations (see Solesbury, 1990; and Renard, 1990, for France).

A fourth view is about public finance. It sees a new development as an additional burden to government, because this generates an additional demand for service infrastructure. Therefore, the developer should share this burden by providing service infrastructure. This is negotiable since the developer might provide facilities that mainly serve residents within the new housing area, or the developer could contribute to the improvement of the level of service (LOS) in the larger area where the new development takes place (Nicholas et al., 1991). In the USA, this can be required in subdivision regulations and is called the developer’s responsibility (ULI, 1989). In England, this is called planning obligation (Ennis, 1994).

2.2.2 Developers’ strategies

Developers’ strategies aim mainly to obtain direct financial profit from the process of land development, and a particular strategy can be traced back to its typology (Cadman and Austin-Crowe, 1991; Haila 1991; Kaiser and Weiss, 1970). Haila explained that developers fall into four types, which are *bazaar*, *jungle*,

organism and circus, and that each focuses on a different level of investment in land. The *organism* type is active only in the public sector. Cadman and Austin-Crowe (1991) added that developers perform either as traders or investors. These variations in strategies explain why certain developers behave like traders with an intention of obtaining a quick yield, while some others behave like investors with expectation of longer term gain (Cadman and Austin-Crowe, 1991; Haila, 1991). The implication is clear that provision of infrastructure will be affected by these variations.

Literature on developers' behaviour identifies the developer as one important agent among many in land subdivision to achieve housing development (Cadman and Austin-Crowe, 1991; Farmer and Gibb, 1979). Two additional strategies are associated with developers: first, to find land for new houses, and second, to attract buyers through pricing (Henderson and Thisse, 1999).

Other developers' strategies refer to the choice of location in a market situation. The choice of location for housing largely is determined by land and infrastructure availability (see, for example, Cadman and Austin-Crowe, 1991; Kaiser and Weiss, 1970; Farmer and Gibb, 1979). However, in Indonesia, particularly in the extended metropolitan region of Jakarta, developers' choices of location are largely determined by cheap land prices and they do not depend on the availability of infrastructure (Winarso, 2000).

The size of the developer is of paramount importance to its strategy: the number of small and big developers could determine the way a land market works. It is common for big developers to acquire large amounts of ready land and hold it for use when the time is right. This certainly would influence the housing market price (Cadman and Austin-Crowe, 1991; Kaiser and Weiss, 1970; Farmer and Gibb, 1979). In its anticipation of buyers' preferences, a developer creates the characteristics of the properties, e.g. house, neighbourhood, and public services (Kaiser and Weiss, 1970. See also ULI, 1989, for the USA case, that shows a developer's awareness of its responsibility in the provision of residential infrastructure).

The role of developers in urban growth is paramount, particularly that of large developers. With the support of public policy, they determine the location and timing of major urban growth. Small developers and builders perform as fillers within the overall scheme (see Farmer and Gibb, 1979; Kaiser and Weiss, 1970).

2.3 Progressive improvement of infrastructure explained

2.3.1 Formal and informal infrastructure

Traditionally, infrastructure and services are part of a formal provision by the state (Cotton et al., 1998; Cotton and Tayler, 2000; Mehta and Pathak, 1998; Ostrom, 1996; Sohail et al., 2001). The debate on infrastructure provision has centred on the formal provision of infrastructure, and mainly on networked services of physical infrastructure. The common ground is the privatisation of service provision through various methods. Included are the participation of individuals with limited roles as 'users' or 'partners' (Batley, 1996), the development of infrastructure provision through urban management which emphasises the role of state and market or a combination of the two (Amos, 1993), and the new models of privatisation of water and sanitation for the urban poor (Hardoy and Schusterman, 2000). In this debate, formal infrastructure has been positioned as a central factor to maintain environmental health and economic development (World Bank, 1994), and its provision has been devised through various methods (Batley, 1996). However, there are still many complaints regarding the inability of these methods to reach the large number of urban communities who are in the most need of basic services, particularly water and sanitation (Choguill, 1996a; Choguill, 1999).

In response to the lack of formal provisions to serve a large number of urban communities, informal provisions have been created to serve the very needy in urban areas of the Less Developed Countries. Often it has been suggested that the informal provision of infrastructure is a solution for the lack of water services and sanitation (Choguill and Choguill, 1996; Choguill, 1995; Choguill, 1996a; Choguill, 1999; Choguill et al., 1993; Glennie, 1982; Glennie, 1983). Here, households, acting as individual or groups, are the centres of the provision. Strategies are developed to help them, usually with the involvement of external leverages such as NGOs, and commonly they are guided through a community participation process.

Proponents of informal provision intend to apply this strategy as an alternative to formal provision. Informal provision is carried out while waiting for the opportunity to connect to the formal system of infrastructure (town system) when the latter is available. In other words, informal provision is intended to serve as an intermediate step to the final one (Choguill, 1999). The argument for informal provision recognises that even the least likely affordable income group should have some rights to access to

services. When the formal infrastructure provision is unlikely to be available, the informal self-provision should be recognised as one option for low-income groups. This option is valid not necessarily because infrastructure provision should respond to demand. Instead, it reflects a concern that some areas in the city are not left without services (Ogu, 2000b). However, sceptics ask if informal provision will adequately fulfil the demand for infrastructure, such as in the case of water. Certainly such scepticism is not the best response to a scarcity of infrastructure, for it is preferable to have an informal infrastructure rather than no services at all (Hardoy and Schusterman, 2000).

Authors who take an intermediate position between the formal and informal provision see households (the users) to be influential stakeholders regarding the decision of infrastructure provision. They recognise that state and market cannot work effectively without third-party involvement, that of the user. Hence, a focus on infrastructure provision for householders has to include various income groups with different affordability. This can be seen in the proposals for community partnership, i.e. the *tri-partnership strategy* (Otiso, 2003), user-needs consideration (Marvin and Laurie, 1999), the stakeholders' partnership (Halla and Majani, 1999; Ogu, 2000a), the *community partnered procurement model* (Cotton et al., 1998), and the *coproduction of urban infrastructure strategy* (Ostrom, 1996).

Beyond that, examples of informal infrastructure provision have been advancing, e.g. best practices that mainly focus on low-income communities, such as the Orangi Project of environmental infrastructure (Cotton and Franceys, 1994; Yeung, 1990). Other examples include the collective strategies by the urban poor that are carried out in a combination with their housing strategies. This commonly requires the local government to support what has been started in the community (Moser, 1982). However, recent case studies have shown infrastructure improvement by communities of both formal and non-formal housing, such as water improvement by a middle-income community in an informal housing area (Kyessi, 2005), and residents' efforts to make limited improvements of neighbourhood services in a formal housing area (Permata and Bonar, 1999; Rukwaro and Olima, 2003). The latter case study has shown to some extent that an infrastructure deficiency could take place in a non-poor urban community, and that informal provision can be a response.

2.3.2 Progressive improvement of infrastructure

The idea of the informal provision of infrastructure continued to develop and crystallised in Choguill's method of progressive improvement. The term 'progressive' in general refers to gradual or incremental improvement and not necessarily to a particular method. However, Choguill conceptualised this term into a specific method of his own, which later allowed his 'progressive' improvement to incorporate many aspects of community participation processes, i.e. a means for achieving collective community action in service infrastructure provision.

The very essence of Choguill's method is the freedom of a community to build infrastructure according to their capacity (Choguill, 1995). As this is an immediate necessity of a community, the method is one that carries out informal provision by a community, with the expectation of connection with the formal system of a city's infrastructure in the future. This method was basically intended to help overcome the shortcomings in urban poor communities. He called the method '*the progressive improvement of infrastructure provision*' (Choguill, 1996a; Choguill, 1996b; Choguill, 1999; Choguill et al., 1993; Choguill et al., 1994; Ogu and Ogbuozobe, 2001). This idea was adapted from Turner's concept of shelter provision (Turner, 1970).

"Many of the squatter communities of Latin America offer uniquely satisfactory opportunities for low income settlers. They are characterized by "progressive development", by which families build their housing and their community in stages as their resources permit, the more important element the first. The procedures followed by these self-selecting occupant-builder communities, free to act in accordance with their own needs, enable them to synchronize investment in buildings and community facilities with the rhythm of social and economic change." (Turner, 1970:1)

Choguill (1999) suggests incorporating infrastructure development along with shelter development. He argues that the progressive improvement model of housing could readily be translated from the housing context to that of residential infrastructure. He also demonstrates that urban poor communities could construct their own infrastructure with proper assistance.

"If the model is relevant to infrastructure, it must first be shown that self-help can be applied to the infrastructure field, and that local residents are capable of providing their own urban facilities. Second, it must be shown that infrastructure, like housing, can be "progressively improved". Finally, it is necessary to demonstrate why lack of security of tenure is likely to form a fatal constraint on the self-help-based, progressive improvement of infrastructure." (Choguill, 1999: 294-295).

The idea of progressive improvement of infrastructure is rooted back in the 1980s. Glennie (1982) proposed a model of infrastructure development that basically follows a four stage progressive route: *initial, consolidation, expansion, and*

maintenance. According to this model, the framework of progressive improvement is laid at the initial stage through a small project that technically fits a specific community and is supported by good field staff. In the consolidation stage, standard technical procedures are developed. Then there is an expansion of these techniques to other areas; and the final maintenance stage ensures that the benefits of the completed projects continue long-term. However, this model depends a great deal on support from outside the community (Choguill and Choguill, 1996).

The exploration of progressive improvement ideas continued with the introduction of an infrastructure provision to support the sustainable environment agenda in urban areas of the developing world. This included attempts to reduce dependency on outside actors by the inclusion of the community through support for participation that involved individual or collective responsibility. The ‘*Five Is*’ method was introduced to differentiate attempts aimed at primary level infrastructure from those targeting high standard infrastructure. The spirit of this was five key elements, i.e. *incremental improvement, involving people, individual services, income related, and institutional*. However, external leverage was still thought important to funding and community development (Cotton and Franceys, 1988; Cotton and Franceys, 1994). This gradual improvement idea was further developed when Choguill offered the ten principle of progressive improvement (Table 2.1) which he supported in a series of papers (Choguill and Choguill, 1996; Choguill, 1995; Choguill, 1996a; Choguill, 1996b; Choguill, 1999; Choguill et al., 1993).

Table 2.1 The ten principles in Choguill’s model of progressive improvement

- | |
|--|
| <ol style="list-style-type: none"> 1- It must be recognised that within all cities in the developing world, two inter-dependent circuits exist, the formal and the informal; 2- It must be recognised that the town system of infrastructure, which is based on conventional technology, should be operated by either a municipal authority or a private firm nominated by that municipality, on a full cost-plus recovery basis; 3- Irregular land tenure issues should be resolved within the informal residential sectors of the city; 4- Informal infrastructure should be designed and built using external technical assistance as required, to be up-gradable from a basic standard to that which can be incorporated, with time, into the town system; 5- Informal infrastructure built by the local community should be under its control; 6- The technology adopted for informal-sector infrastructure must be maintainable by the community; 7- The informal structure must be affordable by its low-income users; 8- Informal-sector infrastructure must be socially acceptable to the community involved; 9- In order to achieve city-wide coverage of infrastructure, including within the informal residential sector, it is necessary that government adopt the role of facilitator and enabler rather than merely as provider; 10- Non-governmental organisations can play a key role in assisting communities to develop infrastructure systems. |
|--|

Source: adapted from Choguill (1996a: 395-400)

Choguill's principles link on-site infrastructure provision for low-income community and the formal infrastructure usually associated with middle income communities. The hope of the model is for all communities to be connected to the town infrastructure eventually. By reducing to some degree the quality and the complexity of the initial provision, a type of progressive improvement of infrastructure could be applied in low-income communities. He believed that the practicality of the model made it replicable by different communities dealing with various types of network infrastructure. However, the only example of how the method is implemented is water provision (Abbott, 1996b).

Although the progressive improvement model is technically rational and has a systematic manner, its critics argue that success depends strongly upon a government's role, centralised decision-making, and the role of outside organisations (Abbott, 1996b). Abbott added that this model is mostly appropriate to a particular situation of rural-urban transition. While explaining why the model was more successful in India, he reasoned that the country's specific urbanisation process was the key for success, especially the dominant role of the village in India as a sustainable urban unit.

"Progressive improvement burdens communities with heavy management responsibilities without giving them power or control over the wider policy decision-making process." (Abbott, 1996b: 606).

Finally, based on his experience of three case studies in South Africa, Abbott suggested three approaches that can be applied in urban areas, i.e. *a high level of service, the progressive improvement model, and a demand-driven approach with variable levels of service*. He noted that the analysis of the characteristics of the situations should be the basis for having the appropriate choice of approach. Two additional approaches can be explained: first, *a high level of service* provides a community with a high level of service provision, as demanded by a local community, but it seems that it is not suitable for low-income groups, and second, *a demand-driven approach with variable levels of service* provides services, which are designed to meet specific needs. Hence, the community's right to choose is the central issue. There is no need for a structured hierarchy of incremental improvement as this arises from the progressive nature of the improvements.

The recognition of a community's income level is an important feature that Abbott added to the progressive improvement model. It suggests that the different income groups might advocate different approaches to infrastructure provision.

Choguill's model is possibly only suitable to certain community groups while other groups might prefer other models. For other models, Abbott eliminates the idea of a structured hierarchy of incremental improvement, while at the same time promoting the community's rights to choose the approach best for them.

2.3.3 Community participation for progressive improvement

The implementation of Choguill's progressive improvement model suggests the use of M. Choguill's (1996) 'ladder of community participation' that is specially intended for developing countries (Table 2.2). M. Choguill (1996) reasoned that the use of Arnstein's (1969) ladder of citizen participation was inadequate for the developing countries, as the model was more suitable for the analysis in developed countries (Table 2.3). Critics argued that the use of the Arnstein's model provides misleading results within a development context (Abbott, 1996a; Choguill, 1996; Peattie, 1990). Furthermore, M. Choguill reasoned that in the area of housing and infrastructure, the guidance to support actors (government and NGOs) was incomplete in terms of the actions required to achieve success in community participation. Her model would be, eventually, suitable for community participation in housing and infrastructure by providing people a means achieve two targets, i.e. to get their basic needs and to influence decisions in the political arena that affect them.

Table 2.2 M. Choguill's (1996) ladder of citizen participation for underdeveloped countries

<i>Support</i>
1 Empowerment (the top rung on the ladder)
2 Partnership
3 Conciliation
<i>Manipulation</i>
4 Dissimulation
5 Diplomacy
6 Informing
<i>Rejection</i>
7 Conspiracy
<i>Neglect</i>
8 Self-management

Source: M. Choguill (1996: 442)

Table 2.3 Arnstein's (1969) eight rungs on a ladder of citizen participation

<i>Degrees of citizen power</i>	
8	Citizen control (the top rung on the ladder)
7	Delegated power
6	Partnership
<i>Degrees of tokenism</i>	
5	Placation
4	Consultation
3	Informing
<i>Non-Participation</i>	
2	Therapy
1	Manipulation

Source: Arnstein (1969: 217)

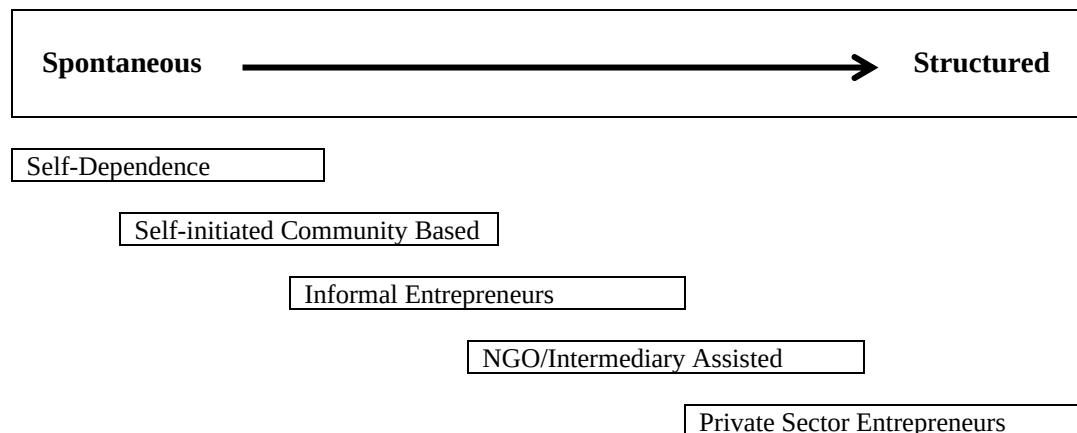
M. Choguill's model aimed to support mutual-help initiatives. However, the goal was for a community to attain empowerment by reaching the top rung, starting from the process of self-management. Similar to Arnstein's ladder, her model has eight rungs, which are *empowerment, partnership, conciliation, dissimulation, diplomacy, informing, conspiracy and self-management*. Finally, she demonstrated that, through her model, a community could achieve its basic needs with or without governmental support.

The most recent discussion on community participation in infrastructure provision saw the process of provision in terms of the concepts of spontaneity and structure. Chifos (2000) suggested that the service infrastructure provision can be in the form of a spontaneous provision by a community in various forms (*self-dependence, self-initiated community-based, informal entrepreneurs*) or in the form of *community participation* with NGO/intermediary assistances and *private sector* involvement (Figure 2.1). However, this concept opened up the possibility of a provision to any stakeholders who are possibly interested in the work of the provision, and not merely the community as the single interested stakeholder. Instead of a concept for the development of community infrastructure provision, this could rather be a description of a particular case study. As she pointed out, spontaneity and the structure of urban (residential) infrastructure provisions are country specific. Local factors could influence the interplay among actors (governments, NGOs, CBOs, community groups, other groups, neighbours, individuals, etc.), such as culturally imposed structures, patterns of governance, and social political power structure. However, referring to her case study, the coordination of the actors' efforts in

infrastructure provision was not clear and the burden was placed on individuals (Chifos, 2000).

Although Chifos' (2000) model suggested a progressive nature to infrastructure development, the concept is less clear than Choguill's. Furthermore, in the end, Chifos's concept suggested a 'partnership model' between community and other stakeholders. Such a suggestion was not genuinely new as similar ideas of 'partnership' had been suggested by other authors (Marvin and Laurie, 1999; Otiso, 2003). Examples of similar ideas are the tri-sector partnerships that involve the state (or public), voluntary, and private sectors (Otiso, 2003), and user-needs consideration in urban water management (Marvin and Laurie, 1999). Finally, the most important difference between those partnership concepts and Choguill's is the spirit behind them. Choguill's imported the idea of freedom to build from the housing arena into the infrastructure arena, which put it at the centre of the community's direct provision of infrastructure provision. Choguill suggested the involvement of external parties in the process, but this was on the basis of community participation and not in any form of partnership with other stakeholders (Choguill, 1995; Choguill, 1999; Choguill et al., 1993).

Figure 2.1 Continuum of Spontaneous to Structured Initiatives



Source: Chifos (2000:35)

2.3.3.1 The role of leverages

The definition of leverages is limited to the contribution from outside of material or non-material supports. The latter is particularly supports from external actors, i.e. government or non-government organisations (Bryant, 1980). Many authors have emphasised the importance of the external actors' roles in the theory and

practice of community participation (Abbott, 1996a). Authors have pointed out their importance as crucial for successful community participation (Abbott, 1996a; Bryant, 1980; Dudley, 1993; Lee, 1998; Moughtin et al., 1992). It has also been observed that when external actors or leverages leave, community action stops (Dudley, 1993; Lee, 1998; Lopes and Rakodi, 2002; Sanderson and Hedley, 2002).

Friedmann (1992: 144) identified the significant role of external agents as the centre of community action, *“External agents generate an organised response on the part of community groups to a new challenge. Their basic task is to ‘animate’ – that is, to blow the breath of life into the soul of the community and move it to appropriate actions. They are meant to ‘spark’ endogenous change ‘from within,’ not to carry out the change programme; this is a responsibility of the organised community.”* However, he concluded that the practice of external agents is often otherwise. He doubted that many community actions are spontaneous creations and in fact have a different origin.

Table 2.4
A summary of the characteristics of community development projects, empowerment projects and projects in urban upgrading

No.	Characteristic	Community Development	Empowerment	Negotiated Development
1	Role of government	Open	Closed	Open
2	Nature of the decision-making	Social/economic Small programmes, clearly defined outputs	Political/economic Single target programmes, clearly defined outputs	Economic/technical/social Multi-variable objectives, multi-faceted programmes
3	Community dynamic	Focused, through project selection	Focused through strength of communal need	Diffuse and heterogeneous
4	Primary purpose of the community participation process	Limited. The project/programme is community centred and can be managed without reference to the wider environment	Centred on the dispute between community and government. All other actions are subservient to this end	Integrated systems management. Very open interaction with the wider environment. Cannot be dealt with in isolation
5	Role of external actors	Training focus	Educational focus	Integrated training and education

Source: Abbott (1996a: 117)

All approaches to community participation, as in Table 2.4, give the roles of external actors various degrees of need. However, most of them indicate a significant position for external actors. For example, the role of external actors in a *community development* approach focuses on training (Abbott, 1996a; Moughtin et al., 1992); in an *empowerment* approach, it focuses on education; in a *community management* approach, particularly in rural areas, it focuses on education strategies (Korten and

Srinivasan in Abbott, 1996a); and in negotiated development, which is in the area of urban management, it focuses on integrated training and education (Abbott, 1996a).

In community management, the different types and forms of external intervention are important when applying education strategies to a community, and this is believed to be the key to achieving social transformation, i.e. through a growth-centred approach (Srinivasan, 1992, in Abbott, 1996a). This method differed from Freire (1972), which also holds that the type and form of external intervention is of paramount importance. His method, *conscientisacion*, uses different routes from community management to achieve social transformation (Abbott, 1996a).¹

In the case of spontaneous community action, Friedmann (1992) pointed out the importance of external actors for different reasons. He argued that spontaneity does not last long and needs external agents as catalysts: “*External agents are needed as catalysts for change to channel ideas and resources to the community and to serve as intermediaries to the outside world.*” (Friedmann, 1992: 158). In other words, local action needs to be spread out by creating networks and coalitions, and by so doing higher levels of development action are needed in an attempt to benefit the majority. Similarly, Lee (1998) believed that external intermediary institutions are needed, because there is a limit to self-help or community-based schemes. Having these external assistances, a community will have support in mobilising internal resources and in gaining access to outside inputs. Further on, this will enhance a community’s capacities to improve their habitat.

Within Choguill’s progressive improvement model, the role of external actors is also significant. Choguill’s model might have stated that a community could achieve basic needs with or without governmental support, following M. Choguill’s (1996) ladder of citizen participation. However, Abbott (1996b) pointed out that the model would then depend upon government’s role for its success, i.e. through its centralised decision-making. In other words, the model has supported the general recognition of collective action in the infrastructure area assuming some kind of external leverage to make it work (Bryant, 1980).

¹ In *conscientisacion*, the counterpart of empowerment in Latin America, the role of external actors is to provide the basis for cultural transformation of society through community education. However, this approach is excluded from *community participation* because its end results would endanger the existing position of the power holder (Abbott, 1996a).

2.3.3.2 Collective action, mutual self-help, and the role of leadership

This literature review emphasises collective action in the area of infrastructure from the standpoint of collective community work. It acknowledges the importance of a discussion of collective action from different perspectives, such as those of political economy, public choice theory, and sociology, so it briefly explains some of these.

The term collective action initially had as its definitional core the idea that people do something together (Oliver, 1993). However, since Olson (1965), thinking has moved towards the 'impossibility of collective action' which posits that collective action will not take place even though collective work would be profitable to all. This paradox illustrates how an individual's behaviour can be rational when taking a free ride that is more profitable at the expense of others (Ostrom, 2003; Bengtsson, 2001; Bengtsson, 1998; Rydin and Pennington, 2000; Oliver, 1993).

In public choice theory and political economy, collective action can be defined as the voluntary provision of collective goods (Bengtsson, 1998; Shilony, 2000) whereby the provision of public goods through collective action would result in the under provision of public goods. This contradicts, however, some observations that show many collective action and public goods provisions have happened at many different levels, including very high levels (Shilony, 2000). This discrepancy between theory and reality leads to attempts at reconciliation (i.e. changing the public goods and making them private to some degree) or bundling public goods with private goods, which would change incentives and increase the level of provision (for example Stigler, 1974, and Olson, 1965, in Shilony, 2000).

Therefore many authors are against Olson's theorem of collective action (Oliver, 1993; Rydin and Pennington, 2000; Bengtsson, 1998 and 2001). They have argued that the theorem is not universal and believe that its claim for universality is not correct because collective action does take place all the time and everywhere (Bengtsson, 2001). According to another argument, many voluntary collective action projects, evolved and facilitated by various arrangements, institutions and ways of life, lack evidence that free riding is an acute problem. Hence, the theoretical concern with free riding is misplaced or exaggerated (Johansen, 1977, in Shilony, 2000). In the end, these authors have returned to believing the old notion of collective action as when people do something together (Oliver, 1993).

Studies of collective action in the area of housing and infrastructure emphasise mainly the practice of community work and the processes of collectivities, i.e. the external leverage, mutual self-help, household's affiliation to community, and patron

client relationship. For example, many authors have explained how this particular condition in the housing arena makes collective action possible (Baud, 2000; Bengtsson, 1998; Bryant, 1980; Gilbert, 1993; Gilbert and Ward, 1984a; 1984b; Moser, 1982, 1987; Bennet, 1989; Friedmann, 1992; Yeung and McGee, 1986; Yeung, 1990). First, the spatial concentration creates a geographical closeness for potential participants to meet regularly and spontaneously. Second, the group size of residents living in the housing estate is best described as small to medium allowing all residents to know each other. Third, the long-run character of the relations among residents leads to their involvement in a collective action since they normally live for years in the same dwelling (Bengtsson, 1998). In addition, the acknowledgement of small group size is shared between studies of housing, sociology, and public choice theory (notably Bengtsson, 1998; Rydin and Pennington, 2000).

Baud (2000) pointed out the importance of community identity for a poor household when it carries out collective action. He believes in a new approach that sees a household as having multiple identities. A household might identify itself with different communities when it carries out various collective works. This is different from the old approach that sees a household as having a single identity.

Empirical evidence has led researchers to believe that it is impossible for communities to provide their own infrastructure. Researchers have offered different reasons. First, infrastructure is expensive and beyond households' capacity to provide it (Rakodi, 1993; Bryant, 1980).

Second, the community is able to achieve collective action for infrastructure by protesting to government (Baud, 2000; Rakodi, 1993). However, protest movements are unsustainable and tend to die out once the community is satisfied that their demands have been met (Friedmann, 1992). In Latin America, it is a matter of tradition that the community carries out collective action through a series of protests and by petitioning the government (Gilbert, 1993; Gilbert and Ward, 1984a; 1984b; Moser, 1982, 1987; Bennet, 1989; Friedmann, 1992). In Asia, a community demonstrates it can attempt mutual self-help in urban services, particularly with the support of the government (Yeung and McGee, 1986; Yeung, 1990). Both these last cases have a similar problem of sustainability.

Third, the community needs external leverages, such as intermediate organisations or external agents, to make the collective work happen (Bryant, 1980; Lee, 1998; Friedman, 1992).

Fourth, collective action that works with external leverages is not sustainable. Once the supports disappear, the community ceases to continue the efforts of the government led-programmes (Dudley, 1993). In project circumstances, collective work would last for the short to medium term. A constant support from intermediaries, such as NGOs, is necessary to maintain the community's motivation as well as to reinforce the community's vested interest in continuing service maintenance (Sohail et al., 2001). However, Gilbert and Ward (1984a: 772) noted that leadership is one of the causes of the continuation of mutual self-help, “...*community mobilisation can be maintained in certain circumstances, specifically when there is a strong community leader and the community lacks internal conflicts.*”

On a practical level, there have been researchers who believe that the use of collective action is in the best interests of a community in improving their infrastructure (notably Baud, 2000; Cotton, 1998; Plummer, 2000). Community involvement is of paramount importance since it will increase the advantage of the 'project' and its potential benefits (Cotton et al., 1998; see also Dudley, 1993). For example, there are attempts to involve a community voluntarily in infrastructure provision. In particular, this type of involvement is characteristic of projects that occur frequently and are low risk, with routine small infrastructure works, as opposed to complex, large, high risk and high hazard infrastructure projects (notably Cotton et al., 1998; Plummer, 2000).

Baud (2000) looked at collective action as part of a wider partnership between local community, local government, and the private sector. Hence, he saw that external leverages, i.e. CBOs/NGOs, are important to support collective action in creating that partnership. He argued that NGOs could help local communities to build strategic coalitions and to create federations. The former would increase their access to resources (Baud, 2000; Lee, 1998; Mitlin 1997). The latter would support each other's activities locally and secure more effective negotiation with government and private service providers (Baud, 2000). This would also make it possible to compare experience internationally.

Beyond that background theory of community participation are practices of mutual self-help in infrastructure and services that show the involvement of external actors in the participation process. In fact, external actors, which are mostly government, leverage the work to foster governmental programmes. Examples of this participation can be found in various readings on the improvement of urban services and infrastructure (Karamoy and Dias, 1986; Kuan et al., 1986; Lau et al., 1986; Park

et al., 1986a; Park et al., 1986b; Ramos and Roman, 1986a; Ramos and Roman, 1986b; Salih et al., 1986; Yeung, 1990; Yeung and McGee, 1986b).

The above examples contradict the notion that mutual self-help is different from community participation, and hence external actors might not be necessary (Abbott, 1996a). However, many examples of mutual self-help, particularly in the urban services provision, have shown a high-involvement of external actors in community work. Authors have pointed out that mutual self-help is a community tradition in some countries in Asia and Africa and that this feature has been a vehicle to foster various degrees of government programmes (Moughtin et al., 1992; Yeung, 1990; Yeung and McGee, 1986b). Case studies of common pool resources (CPR) also show the importance of external actors at work; this gives rise to the term *self-governed common pool resources*. The absence of external actors would rarely prevent such a *self-governed* CPR work from happening, for then the community would require the involvement of all sorts of external authorities (Varughese and Ostrom, 2001).

Besides collective action, there are examples of a community employing clientilism or a patron-client relationship in the provision of infrastructure. These types of relationships are mostly found in Latin America (Gilbert, 1993; Roberts, 1976) and in Africa (Moughtin et al., 1992). Clientilism is employed by a community when someone has a close connection with the government in granting the delivery of services to the area where the community resides. Frequently this is in the form of an exchange for votes for a service provision (Moughtin et al., 1992; Gilbert and Ward, 1984a; Moser, 1982).

The role of leadership

Leadership has been mentioned many times in accounts of the practical experience of community participation, and many believe that it is one of the keys to make a 'community work together' with success. Both participation and leadership are closely connected (Laverack, 2001). She pointed out that "*Leadership requires a strong participant base just as participation requires the direction and structure of strong leadership. Leaders play an internal role in the development of small groups and community organizations...*" (Laverack, 2001: 138). The importance of leaders is explained in Lopes and Rakodi (2002: 129), "*...leaders would be more aware of the communities' situation than ordinary residents, ..., besides being able to speak about community organization on behalf of the residents in general, they were reliable*

sources of information as far as representing the views of other residents was concerned."

The way to define leadership will depend on the topic subjected to intense academic scrutiny; hence it will be defined in many ways by many different people. Banovetz et al., (1971: 109) defined leadership as "*...interaction between two or more people in which one person (the leader) is able to exert some control over the behaviour of the other person or people (the follower or followers) over a period of time.*" Other definitions can be found in their article, such as the one regarding public administration that is widely used: leadership is an "*art that stresses the attainment of mutual ends through the coordination and motivation of both individuals and groups.*" (Pfiffner and Presthus, 1967: 88, cited in Banovetz et al., 1971: 109), and "*the activity of influencing people to cooperate toward some goal which they come to find desirable.*" (Tead, 1935: 20, cited in Banovetz et al., 1971: 109). At the practical level of community participation, leadership can be formal and informal. In government or NGO-led projects, local leaders are the means to deliver messages to control the behaviour of a community. In the common practice of community participation, the style and skills of leadership can influence the way in which groups and communities develop and in turn influence the participation process (Laverack, 2001).

Debate of community participation theory has missed discussing the position of leadership from within (see Abbott, 1996). Theory of community participation has embraced all community members as a democratic society, and without putting the position of leader into prominence. However, many works of community participation at a practical level have –on the contrary – regarded leadership as an important element during the participation process (Laverack, 2001).

This notion of leadership must be differentiated from the notion of clientilism or a patron-client relationship, which are practiced particularly by many Latin American cities (Gilbert, 1993). These practices have shown that leadership has been employed to foster successful government programmes, and some low-income communities were able to gain the advantage of infrastructure improvement (Roberts, 1978).²

² See also Moughtin et al., (1992) for the cases in Africa.

2.3.4 Progressive improvement of infrastructure: some questions

Nevertheless, there are still limited case studies of the concept of progressive improvement in practice. Since a long-term perspective is needed, there have not yet been examples that demonstrate the ultimate connection of informal infrastructure to a formal (town) one and the transfer of the concepts application from water provision to another type of on-site infrastructure. Conclusions may have been taken from many case studies of community infrastructure provision, but they have not been able to provide a picture of progressive improvement in practice. Hence, it is relevant to question whether progressive improvement should be conceptualised in such a rational and technical method. The second question is whether there is any possibility for a community to take care of itself regarding infrastructure provision, without intervention from outsiders. Apparently, the idea that a community needs help has become embedded in the minds of academics and practitioners. This could be in terms of empowerment, intermediary organisation, or capacity building. Practice may have found this true regarding poor urban communities, but the idea can be questioned regarding communities that are not poor. In any event, when the freedom to build concept is transferred from housing to infrastructure, it need not be confined within a rigid method. Moreover, understanding the voices and the behaviour of a community are of paramount importance.

2.4 Housing strategies in fulfilling housing and infrastructure needs

2.4.1 The term ‘housing strategies’

The literature presents the discussion of housing strategies in two areas, those of government and those of household. A government housing strategy concerns itself with the provision of housing for people, and its policies are presented in countries’ national documents (Dennis, 1994; Larsson, 1989; Pooley, 1992; Schlyter, 1985; Schlyter, 1988; Schlyter, 1989; Wegelin, 1983).

Many authors have agreed that the provision of houses for people is part of a government strategy (Downs, 1969; Pooley, 1992; Schlyter, 1985; Schlyter, 1990; Wegelin, 1983). This view shows that housing becomes an object of government policy, and its problems are mostly viewed from government perspectives rather than from households’ perspectives. Example of this is the introduction of many housing

programmes to help low-income households in many developing countries, e.g., KIP (*Kampong Improvement Programme*) and other shelter upgrading programmes, which were popular in the 1970s through the early 1990s.

Other authors also have introduced the concept of a housing strategy in support of a government's strategy, one which aims to help low-income urban households (Wegelin, 1983; Downs, 1969). Downs (1969) reasoned that many national governments were having problems providing decent houses for low-income urban households. He identified three major types of strategies for overcoming these problems, i.e. filtering strategies, low-income subsidy strategies, and minimal standard strategies. On the other hand, Wegelin (1983) supported '*enabling strategies*' as the way to help low-income households. He argued that governments should take a position as an enabler and not as a direct provider of houses.

Housing strategies that take the perspective of a government have had opponents who favour the views of household. This is because the elaboration of a government strategy infrequently reflects on housing problems from a people's point of view (Van Lindert and Van Westen, 1991; Dennis, 1994). In contrast, a household housing strategy focuses on the plans of households to cope with their shelter problems under adverse circumstances (Gough, 1999; Larsson, 1989; Van Lindert, 1997; Moser, 1982; Schlyter, 1988; Schlyter, 1989).

Van Lindert and Van Westen (1991: 1007-1008) have presented the importance of focusing on housing strategies from the low-income household's perspective in developing countries. They provided three reasons. First, "*most national shelter programmes have been no more than partial palliatives for the urban lower classes*". Second, "*the beneficiaries of those programmes represent only a very small number of people in need of housing*". Third, the failure of government to provide sufficient shelter for the increasing demand for low-income households has driven low-income families to secure adequate shelter by their own efforts.

Regarding developed countries, Dennis (1994) have criticised Pooley's (1992) elaboration of a housing strategy as paying too much attention to strategies from above, e.g. from philanthropists, industrialists, planners and politicians, and not seeing housing problems from the perspectives of individuals.

"Strategy is a rather grand term to describe most actions in the housing market, certainly the attempts of people desperate to find anywhere to live, if not the ill-considered and usually short-term reactions of governments to recurrent housing arises." (Dennis, 1994:209).

The terminology of 'housing strategy'

For some, the term 'housing strategy' has referred to a strategy from the perspective of a household (Larsson, 1989; Schlyter, 1988; Schlyter, 1989; Turner, 1976). Turner (1976) used the term when he described a woman's survival strategy in coping with her housing problems. He pointed out that this housing strategy was "*a vehicle for the achievement of social and economic security for her approaching old age...*" (Turner, 1976: 91). Later, other authors used this term to explain low-income households' behaviour (notably, Moser, 1982; Schlyter, 1988 and 1989; Larsson, 1989; and Gough, 1999). Gilbert (1993) presented a case study of poor households in affording shelter and named them survival strategies. Other authors have used the term for the middle-income group (Crow and Hardey, 1991; Forrest and Kennett, 1996; Ikejiofor, 1998; McLaverty and Kemp, 1998; Pickvance and Pickvance, 1994; Søholt, 2001).

Definition of the term housing strategy has not been rigorous, for many authors only describe examples of people's behaviour, calling them strategies regarding housing. For Turner, the basis of housing strategies was the autonomy and freedom for a household to decide a housing strategy to have good shelter (Turner et al., 1972).

"When dwellers control the major decisions and are free to make their own contributions in the design, construction, or management of their housing, both this process and the environment produced stimulate individual and social well-being. When people have no control over nor responsibility for key decisions in the housing process, on the other hand, dwelling environments may instead become a barrier to personal fulfilment and a burden on the economy." (Turner et al., 1972: 241).

For Van Lindert and Van Westen (1991: 1022-3), 'housing strategy' referred to housing needs, e.g. "*People may improve their shelter conditions by moving into ownership, or by moving into a better serviced neighbourhood, or by enhancing the standard of the structure itself through self-built activities*".

However, authors have agreed that the definition should refer to households' behaviour regarding their housing situation, and more importantly this must reflect the point of view of households. For example Gough (1999) defined housing strategy as a means "*...to denote the different ways in which self-help households construct their dwellings*" (Gough, 1999: 135). While Søholt (2001) defined housing strategy as, "*the ways individuals understand and handle their housing situation, viewed in the light of preferences, perceived possibilities and perceived hindrances.*" (Søholt, 2001:347).

The term 'housing strategy' in this study follows other authors' views and includes the capability of households' to look beyond shelter improvement to

infrastructure improvement and their capability to distinguish individual and collective decisions. Hence, 'housing strategy' indicates the way a household understands and handles its housing problems by viewing its position in the community and by making decisions to improve its house and infrastructure according to its preferences, possibilities, and self-awareness.

2.4.2 The practice of housing strategies

The practice of housing strategies to fulfil the needs of shelter and infrastructure is found in the work of many authors, e.g., Moser (1982), Schlyter (1988; 1989), Larsson (1989), Gough (1999), Van Lindert (1997), and Ikejiofor (1998). This study groups their works into four categories that each take a different perspectives, i.e. securing household economy and housing needs, housing as a means of economic survival strategy, collective housing strategies, and housing strategies beyond survival strategies. However, there is still another group of practices that show elements of housing strategies, and this is called 'unlabelled housing strategies'.

2.4.2.1 Securing household economy and housing needs

Survival is the central problem in household strategies and has been the focus of discussion on poor households. Meert et al., (1997: 173) defined survival strategies as *“every deliberate economic act by households with the ultimate motivation to satisfy the most elementary human needs, at least on a minimal level, according to universal social and cultural norms, and without a fully social integrating character.”* However, other authors have believed that a survival strategy is not merely about securing the household economy but is about securing housing needs as well (Barnett, 2001; Rakodi, 1995a; Rakodi, 1995b). Survival was seen to be a matter of satisfying daily needs, particularly under the adverse situations surrounding households (Rakodi, 1995a; Rakodi, 1995b; Roberts, 1991). This could be in terms of the local social-economic-physical situation (Rakodi, 1995a; Rakodi, 1995b; Zérah, 2000) or in terms of the macro social-economic situation (Meert et al., 1997; Yeboah and Waters, 1997). Housing needs extended to include infrastructure requirements (Rakodi, 1995a; Rakodi, 1995b).

Reaction to adverse housing situations leads to ‘informalisation’ or do-it-yourself construction of shelter bit by bit (Turner, 1976). Gough (1999) showed how poor households, after they obtained land, encountered two major problems. First,

households had to bear the costs of construction. Second, they also had to pay for their existing accommodation elsewhere. To reduce this double burden, many self-help builders adopted two basic strategies, i.e.:

“First, to quickly construct a shack of temporary materials or a room in brick for immediate occupation, and second to live with relatives (rent-free) while working on a larger, more permanent structure. The latter strategy was adopted by households who either considered construction from temporary materials to be a waste of money or were unprepared to live in a shack.” (Gough, 1999: 126).

2.4.2.2 Strategies for housing as a means of economic survival

A strategy for housing as a means of economic survival is one step further than the strategy for securing housing needs. In this, housing becomes the centre of the survival strategies of low-income households. Households maintain strategies in order to generate an income while optimising their houses as means to provide long-term security in terms of cheap shelter and investments (Larsson, 1989; Schlyter, 1988; Schlyter, 1989; Schlyter, 2001). Examples have been found in many places, e.g. Botswana (Larsson, 1989), Zambia (Schlyter, 1988), and Zimbabwe (Schlyter, 1989), Latin America (Van Lindert, 1997), Mexico (Chant, 1984), Ecuador (Moser, 1982), Peru (Turner, 1976).

As a cheap shelter and an investment, a house provides households with the possibility of earning an income by letting rooms. When a house is not owned, it still can be a locus of income-generating activities. Some authors have pointed out the importance of shelter to the survival strategies of women (Larsson, 1989; Schlyter, 1988; Schlyter, 1989). Women can use their shelter for income generating work, unpaid work (e.g. domestic work and child-raising), and management of social networks (e.g. participation in relatives’ and ethnic networks, neighbours, neighbourhood organisations and party activities).

Houses can also be places for multi-habitation and *‘lodging activities’*. In some African countries multi-habitation has become the norm. This happens because housing is unavailable and unaffordable to the low-income groups (Schlyter, 2001; Ikejiofor, 1998). Even so, low-income houses have also been used for illegal activities that are against local regulations (Schlyter, 2001).

Studies have been investigating the interrelationship of workplace, residential activities, and spaces (Kellett and Tipple, 2000; Mahmud, 2003). This is an advance on previous studies that have been largely on the economic implications of home-based enterprises, HBEs. Kellett and Tipple (2000: 204) have argued, *“In low-income*

areas, the complex web of economic linkages which exists between home-based enterprises and housing allows all but the most destitute to eke out a living and have access to shelter. It is believed there is a symbiotic relationship between housing and home-based enterprises, as dwellers are able to consolidate their dwellings through the income earned.”

Some studies found that housing space transformation expands from mere physical extension of the dwelling unit (Arimah, 1999; Kardash, 1999; Tipple, 1996; Tipple, 2000; Tipple et al., 2000) to the creation of a place for income generating activities (Gough and Kellett, 2001; Gough et al., 2003; Kellett and Tipple, 2000; Mahmud, 2003; Tipple, 1993; Tipple, 2000). This transformation of domestic spaces to HBEs is seen as a part of the survival strategy of these low-income households (Mahmud, 2003). One study also showed that this phenomenon happens not only in self-help housing, but also in government-built housing (Tipple, 2000).

2.4.2.3 Collective strategies as housing strategies

A collective strategy among poor people has been a means for bringing households into a shared activity when they become aware of their structurally adverse position on land and in housing market. This applies to people who live together in one area and who have a common interest (Van Lindert, 1997).

“This consciousness may lead to an enhanced state of organisation with the common objective of altering the limiting conditions through collective actions, so that they can create more space for improvement in their housing conditions. Such interventions made by households as a collectivity are as much part of the households’ shelter strategies as the various individual actions...” (Van Lindert, 1997: 207).

Examples of this are found in many studies where a community collectively constructed a squatter area and together demanded services (Gough, 1999; Van Lindert, 1997; Moser, 1982; Lopes and Rakodi, 2002). Understandably, many poor urban households still employed survival strategies where the decision to obtain shelter had to be carried out as an individual one (Gilbert, 1993; Gough, 1999; Moser, 1982; Turner, 1976).

Local conditions could influence how a community decided collective shelter strategies, such as the poor community in Guayaquil, Ecuador studied by Moser (1982) or in Florianópolis, Brazil (Lopes and Rakodi, 2002). In Guayaquil, the process started when groups of people began to occupy vacant land, to prepare it for construction and to erect temporary buildings. The next step was a collective effort to

demand service infrastructure to the local authority. The community understood the whole process very well, and they used the same method many times as they built additional shelters for newcomers. However, there was always uncertainty about the results of their demands to obtain service infrastructure from the local authority.

The case in Florianópolis, Brazil (Lopes and Rakodi, 2002) was similar to that in Guayaquil, Ecuador (Moser, 1982). In both, the communities started by organising and carrying out collective land occupations on public land, and they continued by building houses collectively and exerting pressure on the government for public services and infrastructure. The difference is that in Florianópolis external actors assisted this collective process, an NGO that focused on the empowerment of low-income people. In the end, the government contributed building materials, technical advice, and funding to the community.

Van Lindert (1997) has seen that an individual strategy can be connected to a collective strategy. Securing accommodation in the city is of prime importance particularly for new households. In general terms, three of the most important shelter strategies employed by households in developing countries form a sequence leading to collective action (Table 2.5).

“The first strategy to be examined pertains to the acquisition of dwelling by ‘starters’ in the urban housing market (i.e., that applied by households with the little or no previous experience of urban living). The second strategy relates to urban families who aim to improve their housing conditions by ‘moving house’, i.e., moving to another dwelling which more satisfactorily meets their expectations than did the previous dwelling. A third alternative is the gradual improvement of the original dwelling, so that housing conditions come increasingly into line with the aspirations of the household.” (Van Lindert, 1987: 202).

Table 2.5
Housing strategies of low-income groups in developing countries’ cities

	Individual	Collective
Entry to the housing market:	(Sub)let or free lodging	Joint purchase or occupation of land, followed by self-help construction
Moving house:	‘Infiltration’ or acquisition of illegal plots, followed by self-help construction; also (sub)lets, (free) lodging or ‘care taking’	Organised invasion, followed by self-help construction
‘In situ’ improvements:	Extension and/or consolidation of the dwelling; connection with service networks	‘Demand making’ by local organisations, followed by legalisation of ownership and installation of public facilities

Source: Van Lindert (1997: 208)

In the households that are not poor, collective strategies can be found in tenants' collective action in developed countries, such as in Europe, when they collective protest against landlords. Only few cases have been mentioned where there has been a collective physical provision, e.g. tenants had done some minor self-help action on services (Bengtsson, 1998). Another form of collective strategy in the developed world is when households, mainly poor ones, have contested welfare rights to obtain resources from various institutions. In this situation households have to carry out everyday jobs and choose among alternatives (Roberts, 1991).

“Households adjust the mix of their income generating and self-help strategies to take account of what state has an offer; likewise households join together to claim rights or to provide their own welfare, often becoming the basis of social movements aimed at improving community facilities or gaining a greater share of state resources.” (Roberts, 1991: 136-137).

2.4.2.4 Housing strategies beyond survival strategies

The subject of this section is the housing strategy that looks beyond survival. It differs from the previous ones because it is practiced by middle-income households. However, this does not mean that there is no similarity between them. Middle-income households face similar situations to those of their poor counterparts with regard to housing. Middle-income households still have to act strategically under the constraint of resources in order to fulfil the need for good housing, as they define it. They have to create strategies to achieve their future plans, and yet these might differ from those of the poor, as middle-income households have better options than the poor for carrying out their strategies. Hence, both poor households and those that are not poor are not simply the passive victims of circumstances beyond their control (Forrest and Kennett, 1996; McLaverty and Kemp, 1998; Pickvance and Pickvance, 1994).

Strategies practiced by the poor have conceptual similarities and practical differences with the ones practiced by the middle-income households. Both focus conceptually on shelter and social-economic aspects and not on the infrastructure aspects. Their practices differ in that one set aim to secure housing needs and the other aims to fulfil a desire for good housing. The first kind put housing needs within survival strategies, whilst the second put them within households' options (Chant, 1984; Gilbert, 1993; Gough, 1999; Larsson, 1989; Moser, 1982; Schlyter, 1988; Schlyter, 1989; Turner, 1976, in the poor, and Crow and Hardey, 1991; Ikejiofor, 1998; Pickvance and Pickvance, 1994)

For example, poor households employ their shelter strategies by referring to certain conditions, i.e. the particular structure of a city's land and housing markets and of the wider economic. They also rely on good timing to employ the relevant strategies and are directed by their changing needs (Van Lindert and Van Westen, 1991). They have modalities of strategies to secure their housing needs, i.e. for gaining access to shelter in the cities for the first time, and for carrying out successive improvements of their positions in the urban land and housing markets. They carry out the latter either by moving to another location or by progressively improving their housing environments and the dwellings they occupy (Van Lindert and Van Westen, 1991).

Similarly, those who are not poor refer to their own situations when either improving resources or reducing expenditures. Yet, they differ in their preferences for how to using the resources (Pickvance and Pickvance, 1994; Munro and Madigan, 1998). Their preferred choices are largely determined by the size of their resources and by the balance they want between housing and non-housing expenditures. *"However, household resources are too often seen as something given, and non-housing expenditure as something which varies proportionately to income and can, therefore, be ignored in understanding household choices."* (Pickvance and Pickvance 1994: 662). Moreover, Munro and Madigan (1998: 720) noted:

"In practice households are juggling a whole range of considerations and may choose, for example, to alter their household composition to suit their current housing situation rather than vice versa..."

The concepts of '*sacrifice*' and '*decisions on expenditures*' are linked. Sacrifice means choosing one among several options in order to gain better financial conditions under a limited budget. Sometimes, it does not correspond to financial terms. For instance, a household might prefer investment in education for children rather than in housing improvement. Or, saving can call for a sacrifice when it means refusing to spend on some preferred options. Sacrifice sometimes cannot be separated from expenditure implications, because the decision on one budget option means sacrificing other options for expenditures (Pickvance and Pickvance, 1994).

It has been found that households that are not poor can implement several strategies in single situation requiring choices. In a situation of tight housing markets, a household might implement a *work-related strategy*, *expenditure-related strategy*, *family help strategy* or *external help*, and even a *childbearing strategy* (Pickvance and Pickvance, 1994; and see also Søholt, 2001, for the case of multi-habitation). Multi-

habitation and renting strategies are also found in situations faced by those who are not poor (see Ikejiofor, 1998). Lone parents have been known to secure their housing situations through various strategies, e.g. *sharing for short-term (rent-free)*, *sharing for long-term (equal sharing/not rent-free)*, *renting*, *staying put*, *'becoming pregnant'*, *'getting married or remarried'*, *'waiting for the children to become adults and leave home'* and *having family help for women to stay temporarily in their family's home after the break-up of their marriage* (Crow and Hardey, 1991).

2.4.2.5 Unlabelled housing strategies

There are many studies that have presented household strategies for housing elements that were not recognised as such, particularly in an urban poor situation (Chant, 1984; Chant, 1997; Gilbert, 1993; Lokshin et al., 2000; Schlyter, 2001). These studies focus on the strategies of individuals or households for obtaining shelter in an urban area, such as by living with family or kin, by sharing space in multi-habitation or co-residence, by renting, by renting for free, and/or by obtaining help from family or relatives (see Van Lindert and Van Westen, 1991; Gilbert, 1993; Gilbert and Varley, 1991; Gough, 1999; Rakodi, 1991; Vaa et al., 1989).³ In some respects, these households' strategies resemble the survival strategies of poor urban people.

2.4.3 Housing strategies for infrastructure provision

Strategies for infrastructure provision have found places within housing strategies and beyond survival strategies. This shows the importance of infrastructure within the housing strategies of poor urban dwellers and those who are not poor. Housing strategies for infrastructure refer to individual (self-help) and collective (mutual self-help) provision (Gough, 1999; Van Lindert, 1997; Meert et al., 1997; Moser, 1982).

Housing strategies which involved the infrastructure provision in poor urban housing areas usually employ collective action (Gough, 1999; Van Lindert, 1997), and they involve external leverages or outside agents (Bryant, 1980; Lee, 1998). Once these supports are pulled out, the collective action dies out (Friedmann, 1992). That situation, on the contrary, has not been sufficiently elaborated regarding urban dwellers who are not poor. In other words, many collective provisions of infrastructure

³ From the perspective of a homeowner, having a room for renting is a chance to have additional income (Datta, 1996; Kaitano, 1999; Schlyter, 2001).

which are supported by external agents are in the category of *housing strategies within survival strategies*. It would be interesting to know if the provision of infrastructure within a housing strategy follows a short-term strategy or a long-term one, and whether it is part of a short-term coping strategy or long-term housing strategy.

2.5 Summary

This chapter has surveyed thinking relating to connections between the concepts of the *progressive improvement of infrastructure* and *household housing strategies*. It started with the acknowledgement that the freedom to build was the basis of progressive improvement. Progressive improvement has incorporate the spirit of freedom to build as it was initially identified in self-help housing (Turner et al., 1972), using it infrastructure and services improvement (Choguill, 1999; Choguill et al., 1993). Choguill delivered a concept in the shape of a technically guided methodology for self-help, reasoning that the direct provision of infrastructure was not often possible because of its expense, that a minimum provision was better than none, and that a community should be allowed to do develop this provision progressively. However, there are few examples of practice linked to this theoretical basis, to be found among the available case studies of community provision of infrastructure and services.

In the work of Turner, the term freedom to build was embedded in the housing strategies of households in low-income communities (Turner et al., 1972). The concept has been applied to shelter, as well as to the socio-economy of households, or to a combination of the two. Case studies have investigated the use of strategies by households to maintain the social and economic aspects of their houses as well as to physically transform their shelter.

This chapter has also shown that the concept of housing strategies formulated by households can be usefully expanded include infrastructure provision involving individual household or collective community action. When strategies are individual, they represent the freedom of each household to provide for itself. When they are community strategies, they demonstrate that collective actions among community members are possible. However, from various perspectives, external leverages have been identified as a common key factor in the success of collective strategies.

On housing strategies, the literature suggests people are influenced by many factors, and the resulting strategies can be divided into four categories, i.e. those for securing household economic and housing needs, those for housing as a means of economic survival, collective strategies for housing, and housing strategies beyond survival strategies. They can be fashioned as spoken or unspoken housing strategies and have been identified through the observation of people or direct involvement with their activities.

Chapter 3

Research Strategy and Methodology

This study investigated the behaviour of buyers when dealing with the inadequacy of infrastructure that dated from the time of purchase of their houses. This required a specific strategy and methodology to obtain information from those buyers who procured houses directly from the developer. As this happened some years before, a method had to be designed that could draw upon the buyers' recollections of past experiences.

This chapter contains an overview of the research strategy and methodology and some operational definitions. In particular, it explains the approaches carried out, including an explanation of the methods used to locate original house-buyers (occupiers), to conduct the pilot study, to collect primary and secondary data, and to analyse the data.

3.1 Research strategy overview

The focus of this study was homebuyers' strategies for improving the infrastructure in newly built formal housing areas. The homebuyers were the *original house-buyers* or *original occupiers* who were still living in their houses. The improvement activities were those carried out by these homebuyers regarding on-plot and on-site infrastructure. As far as the literature concerned, infrastructure-focused housing strategies have not been studied extensively, and therefore further explanations defined the research questions for this study.

3.1.1 Case study approach

This study employs a case study approach. According to Stake (1994: 236), “A case study is not a methodological choice, but a choice of object to be studied”. Yin (1991: 23) defines the case study approach as ‘*an empirical inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used*’. A case study is also an integrated system with its boundedness and

the behaviour patterns of the system are key factors in understanding the case (Stake, 1994 and 1988).

Through out its history, a case study approach has experienced ups and downs in its popularity (see Sarantakos, 1998; Tellis, 1997). It was a popular method in the early 1900s until 1935, when the calls for making method more scientific increased, which was to add some quantitative measurements to the research design and analysis (Tellis, 1997). It has been considered as “...an inferior method of inquiry, being of little use and of minimal significance, since it allowed very little quantification and no generalisations” (Sarantakos, 1998: 192). Or, a case study’s body of literature is “primitive and limited” (Yin, 1994). The method gained in its popularity and interest after the concerns about the limitations of quantitative methods increased in the 1960s (Tellis, 1997), and after the case study method experienced some development of its theory, improvement of its structure, and enhancement of its methodology (Sarantakos, 1998).

Authors have listed advantages of the use of case study research; among them are Bauer (1994), Berger et al., (1989) and Lamnek (1988). As cited by Sarantakos (1998: 192), the purpose of exploration in case study research has been expanded to many reasons, i.e., “to gain more information about the structure, process and complexity of the research object when relevant information is not available or sufficient; to facilitate conceptualisation; to assist with formulating hypotheses; to guide the process of operationalisation of the variables; to illustrate, explain, offer more detail or expand quantitative findings; to test the feasibility of the quantitative study.”

Another advantage of case study research is its flexibility in that a case study approach does not need a minimum number of cases or to randomly “select” cases (see Tellis, 1997; Yin, 1994). In other words, a single case study is possible, and the researcher works with the situation that presents itself in the case (Yin, 1994). Responding to the ‘critique of case study’s inability to transform from local to global generalisation’, Hamel et al. (1993) and (Yin, 1994) defend the case study based on its methodology. Singularity is a concentration of the global in the local (Hamel et al., 1993). Generalisation is based on “...the set of methodological qualities of the case, and the rigor with which the case is constructed” (Tellis, 1997: 4; see also Yin, 1994). A key argument is that a case study can satisfy the qualitative method’s tenets which are *describing, understanding, and explaining* (Tellis, 1997).

The selection of single case study follows a logic, i.e., *first*, a single case study is suitable for revealing a phenomenon that previously was not well observed (Tellis, 1997); *second*, a single case study can be used “... *to confirm or to challenge a theory, or to represent a unique or extreme case*” (Tellis, 1997: 4; see also Yin, 1994). This study has followed this logic. *First*, the phenomenon of the buyers’ contribution to infrastructure improvement in the MRRA has not been noted by observers, although the case is rich with examples of individual and collective improvement of infrastructure. The practice of such improvement itself represents a unique or extreme case in the general knowledge of formal housing development. *Second*, This practice confirms some of the existing ideas concerning the progressive improvement of infrastructure, collective action, and the use of household housing strategies. *Third*, the phenomenon of improvement has been going on for years, and its presence in the case represented an integrated system with its boundedness. Because the behaviour patterns of its principle actors showed how improvement of houses and infrastructure was carried out, it was possible through study of the case to obtain some understanding of this phenomenon (see Stake, 1994 and 1988).

A multiple-case study does not necessarily produce better results than a single case study. Giddens criticised case study methodology as “microscopic” because it lacks sufficient number of cases to be representative of a general situation (Tellis, 1997). However, that is not the aim of this research. Moreover, increasing the number of cases does not change a multiple-case study into one that is macroscopic, if they are not chosen randomly (Tellis, 1997; Yin, 1994; Hamel et al., 1993). Hence, a single case study can be sufficient to fulfil the expectations of a case study approach (Tellis, 1997).

A multiple-case study might still be done for several reasons. If this is so, a single case study must be done first and be chosen according its suitability for the research, and then used as a typical case. The selection of additional cases can be done through snowball sampling or other appropriate methods, such as theoretical sampling (Sarantakos, 1998). However, Tellis (1997) suggests that the selection must follow a replication logic rather than a sampling logic, and notes that unavailability of other cases for replication should limit the researcher to single-case study. The parameters of a multiple-case study design must be established first in its goal and be applicable to all of the additional cases (Tellis, 1997, Yin, 1994; Hamel et al., 1993). The generalisation of results, as in single case study, is made to theory and not to populations (Yin, 1994). The only advantage of employing a multiple-case study is

believed to be that the results are strengthened by multiple cases and their replication of the pattern-matching, and hence the results could increase the robustness of theory (See Tellis, 1997; Yin, 1994).

A case study can be employed in quantitative or qualitative research, although it is used to a lesser extent in quantitative research than in qualitative research (Sarantakos, 1998; Tellis, 1997). On the one hand, in quantitative research, the case study approach is used for three purposes, i.e., “*as a prelude to the ‘real’ research, as a form of pre-test, or as a post research explanation of the ‘main’ study*” (Sarantakos, 1998: 193). In other words, a case study is not employed as an autonomous research but as a supplement to other studies (Sarantakos, 1998). On the other hand, in qualitative research, a case study does not serve as an addition to quantitative research. It is a research enterprise of its own and aims at developing hypotheses or theories (Sarantakos, 1998).

A case study approach is called a triangulated research strategy (Tellis, 1997). It is a combination of data collection methods that uses multiple sources of data (Sarantakos, 1998, Yin, 1994). The use of triangulation associates with higher validity and more reliable results than the use of single source method. It increases accuracy and alternative explanations (Stake, 1995; Sarantakos, 1998). It can involve data, investigators, theories and methodologies (Tellis, 1997). This study achieves triangulation by drawing upon several sources of data which are secondary data, quantitative and qualitative primary data and observation (see for example Sarantakos, 1998).

Disagreement with this triangulation comes from a disbelief that a multiple source of data would produce more valid and reliable results than data from a single method (see Sarantakos, 1998; Silverman, 2001a). However, Fielding and Fielding (1986), quoted in Silverman (2001a), suggest ground rules for operating triangulation. First, it should start with a theoretical perspective. Second, it should select methods and data which will provide “*an account of structure and meaning from within that perspective*” (Silverman, 2001a: 134).

Yin (1994) presents a case study protocol that contains procedures and general rules for using survey instruments. This protocol ensures the reliability of the case study research. Examples are an overview of the case study, field procedures, case study questions and a guide for case study report. It notes that at least six sources of evidence are available (Stake, 1995; Yin, 1994), e.g. documents, archival records, interviews, direct observation, participant-observation and physical artefacts.

Referring to those suggestions, this study began with a theoretical perspective on progressive improvement of infrastructure development, collective action and housing strategies as explained in Chapter 1 and Chapter 2. Data were collected with a combination of methods and sources, e.g. interviews, observation, quantitative survey, documentary and other secondary data. *Documents* from various sources were used. For example, there are materials from newspaper articles, such as those that voiced the situation of formal housing development and infrastructure provision in the country. The developer of the MRRA provided maps of the selected housing area. REI provided valuable information on developers who were still active and might be interviewed. *Archival records* collected during the survey provided names, addresses, phone number, offices, and the availability of residents for interviews. *Interviews* were conducted with three populations: residents (who were house-buyers), developers and officers of local government agencies (see section 3.2.1). *Direct observation* was carried out to see evidence of individual improvement of houses and infrastructure, collective action, and residents' activities. *Participant observation* was made of individual and mutual self-help activities, although only as a passive observer. The researcher did not involve himself within the respondents' activities during the survey period. This was good, because active participation could have altered the course of events (Tellis, 1997). The *physical artefacts* used were the changes to buildings and plots, made by home owners that were evidence, often collected as photographs, of their individual and collective improvement of housing and infrastructure.

The most difficult part of the case study method is the analysis of evidence, and this aspect is the least developed (Tellis, 1997). Many researchers have suggested minimising the weakness by introducing a quantitative approach, which is statistical analysis, or using tabulated data in the form of data displays, flowcharts, or even correlation analysis between variables, in order to be easily understood (see Miles and Huberman, 1984). However, such suggestions satisfy only some of the critics (Tellis, 1997).

Many researchers have responded to the needs of case study analysis, for example Yin (1994), Stake (1995), Runkel (1990), and Eisner and Peshkin (1990). Yin (1994) offers two analytical strategies that would lead to conclusions. The first is to build up a case description, and use this as the framework for organising the study. The second one is to rely on theoretical propositions, and to analyse the evidence based on those propositions. Yin (1994) and Stake (1995) also offers pattern-matching logic as a mode of analysis, which is a comparison between an empirical pattern and a

predicted one. When the patterns coincide, then internal validity is enhanced. Stake (1995) proposes to use data coding and to identify issues at the analysis stage. Runkel (1990), in a multiple-case study, suggests the use of aggregated measures to find relative frequencies. Eisner and Peshkin (1990) emphasise the importance of direct interpretation of events. Yin (1994) also emphasises the importance of some principles in order to produce high quality of analysis, i.e., the analysis must rely on all relevant evidence, the analysis must include all major rival interpretations, the analysis must address only the most significant aspects of the case study, and the analysis must use researchers' prior expert knowledge to further the analysis.

This study has followed Yin (1994) in developing the case description through, *first*, the context of formal housing development or land subdivision in Indonesia, and *second*, the explanation of community's efforts in infrastructure provision. The result provided a framework for examining the roles and responsibilities of developers' in the provision of certain infrastructure (Cardew, 2003; Healey et al., 1995; Van Huyck, 1987; Neutze, 1997). The developer is held by many to be the sole agent that is required to provide the infrastructure component of the housing bundle in a formal housing development (Achunine, 1977; Crooke, 1983; Njoh, 1998; Shroder, 2002).

Following Yin (1994), this study has relied on three theoretical propositions, which are that a community is capable of carrying out progressive improvement of infrastructure, that the improvement of infrastructure can be driven by a household housing strategy, and that collective action can provide or improve social and public facilities. Analysing the evidence based on these three propositions revealed the buyers' contributions to infrastructure provision in a newly-built housing area. It showed that buyers have performed as a single actor in a community's provision of infrastructure, which contrasts with many cases of community provision where several agencies were involved (see for example Choguill and Choguill, 1996; Choguill, 1995; Choguill, 1996a; Choguill, 1996b; Choguill, 1999; Choguill et al., 1993).

Following Stake (1995), this study developed data coding at the initial stage of the analysis to identify many aspects of this study, and as a result, clear issues were identified at the next stage of the analysis. These issues have been elaborated in Chapter 4, 5 and 6, and they have been simplified in the findings of the study as explained in Chapter 7.

Emphasis on events is prominent in this study as suggested by Eisner and Peshkin (1990). Both the processes of purchasing of a house and of improving infrastructure contained many important events that were useful in revealing the

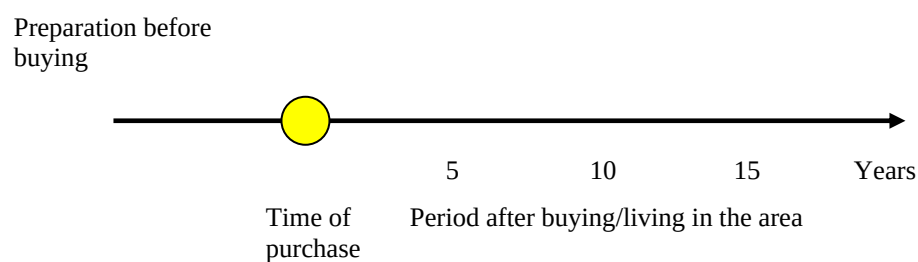
timing of house purchase and infrastructure improvement. This study has gained many findings through analysing these events.

Yin's (1994) suggestions for producing analysis of high quality through the application of certain principles has been carried out in this study, particularly as elaborated in Chapter 4, 5 and 6. The analysis relied on all the relevant evidence, interpretations were carried out carefully, the aspects of the case that were addressed were the most significant, and the use of the researcher's prior expert knowledge was significant to understanding the situation in the case.

3.1.2 The aspects of the study and the sequence model for interviews

This study had two aspects. The first was to ask homebuyers to look back into the past and recall the process of purchasing a house and living in the study neighbourhoods. For this purpose a sequence model was developed to assist during questionnaire distribution and interviews. The second aspect was to locate original homebuyers who engaged in mutual self-help infrastructure provision. A method to find original homebuyers and the occurrence of mutual self-help was developed.

Figure 3.1
The sequence model: time periods before and after purchase of a house



Source: author

Referring to the first aspect of the study, a simple 'sequence model' was presented to the respondents during the structured open-ended survey and during the in-depth interview (Figure 3.1). The aim of this model was to help recall the memories of respondents before, during and after purchasing a home and after living in their neighbourhoods, starting from the very beginning when they moved in until the time of the survey. Other researchers have conducted similar surveys that recall past experiences of the respondents (da Corta and Venkateshwarlu, 1992; Francis, 1992;

Schreiber, 1996). Schreiber (1996) carried out research to recall the experiences of patients who had distressed situations in the past. She noted that her study was a '*retrospective study*', because the respondents were asked to look back to their past (Schreiber, 1996; Silverman, 2001b). Francis (1992) carried out study of life histories on local people in Kenya, in which she dealt with a long time period, sometimes more than seventy years. During interviews she practised techniques and tactics to recall the past experience of older people by referring to well-known events and to events respondents experienced that were similar, and by asking respondents for memories of specific periods. Similarly, da Corta and Venkateshwarlu (1992) employed methods to recall past memories relating to the nature and causes of economic mobility in drought-prone villages of south India. They noted that respondents had different ability to recall different types of data, and this ability depended on "*the period in question, the amount of detail sought, the class of the respondent, and whether the information involved a regular or major event*" (da Corta and Venkateshwarlu, 1992: 109).

It is understandable that recalling past experience is not easy for any respondent especially when the events had taken place long time ago. Francis (1992: 99) noted some problems of recalling past experience, such as some (older) peoples were vague about dates and ages, the possibility that respondents' information of the past were coloured with nostalgia or "*that they were projecting contemporary patterns of behaviour back into the past*", and the possibility that respondents did not tell the truth or withheld information. She suggested that good rapport with respondents and having good tactics during the interview can avoid such problems, although the problems of respondents not telling the truth were the most difficult ones to avoid. In addition to good rapport and interviewing skills (Francis, 1992; Singarimbun, 1995), this study used the following measures to its advantage.

Firstly, respondents were asked to remember only for relatively short periods of time. This varied between twenty years and the date of the interview, depending on how long they have been living in the area. Normally, a shorter period was easier to recall than longer period, and special or major events were easier to recollect than regular events (da Corta and Venkateshwarlu, 1992). During the question period, many events might be considered as important, especially when they involved critical decisions on spending a lot of money and demanding large resources. *Secondly*, among their purchases of household assets, that of a house was easy to recollect (da Corta and Venkateshwarlu, 1992). Respondents might have similar basic experiences,

namely they had purchased houses from the same developer and lived in a similar environment, even though in various neighbourhoods. However, there were differences, for they began to live in the MRRA at different periods of its development, and they occupied a variety of house types and sizes of plots, sold at a variety of prices, and with a range of infrastructural provisions. *Thirdly*, the typical educational level of the respondents was such that they understood well their past critical decisions and associated well-known events, which made easier to trace back their memories (Francis, 1992).

However, it was important to understand the nature of data based on past experience. Data can be defined in terms of '*how well the activity is remembered*', and can be classified into two types: data from '*registered events*' and data from '*non-registered events*' (Longhurst, 1981). These registered events in a household survey are most easily recalled, while non-registered events are neither recorded nor easily recalled (Hoddinott, 1992). Data can also be categorised in terms of '*the time-span of the activity being observed*', and this results in '*single-point data*' and '*continuous data*'. Single-point data describes events that happen only once or within a defined time period whereas continuous events are ongoing (Hoddinott, 1992).

Regarding the purchase of houses, this study created a simple '*sequence model*' as a tool to ease the process of recalling important events (*the single-point data*) and respondents' memories. Purchasing a house, doing improvements to on-plot infrastructure, and carrying out mutual self-help of on-site infrastructure provision were important single-point registered events and could easily be recalled. Here, the timings of the events was not the major concern of the study, instead the activities were.

It was found that the sequence model was not only useful during the interviews with homebuyers, but also useful for interviewing developers and local government officials. Homebuyers found that the model helped them identify the main events during the period of searching for a home, buying the home and living there. The developers and local government officials used the model to understand the stages of buyers' behaviour when buying houses.

The model assumed that at the time of purchase or soon after buyers would decide to make some improvement upon becoming more aware of the condition of their houses and on-plot infrastructure. However, every buyer might have a different experience of becoming aware of the need to make improvements, and therefore the awareness could arise at a different place in the model's sequence of events.

In addition the model anticipated that buyers would begin to acquire awareness of the need for improvement of the on-site infrastructure after they lived for a time in the new neighbourhood. It was expected that buyers would normally experience during this period the real condition of on-site infrastructure and be motivated to make improvements. There had to be a process of collective efforts, called ‘mutual self-help’, to make either improvements or new provisions. The term ‘mutual self-help’ was preferred over the term ‘collective action’, as the latter is often used when participants come from a very large area or are joined in political or social movements. The former term designated only a few households that lived close to each other.

3.2 Study population and operational definitions

3.2.1 Study population

The study population consisted of one main group of original homebuyers, and two associated groups, i.e., the private developers and local government officials. The main population was the ultimate target of this study. However, studying the associated groups was an important step for developing the understanding and a framework of formal housing development in Bandung and its surroundings.

Original homebuyers are defined as those who purchased houses from the developer of the MRRA. They are also called original occupiers. They are differentiated from *second hand* homebuyers, who purchased houses not from the developer but from either the original, second hand or third hand homebuyers. Perhaps the proper words to express this category of buyers are ‘the buyers of newly-built houses’. But for the sake of this study ‘original homebuyers or house-buyers’ is preferred as both ‘homebuyers and house-buyers’ have been widely used in academic works.

It was suspected in the beginning that finding original homebuyers would be difficult since the turn-over of housing ownership was high. This was especially so because the location had been under development since the late 1970s/early 1980s.¹ So, it was acknowledged that questionnaires might have to be distributed to

¹ A temporary postponement of development occurred during the country’s economic crises in 1998 to date.

respondents who were not original homebuyers. A rough estimation was that around 50% of the residents were not the original homebuyers. The estimation was based on a preliminary survey of two different locations, which consisted of two groups of houses on two different roads. It found that second hand homebuyers or tenants occupied almost half of the houses in each of the roads. .

To identify the original homebuyers, a question on the way the respondent bought the house was included in the questionnaire, i.e., whether respondent bought the house from the developer or from a previous house-owner.

The local government respondents consisted of several in the City of Bandung administration and in one public agency of Bandung Regency (BAPPEDA). The reason for including respondents from BAPPEDA Kabupaten Bandung was to get an overview of previous development in the MRRA before the expansion of the administrative boundary of the City of Bandung took place.

3.2.2 Operational definitions

Key operational definitions applied in this study are '*self-help*', '*on-plot infrastructure*', and '*on-site infrastructure*'. Generally the term '*self-help*' is associated with low-income housing development, as described by many authors (for example Gough, 1999; Steinberg, 1992; Turner, 1970 and 1976; Turner et al., 1972). The term indicates that low-income people themselves build and improve houses, usually making improvements gradually when funds are available.

The use of the term '*self-help*' in this study has no association with its frequent use in relation to government-led projects to support low income housing. It is rather a label for the behaviour of buyers of houses produced by the formal economy, when these buyers attempted to improve their living conditions by providing infrastructure for themselves. These buyers were middle and lower-middle income people who were able to afford houses in formal housing markets.

Some authors have used the term '*user participation*' or '*user modification*' for labelling infrastructure improvements by residents (see for example Arimah, 1999; Kardash, 1999; Tipple, 1996 and 2000; Tipple et al., 2000). This study prefers to use '*self-help*' in place of both terms because it correctly implies that buyers carried out improvements on infrastructure by relying on themselves. Hence, the term '*self-help*' focuses on explaining the behaviour of house-buyers when carrying out, *firstly*, improvements of on-plot infrastructure, and *secondly*, collective improvements of on-site infrastructure (i.e., mutual self-help).

The term 'housing renovation' refers to the improvement of the structure or form of a house. This includes the enlargement or the addition of rooms, vertically or horizontally. Sometimes there could be a total demolition of the existing house to construct a brand new house of the resident's preference. To explain such processes, earlier authors used '*user modification*' (Arimah, 1999; Kardash, 1999) or '*housing transformation*' (Tipple, 2000) rather than '*housing renovation*'.

The terms 'on-plot infrastructure' and 'on-site infrastructure' in this study provide a hierarchical definition of infrastructure provision in a housing area. Sivam et al (2001) have defined off-site infrastructure as any network facilities outside a housing development area, and on-site infrastructure as infrastructure within the site of the housing area, such as roads, public school building, parks, and sport facilities (Sivam et al., 2001; Verhage and Needham, 2003). This study uses these definitions. Furthermore, this study uses the term 'on-site' rather than 'off-plot' because 'on-site' refers to infrastructure that regulations in Indonesia require a developer to provide within the site of a formal housing area. The term 'on-site infrastructure' is different from 'off-site infrastructure' as the provision of the latter is the responsibility of government, public utilities bodies or other agencies acting on government's behalf. Besides, using 'off-plot' instead of on-site might suggest 'just beyond the on-plot'. Following a hierarchical order, this study defines any infrastructure within a housing plot as 'on-plot' when it has the features of a non-networked service, for instance, an individual water supply, a septic tank, sewerage, drainage, and a garbage bin (Cotton et al., 2002).

This study excludes electricity and telephone land lines because of the nature of both services. The developer of the MRRA only organised the installation of electricity connection that was carried out by PLN (National Energy Company). This was part of the housing bundle or package required by the regulations. Residents might change the service, such as when they require additional power, by personally arranging this with PLN. The developer has no obligation at all for a telephone connection. A landline connection is provided by TELKOM, a public telecommunication company, at the request of individual residents.

This study defines middle and lower-middle income as layers of buyers who are able to afford houses in a formal housing market, particularly that of houses targeted for them. It is recognised that there is no clear line differentiating middle and lower-middle income groups in the MRRA. Middle-income and high-income groups can be distinguished by the location, type of house, and house price.

3.3 Research methodology overview

The research methodology consisted of activities that were carried out in London before leaving for fieldwork: the literature review, conceptualisation of the research, and conceptualisation of the field study. These were followed by activities in the field, namely the pilot field study, the full field study, and pre-analysis of the initial results. The full data analysis was carried out in London after returning from the fieldwork in 2002.

3.3.1 The methods to discover original homebuyers and mutual self-help activities

A method was chosen to find original homebuyers among those who had not only improved on-plot infrastructure, but who had also joined with others in on-site improvements. As explained below, this began with identifying occurrences of mutual self-help improvement of on-site infrastructure, even though evidence of the occurrence and location of mutual self-help was hidden, for it was not registered formally. The next step was to find the original homebuyers among the households that engaged in mutual self-help. Finally, from his own experience of living in the area, the author knew it to be common knowledge that all homebuyers engaged in self-help improvement of their on-plot infrastructure during housing renovation.

The information identifying original homebuyers was hidden or not registered formally. There was no record available with government or the developer indicating the original homebuyers, second hand homebuyers, tenants, free occupants (in rent free accommodation), or vacant houses. The documents commonly held by the lending banks or BPN (the National Land Agency) were certificates of land and housing ownership. These certificates gave information about the initial owners of the houses, but it did not give much information on the transfers of ownerships. Besides, a transfer of ownership was not necessarily followed by a change on the certificate of housing and land ownership. And as suspected, the number of free occupancies (or rent free accommodations) and vacant houses was high. It was therefore the actual occupancy situation in the MRRA at the time of the research that was more factual than the information on paper.

There were two possibilities for a way to find the whereabouts of original homebuyers in the MRRA at the time of the study. The first possibility was to locate

several original homebuyers through random interviews and use a snowballing method to reach others through them. But, it was recognised that it could be quite difficult to employ this method to locate respondents who were both original homebuyers and engaged in mutual self-help. The reason for this was that, whereas households might reliably remember their neighbours who engaged with it in a shared activity, it would not necessarily know if those neighbours were original buyers. This would be especially true in the case of a household that moved in later than others.

The second possibility was to identify original homebuyers through indirect questions to households who engaged in mutual self-help. The second choice was opted for, as it was more practical. Employing snowballing to find households who engaged in mutual self-help was normally easier. Questions regarding purchasing and owning of a house were included in the questionnaire.

However, the disadvantage with the second choice was that it required the distribution of a much larger number of questionnaires. The initial target was to have around 200 respondents of original homebuyers out of total estimate of 400 questionnaires. The estimate came from an informed guess that original buyers consisted of fifty percent of residents. In the end, however, only 300 questionnaires were distributed, which was commensurate with costs and time constraints.

3.3.2 The pilot study

A pilot study was carried out with three objectives in mind: first to test the questionnaire; second, to obtain an orientation for the field study; and finally to start a snowballing process for finding instances of mutual self-help. The pilot study gave valuable contributions to the improvement of questionnaire format and readjustment of the time for interviewing. It also gave insights into the case study and suggested improvements to the study methods, for instance, regarding sampling methods used and how to locate mutual self-help action. Feedback from the pilot study indicated that the questionnaire was too ambitious in that the form and structure of its questions required a long interview that resulted in boredom and unrest among respondents (da Corta and Venkateshwarlu, 1992).

The first version of the questionnaire was tested in a separate formal housing area, called Bumi Abdi Negara, located in the eastern part of the city. It was important to do this to avoid spoiling the target area for the real questionnaire distribution (i.e., the MRRA). At this stage, the best format for the questionnaire was still being sought.

Initially the questionnaire consisted of structured open-ended questions. Some questions probed deeply to recall past experiences. It was realised that both the duration and the content of an interview were important issues. Respondents commented that the questionnaire was too difficult, and it was not like any they had ever seen. Therefore, it was decided to change the format because the previous format might exhaust respondents and possibly might not work for many of them.

The amendments to the questionnaire, then, were quite radical, but still the topics seemed time consuming in the interview. The reasons were twofold: first, because a large amount of information was required from respondents, and second, because of the nature of the study. Recalling past experience took time. Considerable effort was spent in reworking the questionnaire, changing it from mostly open questions and structured open-ended questions into a combination of semi-open questions and a few structured open-ended questions. The order of the questions tried to follow the lines of thinking that respondents were likely to take. Each section was on one topic, such as on-plot infrastructure, on-site infrastructure, mutual self-help and the respondent's characteristics. The questions were designed to stimulate other possible answers; most were in the form of semi-open questions, i.e., questions with predetermined options, and additional blank options. These blank options were free for any answer (Singarimbun and Handayani, 1995).

A test with some respondents in the MRRA made while collecting information on mutual self-help activities indicated the second version of questionnaire was better than the first one. It took about thirty minutes to reply to all questions. The evaluation of the second version showed a great deal improvement on the practicability of interviews. As there was still need to correct some questions, a third and final version was created, which was distributed during the full field study.

During the pilot study it was possible to collect information on mutual self-help activities using a snowballing method that began with several key persons. This provided information on the locations where mutual self-help had taken place and information on the kinds of improvement made. Some observations were made during visits to areas where mutual self-help was undertaken in the past, and these contributed to the development of the method for primary data collection.

3.3.3 Methods for primary data collection from the original homebuyers

3.3.3.1 Methods for primary data collection

A combination of snowballing and quota sampling was used to carry out the data collection. Basically the snowballing method is employed in a situation where the information held by the respondents is hidden and cannot be found using a proportional sampling method (Søholt, 2001). Data collection was carried out in three stages.

First stage

The *first stage* was part of the pilot study that tested the questionnaires when the snowballing method was employed to learn where mutual self-help of residential infrastructure provision occurred and the results. Respondents identified locations all over the MRRA, as well as the outcomes of mutual self-help. However, this information lacked precision and detail; locations in particular were vaguely defined, sometimes only by the most local government unit area in which they might be. Precise delineation of the area where the mutual self-help occurred could not be achieved, except for certain areas where a physical boundary was available. Hence, an attempt to have information until it was saturated, as suggested by Sarantakos (1998), was only made for the locations and outcomes of mutual self-help. The process of the snowballing basically followed his suggestion to use the available respondents for creating a chain of additional respondents (Sarantakos, 1998).

Second stage

The *second stage* was the distribution of questionnaires. Quota sampling was employed. Quota sampling was meant for obtaining information from respondents on a particular basis. Sarantakos (1998) used *dimensional sampling* of quota sampling to obtain many kinds of information, which resulted in small samples of each dimension. In this research, slightly modified dimensional sampling was employed to cover three dimensions. The *first* dimension was that of *the outcomes of mutual self-help*. The more mutual self-help occurred in a neighbourhood, the more samples were taken. The *second* dimension was *the length of residence of original homebuyers*. This was related to an expectation that the longer the original house-buyers lived in the area, the more they engaged with mutual self-help activities. The estimated length of residence was identified in relation to a recognised period in the development of the MRRA.

The *third* dimension was *the housing types*. The MRRA was developed with three main types of houses, which were small, medium and luxurious. Only the first two were considered as the houses targeted by middle and lower-middle income groups. The housing types were related to the typical types (or sizes) of a particular development period across twenty years of MRRA growth. Early construction provided bigger housing sizes and plots, as well as lower housing prices, than that more recent. Having one of the bigger houses did not mean that the occupants were higher income households and *vice versa*.

Dimensional sampling needs at least one case of each dimension included within the sample numbers as the representatives of the population. Particularly, it is used when the sample is small (Sarantakos, 1998). A slight modification was done in carrying out this method: dimensional sampling was carried out to cover all dimensions. Instead of a small sample, it was applied using a medium sample (of 300 samples).

The first dimension was spatial in character, while the second and the third dimensions were a combination of spatial and non-spatial characters. As the three layers combined with each other, the decision on the number of samples was judged on spatial aspects, which were the outcomes of mutual self-help and the housing types. The terms of residence of original house-buyers, although they could be predicted according to the location of a block of housing, were positioned after the other dimensions when judging the number of respondents for each block.

However, dimensional sampling of quota sampling suffers from some limitations like other non-probability sampling. As Sarantakos (1998: 141) pointed out, “*Non-probability sampling procedures do not employ the rules of probability theory, do not claim representativeness, and are usually used for exploration and qualitative analysis.*”

Instead of probability sampling, non-probability sampling was applied in this case because of the characteristics of information sought. The nature of the subject could not be investigated through probability sampling. If probability sampling was employed, it would have had to consider two things regarding the subject. *First*, it would have been necessary to determine two extremes of housing development in terms of the earliest and the latest construction. Physically, this would have required a block each of the earliest and of the latest development within the MRRA. *Second*, it would have been necessary to do random sampling within the two designated blocks. In doing so, rich case studies of mutual self-help would have been missed, as they

might have been located in the other blocks that were built in between the two designated blocks representing the extremes of housing development. There was an indication that the other blocks, beyond the two extremes of housing development, had a greater probability to have occurrences of mutual self-help. This argued for the rejection of random sampling, and for the use of a dimensional sampling of quota sampling.

To pursue that, this study followed a metaphor: *'to find tigers, go to the place where there is the highest probability that tigers will be'*. Thus this research went to the places of 'mutual self-help in on-site infrastructure provision' because this was where 'on-plot infrastructure improvement' by 'original homebuyers' was most likely to have occurred.

Another reason for not doing probability sampling was that this study was not an investigation of cause and effect relationships; rather it was an exploratory study. Besides, mutual self-help was not a typical behaviour of all groups of houses. It might occur in a group of small, medium or large households, or it might not occur at all.

Table 3.1
Questionnaire distribution (target and actual distribution)

No.	Block of Houses	Questionnaire distribution (targeted 300 respondents)	Actual distribution N=298	Original homebuyers N=176	% original homebuyers to actual distribution
1	2	3	4	5	6
1	G-II	20	G-II =18/H-II=2	14/2	77.78/100.00
2	J-II	30	30	17	56.67
3	E-II	20	20	15	75.00
4	B-II	20	20	11	55.00
5	K-II	30	30	18	60.00
6	A-II/L-II	15/15	11/24	6/12	54.55/50.00
7	U-II	30	25	11	44.00
8	L-IIA	30	29	14	48.28
9	C-III/B-III	10/10	10/10	8/4	80.00/40.00
10	D-III	40	39	22	56.41
11	E-I	10	E-I=7/G-I=3	E-I=4/G-I=1	57.14/33.33
12	P-I	20	20	17	85.00
	Total	300	298	176	59.06

Source: field survey 2002

Notes: (6) = (5)/(4)*100%; each block of houses represents three features that might be different from one another. Those features are the outcomes of mutual self-help, the period of residence of original homebuyers, and housing types. The blocks of houses were created in particular periods of development by the MRRA across twenty years of operation.

It has been suggested that a large sample size should employ random sampling (Nichols, 1995). Again, the nature of the subject studied could not be investigated

through probability sampling. This study employed a snowballing method to obtain a chain of respondents who had engaged in similar mutual self-help. Its target was to have between 10 and 40 respondents - both original and non-original homebuyers - within one identified area of mutual self-help. The actual original homebuyers who were interviewed in the third stage are presented in Table 3.1.

Third stage

The *third stage* was in-depth interviewing, which was carried out after the distribution of questionnaires was completed. The time interval between the questionnaire distribution and in-depth interview was between three and four weeks. The interval was used for preliminary analysis of the questionnaire results. The previous survey showed that, out of 300 questionnaires distributed, the number of original homebuyers was 176. The selection of respondents for in-depth interview was based on the housing types. It was assumed that the houses they bought were a reflection of their household incomes, and hence, it was a reflection of housing affordability. It must be recognised that they bought their houses at a time when they could afford them.

The selection of respondents was carried out after the initial coding process. Then, lists of respondents were available to be contacted over the phone. Some respondents agreed and some refused to be interviewed. Many who refused wondered why the first interview was not enough. Time constraint was cited as the reason for refusal of an interview. One respondent was absent at home when the appointed time was due. Some respondents were cooperative and tried to fix the time for several appointments, although they were not available at the arranged times. It can be understood that in a formal housing area, in which privacy is quite high, in-depth questioning was reluctantly accepted.

Although more than 20 respondents had been contacted for the interviews, the reluctance of many respondents resulted in only 11 interviews. A larger number of respondents would probably have presented a better picture of respondents' behaviour.

During interviews, an attempt was made to employ interview techniques as suggested by many authors (Francis, 1992; Singarimbun, 1995), such as good rapport, silent probing, and placing less sensitive questions at the beginning of interview. Every interview was carried out at a respondent's house. The advantages of doing so were twofold; first, the respondent could provide much information on daily life;

second, it was possible to observe a respondent's housing situation (Meert et al., 1997).

3.3.3.2 Questionnaire and questions for semi-structured interview

Questionnaire

Primary data collection was carried out using a questionnaire to obtain quantitative and qualitative information from the population sample. The targets were households who were the original homebuyers and were now the inhabitants in this housing area. The questions covered the research questions and asked for information on four main topics: on the provision of on-site infrastructure through mutual self-help; on individual household improvement of on-plot infrastructure; on household housing strategies; and on characteristics of respondents. The sequence model was used as a tool for recalling past experiences of the respondents, but it did not help to explore the sequence of buying a house and moving into it. Consequently, it was decided to order the topics of the questionnaire so that they were *major events* followed by *insensitive topics*. The order of topics within the questionnaire then became mutual self-help (Part A of the questionnaire), on-plot infrastructure (Part B), housing strategy (Part C), and characteristics of the respondent (Part D).

The provision of on-site infrastructure through mutual self-help was placed first because this topic was less sensitive than the other three topics. It concerned major events that should have been easy to recall. In addition, mutual self-help could have been the latest action a respondent had carried out, compare to the other three topics. The interview sought to learn the initial and current condition of the on-site infrastructure, the expectations of a buyer regarding the condition of on-site infrastructure before the house was purchased, the results of mutual self-help which were in the category of social and public facilities, the nature and degree of involvement of the respondent in mutual self-help, and the resources used for mutual self-help.

Individual household improvements to on-plot infrastructure was next in the questionnaire, and it was not considered a sensitive topic. The improvement could possibly have been carried out many years before the survey. Here, the questions asked the respondents to describe the initial condition of on-plot infrastructure, their expectations regarding the condition of on-plot infrastructure before they purchased the house, and the on-plot infrastructure improvements they carried out. An

assessment of the condition of on-plot infrastructure after it was improved was not asked on the assumption that respondents had done the best they could. It was also assumed that buyers had received the information normally provided by developer of a new housing project in the form of a marketing brochure or advertisement that clearly stated a list of the infrastructure provided. This situation differed from that of on-site infrastructure, which usually was not clearly listed and described in advertisements and brochures.

A housing strategy could be a sensitive topic, because indirectly it would reveal the hidden thoughts of homebuyers when reaching a decision to buy a new house, including their personal household strategies. Consequently, questioning started with relatively insensitive topics regarding expectations and a comparison of an ideal house with the current house. This was followed by the more sensitive questions, including those asking about the next plans for achieving an ideal house, the reason for moving, and the contributions made by other parties to housing renovations.

Characteristics of respondents were considered to be the most sensitive information in the questionnaire. It asked for information about jobs, incomes, educational background, age, ownership of goods, members of the households, and housing history. The most sensitive questions were about jobs, incomes, educational background, and the age of the respondent and spouse. It was understood that respondents might not give a true answer on income. Hoddinott (1992) suggested crosschecking the income with information on major household purchases, including goods needed for more than daily needs. It was decided to crosscheck through ownership of semi-luxury goods, such as cars, motorbikes, televisions, VCD/DVD players, telephones, and mobile phones. It was also crosschecked through ownership of investment goods, such as another house and land.

Conditional questions applied to non-house owners. The topic on on-plot infrastructure improvement (Part B) was very specific to original homebuyers. It was assumed that only the original homebuyers were able to answer the questions correctly. Second hand homebuyers might be able to answer, but tenants or free occupants were not likely to be able to answer the questions. So, it was decided to leave Part B out of the interview if the respondent was not the house owner.

Semi-structured interviews

This study employed semi-structured interviews to obtain in-depth information, which could not be gained thoroughly through questionnaires. Besides,

some information was easier to get from direct interviews. The data from in-depth interviews was extremely important because it could probe deeply into a housing strategy from the household's point of view, and it had benefit of exploring the less visible and less tangible aspects of a household's housing strategy (Kellet, 2000). It was argued, *“Research techniques which are over-reliant on quantitative data are liable to lead to interpretations of social processes which lack insight and depth, and to view people merely as anonymous as real people.”* (Kellet, 2000: 203).

Questions within semi-structured interviews covered topics of mutual self-help regarding on-site infrastructure improvement, individual improvement of on-plot infrastructure, and the household housing strategy. These questions provided answers that complimented those obtained by the questionnaires.

3.3.3.3 Selection of interviewers and training

The fieldwork employed some interviewers to help distribute the questionnaires. Skilful and experienced interviewers were needed, a requirement suggested by many authors for conducting field surveys. But, it was assumed that highly skilled and experienced interviewers would demand more remuneration than could be afforded. Besides, finding a lot of interviewers for the purpose of this study would not be easy. It was decided to employ the second and third year students of the Department of Regional and City Planning Institute of Technology Bandung (ITB), who had some previous experience in undertaking household surveys. They had participated in organising and managing group research, developing research and questionnaires, interviewing households and distributing questionnaires on a large scale. However, their participation during this survey was largely *voluntary* for the remuneration was small.

It was decided to improve and standardise the interviewers' skills through quick training. Singarimbun (1995) argued that even when interviewers have some experience, training is still important. The aim was to serve the purpose of the first survey round. The training provided the interviewers better skills for doing questionnaire distribution, making notes of any particularly important matters, using the snowballing method, and achieving a good rapport and attitude during interviews. Most importantly, it imparted training on how to fill out the questionnaire paper, as the paper provided places for answers and coding numbers². Also, the training included

² The interviewers and respondents did not fill in the coding number.

making the plan for doing evaluation and reporting after the first survey round, as this was the basis for the second survey round, which was the in-depth interview.

In particular, the training was geared to the nature and material of the survey needed, as there is no single standard measurement for training (Singarimbun, 1995). This included how to understand the levels of difficulty of the questionnaires and timings. Also, the training covered other material that would develop a degree of ownership of the surveys by the interviewers, for instance, the aims of the research, the aims of the interviewers and the importance of the interviewers for the survey, and the explanations of the questionnaire that included the basic idea of the questionnaire, the aim of each question, and the meaning of each question. It was critical to make sure that interviewers asked questions in the correct order of sequence, which had been established to facilitate the recall of past experiences through major events and to progress from less sensitive to more sensitive information. Questioning in a different order might discourage the respondents from delivering important information. Other matters covered during training were the explanations of various problems which might appear during the interviews and how to resolve them, and an understanding of the standard operational procedure for an interview (a manual had been specifically developed for this first survey round).

The standard operation procedure (in the manual) covered ethics, attitude, preparation and tactics in interviewing (Singarimbun, 1995). It had been recognised beforehand by the interviewers that household surveying in a formal housing area of middle and lower-middle income families would be highly sensitive, in comparison to surveying in low-income group. The interviewers understood that residents of formal housing areas usually respond cautiously to strangers before letting them in; they would, even prefer to lock their gates. In anticipation of this situation, the interviewers had to achieve a good attitude and rapport during the survey. At the end of each single interview, the respondent was asked to identify others who had been involved in activities similar to those of the respondent. It was recognised at that time that households who lived nearby were more likely to have been involved in mutual self-help. Thus the interviewer had a clear idea of who would be the next respondent, and, the interviewer could greatly reduce the possibility of a first-look rejection by the next respondent, by mentioning who had recommended him/her for the next interview. This method successfully produced 298 completed questionnaires.

3.3.4 Primary data collection from the associated groups (developers and local government officers)

In-depth interviews to developers

Because of the financial collapse of many property developers as a result of the economic crisis, it was difficult to find them. It was also recognised that to interview developers a researcher must have a link to their community or organisation. The first strategy to make the link was to contact REI (Real Estate Indonesia), the developers association. The REI provided a letter of reference and lists of members that allowed this study to gain access to many private developers. A lot was learned about the way private land developers work through discussions with active REI members.

When contacted, some on the lists refused or were not available for interviews. Five were successfully interviewed. These were key persons at managerial level who knew the business of formal housing development. The in-depth interviews were in the form of a semi-structured interview with a list of questions at hand. The developers answered the questions, described their experiences, and gave opinions. Interviews were not taped as some information was given as ‘off the record’. The sequence model of homebuyer’s experiences was presented to guide the interview.

In-depth interviews to local government officials

It was recognised that one of the key agencies in housing development was BAPPEDA (Local planning board) of the city of Bandung. The first strategy was to get information about the agencies involved in formal housing development. At the time of the survey, a change was taking place in the mechanism in formal housing development due to the country's new decentralisation policy. A new committee had been set up that took charge of formal housing development in the city of Bandung. The survey employed the snowballing method to find persons to interview in government agencies related to the committee, using the recommendations of previous respondents. The study also contacted BAPPEDA of Bandung Regency (the outer administrative authority beyond the city of Bandung) to gather information on circumstances before the city of Bandung was expanded, because the MRRA was part of Bandung Regency before the extension of city’s boundary in 1987. During the survey eleven persons from government agencies were interviewed.

The in-depth interviews with local government officers emphasised their perceptions of the phenomena of self-help provision by buyers (the residents) and of

the roles of government agencies when giving planning permission, when monitoring and regulating a formal housing development, and when the infrastructure of a development is to be handed over to government. The interviews were in the form of a semi-structured interview with no recording, as the respondents refused to permit this. The respondents were able to give opinions while being questioned. During the interview the sequence model of homebuyers' experiences was again used to guide discussion.

3.3.5 Secondary data collection

Secondary data was collected during the fieldwork from different sources. The target was to get more information describing the formal housing development situation in Indonesia and in Bandung and the phenomena of self-help infrastructure provision by house-buyers.

Much of the information was obtained from published government regulations, government studies, newspapers and magazines. The government regulations and recent studies on housing development were the important sources to understand the way formal housing construction had been carried out in the country. Newspapers and magazines, particularly the on-line news media, were the important sources of information on the issues of infrastructure deficiency in formal housing developments. Although much of these referred to cases of formal housing development in the Jabotabek area, the issues of infrastructure deficiency and regulation were similar.

3.3.6 Data analysis

Data analysis was carried out in two stages: firstly the preliminary analysis during the fieldwork and secondly the analysis after the fieldwork. An example of the preliminary analysis was the selection of respondents for the second round of interviews. This was undertaken on the basis of the results of the first round questionnaire. The preliminary analysis needed a capability to interpret the local situation, particularly to anticipate unprecedented circumstances that could happen. It included the process of coding of interview data, which was carried out by the researcher himself, and the plan for entering the data into a computer file. The data entry had been undertaken using SPSS software (SPSS ver.12), at the end of the fieldwork. Two persons were hired for doing the data entry. The use of the SPSS software continued until the data analysis stage.

The data analysis aimed to explain house-buyers' behaviour when buying the house, moving in and living in the MRRA. It covered two types of analysis, quantitative and qualitative. The purpose of quantitative analysis was to find how house-buyers had developed their responses to the infrastructure conditions that they found, resulting in their decisions to make changes. The analysis showed that there were two groups of buyers (respondents), one who realised the condition of the service infrastructure they received and the other who did not realise the condition. Further analysis led to a decision to investigate these two groups in terms of what their first perceptions were before buying and how these changed after buying and after moving in/living in the area. The results can be seen on Chapter 5. The quantitative analysis particularly employed frequency analysis according to groupings of respondents and the Mann-Whitney U-test to check differences between the two groups in terms of background and awareness of the need for making improvements. This analysis had employed SPSS ver.12.

The qualitative analysis used taped interviews, interview notes and observations to gain similarity and to summarise common issues among respondents. The results presented buyers' behaviour with support from the results of quantitative analysis. The results created a framework to understand the situation of formal housing development in Bandung and the surrounding area, as well as to understand the conditions that made house-buyers undertake individual and mutual self-help action.

Several steps were carried out to interpret house-buyers' responses. During the in-depth interviews, an attempt was made to interpret the situation of the particular respondent, taking into account the respondent's house and its environment and how respondents responded to the questions. After this, notes were made of important information as it was delivered by the respondent, and the interview was taped to have a backup of information. These steps helped later when transcribing the tapes from the interviews, as they provided routes for recalling the actual environment of the interviews. Those fieldwork notes and transcriptions were the central data sources for carrying out the content analysis. Along with the answers from the questionnaires, it formed a basis for doing qualitative analysis.

The respondents' responses covered specific and general individual households' experiences in the process of buying the house, moving, and living in the area. An attempt was made to categorise issues on the basis of the similarity of responses to particular questions. However, specific experiences could be invaluable

assets as these become the true lessons of managing to live in the area for house-buyers. The specific experiences also generated a variety of answers that revealed the characteristics or nature of particular issues. In the end the collection of specific experiences could be tallied as a collection of general experience on specific issues.

However, triangulation was employed to generate conclusions on particular issues, by crosschecking information on the same issues from different aspects. As Sarantakos (1998) pointed out, the triangulation method is used to carry out investigation on different aspects of the same phenomenon. Put together, the information gained from the questionnaires, semi-structured interviews, and evidence on the field provided triangulation. The in-depth interview provided sufficient information on the perspectives of homebuyers when doing self-help and progressive infrastructure provision, while the first round of interviews provided aggregate information on many aspects of homebuyers' behaviour. The results of qualitative and quantitative analysis provided a variety of information on the similar issues and overcame the deficiencies of each method by using the strengths of the others (Sarantakos, 1998).

3.4 Summary

This chapter has explained the research strategy and methodology. Details of the reasoning for choosing a particular strategy and methodology were presented that responded to the specific nature of the respondents in this study. A method was developed for finding original house-buyers who engaged in mutual self-help improvement of on-site infrastructure as well as in individual self-help improvement of their on-plot infrastructure. The respondents were asked to remember their experiences when purchasing houses, moving in, and improving the infrastructure. These memories of the whole process made a significant contribution to understanding buyers' behaviour when improving infrastructure as part of their housing strategies. At the same time, the results of interviews with the local government officers and private developers and the analysis of secondary data contributed to the development of the framework of this study, presented in Chapter 4.

This chapter also set out the processes of the preparation for the survey, the operation of the survey, and the analysis of the data collected. The results of those processes are presented in Chapter 4, 5 and 6.

Chapter 4

Overview of Housing and Residential Infrastructure Development in Indonesia and of the Case Study

4.1 Introduction

The message of this chapter is that the practice of formal housing development in Indonesia has not been easily implemented, although it has been heavily regulated by the government to support the creation of good living environments. Many aspects of that practice have gone wrong, starting from the emergence of fictitious developers and extending to the inadequate provision of houses and residential infrastructure. Such flaws in housing development are not new in Indonesia, and many cases had been elevated to the national level and have been the subject of campaigns by the news media. Sometimes the police have intervened and brought legal action when criminal offences have taken place, such as when fraudulent developers promoted projects that were fictitious and took down payments from expectant buyers without ever providing houses.

Housing policy and practices have been the subjects of many studies (Dijkgraaf, 2000b; Hoek-Smit, 2001; Hoek-Smit and Iskandar, 2001; Hoek-Smit, 2001; Hosaka, 1984; Lee et al., 2001; Sidin, 2002; Struyk et al., 1990). This study has opted to present the practices of buyers of formal housing as they were affected by government acting as regulator and by private developers acting as providers. The processes of formal housing provision are a context within which to understand buyers' behaviour when fulfilling their needs for good infrastructure. Beyond this, to analyse the roles, relationships and policies of government and private developers would lead to another study. Nevertheless, while presenting an explanation of the practices followed in formal housing development, this chapter makes observations regarding some of the fundamental issues of Indonesia's housing development process. It argues that recent practices have led to a situation that disadvantages buyers. This conclusion contributes to the construction of a hypothesis.

The hypothesis proposes that the buyers studied should have known – or not been alien to – the bad practices of housing developers. These buyers should have

borne in mind such practices when they selected houses on the market, and they should have purchased houses cautiously, for two reasons. Firstly, the appalling practices of formal housing development have been brought into the public arena by many national and local news media. This was accompanied by the easy availability of information on housing development, such as advertisements and exhibitions. Secondly, these buyers belonged to the middle-income groups and were sufficiently educated and experienced to understand the situation during the boom of private housing development in the 1980s and 1990s. It was even common for middle-income people to involve themselves in housing markets as speculators or as purchasers of houses for renting. The understanding of these buyers of what they bought will be presented and examined in Chapter 5, along with an investigation of their behaviour during the period before they bought their houses until the time when they moved into them.

This chapter starts with an explanation of general housing policy in Indonesia, and the practice of residential infrastructure provision through housing development. Later it presents major issues and flaws in the practice of formal housing development that largely have disadvantaged the typical buyer's position in the market. An overview of the case study follows with, firstly, the contribution of housing development to urban growth, and secondly, the practice of housing development as land subdivision. The latter has played a part in the avoidance by developers of their contributions to major on-site infrastructure. Next follows an explanation of local government agencies and of developers' responses to developers' flaws in infrastructure provision and to buyers' improvements to infrastructure. Profiles of these buyers complete the picture of this overview, providing the background for the analysis contained in the following chapters.

4.2 Housing policy and development in Indonesia

4.2.1 Country background

Indonesia, an archipelago of 13,500 islands, is a vast country with an unbalanced population distribution. With over 210 million in 2005, it is the world's fourth most-populated country after China, India, and the USA. The main islands, Java and Bali, have over sixty percent of country's population, while they provide only

seven percent of the total land area. Java was the place where most of the issues of new housing and industrial projects during the 1980s and 1990s took place.

Indonesia had an impressive economic performance in the 30 years before the economic crisis in 1997 and this has been praised by many donor agencies (Indrawati, 2002). Within the housing sector, in 1980s and 1990s, the economic performance created big business out of land development. All large land developers, mainly Chinese conglomerates, created a new demand for housing (Leisch, 2002). Developers initially acquired huge areas of land for very low prices, and sometimes kept it idle and undeveloped for a long time. More than 58,000ha of agricultural land in the Northern part of Java alone were converted to residential use in the early 1990s (Leisch, 2002; Firman, 2000), and during the same period, more than 106,000ha of farmland were converted to urban land in the whole country (Firman, 2002). In the Jakarta Metropolitan Area, twenty-five large subdivision projects occupied sites ranging from 500 to 30,000ha in size, and hundreds of small projects occupied sites of less than 500ha in the same period (Firman, 2002; 1997).

The crisis, which began in 1997, was rooted in overinvestment and over borrowing by the private sector, which amounted to \$180 billion in less than 10 years. These roots included property speculation with a large number of new housing projects and land subdivisions during 1990s. Bad governance involving corruption, collusion and nepotism had made the crises more complex (Dijkgraaf, 2000b; Firman, 2002). The balance of payments was severely affected by a sudden crash and loss of market confidence leading to a sudden capital outflow from the country (Firman, 2002; Indrawati, 2002). An immense capital outflow (more than \$20.7 billion) created a total deficit of more than \$7 billion. The economy experienced a deep contraction of 13% in 1998 (Indrawati, 2002).

The crisis also had severe impacts on the construction sector, including the housing sector that lasted beyond the turn of the century. Construction and financial services were the most influenced, with contractions of more than 36% and 26% respectively in 1998. During the survey of this study in 2001 and 2002, inflation had reached 15.1% early in 2002, and the rise in it since mid 2000 reached an annual rate of 2.1%. The construction sector dropped to a growth of nearly 0% in 2001 from 13.0% in 1999 (Indrawati, 2002). It was noted that the construction and housing sectors were paralysed, although they had been among the prime movers of urban economic development in the 1980s and 1990s (Firman, 2002) Ultimately the housing market sold only existing housing stock, new construction stopped, and large areas of

land already acquired by developers became unutilised (Firman 2002; Dijkgraaf, 2000a).

A recovery had already started in 1997, early on in the crisis, when the government invited IMF to design programmes to restore market confidence and to return the flow of capital. However, the designed programmes were reckoned to be broad, unfocused, ambitious, and unrealistic. Other factors had combined to hamper the economic recovery. The uncertain and difficult political transition had made the recovery a slow, fragile, unpredictable and unsustainable process compared to other Asian countries experiencing similar crises (Indrawati, 2002). Within the six years from 1998 to 2004, there were four administrations of government after President Suharto stepped down.

The political turmoil in 1998 had created substantial momentum for political reform that involved decentralisation of government following the Suharto regime (The New Order Era). In 1999, the country launched two decentralisation laws capable of affecting the practices of housing and urban development in the short term. First was the Law 22/1999 that created significant changes in the decentralisation system and regional autonomy. The second was Law 25/1999 that decentralised more financial authority to regions and cities (Firman, 2002).

4.2.2 Housing and urban development situation

Indonesia had a rapid rate of population growth during the 1980s and it experienced a shift from a low to a high proportion of its population that was urban (Struyk et al., 1990). It was projected that the urban population would grow by 4.3 percent annually to 2000, compared to the projected annual national growth rate of 1.8 to 1.9 percent. This is a growth in the urban population from 33 million (22% of the country's population) in 1980 to 76 million (36%) in 2000. In another words, it was estimated that about two-third of the country's population would be in urban areas by 2000, and this urban population could increase to between 160 million and 170 million by 2020 (Santoso et al., 2002; Suhandjaja, 1991).

Two basic problems followed for the housing sector and for urban development. These were the increasing unmet demand for new houses and the growing unsatisfied need for more land for these houses and the infrastructure to service them. For the period of 1980-2000 it was predicted that the growing urban population would require the conversion of approximately one million hectares of rural land (Suhandjaja, 1991).

During that period, the demand for and the supply of urban houses had not matched. There had been an oversupply of formal housing whilst high demand for new houses had not been accompanied by high affordability (Firman, 2002). Regardless of the affordability, the urban housing demand was predicted to be enormous. The annual demand had been estimated at around 300,000 units during the late 1980s and early 1990s (Koswara, 1997). The Ministry of Housing predicted that it was between 700,000 and 745,000 units annually during the 1990s (Komarudin, 1997; Lee, 1996). More recent predictions placed the demand between 700,000 and 900,000 annually for the 2000s (Hoek-Smit, 2001; Komarudin, 1997; Santoso et al., 2002).

Housing delivery has been implemented through two major channels, which are the popular system and the formal system¹. Some authors estimated that the popular channel was supplying around 75% to 90% of the total housing delivery, while the formal channel might be delivering between 10% and 25% (Poerbo, 1999; Santoso et al., 2002; Struyk et al., 1990). This high proportion of popular housing was not unique for it was seen in many other developing countries (Keivani and Werna, 2001). In comparison, the formal channel, despite contributing was often heavily subsidised in order to deliver moderate-to-high income housing (Struyk et al., 1990).

In the formal sector, the supply of houses did not very accurately anticipate the urban housing demand during the 1980s and 1990s since it contained a lot of speculation (Firman, 2002). The geographical distribution of new housing projects did not always follow the distribution of housing demand. Certainly, major housing projects were concentrated in major urban cities, where practices of land speculation were common.

In popular housing sector, government had been aware of problems of the low-income household for decades. The government had taken a number of initiatives to address them using aid from various donor agencies (Struyk et al., 1990). Programmes such as the KIP (Kampong Improvement Programme), the state funded mortgage loan, CoBILD (Community-Based Initiatives for Housing and Local Development), and P2LDT (a rural housing programme) were all examples. However, housing policy during the 1990s had been criticised for ignoring the poor and for focusing mainly on high-income families (Dijkgraaf, 2000b).

¹ Popular housing refers to housing development by individuals, regardless of their income category (Struyk et al., 1990).

4.2.3 Overview of housing policy during the 1980s and 1990s

Housing policy in Indonesia has never been a grand policy that satisfied all stakeholders within the country. It has been seen as collection of partial or incremental policies. Although some believed that what was written into the GBHN (the National Development Guidelines) was a housing policy, this was too abstract to be interpreted as such (Sidin, 2002).

Four periods of housing policy and development in Indonesia have been identified (e.g. Poerbo, 1999; Sidin, 2002; Silas, 1987), which are Pre-Independence, Post-Independence, New Order Era, and Post-New Order. This classification reflected the importance of the contribution of authorities to housing development at different times. The New Order and Post-New Order are the most important periods relating to the housing situation studied by this research, particularly because this situation was in the formal housing sector.

4.2.3.1 The New Order

During the New Order (1966-1998) housing policy was characterised in terms of statements within the GBHN. The government's five-year national development plan, called Repelita, covered housing policy in only a small section. Each Repelita (the first was 1969-1974) contained provisions for urban and rural housing which had been implemented during this period.

In the formal housing sector, this period was characterised by many important government supports for housing development and ownership. During Repelita II (1974-1979) institutions such as Perumnas (the National Housing Development Corporation), BKPN (the National Housing Policy Board), and a housing credit system supported by BTN (the State Savings Bank) were created (Silas, 1987). Support for home ownership came from private companies as well, e.g., PTPS (PT Papan Sejahtera), a non-bank agency. In the end, many private banks followed to set up schemes of support during the boom periods of the housing industry in the late 1980s and 1990s.

The contribution of Perumnas to new formal housing development was important. However it was not enough to supply all the housing demand. The contribution from private developers was significant in supplying new houses. For this, the set up of a private developers' association (the REI) in 1972 was essential, as this functioned as a mediator between government and private developers. Through

the REI, government could theoretically control the quality and behaviour of developers, since most of the housing finance came from government. However, this did not always work smoothly, and many developers failed to behave correctly.

Towards the end of the New Order Era, housing production elevated, and both Perumnas and private developers contributed their shares. In Repelita II (1974-1979) 73,000 houses were produced, mostly by Perumnas, and private developers contributed only a few thousands of them. The share of private developers increased in the next Repelita III (1979-1984) when they produced 70,000 houses, which was over the target of 30,000 houses. At the same time, Perumnas achieved 100,000 houses, which was below its target of 120,000 houses. During the next Repelitas, the private developers' contribution continued going up following a high demand for houses. The boom periods of the housing industry followed. This was in accordance with government's target to build 300,000 houses in Repelita IV, 450,000 houses in Repelita V, and 500,000 houses in Repelita VI. By the end of the New Order, housing production peaked at 680,000 houses which was above the target of Repelita VI, with an average of 136,000 houses per year (Silas, 1987; Simanungkalit, 2004; Sinar Harapan, 2004; Yuniarto, 1993)

The central government stressed the importance of maintaining harmonious composition of different income groups in a new formal housing project. The purpose was to avoid social segregation of the different income groups. During this period, the central government required all developers to build houses in a mix of one luxurious house accompanied by three medium houses and six low-cost houses. Famously this scheme was called the 1:3:6 formula that demands social responsibility on the part of developers (Parlindungan, 1997; Sudarmo, 1997). However, in general, the 6 low-cost houses provided were not affordable by low-income households, and only those in the lower-middle and middle income groups could afford them. This policy, in the end, was not well implemented (Parlindungan, 1997; Santoso et al., 2002; Sudarmo, 1997).²

Finally, a new comprehensive housing law (Law 4/1992) was established in 1992 to affect recent and future housing development.³ It came late after almost thirty years in waiting, and it came even later than the law of multi-storey housing (Parlindungan, 1997). During the absence of a housing law, most housing regulations were partially made up as ministerial decrees by the Ministry of Public Works, the

² See Section 4.3.2.

³ The first housing law (Law 1/1964) has never been implemented.

Ministry of Home Affairs, and the Ministry of Housing. Such decrees were applicable to local government as the basis for regulations according to a previous decentralisation law (Law 5/1974). This was possible since the law assigned a double role to local government – to be both autonomous and the representative of central government - which made ministerial decrees binding on local government.⁴

Towards the end of this period, the housing sector was hit by the country's economic crisis (1997/1998). Critiques said that government policy had placed too much emphasis on housing development in terms of quantity, rather than quality, and more on formal than popular housing development. The formal housing sector had many privileges through government's supports regarding land and finance. In contrast, the popular housing sector had been largely ignored by the government, although it made up more than 75% of total housing production. The function of government as enabler was not optimal. During and after the crisis large numbers of developers collapsed, and the formal housing sector was characterised by over supply, too much speculation, and mistreatment (Dijkgraaf, 2000; Firman, 2002). This contradicted the fact that housing demand far exceeded the supply, and only 15% of the housing needs were met by the public sector and private housing development firms (Larasati et al., 2003).

4.2.3.2 The Post New Order

The Post New Order or the reformation era inherited the previous policy yet it was characterised by the abolishment of The Ministry of Housing. The previous ministry of housing was integrated with the ministry of public works, and the two were restructured into a new department of *Kimpraswil* (The Department of Settlement and Regional Infrastructure). However, there seemed no logical reason to integrate the two ministries into one department, while at the same time the country was facing problems of housing and repayment of individual housing loans, due to the monetary crisis. Many have seen this integration as a hindrance to the national housing development's path.⁵

This Post New Order was basically a period of recovery for many large developers who had collapsed after the monetary crisis because they had been trapped in huge debts. Many developers and their housing projects had been taken over by the

⁴ The new decentralisation law (Law 25/1999) changed this. See section 4.2.3.4.

⁵ The Ministry of Housing was reinstated in 2004 under the new administration.

IBRA⁶. This action was meant to reschedule debts, and the housing projects were taken as assets for future repayment of the debts. At the same time, many banks that provided housing finance were also taken over by IBRA. This had implications for some homeowners who had bought houses through these banks. Buyers who had completed their payments of loans could not get the houses and land certificates from the lending banks. This was because the houses and lands of housing projects had been taken over by IBRA, and these have been claimed as the assets of IBRA – and not anymore the banks' possessions. To reclaim the houses and housing certificates, buyers had to deal with IBRA; this took longer than might be expected. At the same time, many buyers were not able to pay their mortgage costs, as interest rates and monthly instalments were doubled. This situation added to the separate problem created during the economic crises of a large number of people who could no longer afford houses built by government or by private sector firms (Larasati et al., 2003).

Frantic and erratic housing policy continued to support the low-income population as the group most affected by the crises, but many low-income households seemed still to have little ability to afford the cheapest houses on the market (Hoek-Smit, 2001). The Megawati presidency (2001-2004) declared a national programme of *Sejuta Rumah* (the One Million Houses Programme), which was vague in implementation. This programme rejected the evidence of an 'over supply' of houses inherited from the New Order Era, and was criticised by Kuswartojo as inappropriate and misleading (cited in Kompas, 30 November 2004). There were 2.5 million vacant houses in major cities, such as Jabotabek and Bandung. Many were without good residential infrastructure. They had been bought with the support of subsidised loans from government, but the buyers had left them because the residential infrastructure was inadequate or not provided. Moreover, the easy availability of the loan had enabled the purchase of some as second houses for investment purposes.

The two new laws on regional autonomy (Law 22/1999) and fiscal decentralisation (Law 25/1999) created since 2001 some uncertainty at local government level.⁷ These laws had eliminated the duty of local government to enforce many housing regulations, many of which were set up as ministerial decrees. With the new laws, local government had the right to set up their own housing regulations

⁶ The government abolished IBRA in 27 February 2004, reasoning that Indonesia has achieved a good macro economic performance and that the agency had done almost all of its tasks (see Presidential Decree (2004).

⁷ The two autonomy laws replaced the decentralisation law (Law 5/1974), see Section 4.2.3.3. Three years later, the two laws were revised and replaced by a new local government law (Law 32/2004) and a new central and local government finance equalisation law (Law 33/2004).

replacing the ministerial decrees. The ministerial decrees on housing no longer affected local governments as the latter now responded to regulations produced at parliamentary level. However, if it wished, a local government could adopt the previous ministerial decrees to regulate the housing sector in their jurisdiction.

In addition, the new laws created a new paradigm in urban development by transferring the responsibility for the housing sector from central to local government. This had never happened before.⁸ However, some worries arose concerning the effectiveness of the implementation. Three potential problems were identified. First, urban housing development, particularly for low-income groups, would not be a priority because it was not an important political issue. Second, it is known that local governments had a weak capability for planning, financing and implementation. Third, it was predicted that local governments would prefer to take the roles of market interveners, rather than that of market enablers (World Bank, 1993).

Throughout the New and Post New Order periods, there had been a balance between creating good residential environments and sustaining property businesses (see Winarso and Firman, 2002). To serve both aims, government provided subsidies to developers. Besides, there were many developers that relied heavily on private and foreign loans prior to the economic crisis in 1998 (Firman, 2002). Progress toward the two aims was affected by the crisis, which almost destroyed the housing development businesses as well as national housing development. Many developers collapsed or could not continue their current housing projects, while many buyers could not afford the rocketing housing prices. In 2000, the REI reported that only 55% of the developers re-registered to operate, for many had not been able to sustain themselves due to lack of funds (Kompas, 2000f).⁹ The aftermath of the crisis has not been better either, since government reduced subsidies for modest houses. In the long term, it was expected that government would give the mechanism of housing ownership to the market, even for modest houses (Gunawan, 2005). In the end, the Post New Order period faced a decline in housing production to a level far below that of the previous period, which was 200,000 houses between 2000 and 2004 or 50,000 houses annually. In contrast, in the period before the crisis (1993-1998), the housing production peaked at a record of 680,000 units or 136,000 units annually (Simanungkalit, 2004).

⁸ See the failure of Decree 6/1958 during the Post Independence Period.

⁹ By 1999, 80% of 2,500 private developers were paralysed after the economic crisis (World Bank, 2003).

4.2.4 Infrastructure provision within housing development

Indonesia has experienced two channels of residential infrastructure provision. The first was provision through the Kampung Improvement Programme (KIP) that targeted low-income housing in urban areas. The second was provision through the developer's contribution made when creating formal housing. This second channel has not contributed to citywide infrastructure networks.

4.2.4.1 Kampung Improvement Programme (KIP)

The KIP was started to combat severe conditions in *kampongs*, or urban villages, where infrastructure provision by the public sector had hardly reached the urban poor. The advantage was prominent to urban villagers, since the programme provided at low cost the minimum infrastructure needed and neighbourhood improvements during the New Order period (Suhandjaja, 1991; Yeh, 1984).

The importance of the KIP was due to its role in changing the faces of urban villages that dominated urban areas. For example, Jakarta and Bandung had more than 70% of their populations living in kampongs, and these kampongs had evolved without planning or structured guidance, as many started as unplanned spontaneous settlements. These areas had, in common, conflicting land uses and unhealthy environmental conditions. Many kampung villagers relied on wells for drinking water, and rivers for bathing and washing. Poor sanitation facilities contaminated the wells and garbage went into drains, canals, and rivers. Poor drainage caused flooding and threats of diseases (Chifos and Suselo, 2000; Hosaka, 1984; IPS, 1993; Sudarmo, 1997; Suhandjaja, 1991).

During the implementation of the KIP, improvements were made on basic services and neighbourhood facilities, namely public water taps (hydrants), access roads and footpaths, public bathing and toilet facilities, drainage, and solid waste collection facilities. In some cases, the improvement included public elementary schools and health clinics as well (Chifos and Suselo, 2000; Milone, 1993; Mukoko, 1997).

The KIP was initially started as a local government programme in Jakarta during the late 1960s, although sporadic improvement efforts can be traced to the colonial era in the 1920s and 1930s (Chifos and Suselo, 2000; Milone, 1993). The programme was expanded and formalised in the 1970s through World Bank support, and it became a national, top-down programme. In Repelita III (1979-1984), the KIP

was implemented in two hundred cities. By Repelita V (1989-1994) and VI (1994-1999) this had been expanded to cover more than four hundred cities (Chifos and Suselo, 2000; Silas, 1987). The KIP's successes were good for promoting in the next generation of urban infrastructure development the inclusion of 'kampong improvement' as an important part of programmes, such as in the IUIDP (Integrated Urban Infrastructure Development Programme) (Chifos and Suselo, 2000; Mukoko, 1997).

Lessons from the KIP suggested that the improvement of unplanned spontaneous settlements became a problem at a later stage. Such lessons supported the idea of development that had the benefit of a planned infrastructure provision. Hence, high expectations were raised of better provision of infrastructure in formal housing development than in kampongs (Struyk et al., 1990; Yuniarto, 1993).

4.2.4.2 Formal housing development

Two concepts were recognised in the housing regulations: the developer's contribution and housing as a bundle or package. Both gave importance to infrastructure in new planned housing development, but from different perspectives. The developer's contribution of infrastructure was distinguished as a responsibility distinct from that of the government. The idea was to share the burden of infrastructure provision between the developer and government, although government still took responsibility for maintenance in the future. The housing as a package idea took lessons from the attempts to deal with the informal housing situation. Infrastructure provision in informal housing areas proved to be difficult because the areas had already been developed (Struyk et al., 1990). This concept, appearing first in Repelita II (1974-1979), also saw housing development as an economic activity that would include the provision of all necessary infrastructure and facilities (Silas, 1987). Hence, when buyers bought houses, supporting infrastructure should be available in order to achieve a good living environment.

That called for on-plot and on-site infrastructure, and some off-site infrastructure. Many local governments made agreements to improve off-site infrastructure, such as health, educational, and religious facilities outside a new housing area. In total, the proportion of land for on-plot and on-site infrastructure, including that for road networks, should not have been less than 40% of the total housing area. However, minimum requirements varied according to the scale of

housing area. Those for the smaller projects were less and permitted fewer varieties than the larger.

The ideal of this provision was not realised (see section 4.4). Many local governments dismissed the economic crisis as the source of the failure, because many developers had failed long before the crisis (Suara Pembaruan, 1999).

Unlike the KIP, the provision of infrastructure through formal housing development was not coordinated at the regional or city scale. Because developers were able to act independently of one another and of government, service networks and facilities in a new housing area often did not relate adequately to those of other housing projects and to city systems and facilities. The location of many new housing areas in the urban fringe contributed to the problem of discontinuity with the city's systems and facilities. For example, many new housing areas did not have connections with the city water supply network, and untreated sewage went into surface water drains or into former irrigation networks.

4.3 The practice of formal housing development

4.3.1 Government's control over housing development

The government's control over developers' activities has been weak. If there is an action, it is commonly an ad hoc reaction to a current incident and lacks a long-term perspective. An outstanding example is when the central government tried to sort out the flooding problems in 2002 in Jabotabek that were believed to be caused by formal housing development. The Minister of Public Works acknowledged that many developers ignored spatial planning. Many only completed the administrative requirements without any further attempt to comply with planning regulations (70% of developers). Many of them achieved this through bribery. The Minister planned to carry out an evaluation of all developers' activities including those of on-site infrastructure provision. Three categories of developers were recognised: the small developer that occupies land of <50ha, the medium-sized developer that occupies land of 50ha to 100ha, and big developer that occupies land of >100ha. A penalty was set of 100 million IDR for failure to follow the regulations (Suara Pembaruan, 2002). However, little follow up of this ad hoc action has been reported. Certainly, the Ministry's reaction showed two things: that the procedure for new housing

development was not carried out properly and that the government's control was non-existent.

Another weakness has been the incapability of government to control the large number of conversions of farmland to urban use and the resulting patterns of residential development. Many large cities in the country now have problems of spatial segregation and widening disparities between the rich and the poor due to their pattern of residential development (Firman, 2002). Moreover, the pattern is that of inefficient sprawl development (see Goldblum and Wong, 2000).

The government also failed to control developers' funding activities. It was reported that many developers were within the same holding companies that owned banks. In fact, many developers and banks were intertwined as a web in terms of ownership. Besides, a few famous families in the country owned these development companies and banks. Given this situation, it was common that insider trading and risky lending happened and went undetected (Winarso, 2000). When this web collapsed during the economic crisis in 1997, it brought down all the companies.

The limits of regulation

Housing regulation sometimes could not reach certain targets for creating good and harmonious residential areas. Many actions were negotiated by developers or even refused when they created burdens. Examples of the results include the ineffectiveness of the 1:3:6 linkage model, the lack of in-kind contributions in the form of public and social infrastructure, and the failure to provide cemeteries. Even the handing over to local government of a finished housing project could be avoided. Many housing sites were still held by developers for years after their projects had been finished.

Regulation was further limited by its incapability to control the soundness and quality of houses. As in the construction industry in general, a housing developer normally subcontracted construction to a firm who would do the same to another subcontractor. In the field, control of the building activity rested with the mandor (foreman) who was the last subcontractor in the chain, and who could manipulate the quality of construction by changing the composition of building materials in order to reduce costs. This could produce a disaster in the short or long term if the future owner did not do some renovations. Apparently, the behaviour of buyers who made renovations after purchasing houses was noted and taken into account by the actors in the chain of the construction industry.

The model of relations between developer and government

The normative process of creating housing with infrastructure provided by the developer and the buyers could be portrayed by a model of developer and government relations. This model illustrated the opportunities for the developer and the buyers to act at certain stages. For instance, the developer could subdivide the site into smaller land parcels of less than 5ha, making several housing projects whose small size permitted the developer to avoid responsibility for providing the maximum service infrastructure. The developer could promote and sell houses after getting approval for the plans, even, when construction had not started. Responding to that, buyers could purchase houses by referring to the site plan and without seeing whether the housing stock was ready. As the housing development could take years, buyers could start living in the area once some of the houses were ready. Thereafter, they could make improvements to their houses or infrastructure. Once a housing project has been completed, the process of handing over to the local government responsibility for its services could start. If government agencies found that the end development did not conform to the approved development proposal and site plan, the developer could be asked to revise the development. In reality, if that happened, years of negotiation followed, and the residents bore the burden (see Figure 4.1).

4.3.2 Developers' and buyers' behaviour in formal housing development

Developers' behaviour

A developer tries to fit into a market situation through practices that are either according to regulations or are not. Winarso's (2000) study showed that developers adapted to high land prices by seeking cheap land regardless of the location. According to Cadman and Austin-Crowe (1991) and Haila (1991) many developers are just profit seekers and only a few are future gain seekers.

The profit seekers search for cheap land and ignore that it is cheap because it is not served by main infrastructure such as roads. Many new developments are created without thinking of integrating infrastructure with larger systems. For example, it is common, that road networks within one development do not connect to another. Moreover, it is normal that one development is alienated from another by a wall surrounding it. The wall can be a sign of land ownership by the developer as well as protection from unwanted outsiders.

Figure 4.1 Model of relationships between the developer of a formal housing development and government

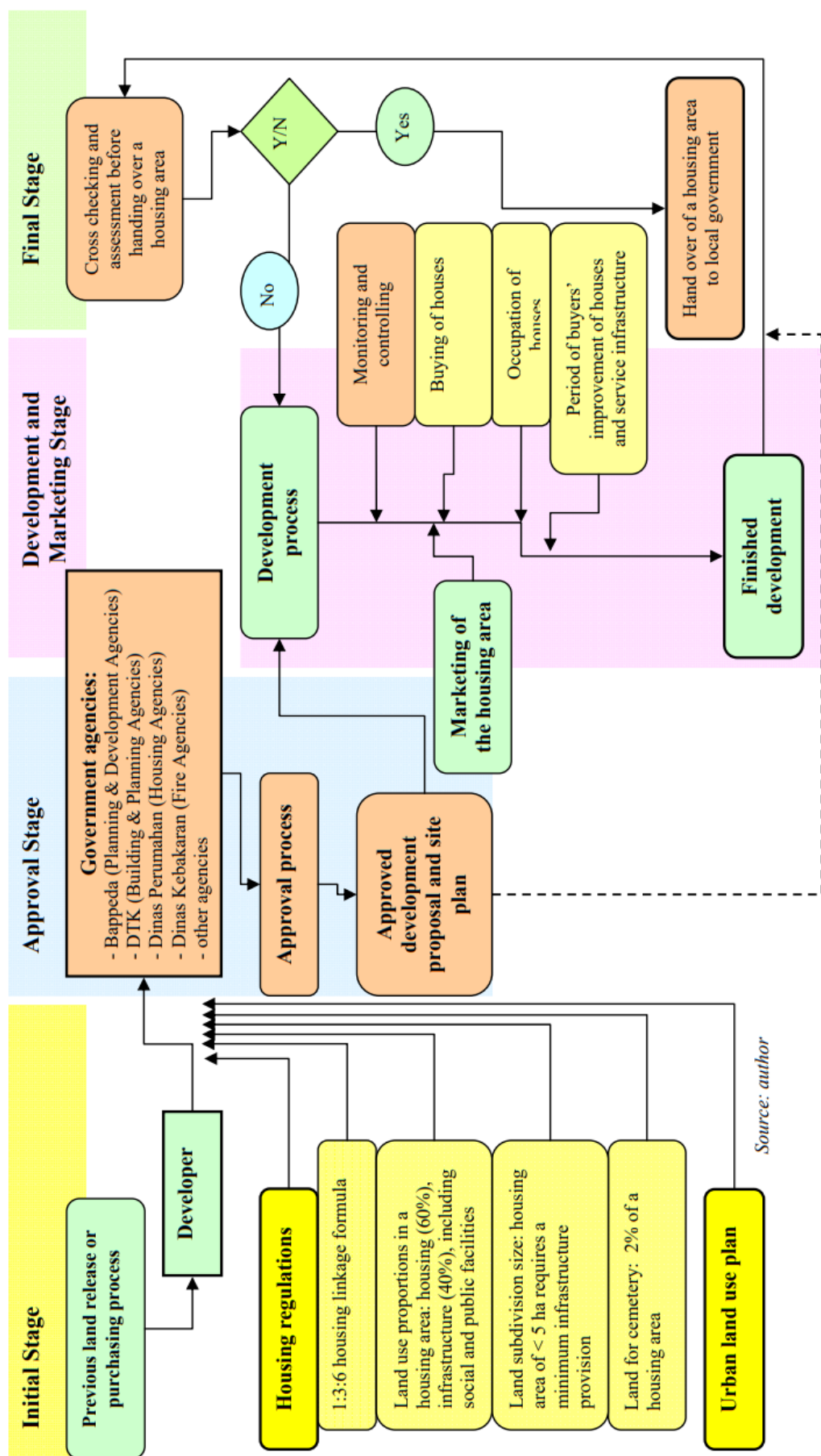
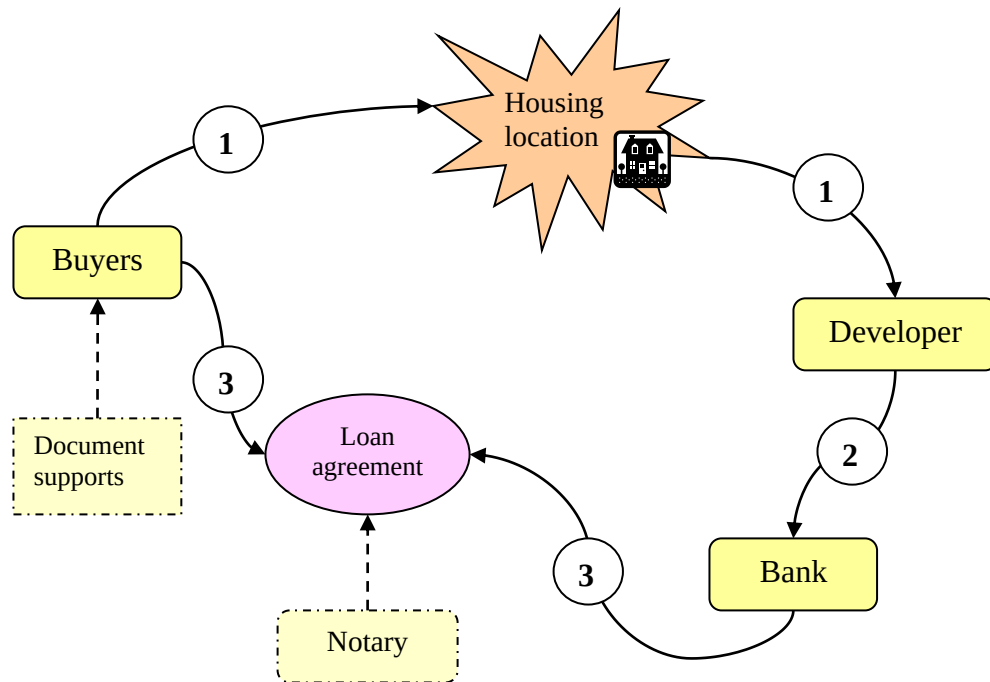


Figure 4.2 Model of buyers' behaviour when purchasing houses



- Steps 1** Buyers come to a developer and state their intentions to buy houses, and they followed with visits to the housing site. Sometimes the site is still undeveloped and no houses exist. Referring to a site plan map, buyers can select the exact positions of houses they wanted to buy.
- Step 2** Buyers sign agreements to buy houses from a developer. Buyers pay in cash or use a bank loan. When buyers purchase with cash, they receive the house keys and certificate of land. In many cases, the houses are not ready, and buyers must make a down payment, then they can opt to pay in cash or use a bank loan. A down payment can be paid in three to six instalments within a range of three to six months. During this period, buyers wait for their houses to be completed and handed over to them. In the case of use of a bank loan, which is most likely, the developer contacts a housing bank supported with documents provided by the buyer. This is followed by an interview by the bank to check the credit standing of the buyer. It is not difficult for buyers to obtain acceptance of a loan application.
- The application documents consist of a reference from an employer, proof of three months' salary, birth certificate, identification card, household card if married, and other necessary documents that can support acceptance of an application, for example, evidence of additional income. It is common that an employer might help a buyer by exaggerating the buyer's salary. Two-thirds of a salary is the minimum requirement for the size of loan. With a statement of a regular salary, it is not difficult for a buyer to pass the bank interview.
- Step 3** Buyer, bank and developer sit together to sign a loan agreement before a notary. In practice this is done as group process that involves many buyers at the same day. Buyers receive documents of agreement, house insurance and house keys. A bank holds a land certificate until a buyer completes repayment of the loan.

Source: author

Many large developers have made their housing areas into new cities which they promote as self-sufficient. They could afford to purchase large areas of land, normally more than 50 ha, and construct complete living environments. However, many of these projects have the character of gated communities, for the residents are higher middle-income families who want privacy and safety (see for example Firman, 2004; Leisch, 2002).

Buyers' behaviour

On the demand side, buyers follow certain procedures when acquiring houses through formal markets. They contact the developer and together visit the project to identify the exact houses they want to buy. In a thriving and speculative housing market, sometimes buyers can only get a site plan and see a vast and empty piece of land. When they decide to purchase, buyers complete documents to apply for a loan. In the end, they might sign a purchasing agreement with a bank. A complete pattern of a buyer's actions is presented in Figure 4.2.

In the beginning of the economic boom, it was only BTN, the government-owned bank and a non-bank agency (PT Papan Sejahtera) that specialised in housing loans to middle and lower-middle income groups. Later when the housing market was thriving, almost all private banks offered loans, especially to higher-middle and higher income buyers that preferred luxurious houses. Speculation contributed to two and half million vacant houses found in 2004, six years after the economic crisis began (see Kompas, 2004).

4.3.3 Flaws and issues in formal housing development and infrastructure provision

Gunawan (2004) concluded that the unsolved problems of housing and infrastructure provision were rooted in the bad practices of many developers, the incapability of some local government staffs, and the widespread practice of corruption, collusion, and nepotism. This section presents the basic problems that have preoccupied housing practitioners, regulators, and the public. Large portion of them have appeared in the most thriving housing developments in major urban areas, such as Jabotabek and the Bandung Metropolitan Region, and many others arose in small and medium cities which believed that many of their problems were unheard at national level. Sources were mainly the news media, and thorough investigation was

not possible. However, the issues did exist, for lately many local governments have expressed their dissatisfaction with past and current practices. This has been encouraged following the monetary crisis by radical changes in the country's political system to greater regional autonomy and fiscal decentralisation.

4.3.3.1 The misleading housing advertisement and the fictitious housing project

Misleading housing advertisements and fictitious housing projects were very common during the boom periods of housing development in the 1980s and 1990s. Buyers were presented with brochures and advertisement promising that they would get good on-site infrastructure, and these featured very attractive pictures of the housing environment as well as public and social facilities. Communal provisions were exaggerated and offers were made of free gifts, such as houses or motorbikes. It turned out that many developers failed to deliver on-site infrastructure, and even some failed to provide houses (Hadad, 1996; Media Indonesia, 2002b). The resulting deception of potential buyers created a situation in which it was not clear what developers offered and what buyers could get.

The issues raised by these housing advertisements should have increased buyers' awareness of their rights, which has not been supported either by the construction industry or by the authorities. These include the rights to truthful information, as well as to compensation for the damages. On the contrary, the housing developers who carried out bad practices were not charged by the legal system (Hadad, 1996). A collection of 114 consumer cases conducted by YLKI (*Yayasan Lembaga Konsumen Indonesia* or the Indonesian Institute of Consumers, a consumers' watch-dog) in 1995 showed examples of situations justifying damages, such as *late handing over of houses* (19%) and *fictitious houses* (16%). Other examples were land certificates that were kept by developers after buyers had completed the total payments, unprovided public and social facilities in the project area, land disputes concerning the sites of projects, and low-quality of buildings (Hadad, 1996).

Over the years, cases of such failed and broken promises had been presented openly in various news media (Gunarso, 2003; Hadad, 1996; Surya, 2003). However, there was a still a poor response from the government, except when it was the case of a fictitious housing project, which the police considered to be a crime. Meanwhile, the

public alleged that widespread practices of bribery, corruption, collusion, and nepotism between developers and government officers prevented further investigations (Media Indonesia, 2002a; Suara Pembaruan, 2002).

4.3.3.2 The implementation of housing formula 1:3:6

The housing formula 1:3:6 was a policy that required developers to build low-income houses while they developed medium-cost and luxurious houses. However, it was not implemented as expected, and it produced problems of accessibility to infrastructure and services.

This policy supported the ideas of creating a harmonious community and reducing inequalities by developing housing of a range of costs within one area. This, as a result, would contain a variety of income groups, and the deliberate social segregation normally induced by new development would be avoided. Furthermore, the policy would permit cross-subsidy among housing of different costs.

Private developers appealed to local government to change this policy. Many of them were reluctant to build low-cost and small size houses because of the limited profits to be gained, the scarcity of land, and the high land price in inner city areas. Land is not easy to find in inner city area, and when it is available, the price does not match with the final price of low-cost houses, so profits from higher priced houses must be used to make up the difference. Hence, the overall profit is less attractive (Parlindungan, 1997).

Responses to their appeals varied according to local governments, and, in some cases, created non-standard practices. For instance, in West Java Province that covers major metropolitan cities such as Bandung and areas around Jakarta (Botabek, Bogor-Tangerang-Bekasi)¹⁰, the practice was to substitute an amount of money for the low-cost houses. This money was – in the future – to be passed on to developers or to activities that specialised in the construction of modest or low-cost housing (Parlindungan, 1997; Sudarmo, 1997). The province of DKI Jakarta responded differently by allowing developers to build the modest houses outside the area for luxurious and medium houses. In fact, one was permitted to build the modest houses in the Botabek area which was outside the administrative boundary of DKI Jakarta province (Santoso et al., 2002).¹¹ The practice led to the development of low-cost

¹⁰ Before the implementation of Law 22/1999, Tangerang was still part of the West Java Province.

¹¹ DKI Jakarta implemented another linkage concept to require developers of luxurious apartment which occupy >5000 m² area to build low-cost multistory houses at least 20% of the intended area for

housing separated from the luxurious and medium-size housing, undermining the social intentions of the policy.

Furthermore, there were double burdens placed upon the low-income group which bought the low-cost houses. They had to spend a lot on commuting since many low-cost houses were located outside the main cities, and they also encountered the problems of low accessibility to infrastructure and services that were common at the urban periphery.

4.3.3.3 The developer's contribution

The use of a contribution from the developer to support service infrastructure provision was not new, and this can be in terms of an in-kind contribution, a linkage or charge to the developer (Cardew, 2003; Healey et al., 1995; Neutze, 1997). This use can reduce the burdens on local government, and hence it can open room for negotiation between developer and local government. In one-way or another, this concept had been implemented through the country's housing regulations, based on indicators of housing project scale and average density (Table 4.1 and Figure 4.3).¹² Furthermore, negotiations between a developer and local government regarding the provision of service infrastructure could take place during the assessment of the project proposal.¹³

In the field, the implementation of this concept was not successful, considering that a significant numbers of developers failed to hand over infrastructure or designated land for infrastructure to local governments (Hidajat, 1997), (see also Table 4.2). In a few cases, developers gave cash payments instead to senior government officers or sold land reserved for infrastructure to house-buyers, which breached the law (Suara Pembaruan, 2000a; Suara Pembaruan, 2000c). The responses of local governments to this failing varied. Many in Jabotabek promised to chase developers that were still in debt of on-site infrastructure, and they published the names and figures of developers before bringing them to court. In another case, a local government firmly required a developer to complete the on-site infrastructure by

commercial benefit – which was not the one for public or social facilities (Jakarta's Governor Decree, 1990). However, many developers failed to comply (Suara Pembaruan, 2000e).

¹² The regulation suggested that a developer must comply with a 60% and 40% division of land to houses and infrastructure.

¹³ These negotiations covered the provision of on-site infrastructure and not just the land contribution. Many resulted in the improvement of off-site infrastructure, either through rehabilitation or new provision, such as of schools, mosques, and health facilities (Kompas, 1996d; Suara Pembaruan, 1999).

forcing it to acquire land near to the housing area or to convert housing plots to infrastructure plots (Pelita, 2005; Suara Pembaruan, 2000b).

One compulsory contribution from a developer was a cemetery – an element of off-site infrastructure that may equal as much as 2% of the size of the project site (West Java's Governor Decree, 1996).¹⁴ However, many developers failed to comply and the solution was not clear. For example, only 15% of housing areas in Bandung Regency had been provided with a cemetery (Pikiran Rakyat, 2003a; Pikiran Rakyat, 2003b).

Other than that, there was a debate over which party, developer or local government, had to provide the hard infrastructure on land contributed by developer (Kompas, 2000f). On the one hand, the regulation only suggested the provision of land by developer, and in many cases, developers provided land with infrastructure following negotiations held during assessment of a development proposal. On the other hand, many buyers believed that developers should provide both land and infrastructure as stated on site plans and in promotional leaflets (Pikiran Rakyat, 2003a). In reality, however, when a developer had done this, the infrastructure was often inadequate (Kompas, 1996e).

The data has shown that few developers had delivered public and social facilities to local governments (Table 4.2). Surprisingly, this situation had been going on for years, and many developers were untraceable when local governments tried to track them. In contrast, the state developer Perumnas that handed over many housing projects including on-site infrastructure, such as in Bandung Regency and Semarang City (eight locations), providing a good example to private developers.

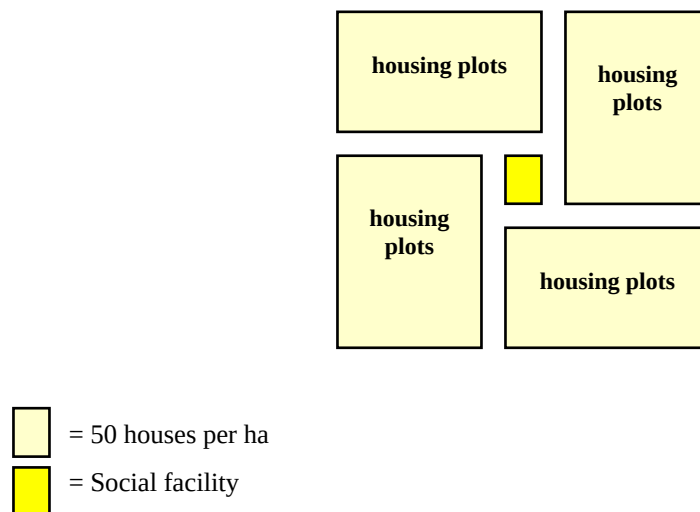
Other unpredictable problems occurred years after many new residential areas had been occupied, such as the lack of off-site social and public services. The increasing numbers of new residents required local governments to supply additional infrastructure. Burdens were created by increasing traffic congestion, the quick deterioration of roads, as well as by additional needs for water, waste disposal, education, and fire brigade facilities. Even the large city of Bekasi could not receive on-site infrastructure of a finished new town because of the high costs required for future maintenance. Some developers continued the maintenance of facilities that had been handed over to Tangerang Regency, although this did not last long, and in the

¹⁴ The 2% off-site cemetery was in addition to 40% of the project land for on-site infrastructure. This regulation affected many housing areas in Bandung and the region surrounding Jakarta (which is Botabek), (West Java's Governor Decree, 1996).

end the condition of much of the infrastructure deteriorated (Kompas, 1996a; Kompas, 2000b).

In the early 1990s, the Ministry of Home Affairs (MOHA) planned to impose development impact fees on developers in major urban areas. This was a breakthrough because, apart from the current regulation of on-site infrastructure, developers would have been required to contribute to resolving problems outside their site areas. However, with the arrival of the economic crisis in 1998, this regulation was postponed, even though a lot of efforts and campaigns were made in support of it.

Figure 4.3
The Average Neighbourhood Density in a New Housing Project



Source: Public Works Ministerial Decree (1986: 66)

Table 4.1
Minimum provision of social and public facilities in new housing project

Housing Project Size	Category	Inhabitants (persons)	Expected number of houses*	Minimum expected area (ha)*	Minimum required facilities
Less than 5 ha	I	250	50	1	The minimum provision: Playground; Kiosk
	II	1,000	200	4	Added to previous category: Kindergarten
<i>The critical size of housing area</i>				<i>The 5 ha benchmark used by many developers**</i>	
Medium size	III	1,600	320	6.4	Added to previous category: Primary school
	IV	2,500	500	10	Added to previous category: Playgrounds; Religious facilities; Shopping area; Public Parking lot; Community multipurpose building; Security building
Upper medium size	V	6,000	1,200	24	Added to previous category: Junior high school; Senior high school; GP practice; Sub-public health centre
Large size	VI	10,000	2000	40	Added to previous category: Hospital for baby delivery; Pharmacist
	VII	30,000	6,000	120	Added to previous category: Playgrounds/Sport fields; Main religious building Neighbourhood shopping centre; Kelurahan Office; Police Station; Sub-Post Office; Fire-fighters station; Neighbourhood multipurpose building; Public parking space; Public Health Centre (<i>Puskesmas</i>)
	VIII	120,000	24,000	480	Added to previous category: Sport fields; Main religious building; Other religious building; Shopping centre; Kecamatan Office; Police Station; Post Office branch; Fire-fighters station; Main community multipurpose building; Public parking space; Telecommunication Office; Electric Station

Source: Adapted from Public Works Ministerial Decree (1986: 36)

*Analysis according to minimum standard of density 50 houses/ha and household size of 5 persons/house.

**Interviews with developers

Table 4.2
Developers that had and had not handed over public and social facilities in selected urban areas

Local Government	Handed over	Not handed over	Total projects	Date of data
DKI Jakarta Province				
Jakarta Pusat	Na	Na	307	Until 2002
Jakarta Utara	Na	Na	384	Until 2002
Jakarta Timur	30	32	62	1971 to 2000
Jakarta Selatan	34	566	600	1972 to 2000
Jakarta Barat	41	344	385	1971 to 2000
West Java Province				
Bekasi City	34	347	381	Until 2000
Bekasi Regency	17	418	435	Until 1996*
Depok City	6	138	144	Until 2000
Bandung City	31	40	71	1994 to 2004
Bandung Regency	1	95	96	1994 to 2002
Banten Province				
Tangerang Regency	35	465	500	Until 2005
Central Java Province				
Semarang City	8	42	50	Until 2003

Sources: (Gunarso, 2003; Kompas, 1996d; Kompas, 2000g; Pos Kota, 2002; Suara Pembaruan, 2000b; Suara Pembaruan, 2000c; Suara Pembaruan, 2000d; Suara Pembaruan, 2000e; Tempo Interaktif, 2005); <http://www.bandung.go.id>, and interviews with BAPPEDA of Bandung Regency;

*Before the split between City and Regency of Bekasi in 1997.

4.3.3.4 Participation in a new community

Participation is a vague concept in relation to the development of new housing. Although recognised as important, it is only practiced in very large scale housing areas – those commonly called new towns. The main aim of this is to introduce the new community to an existing local community and to avoid social fragmentation between them (Mulyo, 1987). This is because many housing projects might have placed the original landowners, even whole villages, within a totally new environment. However, this was not made a required procedure in Indonesian housing regulations, even though the need for it could be recognised by the environmental impact assessment (EIA) performed before development is pursued.

Yet, this participation – when implemented – does not prevent the consequences of any physical boundaries placed around new developments. The realisation of spatial segregation in the proximity of Jakarta is not new, and many housing areas that are occupied by a large number of better off ethnic minorities were victimised during the riots of 1998 (Firman, 2004; Leisch, 2002). The segregation is evidence of the predicted failure of the policy to create harmonious residential areas of various income groups.

4.4 Overview of urban and housing development in Bandung and its surroundings

4.4.1 City background

Bandung, the capital of West Java Province, is the third biggest city in the country, and it accommodates more than two million inhabitants. It was originally a small town of 38,400 people in 1906, and the living place for the European people (Prabatmodjo, 1992; Kotamadya Bandung, 1982). In 1920 the city was prepared to replace Batavia (Jakarta) as the future capital of the Dutch colonial administration. However the World War II disrupted the plan (IPS, 1993).¹⁵ Nowadays, with its hinterland, the city is a metropolitan region that consists of the city of Bandung, Bandung Regency, and the city of Cimahi, with total land area of 3,476km² and more than three and half million people¹⁶, (Figure 4.4).

The expansion of the urbanised area, mainly by new housing and industrial areas, has created a relationship between city (kota) and hinterland (that consists of villages or desa) which is called 'desakota'. In the early 1990s, academics concluded that the further development of this metropolitan region represented a 'mega-urban' phenomenon. This extension has even reached as far as the Jakarta mega-urban area (Dharmapatni and Firman, 1995). Many of the new housing and industrial areas are in the form of new towns that have located in the corridor between Jakarta and Bandung (Dharmapatni and Firman, 1995; Laquian, 1995; McGee and Robinson, 1995), (Figures 4.5 and 4.6). It was estimated that Jakarta and Bandung mega-urban areas, plus Surabaya, accounted for 42% of Java's urban population in the 1990s (Douglass, 1997).

Bandung has been recognised as the centre of high-tech as well as low-tech industry in the country (Firman, 1996). It has been the major centre for various industries, including the aircraft, electronic, weaponry and armoury, and agricultural industries. For example, seventy percent of the country's textile industries agglomerated in the Bandung Metropolitan Region (BMR), most of them were export oriented, and they contributed the most to the country's production during the 1970s, 1980s, and early 1990s. Its aircraft industry was even identified as the symbol of the

¹⁵ The new city plan was launched in 1920, and designed by a Dutch architect, Ir. Thomas Karsten (IPS, 1993).

¹⁶ The City of Cimahi was part of Bandung Regency until early 2002 when it became an autonomous city.

economic take-off of the country. Agriculture is still an important sector, even though large amounts of land have been converted into industrial and housing areas.

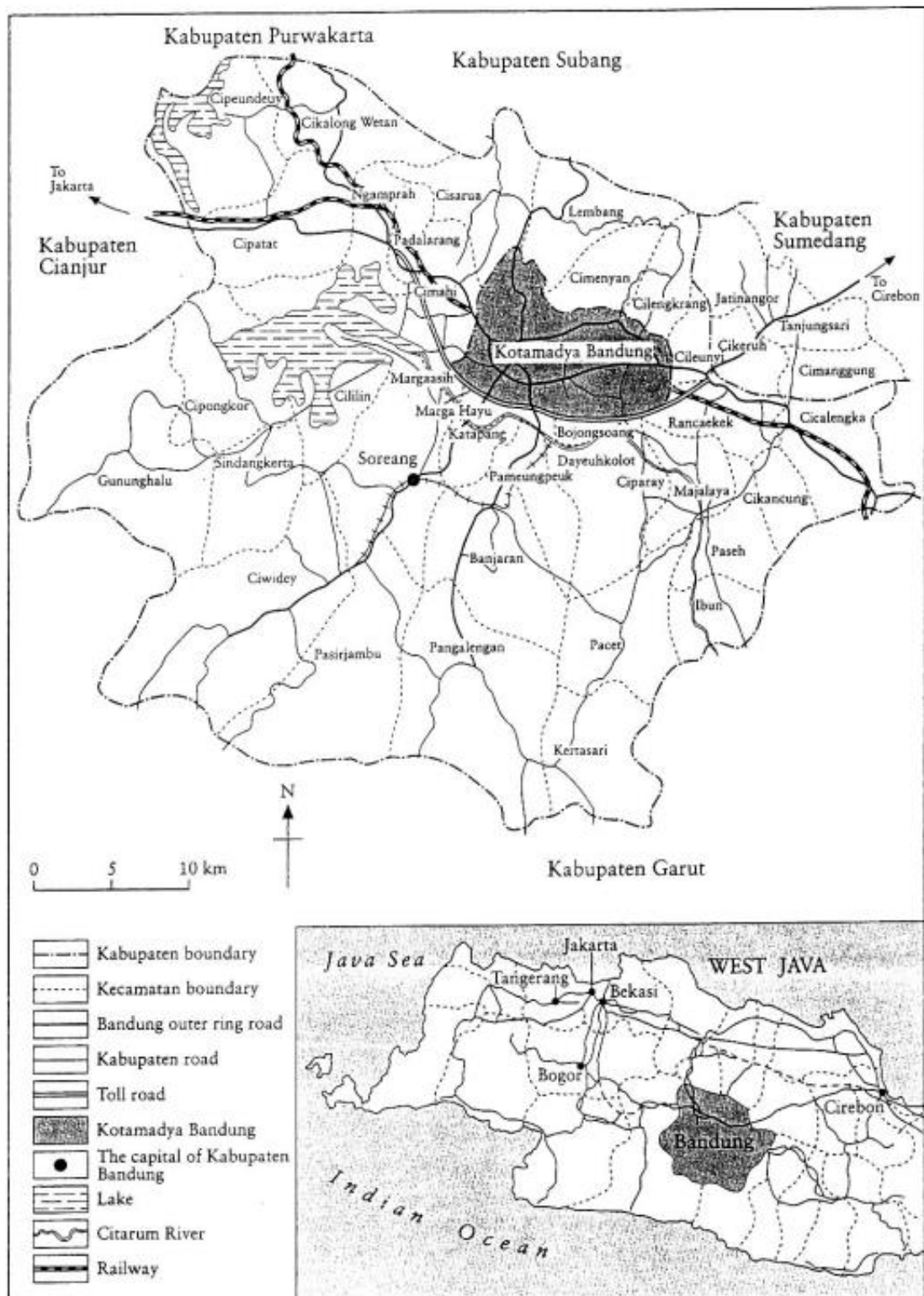
In the services sector, Bandung is regarded as the centre of the country's higher education, and this has attracted students from all around the country. The potential synergy between higher education and high-tech industries has given birth to the idea of creating the Bandung High Technology Valley (BHTV). This concept has been proposed and supported by many scholars and private investors who refer to the success story of Silicon Valley (USA) or Bangalore (India) (Rahardjo, 2002). Supporting this idea, the city has been described as changing from a walking city to a telematic metropolis through the emergence of large number of internet cafes (Lim, 2002).

4.4.2 Urban infrastructure conditions

Since the early 1970s, Bandung has adopted some citywide programmes to cope with rapid urbanisation and the high demand for service infrastructure (IPS, 1993). Three major programmes of central government have been introduced, namely the Bandung Urban Development Project (BUDP) I, the BUDP II, and the Integrated Urban Infrastructure Development Programme (IUIDP). All three aim to improve basic and city level infrastructure provision, but not their management. The first two had a centralistic approach, which did not consider the devolution of responsibilities, funding, and personnel to the city. In contrast, the third programme involved local government to a large extent (ESCAP, 2003).

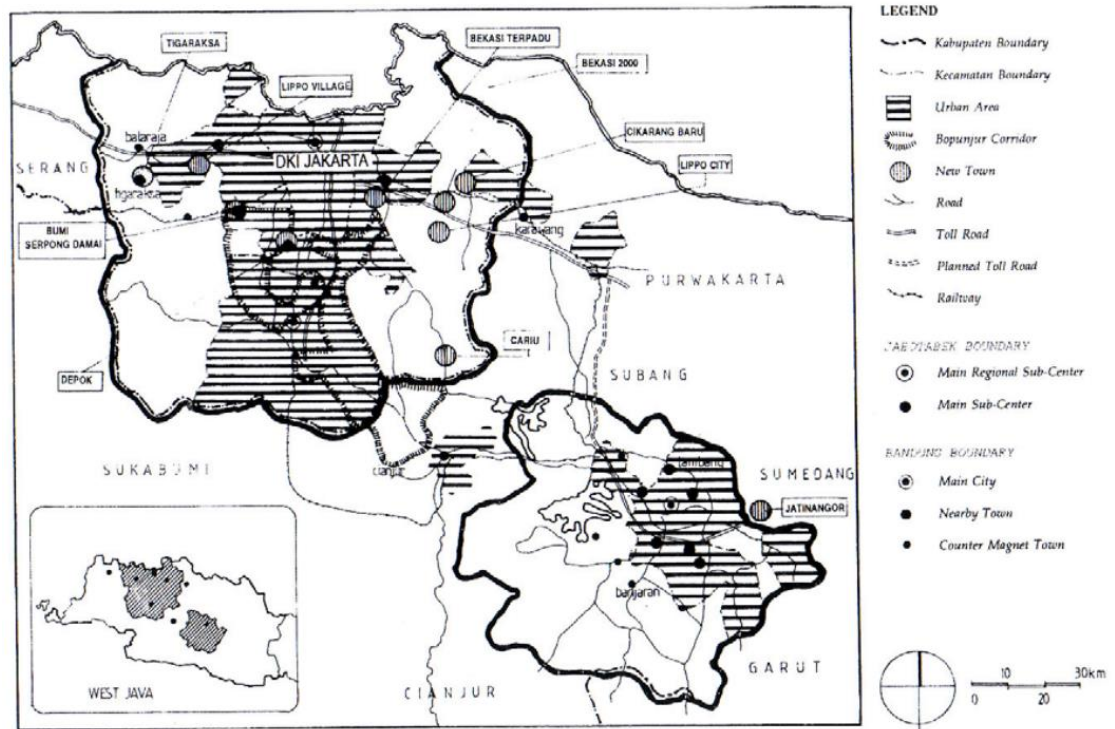
The three programmes aimed especially at poor kampongs, which represented about three-quarters of Bandung's population. Only one-fifth of the population of these kampongs was served by the city's water supply system in 1978, and less than a third had access to solid waste management services (IPS, 1993). Therefore, the KIP was the most important part of the three programmes. In comparison, new formal housing areas were beyond the reach of such programmes, and – as new planned development – they relied on the developers to contribute service infrastructure. Nowadays, Bandung has severe environmental problems arising from its infrastructure deficiencies, although a citywide infrastructure programme has been carried. The city's population has encountered various problems of water scarcity, sewerage and solid waste disposal, and flooding. In many cases, the flooding is related to the presence of heavy rain and poor drainage, to which has been added severe traffic congestion during the flooding. Yet, some local government decisions have not

Figure 4.4 Bandung Metropolitan Region 1994



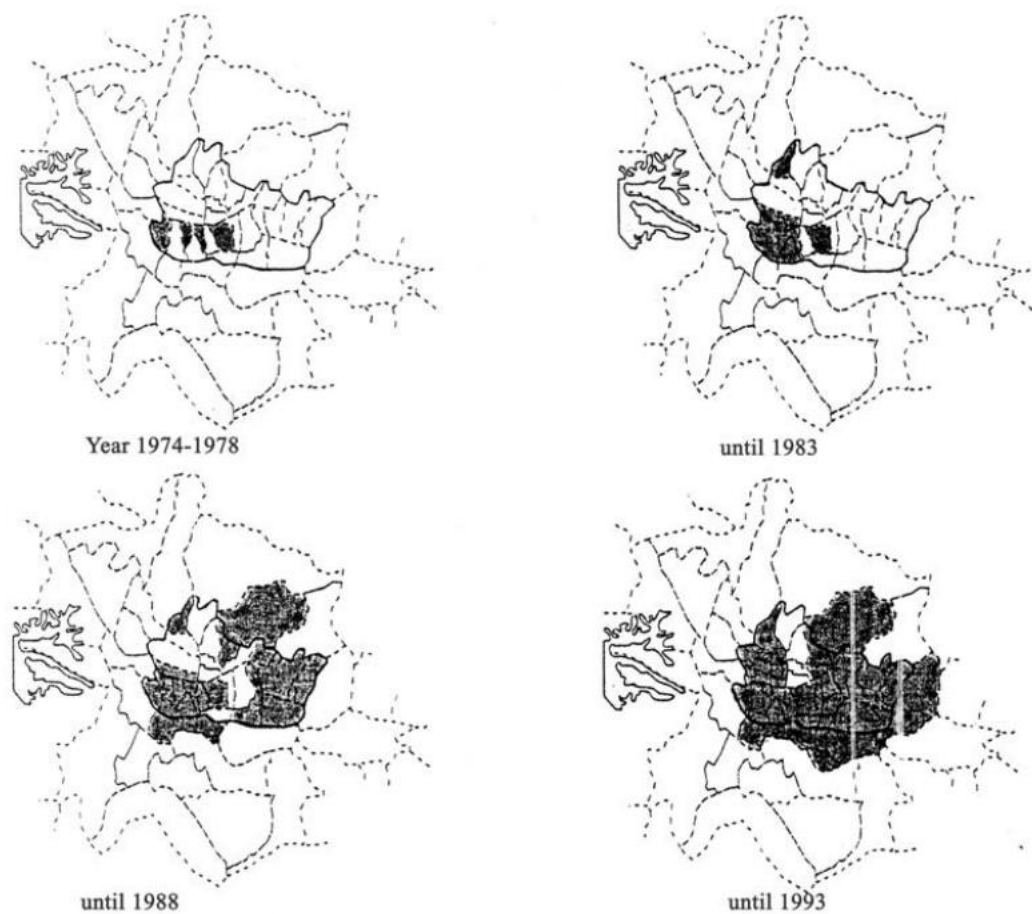
Source: Dharmapatni and Firman (1995: 296)

Figure 4.5 Urban development and new towns in Jabotabek and BMR in 1994



Source: Dharmapatni and Firman (1995:298)

Figure 4.6 Housing Development in Bandung and its surroundings, 1974-1993



Source: Baradin (1999: 81)

been sensible in that they gave permission for the construction of luxurious residential areas which altered the hilly water catchment areas in the north of the city. Various environmental issues have been presented in the news media with some evidence of the impacts over the years, but there has been little response in terms of a long-term strategy.

For example, the city has lost precious high quality groundwater table capacity since the late 1970s. During the late 1980s, the BUD project built a new supply system piping water from the southern region. Yet, this could not cope with the increasing population, and PDAM (the local government's water company) served only 53% of the population, while the remaining (47%) used groundwater (Sujatmiko, 2002). Many new residential areas have not had water distribution networks, and their residents have relied on shallow and bad quality groundwater sources reached with high-pressure pumps. This increasing use of the water table by new residents and industries has severely decreased the water table - by six to seven meters per year. In some housing areas the water table became unreachable, and therefore many residents came to rely on water vendors.

Another example is the limited sewerage system that Sukarma and Pollard (2001) reported served only 20% of the population or 17% of the city area. The rest of the area relies on septic tanks, as do many new housing areas. This system does not treat grey water or sullage that comes from kitchen and bathroom use. The sullage goes into surface water drainage network untreated and mixes with rainwater, which could pollute the soil in the long-term.

4.4.3 Formal housing development and residential infrastructure provision

Commercial housing development in Bandung started as early as 1974 with eight housing projects provided by private developers. During the period of 1974 to 1978, government also contributed six housing projects through Perumnas, the state developer. This period was the starting point for a major increase in formal housing development in Bandung, and particularly for the involvement of private firms of land development, which continued for the next twenty years, contributing massively to the housing stock (96,000 units). The mid 1980s was the initial boom of housing construction in Bandung, when it was still possible for many projects to be built within the city's administrative area. After 1989, housing development started to spill over into the neighbouring area – Bandung Regency – where large areas of agricultural land were available for conversion (Table 4.3 and Figures 4.7 and 4.8).

Table 4.3
Formal housing development by private developers in Bandung and its surroundings

Periods	Formal housing projects (units)	Total area (ha)	Total units of houses
1974 – 1978	8	60.4	2,416
1979 – 1983	12	129.2	3,376
1984 – 1988	42	675.2	27,610
1989 – 1993	73	465.1	18,919
1994 – 1996	167	2,420.4	43,957
Total	302	3,750.3	96,278

Source: tabulated and adapted from Baradin (1999)

Infrastructure provision through developers' contributions has not been monitored properly, despite its potential. Commercial housing development in BMR takes two forms, the land subdivision and the new town (Dharmapatni and Firman, 1995). Baradin (1999) argued that the land availability limits have prompted many developers in Bandung to develop small size housing projects (Table 4.4). Unfortunately, if there are many land subdivisions or small housing project developments within an area, none of those projects would consider providing an overall integrated infrastructure network to serve the entire new population. It is certainly an opposite case to new town or large-scale housing development when all infrastructure provision would be based on an analysis of total population demand according to a national standard of provision. Although the MRRA was built on 305 ha which made it a large-scale development, it was undertaken as a series of separate projects over the years, each of which was considered a land subdivision. So the whole was not classified as a new town.

Table 4.4
Classification of housing projects by private developers during the 1994-1996 periods

Classification of housing project	Bandung City			Bandung Regency			Total BMA		
	sites	%	% cumulative	sites	%	% cumulative	sites	%	% cumulative
1	2	3	4	5	6	7	8	9	10
< 5 ha	41	57.75	57.75	23	23.96	23.96	64	38.32	38.32
5 to 10 ha	23	32.39	90.14	22	22.92	46.88	45	26.95	65.27
10 to 20 ha	4	5.63	95.77	28	29.17	76.05	32	19.16	84.43
> 20 ha	3	4.23	100.00	23	23.96	100.00	26	15.57	100.00
Total*	71	100.00		96	100.00		167	100.00	

Source: adapted and tabulated from Baradin (1999).

** The city of Bandung: 71 units of formal housing area, 465.9 ha total area, and 14,886 units of houses; Bandung Regency: 96 units of formal housing area, 1,954.5 ha total area, 29,071 units of houses*

The developers' practice to divide a large area of land into several housing projects of less than 5ha severely affected the contribution of service infrastructure to the city. A small-scale project of 5ha is the benchmark of many developers wishing to avoid the compulsory provision of service infrastructure. This size is within categories I and II of housing development requiring a minimum provision of service infrastructure. Even a medium size development (category III, around 6ha) only requires this minimum provision plus a primary school (Figure 4.3 and Table 4.1).¹⁷

Table 4.5
Public and social facilities and their land areas handed over by developers to the City of Bandung (as of 2004)

No	Developer / Location	Area (m2)
1.	Perum Perumnas (Perumahan Sukaluyu)	8,943.08
2.	Perum Perumnas (Perumahan Sadang Serang)	31,163.01
3.	Perum Perumnas (Perumahan Cijerah I)	27,883.50
4.	Perum Perumnas (Perumahan Sarijadi I & II)	155,247.60
5.	Perum Perumnas (Perumahan Cibuntu)	22,831.29
6.	Perum Perumnas (Perumahan Antapani III)	366,434.00
7.	PT. Puteraco Indah (Perumahan Sukamulya)	17,836.66
8.	Perum Perumnas (Perumahan Kopo Kencana)	47,720.00
9.	PT. Multi Mitra Serasi (Perumahan Boungevnil)	25,720.00
10.	CV. Panca Bakti (Perumahan Leuwi Panjang)	9,468.00
11.	Muljana Tjandra (Perumahan Gempol Asri)	31,904.00
12.	H. Masum Sudrajat (Jl. Cimanuk 24)	13,069.00
13.	H. Fuad Mandani (PT. Karya Tunggal Prima)	17,216.00
14.	Iwan Suryadi (Jl. Cikutra Baru VI)	47,202.00
15.	PT. Batunuggal Perkasa (Jl. Abdul Rivai)	-
16.	Arief Subahari (Jl. Sulaksana Baru I)	176,673.55
17.	Drs. H. E. Rosadi Y.AK,dkk.	31,237.00
18.	H. Abdul Hamid (Jl. PDAM R.10 No.17)	6,256.00
19.	Jl. Tubagus Ismail XII/10	76,492.00
20.	PT. Cempaka Arum (Jl. Citra No. 19/1 C1)	-
21.	PT. Graha Sapta Karya	80,171.00
22.	Hans Barki (Jl. Gatot Subroto)	1,446.00
23.	Iwan Suryadi (R.E. Martadinata)	30,691.00
24.	PT. Puteraco Indah Bandung	38,161.00
25.	PT. Baleendah	414,971.97
26.	Drs. Nadi Sastrakusumah (Jl. Venus No.1)	12,374.00
27.	Perum Perumnas (Perumahan Cibuntu II)	21,117.40
28.	Perum Perumnas (Rusun Sarijadi)	5,766.71
29.	Perum Perumnas (Griya Bumi Antapani I)	259,328.00
30.	Perum Perumnas (Griya Bumi Antapani II)	96,400.89
31.	PT. Baleendah	1,603.7
Total Area		2,089,691.63

Source: <http://www.bandung.go.id/>

¹⁷ Three regulations, which are the Kepmenpu 20/KPTS/1986, Permendagri 1/1987, and Inmendagri 30/1990, ensure the minimum provision of infrastructure according to the scale of a housing project, and they cover network and non-network infrastructure, technical specifications, material quality, and the handing over process (Public Works Ministerial Decree, 1986; Home Ministerial Regulation, 1987; Home Ministerial Directive, 1990). Note that a previous regulation with similar purposes, Permendagri 5/1974 (Home Ministerial Regulation, 1974) has been annulled by these regulations.

Figure 4.8 Distribution of housing projects in Bandung Regency, 1994-1996



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A high percentage of housing projects was small-scaled and was required by the regulations to provide only a minimum provision of infrastructure. For example, between 1994 and 1996 the proportion of small-scaled housing projects reached almost 60% in Bandung and 25% in Bandung Regency (Table 4.4). This meant that developers could legally avoid provision of much of the infrastructure that the regulations envisioned. Moreover, there were not regulations requiring them to join their infrastructure to that of adjoining projects. Projects that were better provided became enclaves or pockets of higher quality housing.

Only a small number of finished projects handed over infrastructure to local government. In Bandung city, the infrastructure of 31 projects (44%) was handed over and in Bandung Regency only that of one project (1%), (Table 4.5).¹⁸ As of 2004, there was little evidence of a campaign of legal action like that in Jabotabek against the developers who were still not providing land for infrastructure. Local governments in Jabotabek started the campaign by making public the identities of the developers and trying to bring them to court (Kompas, 1998b).

4.4.4 Local government's and the developer's perceptions of residential infrastructure provision

4.4.4.1 Local government's perception

Several government agencies have been involved in assessing proposals for new housing projects, such as the local planning board (BAPPEDA), national land agency (BPN), the housing agency, and the building and planning agency (DTK). These agencies commonly have worked only from the point of view of their individual sectors of responsibilities, except BAPPEDA which maintained a broad spectrum of concerns regarding housing projects. This was understandable as BAPPEDA had a privileged and leading role in urban development during the New Order era. This agency inherited its personnel from the previous era, and it continued to perform important roles in giving permission for new proposal for housing development, in monitoring, and in the handover of infrastructure from a developer to the local government.

The roles of these agencies have been governed by regulations, which the agencies have rigidly followed, leaving themselves little room for manoeuvre. However, the idea took form to use the land contributed by a developer for profitable

¹⁸ The only project in Bandung Regency is Perumnas Rancaekek. Source: interview with Head of BAPPEDA.

activities, which has been practiced by the local housing agency. Some of such land was rented out for social and commercial purposes when possible. At the same time, the agencies did not recognise the many unresolved issues surrounding land contributions that developers have refused to make in lieu of providing infrastructure and the need for house buyers to contribute to community infrastructure provision. The buyers' contributions were considered the result of a new phenomenon that was only vaguely understood. The agencies continued to think that the provision of service infrastructure was the developer's responsibility.

Indeed, the agencies have been very much concerned about the inconsistency between the land development that has been permitted and the infrastructure that is actually constructed. This has been a matter of dispute between developers and government agencies. On the one hand, developers claim they have fulfilled all their obligations. On the other, the local government agencies expect all the infrastructure prescribed by the regulations and that were included in the approved development proposal. For instance, building a narrower width of road than that in the approved development proposal could give the developer more land for housing or other uses, but it could cause serious problems for vehicular circulation and access within the site. Many of the disputes between developers and local government agencies have led to postponement of the handing over process, with government believing that the developers might have been careless or that they have deliberately amended the site plan without approval by the agencies. For example, in the case of the MRRA, the residential area that was the location of this research, there had been no handing over since the development started some twenty years before. The agencies and the developer were still in on-going discussion and were considering handing over the MRRA incrementally, not as a whole area.

The staff members of the agencies, having experience as house buyers themselves, recognised how a developer would change an area designated for social facilities into housing or commercial plots. Such problems could not be resolved easily between the two parties when the houses or commercial plots were already sold, and there was no longer other land available within the area with which to replace the lost social facility sites. In the case of Bandung, the agencies did not have figures on how much land was still kept by developers for public and social facilities. In comparison, the agencies in the Jabotabek area could produce such figures and use them to chase bad developers (Suara Pembaruan, 2000a; Suara Pembaruan, 2000b; Suara Pembaruan, 2000c; Suara Pembaruan, 2000d; Suara Pembaruan, 2000e).

The staffs of the agencies also had witnessed, as residents in newly built housing area themselves, the infrastructure improvement actions carried out by their neighbours. However, they did not seem to be aware of the implications of such practices for the broader issues that they faced as actors in housing development through the roles of their agencies. In fact, what they witnessed – although seen often – was something new to their housing perceptions regarding this study's framework. They expected that the results of this study could contribute to their practices in creating good housing development. Nonetheless, this study did not aim as they expected, but it was able to deliver evidence that could enrich the concepts and practices of formal housing development.

The agencies, as the controllers, could not give suggestions to the cases where buyers contributed to infrastructure provision in housing areas, because this was beyond their capacities. They could only monitor and control the provision of infrastructure by the developer by referring to legalised development proposal and site plan. Their function mostly focused on inspection that compared the actual development and the approved development proposal, as drawn on site plan. Therefore, their function was limited to being critical, but ineffective, agents for enforcing the concepts of the 1:3:6 linkage and the developers' infrastructure contribution to a new housing area.

4.4.4.2 The perception of private developers

Private developers recognised the issue of residential infrastructure provision in new formal housing projects, but it has been hard for them to face it. According to regulations, land for housing or for infrastructure should each comprise forty to sixty percent of total site area. Developers acknowledged that forty percent was necessary to ensure the adequacy of infrastructure within a housing project, including networked and non-networked infrastructure.

Developers recognised the importance of creating a good and healthy housing environment through adequate infrastructure. For some, creating an ideal housing area was like an ideology, while at the same time they recognised the caveats of the regulations and law enforcement. They considered their housing projects to be good projects, when they seemed to create good and healthy housing environments. At the same time, they admitted that some developers violated the regulations by discarding a site plan that had been approved and pursuing a revised and unapproved version. Such

practices were common. This was a way of dealing with inflation that raised material and labour costs and of speculating to profit from land price differences.

The interviews revealed many of the common practices of developers. Firstly, there were strategies to trigger land price differences. When a large amount of land could be obtained, the developer would start construction with a cluster of buildings as far as possible from the closest access to the main road. That cluster would be marketed as soon as possible, normally even before construction started. Buyers would be persuaded to make purchases on the basis of plans of the site that they were shown. When the first cluster was finished, the next cluster would be started and marketed at a higher price. The last clusters developed would be those closest to the points of access to the site. By the time these last clusters were developed, there would be significant price differences between similar houses within the first and the last clusters. Moreover, sometimes, a selection of pieces of land in strategic positions within the site would be left undeveloped. Their market values would be raised by the completed development surrounding them. Such a strategy was possible as there was no regulation governing the maximum period of time for a developer to build on a particular site. However, after the national monetary crisis, local government in Jabotabek tried to regulate this practice. The idea was to force use of vacant lands owned by private developers, such as by threatening that it be returned to agricultural use or to cancel the building permit.

Secondly, many developers would apply supplements to the prices for houses near the plots for public purposes, or require the purchasers to pay one-off fees. The fees were commonly measured according to the length of the housing plot boundary shared with the public purpose plot. This showed that the developers were aware that 'better serviced houses' would obtain higher prices.

Thirdly, the most common alteration of an approved site plan made without government consent was to change the plot sizes for houses, and the worst was to replace land designated for public purposes with houses or commercial buildings. However, there was always a risk that, in the end, local government might question this and refuse to accept the handing over of the infrastructure.

Fourthly, many developers provided on-plot infrastructure of lower quality than was stated in the approved plan. For example, a developer might provide only the cover of a septic tank on the ground, suggesting that an actual facility existed underneath. Or, a small-short PVC pipe popping out of the ground pretended that this was an air outlet of a septic tank, although none was beneath. Yet, some developers

performed better than this by providing a poor quality septic tank, although it might not last long. In the case of water supply, many provided hand-pumps placed within shallow boreholes. Such mechanisms could bring up only muddy or murky water, since most of new housing areas were developed on converted agricultural land and shallow boreholes could not reach good quality water.

However, it was surprising that the developers interviewed during this research did not seem to see any advantage to be gained from providing better infrastructure. Their aim appeared to stop at making a profit by producing housing of a kind which they could sell. For them, a good project included as a basic rule the provision of houses and certain infrastructure components, (which showed they shared a concept of housing being a bundle of goods). This meant they had to hand over the infrastructure and facilities to the local government once they finished construction. However, they knew that a difference between an actual development and the approved housing plan could be an obstacle to this hand over. Also they had seen improvements made by residents, such as those to roads. But the developers demonstrated no interest in the possibilities for selling their houses more easily or with more profit (and in some cases, with less conflict with government agencies) if they improved the infrastructure which they actually provided. Nor did they show any interest in obtaining greater professional pride or satisfaction by providing buyers with better serviced houses. This suggests a seller's market in which demand was substantially greater than the supply and thus a lack of strong competition among the developers. However, this research did not have reason to include in its scope further exploration of the behaviour of developers and the causes of their actions.

The developers also recognised that, for on-site infrastructure, the government agencies could permit them to provide only land as an alternative to land with facilities. Similarly, the provision of water and sanitation should ideally be developed as networked infrastructure, but local government agencies could permit non-networked facilities on each housing plot, which was then called on-plot infrastructure.

4.5 House-buyers' profile

4.5.1 Social and economic characteristics

After twenty years of development, the MRRA still had many original house-buyers living in the area, and the majority were first-time buyers (80%). They were mostly young families, who were still in their productive years, with some middle-aged families (fifty-years and over). More than a third were families with less than forty-years of age, and more than fifty percent were families with less than forty-five years of age. About ten percent of families had been living in their houses since they reached their pension ages (fifty-five years and over), (Tables 4.6 and 4.7).

The majority of these buyers classified themselves as lower-middle income (60%). More than a third identified as higher-middle income. Only small percentage (<6%) considered themselves as low-income group (Table 4.8). However, their possessions suggested that many more families than claim it might belong to the higher-middle income group. This can be seen from the ownership by more than 80% of them of leisure goods, such as TVs and VCD/DVD players (Table 4.9). As middle-income, they were the target of promotion and advertisement through national and local TV stations, which beamed programme with commercial-leisure content, rather than educational content. Some were wealthy enough to have a satellite disc to get international TV programmes. The ownership of VCD/DVD players was supported by more than five VCD/DVD rental services in the area alone, offering affordable rental prices, which was around 1000 IDR per film. For comparison, buying a brand new VCD/DVD movie would cost between 50,000 IDR to 100,000 IDR (or between 2% to 4% of the mean household income).

Another indicator of greater wealth was the access of respondents to telecommunication services, with most of them (>90%) having landlines telephone connections (Table 4.9). This feature made them different from typical low-income households. More than just providing traditional voice communication, this facility enabled them to access the internet. Although the basic monthly cost for landlines was relatively low, which was around thirty thousand IDR a month before usage, the installation costs – determined by the telecommunication company – varied according to a housing project's location. This was because the service of new telephone installation had been an area for the emergence of new businesses. Hence, a higher-income housing area would have probably been charged higher than the lower one. In

1994, the cost of a new installation in the MRRA was around 1.3 million IDR, while in 2000s the cost was around half this amount. During ‘happy months’ in 1995 celebrating the country’s fiftieth anniversary, the cost of a new installation was reduced to 350 thousand IDR.

A mobile telephone was more expensive than a landline connection. More than sixty percent of respondents had mobile phones (Table 4.9). During the late 1980s and early 1990s, a mobile handset (widely called *hand-phone*) was a luxury good that only certain wealthy people could afford, and therefore, it was a status symbol. At the time of the fieldwork in 2002, this gadget was becoming a common personal device. However, it was still expensive. A new SIM Card alone cost around 600 thousand to 800 thousand IDR (or 24% – 32% of the mean household income), and this was without the handset that cost more than one million IDR (or more than 40% of the mean household income). Furthermore, there was an additional cost to activate the service; this was either a monthly rental for 75 thousand IDR or a top-up card costing a minimum of 100 thousand IDR (or 4% of the mean household income).

It was assumed that, before buying houses in the MRRA, buyers must have taken note of its location and the transportation facilities available. The MRRA was a huge cluster of houses that was bordered by physical features that made it look like a gated community. Even inside, between the areas of luxurious and the medium priced houses, there were distinctive physical boundaries, such as dikes and road portals. Some pockets of communities which did not belong to the MRRA still existed. Within the area, no formal public transport systems were available. There were few outlets connecting to the road system outside the MRRA. There was only one *angkot*¹⁹ (mini-bus) route that penetrated the MRRA. If passengers from inside wanted a destination it did not serve, they had to change to another *angkot* when they arrive outside the MRRA.

Such conditions would seem to have compelled residents to have their own means of transportation. Indeed, it was a problem for those residents that did not have any means of transport, since walking was not safe and comfortable for the MRRA did not have footpaths for pedestrians alongside its roads. The common choices for the

¹⁹ The mini buses, or *angkots*, are modified from a *Kijang* car, which is a typical of family multi-purpose vehicle (MPV). It could contain 16 packed persons, including 14 passengers, one driver and one conductor; whilst for normal family usage it had a maximum of eight passengers. It had a flat rate ticket of 1,500 IDR for a one-way journey.

residents were to have a car, motorbike, or bicycle, or to hail a *becak*²⁰ (a type of pedicab). As the majority of husbands and wives went to work during the day, and the majority of them had children of school age, private means of transport were essential. This is why ownership of cars and motorbikes was high, with almost sixty percent owning cars and fifty percent owning motorbikes (Tables 4.9 and 4.10). A few families (2.3%) even owned a second car to support their activities (Table 4.11).

Another indication of the wealth of some respondents was their capacity to possess other properties. Twenty percent of respondents owned another house and 35% another plot of land (Table 4.9). As they are original house-buyers, such ownership could have been part of their strategies to save or invest, and not necessarily property speculation.

Apparently there was not any reliable data regarding Bandung's household incomes to which this study could refer. Compared to Hoek-Smit's (2001) figure of 892,000 IDR per month for average household incomes outside Jakarta, the average of the respondents in the MRRA was too low, which was less than 2.5 million IDR annually (mean=2.48; mode=2) or around 208,000 IDR monthly (Table 4.12). Thus the household incomes stated by respondents might not have represented their actual incomes. There were indicators showing that many were far above the low-income category.

What residents of the MRRA could afford was indicated by the type of house they purchased. Medium-sized houses, such as T-36 (almost 35%) and T-45 (30%) were the most affordable ones (Table 4.13). These were typically two-bedroom houses with the possibility of expansion according to plot sizes. Only a few could get bigger houses, and only a few others were capable of affording the smallest houses available (T-21).

The most common house sizes in the MRRA, as is the case in other middle-income residential areas, accommodated small-sized households. This related to the successful national campaign of family planning. The size of the majority of respondents' households was between four and five persons (mean= 4.57; mode = 4),²¹ (Table 4.14). This could be accommodated in the houses offered in this area that consisted of one, two, and three bedrooms. As having a helper, either a servant or baby

²⁰ A *becak* was a three-wheeled cycle-like vehicle, with passengers sitting at the front and driver riding at the back. It contained a maximum of two passengers at a time. A journey inside the MRRA cost around 5,000 IDR in daylight, which was expensive in comparison to the 1,500 IDR angkot's tariff. During rain or evening and night, the price could be higher.

²¹ The BUDP estimated that Bandung's household size was 4.2 persons in 1990 (Winarso and Firman, 2002).

sitter, was a norm in a big city, that size represented a household with one or two children plus a servant, a baby sitter, or both. In some bigger households, the list of members could include more children or some relatives, such as elderly parents.²²

All of these types of houses were extendable, either horizontally or vertically, depending on the sizes of the land plots. Although the design was for a finished product, housing renovation was common in the area. This could have indicated that buyers were targeting location instead of shelter size, while obtaining some opportunity to do renovation, either right away or later. Given that the houses most easily accommodated small households, it is understandable that they would be enlarged to accommodate growing children or the presence of servants, baby sitters, or relatives.

Table 4.6
Age distribution of the respondents

Class Interval	Frequency	%	Cumulative %
20 – 26	3	1.70	1.70
27 – 33	16	9.09	10.80
34 – 40	43	24.43	35.23
41 – 47	51	28.98	64.20
48 – 54	33	18.75	82.95
55 – 61	14	7.95	90.91
62 – 68	13	7.39	98.30
69 – 75	2	1.14	99.43
76 – 82	1	0.57	100.00
Total	176	100.00	

Source: Household Survey 2002

Table 4.7
Age distribution of the spouses

Class Interval	Frequency	%	Cumulative %
24 – 28	6	3.66	3.66
29 – 33	16	9.76	13.41
34 – 38	31	18.90	32.32
39 – 43	46	28.05	60.37
44 – 48	33	20.12	80.49
49 – 53	11	6.71	87.20
54 – 58	9	5.49	92.68
59 – 63	11	6.71	99.39
64+	1	0.61	100.00
Total	164	100.00	

Source: Household Survey 2002; number without spouses = 11

²² Household members in this study were anyone who lived in the house. Traditionally a household was understood to consist of parents and children. This study defined the household as consisting of parents, children, and other persons living in the house, whether or not they are relatives.

The majority of homeowners had a university education: more than sixty-five percent of respondents and more than fifty percent of their spouses (Tables 4.15 and 4.16). These figures are far above the university education level in the West Java Province, which was only 0.67% (BPS, 1994). Further analysis showed that in almost sixty percent of households both husband and wife had a university background, and that in ten percent, at least one party, either husband or wife, had a university education. In one way or another, the education level makes an important contribution to the quality of life of households by improving their chances in job to find formal employment. More than 75% of the husbands and around 40% of the wives interviewed had formal jobs (Tables 4.17 and 4.18).²³

Table 4.8
Households' self-identification of social income group

Social Income-Group	Frequency	%	Cumulative %
Low-income group	10	5.68	5.85
Middle to low-income group	104	59.09	66.67
Middle to high-income group	57	32.39	100.00
High-income group	0	0	100.00
Total	171	97.16	
No responses	5	2.84	
Total	176	100.00	

Source: Household Survey 2002

Table 4.9
Goods ownership

Goods Ownership	Frequency	% (N=176)
TV	175	99.4
VCD/DVD Player	145	82.4
Telephone	165	93.8
Mobile Phone	116	65.9
Motor Bike	88	50.0
Another House	38	21.6
Another Plot of Land	62	35.2
One Car	103	58.5
Two Cars	4	2.3

Source: Household Survey 2002

²³ The suspicion that formal housing development was mainly serving civil servants was not true, as the data showed otherwise.

Table 4.10
Type of car ownership: the first car

Type of Car	Frequency	%	Cumulative %
No possession of car	69	39.20	40.12
BMW/Baby Benz class (luxurious sedan)	1	0.57	40.70
Honda Accord class (medium sedan)	26	14.77	55.81
Kijang class (MPV)	42	23.86	80.23
Suzuki Carry class (minibus)	34	19.32	100.00
Total	172	97.73	
No response	4	2.27	
Total	176	100.00	

Source: Household Survey 2002; MPV = multipurpose van; minibus = refers to small minivan of 5 to 7 passengers

Table 4.11
Type of car ownership: the second car

Type of Car	Frequency	%	Cumulative %
No possession and possession of a first car	172	97.73	97.73
Kijang class (MPV)	2	1.14	98.86
Suzuki Carry class (minibus)	2	1.14	100.00
Total	176	100.00	

Source: Household Survey 2002; MPV = multipurpose van of 5 to 7 passengers; Minibus = refers to small minivan of 4 to 6 passengers

Table 4.12
Household annual income (in millions IDR)

Class Interval	Frequency	%	Cumulative %
2.85 – 15.86	52	30.95	30.95
15.87 – 28.88	53	31.55	62.50
28.89 – 41.90	33	19.64	82.14
41.91 – 54.92	14	8.33	90.48
54.93 – 67.94	5	2.98	93.45
67.95 – 80.96	4	2.38	95.83
80.97 – 93.98	2	1.19	97.02
93.99 – 107.00	4	2.38	99.40
107.01 – 120.02	1	0.60	100.00
Total	168	100.00	
No response	8		
Total	176		

Source: Household Survey 2002; NA = Not Available; mean=2.48; mode=2

Table 4.13
Initial type of house

Type of House	Frequency	%	Cumulative %
T21/50 - T21/66 m2	18	10.23	10.23
T36/80 - T36/100 m2	61	34.66	44.89
T45/100 - T45/120 m2	56	31.82	76.70
T54/100 - T54/120 m2	28	15.91	92.61
T70/120 - T70/200 m2	13	7.39	100.00
Total	176	100.00	

Source: Household Survey 2002

Table 4.14
Household size

Household Size	Frequency	%	Cumulative %
1	2	1.14	1.14
2	6	3.41	4.55
3	20	11.36	15.91
4	70	39.77	55.68
5	45	25.57	81.25
6	17	9.66	90.91
7	8	4.55	95.45
8	5	2.84	98.30
9	3	1.70	100.00
Total	176	100.00	

Source: household survey 2002; mean= 4.57, mode = 4

Table 4.15
Respondent's education background

Class Interval	Frequency	%	Cumulative %
Others	10	5.68	5.68
High School	50	28.41	34.09
Undergraduate	36	20.45	54.55
Graduate	68	38.64	93.18
Postgraduate	12	6.82	100.00
Total	176	100.00	

Source: Household Survey 2002

Table 4.16
Spouse's education background

Class Interval	Frequency	%	Cumulative %
Others	14	8.48	8.48
High School	63	38.18	46.67
Undergraduate	34	20.61	67.27
Graduate	46	27.88	95.15
Postgraduate	8	4.85	100.00
Total	165	100.00	
Having no spouse	11		
Total	176		

Source: Household Survey 2002

Table 4.17
Jobs of principal income earner

Type of Jobs	Frequency	%
Formal Job		
Entrepreneur	13	7.47
Private company's employee	40	22.99
Government company's employee	38	21.84
Civil Servant	45	25.86
Non Formal Job		
Self-employed	7	4.02
Pensioner	23	13.22
Not working	2	1.15
Others	6	3.45
Total	174	100.00

Source: Household Survey 2002

Notes: 2 single females are included; a state owned company or BUMN acts like a private company, the employee has better remuneration than the normal civil servant; self-employed refers to a small scale economic activity which is unregistered

Table 4.18
Jobs of spouses

Type of Jobs	Frequency	%
Formal Job		
Entrepreneur	3	1.81
Private company's employee	15	9.04
Government company's employee	10	6.02
Civil Servant	38	22.89
Non Formal Job		
Self-employed	10	6.02
Pensioner	2	1.20
Housewives	85	51.20
Others	3	1.81
Total	166	100.00

Source: Household Survey 2002

Notes: 9 single men are included; 1 no response; a state owned company or BUMN acts like private company, the employee has better remuneration than normal civil servant; self-employed refers to a small scale economic activity which is unregistered

4.5.2 Circumstances when buying houses

At the time of the survey, most respondents were able to recollect the date when they bought their houses. Here, the term 'buying' referred to two alternatives, which were paying cash directly to the developer or making the purchase with loans. In this case, purchasing with credit was accomplished by signing the agreements to purchase a house and to take a loan in the presence of the developer and housing bank.

In general, the Indonesian government's housing policy supported middle-income house buyers through the provision of KPR (*Kredit Pemilikan Rumah*) or

credit for housing ownership. At the time, there were two institutions able to deliver the credits for buyers in the MRRA, which were the BTN (*Bank Tabungan Negara*) and the PT Papan Sejahtera²⁴ (the PTPS, a non-bank lending institution specialising in housing finance). It was commonly recognised that the BTN served low and lower-income buyers who acquired houses through PERUMNAS, and that the PTPS served middle and high-income buyers who acquired houses through private developers (Poerbo, 1999). The distinction between the two institutions, according to respondents, was in terms of *interest rates* and *quality of services*. They tended to believe that the PTPS offered slightly higher interest rates, between 1% and 2% more, than the BTN. However, the PTPS – as a private company – offered better services than the BTN.

Respondents in this study could have acquired houses through four possible practices, which were paying the full price in cash, enlarging the down payment, paying off the loan before the end of the term date, and paying the monthly instalments until the end of the term. Buyers seldom practiced the first option (buying in cash), since this required a large amount of resources. Only around six percent of them could do this. The rest acquired houses through housing loans (>90%), (Table 4.19). The arrangement of a housing loan was on an individual basis, by agreeing to a certain interest rate and committing a minimum thirty percent of household income to repayments, after showing that this amount was affordable. These conditions aimed to make sure that buyers could pay the monthly instalments without using income needed for other essential household expenses.

Buyers could employ the last three practices to change the burden of their housing loan. Increasing the down payment and lowering the monthly instalments, or vice versa, offered strategic possibilities. One reason for this was that after the first five to ten years, the real value of monthly instalments would decrease because of the existing high inflation rate. Also in response to this effect of inflation, a buyer could choose to pay off the loan to avoid further instalments when inflation had reduced its value, or to continue paying instalments that declined in terms of real cost until the end of the term of the loan. During the 1990s the BTN's interest rate was around 14% to 18%, and the PTPS's interest rate was slightly higher. At that time, buyers having loans of 15 to 20 years could have monthly instalments to pay of 400 thousand to 800 thousand IDR, depending on the loan arrangement and the type of house.

²⁴ The PT Papan Sejahtera was liquidated after being taken over by its shareholders, following the monetary crisis in 1997/1998. Before being liquidated, it had been changed from a non-bank into a bank, still focusing on house financing.

Table 4.19
Methods to buy houses

Means to Buy	Frequency	%	Cumulative %
Cash	11	6.25	6.25
Housing Loan (KPR)	165	93.75	100
Total	176	100	

Source: Household Survey 2002

Notes: KPR – Kredit Pemilikan Rumah (credit for housing ownership)

Respondents indicated some of the considerations they made when choosing the MRRA and not other areas. The top three important reasons were that the housing price was affordable, the distance from working place was acceptable, and the houses were located inside the city boundary. There was a fourth reason, accessibility to public transport, which was actually not that good, considering that only one group of *angkot* penetrated the area and that residents had to travel to the main access before riding other *angkots*. The fifth reason of no possibility of having flood was no longer valid at the time that respondents purchased their houses in the MRRA, but since then the city's environmental degradation put the MRRA at risk of yearly flooding during the rainy seasons, as it happened during the research fieldwork. Not surprisingly, the quality or quantity of its infrastructure was not among the main reasons given why buyers chose to live in the MRRA. That raised the question of whether it was not important because they could deal with it later and trade it off against the satisfaction of their main reasons, or whether they mistakenly thought that they would face no problems at all with infrastructure in the MRRA (Table 4.20).

After buying their houses, only some respondents moved into them directly. The term *time gap* is used here to denote the time between the date of buying and the date of moving in. On average, the time gap was almost two years (mean = 23.87 months). Unexpectedly, the majority of the respondents (almost 70%) reported a time gap of between 0 and 22 months. As a result of the delay in moving in, some respondents experienced a longer ownership period (after buying) than occupancy period (the length of stay in a house). On average, respondents owned their houses more than thirteen years (mean = 160.58 months), and stayed in them more than eleven years (mean = 140.15 months), (Tables 4.21, 4.22, and 4.23).

A decision to delay moving in had several possible explanations. Firstly, respondents might not have been in immediate need of their new houses, as they might have been living in others. Secondly, the houses might not have been ready for

occupancy at the time of buying. Thirdly, respondents might have planned to make some minor or major renovation before moving in, including improvements to on-plot infrastructure.

Table 4.20
The most important reason to buy houses in the MRRA

Reasons to buy	The most	Second most	Third most	Total answer	Sample %	Value	Rank
	1	2	3	4	5	6	7
Affordable housing price	58	35	27	120	68.18	387	1
Distance from working place	41	14	9	64	36.36	242	2
Location of the house was still inside the city boundary	20	30	25	75	42.61	185	3
Accessibility to public transport	9	21	16	46	26.14	103	4
No possibility of having flood	12	13	13	38	21.59	99	5
The housing area had been established	5	17	19	41	23.30	78	6
NA	7	8	8	23	13.07	59	7
Future investment	4	10	14	28	15.91	54	8
Wanting to have own house	8	2	3	13	7.39	47	9
Condition of the social environment of the community	3	9	11	23	13.07	44	10
Close to friends or relatives	3	5	7	15	8.52	32	11
Availability of on-site infrastructure	1	5	8	14	7.95	23	12
Quality of the building structure	1	1	7	9	5.11	14	13
Other	2	1	0	3	1.70	12	14
Quality of on-plot infrastructure	1	1	3	5	2.84	10	15
Traffic congestion	1	1	1	3	1.70	8	16
Availability of on-plot infrastructure	0	1	4	5	2.84	6	17
Close to previously own house	0	1	0	1	0.57	2	19
Opening a kiosk	0	1	0	1	0.57	2	20
The reputation of the developer	0	0	1	1	0.57	1	21
Quality of on-site infrastructure	0	0	0	0	0.00	0	22
Total	176	176	176	528			

Source: Household Survey 2002

Notes:

1 = the most important reason

2 = the second important reason

3 = the third important reason

4 = 1 + 2 + 3

5 = column 4 divided by 176, which equals 100%

6 = column 1x5 + column 2x2 +column 3x1

NA = Not Available

The majority of the respondents were first-time buyers and had no experience of house ownership (80%). About twenty percent had owned a house before (Table 4.24). Among the first-time buyers, there are some who had rented houses (>30%), and more than half had lived with parents or relatives. Only a few had rented a room or sheltered themselves in some other way before purchasing a house. This previous shelter experience probably contributed to the decision of some to delay moving into their new houses in the MRRA (Table 4.25).

Table 4.21
Period of ownership until 2002 (in months)

Class Interval	Frequency	%	Cumulative %
15 – 46	6	3.43	3.43
47 – 78	5	2.86	6.29
79 – 110	17	9.71	16.00
111 – 142	26	14.86	30.86
143 – 174	62	35.43	66.29
175 – 206	29	16.57	82.86
207 – 238	12	6.86	89.71
239 – 270	16	9.14	98.86
271 –302	2	1.14	100.00
Total	175	100.00	

Source: Household Survey 2002; NA = 1

Multiple modes, the smallest mode = 16, mean= 160.58

Table 4.22
Length of residence until 2002 (in months)

Class Interval	Frequency	%	Cumulative %
6 – 37	7	4.27	4.27
38 – 69	7	4.27	8.54
70 – 101	27	16.46	25.00
102 –133	34	20.73	45.73
134 – 165	40	24.39	70.12
166 – 197	33	20.12	90.24
198 –229	3	1.83	92.07
230 – 261	9	5.49	97.56
262 +	4	2.44	100.00
Total	164	100.00	

Source: Household Survey 2002; NA=12, mean 140.15, mode=120

Table 4.23
Time gap (delay of moving in) between date of buying and date of moving in (in months)

Class Interval	Frequency	%	Cumulative %
0 – 22	101	68.71	68.71
23 – 45	21	14.29	82.99
46 – 68	7	4.76	87.76
69 – 91	7	4.76	92.52
92 – 114	4	2.72	95.24
115 – 137	5	3.40	98.64
138 – 160	1	0.68	99.32
161 – 183	0	0.00	99.32
184 – 206	1	0.68	100.00
Total	147	100.00	

Source: Household Survey 2002; NA=29, mean=23.87, mode=1

Table 4.24
Experience of housing ownership

Ownership Experience	Frequency	%	Valid %	Cumulative %
First House	140	78.98	79.89	79.89
Second House	31	17.61	17.82	97.70
Third House	4	2.27	2.30	100.00
Total	175	98.86	100.00	
No Response	1	1.14		
Total	176	100.00		

Source: household survey 2002

Table 4.25
Experience of the original buyers before owning houses

Ownership Experience	Frequency	%	Cumulative %
Renting a house	49	35.25	35.25
Renting a room	6	4.32	39.57
Living with parents	62	44.60	84.17
Living with relatives	12	8.63	92.81
Others	10	7.19	100.00
Total	139	100.00	

Source: household survey 2002

4.6 Summary

This chapter has presented background with which to understand practices of formal housing development in Indonesia at the time of the research. It showed that those practices were not perfect and that problems arose, especially regarding the issues of residential infrastructure provision. It showed that violation of the housing regulations was common while law enforcement was weak.

This chapter also has presented policy and regulations that aimed to stimulate and regulate housing development. It showed that government was not able to anticipate the magnitude of housing construction and the result was an unmonitored development process.

Efforts to create harmonious new settlements – containing all income groups in one area – largely failed. A large number of low-income houses were built, separated from medium and higher income houses, and located at on urban fringes.

The quality of house construction and condition of on-plot and on-site infrastructure had been affected by weak development monitoring at the local level of government. Developers were able to conduct themselves badly for years, and the

local government was unable to solve the problems that they created. Many developers failed to comply with regulations requiring them to provide on-site infrastructure within their projects, and many failed to provide land to local government in place of the missing infrastructure.

Nevertheless, buyers kept buying houses regardless of these practices by developers. Easy access to credit encouraged buyers and heightened the demand for home ownership. Misleading housing advertisements also fuelled the demand, sometimes making prospective buyers the victims of fraudulent practices.

In Bandung and its surroundings, regulations had been violated or avoided by the creation of numerous housing projects and land subdivisions of a small-scale. This reduced the amount of on-site infrastructure from that which regulations intended should have been provided for the total population that had been housed. Local authorities seemed to have lacked the willingness to take action to combat such practices. In addition, the government's efforts to enforce regulations requiring an infrastructure contribution from developers failed.

The importance of infrastructure was unquestioned, but it seemed that its presence and quality were not among the main considerations of those who bought houses in the MRRA. Hence, it was questionable whether buyers understood that, in a formal housing market, developers might not provide good infrastructure, or whether buyers just wanted to have the houses because they were affordable. Self-help improvement of infrastructure appeared at a later stage after buying, whether or not buyers understood whether infrastructure was good or bad before purchasing. Chapter 5 will explore this point.

Chapter 5

Residential Infrastructure Improvement: The Behaviour and Decision Making of House Buyers

5.1 Introduction

This chapter presents house-buyers' behaviour when they decided to buy houses and carry out improvements of infrastructure. These buyers bought the houses directly from the developer of the MRRA and not from previous owners. As buyers of newly-built houses they have gone through the experience of selecting houses they thought were good and well located within the city of Bandung. It was expected that a buyer must have considered the condition of infrastructure as an aspect of the decision to buy. As reported in Chapter 4, however, infrastructure apparently was not the main consideration during the selection of houses. Other important considerations when buying houses in the MRRA were house price affordability and distance to work.

This chapter answers some questions concerning the beliefs and awareness of buyers concerning the condition of infrastructure. First, when did buyers recognise whether the infrastructure was adequate or inadequate? Second, when did the awareness emerge of the need for making improvements? Third, what kinds of improvements did buyers carry out? The answers to these questions provide knowledge of how buyers behaved in a housing development where service infrastructure was inadequate. Through further analysis, elements of strategies can be identified in this process of purchasing a house.

In the first part the chapter presents the initial inquiry into buyers' knowledge of the infrastructure conditions before they bought houses. This is followed with further analysis of buyers' decision-making. Variables that explain the background and behaviour of house-buyers are employed for a Mann-Whitney U-test. This test provides two-independent-samples tests (or the differences test) between two groups of buyers. The second and third parts explain buyers' awareness of the need to make improvements and the process of making decisions to carry out the improvements.

5.2 Buyers' behaviour when assessing the condition of infrastructure

5.2.1 Buyers' perceptions at two critical times

The interviews and observation had improved the understanding of the sequence model of buying and living as in Chapter 3 (section 3.1). Earlier, it was assumed that buyers followed a simple process of purchasing houses and moving in. However, the data showed that many buyers delayed moving in, creating a gap between 'after buying' and the 'time of moving in' (see section 4.5.2).¹ Hence, *the length of house ownership* could be different from *the length of residence*.

A wide time gap was suspected to be the result of a common buyer's practice in Indonesia that occurs because it is not necessary to immediately give up a current accommodation. However, data showed that 30% of the buyers used this gap to carry out renovations of their houses before moving in. Moreover, many buyers continued to occupy their current shelters after purchasing new houses: 35% continued to rent houses, whilst 44% still lived with parents (see Table 4.25). National figures for 2004 showed that 2.5 million houses were vacant, when vacant houses were defined as those left unoccupied for more than six months (Kuswartojo cited in Kompas, 2004). By this definition, the brand new houses of 49% of buyers in this study could have been classified as vacant after they were purchased, which is remarkably high (see Table A2-1 in Appendix-2).

The starting times of *house ownership* and *the length of residence* were critical to understanding buyers' recognition of infrastructure conditions (Figure 5.1). Regarding on-plot infrastructure, the critical time was the start of house ownership when buyers, after they legally owned their houses, saw for the first time the on-plot infrastructure they had received. Ownership started when buyers signed the document of purchase and received the house keys.² But for the on-site infrastructure, the critical time was the length of residence, during which buyers had their first experience of living in the area. This was when buyers learned the real nature of social and public facilities available within the neighbourhood.

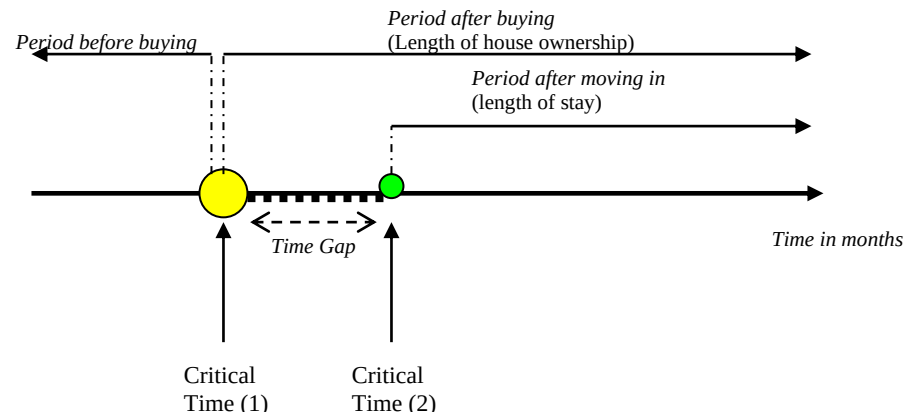
Buyers' assessments of the condition of infrastructure at the two critical times were their first impressions of infrastructure provided by developer (see Figure 5.1 and Table 5.1). At the first critical time, a narrow majority of buyers thought that the on-

¹ Mean = 23.87 months, and this is remarkably long; mode = 1 month. See also Appendix 5.

² Before purchase, buyers could visit their plots while the houses were still under construction. This was the period when buyers had the responsibility to complete the down payment for housing loan.

plot infrastructure was *adequate* or *very adequate* (55.7%), (Table 5.1). At the second critical time, most buyers thought that the on-site infrastructure was *inadequate* and *very inadequate* (55.7%). This indicates that after buyers moved in, a narrow majority of them thought that the on-site infrastructure was inadequate (Table 5.1).

Figure 5.1
The critical times during the periods before and after buying a house



Notes:

Critical Time (1) = the time when a buyer bought the house

Critical Time (2) = the time when a buyer moved into the house

 = buying time

 = moving in time

Source: author

The narrow majorities on the two assessments gave rise to a concern regarding the composition of buyers who thought that both types of infrastructure were not totally adequate or inadequate. Two implications follow. First, were there two groups of buyers, which were completely different or which came from two different groups, and not from a single group of middle-income buyers? Second, was there evidence of improvement in response to these assessments? The answers for these questions will be explained in the following sections.

The two assessments also indicate that buyers observed the condition of the on-plot infrastructure better than that of the on-site infrastructure. Finding that the on-plot was slightly (55.7%) adequate had not been an obstacle to moving in shortly after purchase, as more than 50% occupied their new houses in less than six months (Table 5.1). However, there was evidence that many buyers (30%) carried out housing renovation and on-plot infrastructure improvement that delayed their moving in.

Table 5.1
Buyers' assessments of the availability and condition of on-plot infrastructure when they had just bought their houses and of on-site infrastructure when they had just moved in

Assessment	On-plot infrastructure (when bought the houses)		On-site infrastructure (when moved in)	
	Freq.	%	Freq.	%
(1)	(2)	(3)	(4)	(5)
Very inadequate	8	4.55	7	3.98
Inadequate	70	39.77	91	51.70
Subtotal of inadequate	78	44.32	98	55.68
Adequate	96	54.55	77	43.75
Very adequate	2	1.14	1	.57
Subtotal of adequate	98	55.68	78	44.32
Total	176	100.0	176	100.0

Source: Household Survey 2002

5.2.2 Crosscheck of buyers' recognition before purchasing houses

The MRRA was one of favourite housing areas in the city, since its location was relatively close to city centre and to many amenities. The developer of the area was a big company which had owned and developed a large amount of land in Jabotabek and Bandung for houses. Raya Incorp, the creator of the MRRA, was given the award of best developer in the country in 2001 by the developers' association. Such recognition could have encouraged buyers to expect good facilities in the MRRA, although this image contrasted with the fact that no part of the MRRA had been handed over to the local government of Bandung City.

Buyers' assessments at the two critical times were crosschecked by their recognition of infrastructure conditions before they purchased the houses. It appeared that a large majority of buyers believed that they knew beforehand what infrastructure condition they would get when they purchased houses, in terms of it being adequate or inadequate. 83% of buyers confidently believed beforehand that they would receive the on-plot infrastructure which they found they had received when they purchased their houses. This showed that they had some perceptions beforehand of the condition of the on-plot infrastructure. However, some 17% of buyers were not sure what would be the condition of the on-plot infrastructure they would get.

In contrast, 68% of buyers thought they would receive the on-site infrastructure which they found existed after beginning to live in their houses. This meant that, before purchasing the houses, the majority of buyers had some perception of the condition of the on-site infrastructure. Some 32% of buyers were not sure what condition of the on-site infrastructure they would find. Only after moving in, 55.7% of all buyers thought that the on-site infrastructure was inadequate/very inadequate.

A difference test (Mann-Whitney U-test) showed that buyers who thought that *'they knew'* and *'did not know'* beforehand the on-plot condition they would find were actually different groups (Table 5.2). The ones who knew beforehand consisted of a majority of buyers who thought that the on-plot infrastructure was adequate/very adequate. The other group consisted of buyers who thought that the on-plot infrastructure was inadequate (Asymp. Sig. = .001 at .05 significance level). After purchasing the houses, - the first critical time - buyers *who thought that they knew beforehand* still believed that the on-plot was adequate/very adequate. In contrast, buyers who *had no idea of what they would get*, thought that the on-plot infrastructure was actually inadequate.

Table 5.2
Differences tests for groups of buyers who remembered to be *'knowing'* and *'not knowing'* beforehand about the condition of infrastructure at the critical time between buying and moving in

Variable	Means of Group-1 (The not-knowing group)	Means of Group-2 (The knowing-group)	Mann-Whitney U-test	Asymp. Sig. (2-tailed)	Significant level of 0.05	Ordinal Scale
(1)	(2)	(3)	(4)	(5)	(6)	(7)
On-plot infrastructure	2.17	2.60	1475.000	.001*	<	1 to 4
On-site infrastructure	2.31	2.45	2877.000	.146	>	1 to 4

Source: analysis and household survey 2002; $p=95\%$; * the Asymp.Sig. (2-tailed) is less than the significant level of 0.05, and hence H_0 is rejected (or H_1 is accepted) and the two groups of buyers are different.

By comparison, buyers *'who knew'* and *'did not know'* beforehand regarding the on-site infrastructure were not different groups (Table 5.2). Each of the two groups consisted of a majority of buyers who thought that the on-site infrastructure they would receive was inadequate (Asymp. Sig. = .146 at .05 significance level). At the second critical time, after they moved in, a majority of them still thought that the on-site infrastructure was inadequate.

5.2.3 Buyers' behaviour after purchasing houses explored in terms of groups

Throughout the period of purchase and moving in, there was persistent thinking about the two kinds of infrastructure. A slight majority of buyers consistently

believed that the on-plot infrastructure was adequate/very adequate, whilst the on-site was not. This state of mind was later countered by the evidence of their participation in self-help improvement, as seen in the last part of this chapter.

These assessments of each type of infrastructure raised suspicions that buyers might have one of two different backgrounds. They might have behaved differently when purchasing houses and carrying out improvement of infrastructure (see Section 5.3). Furthermore, a set of two different groups of buyers might have explained why they purchased houses with incomplete bundles of infrastructure components.

In line with the assessments they remembered making at the two critical times, buyers were split into two groups, each of which was further divided according to the beliefs they had regarding on-plot and on-site infrastructure adequacy (Table 5.3).

Table 5.3
The two groups of ‘aware’ and ‘unaware’ regarding on-plot and on-site infrastructure

Buyers’ Groups	Infrastructure Types	
	On-plot infrastructure	On-site infrastructure
(1)	(2)	(3)
Group-1	The ‘aware group’ who assessed the on-plot infrastructure as ‘inadequate’ or ‘very inadequate’ and who were aware of the inadequacy of the on-plot infrastructure after they bought the houses; N = 78 (44.32%)	The ‘aware group’ who assessed the on-site infrastructure as ‘inadequate’ or ‘very inadequate’ and who became aware of the inadequacy of the on-site infrastructure after they moved in; N = 98 (55.68%)
Group-2	The ‘unaware group’ who assessed the on-plot infrastructure as ‘adequate’ or ‘very adequate’ and who were not aware of the inadequacy of the on-plot infrastructure after they bought their houses; N=98 (55.68%)	The ‘unaware group’ who assessed the on-site infrastructure as ‘adequate’ or ‘very adequate’ and who were not aware of the inadequacy of the on-site infrastructure after they moved in; N = 78 (44.32%)
Total N	N = 176 (100%)	N = 176 (100%)

Source: author

Notes: the on-plot groups were created on the basis of respondents’ answers regarding the critical time after they bought houses. The on-site groups were created on the basis of respondents’ answers regarding the critical time when they had just moved in. The reversed N numbers between on-plot and on-site groups do not have any particular meanings. It is just a coincidence.

Observing that there has been evidence of self-improvement of infrastructure, this study concluded that buyers’ assessments at the two critical times represented their thoughts of what infrastructure they received. Roughly half of them after moving in still had not become aware of the real condition of the infrastructure that – in the end – compelled them to make improvements. This awareness was defined as

'something from within that triggered felt needs that made buyers think that they had to do something on the infrastructure'. For this reason, buyers were identified as two groups, those *aware* (Group-1) and those *unaware* (Group-2), (Table 5.3).

'Aware' and 'unaware' refer to the states of mind of buyers during the period when they had just bought their houses. It was assumed that when buyers answered that *the infrastructure was inadequate*, they had declared themselves to be *aware* that the condition of infrastructure was inadequate, and they later demonstrated this by engaging in the improvement of infrastructure.

Similarly, when buyers answered *that the infrastructure was adequate*, they had showed themselves to be *unaware*. This is because, although they had believed that the infrastructure they had received was adequate, they eventually engaged in improvement of the infrastructure.

5.3 Patterns of buyers' behaviour after purchasing houses

The possibility was investigated that the backgrounds of buyers could influence their assessment and behaviour regarding the improvement of the on-plot and the on-site infrastructure. Differences in buyers' backgrounds might have led to differences in their behaviour.

A number of factors shaped each buyer's background. Taking up residence at different times in twenty years of on-going construction might have given different backgrounds to buyers and different compositions to groups of buyers. The five housing types available have served different levels of affordability which contributed to variations in the composition of groups of buyers which could have affected when households became aware of the need for infrastructure improvements and if they undertook improvements.

As explained in the previous section (5.2.2) two sets of groups, each for on-plot and on-site infrastructure, characterised the buyers' views on the condition of infrastructure. First, when buyers had just bought the houses, they saw the real condition of their on-plot infrastructure. Second, when buyers had moved in and started to live in the area, they experienced the real condition of the on-site infrastructure. This section examines the pattern of buyers' behaviour as groups, following their experiences when they just bought their houses and moved in (as

explained in Table 5.3). This starts with buyers' backgrounds and continues with buyers' realisations of their needs to carry out the improvement of infrastructure.

The Mann-Whitney U-test was applied to the two sets of groups, each under the category of on-plot and on-site infrastructure (Table 5.3). Each variable used the ordinal scale that is taken from their answers or condition (see Appendix 5 for each cross tabulation of the tests). For instance, for the social-economic variable, respondents' answers were converted to ordinal data as follows: 1 (*low-income groups*), 2 (*lower-middle income groups*), and 3 (*higher-middle income groups*). Whilst for the education variable, a respondent's status was represented as: 1 (*other*), 2 (*high school*), 3 (*undergraduate*), 4 (*graduate*), and 5 (*postgraduate*).

The tests of all variables used the standard procedure, which is to employ H_0 and H_1 . H_0 = no differences exist between the two groups over their condition, and H_1 = differences exist between the two groups over their condition. The significant level for the test is set at 0.05 for the difference test in social cases. A value of *Asymp.Sig. (2-tailed)* that is less than .05 means that H_0 is rejected (or H_1 is accepted). This means that the two groups are different. A value that is higher than the significant level means that H_0 is accepted (or H_1 is rejected), and there are no differences between the two groups.

Three aspects are the focus of the investigation: the buyer's background, the revelation of awareness, and the buyer's decision to carry out improvement.

5.3.1 Buyers' backgrounds

Nine variables were selected with which to look at the background of buyers, and they served to position the buyers within the middle-income group. Buyers were asked to identify to what income group they belonged. Their replies were compared with socio-economic variables that were identified through their household income, goods ownership, and the type of house they had been able to buy. The educational backgrounds of the respondent and spouse were identified because they were believed to influence decisions about buying, living, and making improvements. House occupancy was identified in terms of the length of ownership, length of residence, and length of the time gap.

The results of the test are presented in Table 5.4 and are explained as follows. Firstly, the majority of the variables explained that Group-1 and Group-2 with respect to their assessments of on-plot infrastructure were no different; only the two variables that showed the importance of household income and goods ownership did not explain

this. The two indicate that Group-1 (the aware group) consisted of buyers with a higher household income and better goods ownership. This contrasted with buyers' own statements about their income levels which placed them all within the same income group.

Table 5.4
Differences tests for the backgrounds of buyers

Variable	Means of Group-1 (The aware group)	Means of Group-2 (The unaware group)	Mann-Whitney U-test	Asymp.Sig. (2-tailed)	Significant level of 0.05	Ordinal Scale
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. On-plot infrastructure						
Social-economic group	2.27	2.28	3625.500	.996	>	1 to 3
Household's income	2.65	2.34	2832.500	.030*	<	1 to 9
Goods ownership	3.97	3.45	3051.500	.020*	<	1 to 9
Initial house type	2.67	2.83	3587.500	.467	>	1 to 5
Respondent's education	3.12	3.13	3819.000	.993	>	1 to 5
Spouse's education	2.94	2.73	2999.500	.231	>	1 to 5
Length of after buying period	4.96	5.13	3512.000	.470	>	1 to 9
Length of residence	5.01	4.98	3736.500	.769	>	1 to 9
Length of time gap	1.65	1.85	2614.500	.735	>	1 to 9
B. On-site infrastructure						
Social-economic group	2.29	2.25	3508.000	.739	>	1 to 3
Household's income	2.58	2.36	3310.500	.558	>	1 to 9
Goods ownership	3.65	3.72	3713.000	.741	>	1 to 9
Initial house type	2.70	2.82	3638.500	.569	>	1 to 5
Respondent's education	3.12	3.13	3792.000	.925	>	1 to 5
Spouse's education	2.79	2.87	3152.500	.525	>	1 to 5
Length of after buying period	5.02	5.09	3612.500	.682	>	1 to 9
Length of residence	5.19	4.74	3366.500	.168	>	1 to 9
Length of time gap	1.60	1.94	2428.500	.233	>	1 to 9

Source: author's analysis and household survey in 2002; $p=95\%$

*These are the only variables for which the Asymp.Sig. (2-tailed) is less than the significant level of 0.05. This means that H_0 was rejected (or H_1 was accepted) and the two groups of buyers were different.

Secondly, regarding the assessment of the on-site infrastructure, all the variables show that the two groups were no different. The two groups had a similar composition of background and a similar composition of socio-economic group, and this was supported by their levels of household income and goods ownership. They also had similar levels of house cost affordability as indicated by the house types they chose. Respondents and spouses showed no difference in their educational background. There was no difference in the composition of their buying periods, in the delay of their moving in (time gap), or in the length of their residence in the area.

The evidence therefore indicated that both aware and unaware buyers, whether the on-plot or the on-site infrastructure was the concern, came from similar

populations of middle-income buyers. The household income and goods ownership variables in relation to the on-plot infrastructure which did not support this conclusion suggested that the aware group was slightly better off in their economic capability than the unaware.

Furthermore, the difference between the two groups regarding the variables of economy capability only suggested that one of the groups may have been more aware of the on-plot infrastructure condition than the other. However, this difference alone was not enough to distinguish the aware group from the other group and conclude that they were different groups of middle income people, since the other tests suggested that the two groups under the on-plot category were not different.

Hence, the results of this investigation suggest that buyers within the two groups came from similar groups of middle-income buyers. Their differences of view regarding the on-plot infrastructure mostly came from their expectation as normal buyers who saw housing as a bundle that included on-plot infrastructure. The aware group was slightly better off than the other, but they were not significantly different with respect to the type of houses they could afford. Their efforts to own houses, decisions to move in (time gap), and lengths of residence did not suggest any differences, as shown by the rest of the variables tests. However, this is the group that must have experienced an early awareness for the improvement, if the pattern of behaviour was to be consistent. Unlike them, the unaware group (Group 2) was the one that would have made the extreme transformation from believing on-plot infrastructure was adequate to finding out that improvement to that infrastructure was necessary.

In contrast, regarding on-site infrastructure, the two groups showed no differences in their backgrounds. This was consistent with the early assessment made by both that the on-site infrastructure was not adequate and the way both did not become aware of the need to make improvements until after they had moved in and experience life in their new houses and neighbourhoods.

5.3.1.1 Self-identification of house-buyers according to social-income groups

In many studies of housing, income group has been used to identify the capability of households to afford houses. Their declarations of their social-income group classification revealed that respondents in this study were middle-income

people who consciously entered into private housing market knowing the risks, including that of infrastructure provision being inadequate.

Chapter 4 has explained how respondents placed themselves within the range of low-income groups (5.8%) to higher-middle income groups (33.3%). The majority identified themselves as lower-middle income (60.8%). None of them identified themselves as high-income, which suggested that there were no high-income persons among the respondents. It seemed that when respondents felt that they were better off, they stated themselves as higher-middle income instead of high-income. When respondents felt that they were not low-income but a little bit better off they preferred stating themselves as lower-middle income.

Analysis of income group data with regard to on-plot and on-site infrastructure supports the conclusion that the two groups were not different. In the main, they were lower-middle income. However, as noted above, the indicators of household income and goods ownership in the on-plot infrastructure category were different.

5.3.1.2 Household income and goods ownerships

The difference tests for these two variables of household income and good ownership show that the two groups in the on-plot infrastructure category were different, whilst the groups in on-site infrastructure category were not different. These results contrast with buyers' self-categorisation by social-economic group. It seems that within the on-plot infrastructure category, the two groups of buyers were economically different although they belonged to similar social-income groups.

For the on-site infrastructure category, the results of the difference tests for these variables were also consistent with the buyers' self-assessment of their income groups. The two groups shared a similar composition of household incomes and goods ownership. This explained that the two groups consisted of buyers of with similar economic backgrounds, and there was no better off group as in the case of on-plot infrastructure.

5.3.1.3 Initial house types

The type of house first purchased indicated the affordability of buyers at the time of the decision to buy. The bigger the house type, the more money the buyer was willing to spend. This also suggested that the buyer had more money for doing improvements.

It was common during the marketing of houses that the larger houses were offered with good on-plot infrastructure, as well as promises of social and public facilities nearby. However, the smaller house types were offered with a minimum provision of on-plot and on-site infrastructure.

Developers commonly constructed houses of the same type in groups, avoiding mixing house of extremely different sizes. Therefore, similar house types were developed within one area or block of houses, with the social or public facilities as the element of integration. Consequently, a group T21 houses was placed near those of type T36; T36 were placed close to type T45; T45 were next to T54; and T54 was in close proximity to T70. Hence the on-site infrastructure provided served particular blocks of houses of similar sizes.

The two groups of buyers in both the categories of on-plot and on-site infrastructure showed no differences. This suggests that the range of house types in each group was similar and thus that they had no difference in their abilities afford houses. Furthermore, their experiences of realising the nature of their "housing bundles" (before renovation) must have been similar, irrespective of initial house types. This included the condition of on-plot infrastructure within the housing plot and on-site infrastructure nearby.

5.3.1.4 Education background

A buyers' educational background probably influenced the decision to buy a house, particularly by enhancing an understanding of the housing market in the city. Buyers with a high education level should have been more aware when making decisions about housing and infrastructure than the ones without. Chapter 4 reported that most buyers have a university background. The proportion of households with, either husband or wife or both having university background was 69%. Hence, it is understandable that these buyers belonged to the middle-income groups. As a matter of fact, many of urban middle-income households in the country were able to afford houses offered on private housing market.

Both difference tests regarding the two categories suggest that the two groups in each were no different. They shared a similar composition of respondents' and spouses' educational backgrounds. It is believed that the two groups must have had a similar potential to understand the situation of housing development in the country.

As the issues of infrastructure flaws were widely discussed in the national news media, buyers with good educational backgrounds should have been aware of this. Despite the publicity given those issues, it seemed as though the choice of a good location within the city of Bandung for the MRRA was enough to convince the public of the developer's capability to offer good houses to them.

5.3.1.5 The length of house ownership, length of residence, and time gap

Twenty years of MRRA development was theoretically enough time to reveal different patterns of provision and responses of buyers regarding the infrastructure provided by the developer. The tests show that there was no difference between the two buyers' groups, both in the on-plot and on-site infrastructure categories, even though they might have bought houses at different periods points within twenty years of construction. The combinations of times of purchase of the two groups were similar.

The length of residence represents the time available for engaging in the improvement of the infrastructure, particularly that which was on-site. The longer they had been living in the house, the more possibilities they would have had to engage with neighbours to carry out the improvement of infrastructure.

The differences tests show that the two groups of buyers in each category of on-plot and on-site infrastructure were not different with respect to this variable. This suggests that they had similar periods of opportunity with for assessing the condition of infrastructure and for dealing with inadequacies in it.

The time gap was the period between buying the houses and moving in. During this gap, buyers could have prepared themselves for the improvement of the houses and the on-plot infrastructure. The tests show that the two groups in each category showed no differences, and that they shared a similar composition of the time gaps they had experienced.

5.3.2 Buyers' awareness to carry out improvement of infrastructure

An awareness of the need to carry out improvements was instrumental to individuals with regard to their houses and on-plot improvement and to communities of individuals with regard to on on-site infrastructure. Discussions of housing strategies in the literature identify awareness as important because it stimulates the action of households, and they differentiate it from a motivation that is 'culturally

given' – such as a community tradition – or one called 'unconscious' (Crow, 1989; Munro and Madigan, 1998). The creation of awareness has been seen by some observers as a task that external actors must perform in order to mobilise community participation, in infrastructure improvement, for example (Dudley, 1993; Moughtin et al., 1992). This research found that awareness can arrive without the intervention of external actors.

The challenge to this study was to locate when householders actually understood the problems of infrastructure insufficiency and started to think about the steps necessary to tackle them. It was reasoned that such an action as resulted from self-awareness was not *ad hoc* in nature as in the concept of a coping strategy. This was because buyers' efforts showed an expansion and advancement of existing infrastructure conditions and the results demonstrated a long-term nature of advancement (Forrest and Kennett, 1996; Munro and Madigan, 1998). Moreover, these results were only able to be achieved through thoughtful action that was conscious, rational, coherent and long-term (Crow, 1989).

Strategy in this study has an element of time consideration, in terms of understanding the problems and how to deal with them. Action was realised in the form of early improvement of the houses and the on-plot infrastructure, following a realisation of the substandard quality of the houses and the on-plot infrastructure. In the case of the on-site infrastructure, buyers needed time in which to engage with neighbours, although they had realised early on that the infrastructure was not sufficient.

Buyers' awareness of the need for them to make improvements was different from their understanding of the quality of the houses and infrastructure. Buyers were able to identify the deficiencies, such as in the on-site infrastructure, but the awareness emerged only after having the experience of living in the area. Perhaps buyers' could have quickly identified and responded to the problems of the houses and the on-plot infrastructure because this involved decisions by individuals, opposed to those regarding on-site infrastructure, which required time to initiate and get together with neighbours.

Investigation of the arrival of awareness was important to understand how the changes in the assessment and improvement of the on-plot and on-site infrastructure could happen. Basically, changes in the assessments of house-buyers could happen only after awareness emerged. This awareness provided the drive to do the improvements. This section will explain how this transformation could have happen,

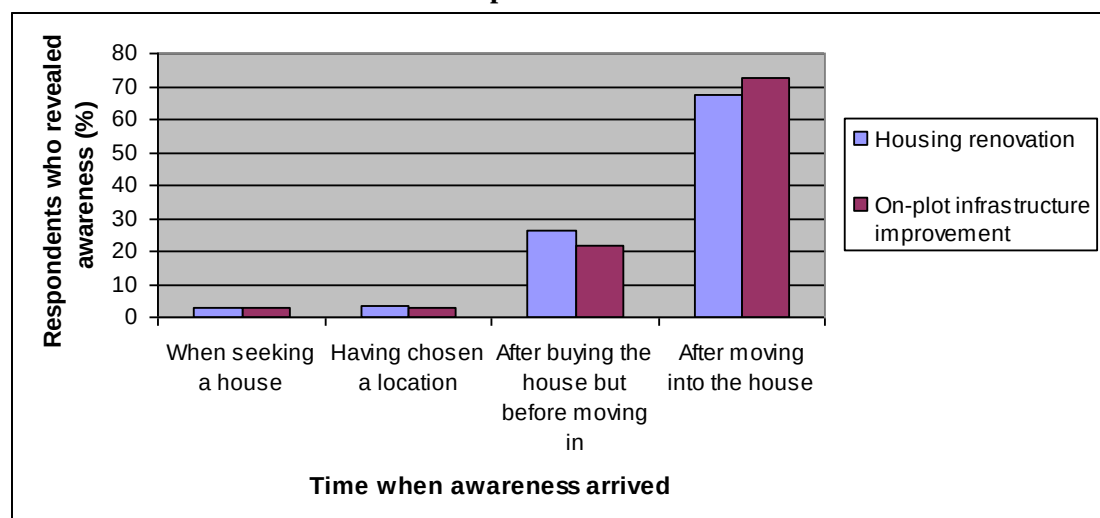
supported by the evidence of when awareness arose. As shown in Table 5.3, the two groups had opposite concerns regarding the assessment of residential infrastructure. This will be investigated on the basis of when awareness arrived.

5.3.2.1 The arrival of awareness of the need to carry out improvements to housing and on-plot infrastructure

Authors have demonstrated that householders who have done housing extensions have also paid some attention to infrastructure (for example, Tipple, 1996; Tipple, 2000). It was assumed that while carrying out the improvement of the houses, buyers must have been inclined to address the on-plot infrastructure, as the two were under their direct responsibility. Hence, buyers must have had an awareness of the need to improve the houses and infrastructure at about the same time.

The evidence showed that an awareness to improve housing came to buyers at the same time as that for the on-plot infrastructure, which was after they had moved in (67.3%). It revealed that some buyers were more aware of the need for housing improvements before they moved in (26.1%) than the need for on-plot infrastructure improvements (21.7%). This indicated that in the beginning the shelter needs were more of concern for buyers than the on-plot infrastructure. This seemed logical, as it was only after they moved in that buyers could have recognised the need to do improvements to both the house structure and the on-plot infrastructure.

Figure 5.2
Time when buyers became aware of the need to carry out improvement of their houses and on-plot infrastructure



Source: author

Table 5.5
Time when buyers became aware of the need to carry out improvement of their houses and on-plot infrastructure

When awareness arose	Housing renovation		On-plot infrastructure improvement	
	Freq.	%	Freq.	%
(1)	(2)	(3)	(4)	(5)
When seeking a house	5	3.03	5	2.86
Having chosen a location	6	3.64	5	2.86
After buying the house but before moving in	43	26.06	38	21.71
After moving into the house	111	67.27	127	72.57
Total	165	100.00	175	100.00

Source: Household Survey 2002; Notes: NA = 11 in the housing renovation; NA = 1 in the on-plot infrastructure

5.3.2.2 Becoming aware of the need to improve the on-site infrastructure

Similar to the case of houses and on-plot infrastructure, the experience of living in the area was an important element for raising awareness of the need to carry out on-site improvements. A large majority of buyers believed that the awareness for doing that arose after having experienced living in the area. This explains why the start of mutual self-help occurred after the buyers had lived in their new neighbourhood and become a new community.

Table 5.6
Time when buyers became aware of the need to improve on-site infrastructure through mutual self-help

Time of awareness	On-site infrastructure improvement	
	Freq.	%
(1)	(2)	(3)
When seeking a house	15	8.52
Having chosen a location	5	2.84
After buying the houses but before moving in	23	13.07
After moving into the house	133	75.57
Total	176	100.00

Source: Household Survey 2002

During this period, buyers experienced the inadequacy of the on-site infrastructure, defined as the social and public facilities, and decided to do something in response. For example, the lack of security led them to hire security guards and build shelters for them. The need for a solid waste management system led to various actions, such as hiring garbage truck or even buying their own garbage truck and hiring operators. This piece-by-piece improvement was done while buyers lived in an area, and it was of the nature of a gradual improvement of the social and public facilities.

5.3.2.3 Awareness of the need for improvements

Differences tests were carried out to investigate buyers' awareness of the need for improvements to the houses, the on-plot infrastructure and the on-site infrastructure. This test identified when the awareness appeared and to which group it came first. Buyers to whom awareness came earlier than the others must have had more opportunity to carry out improvements. Early arrival of this awareness, such as before purchasing houses, would have allowed buyers to formulate strategies before buying or before moving in. As many authors had identified, the element of consciousness is vital to the formation of strategies of households (Crow, 1989). In this case, the arrival of awareness was significant to identify when buyers had actually started to create their strategies for making improvements.

a. The awareness of the need to make housing improvements

Respondents reported that when renovating houses they also carried out improvement of the on-plot infrastructure. This was reasonable as the on-plot infrastructure was an immediately supportive basic need of households. Moreover, during renovation, most existing on-plot infrastructure was at risk of damage. Many buyers carrying out housing improvements had planned to improve the on-plot infrastructure as well, as a single package of improvements, such as to the water supply, the plumbing system, the bathroom, the toilet and the septic tank.

For these reasons, this investigation used the groups in on-plot infrastructure category instead of the on-site category (Table 5.3). Having groups with similar houses and on-plot improvements helped the comparison between the timing of the awareness of the need for housing improvement and that for the on-plot infrastructure improvement.

The results suggested that there were no significance differences between the two groups in terms of when the awareness arrived of the need to improve their houses. The majority of buyers in the two groups did not experience this awareness until after they had moved in (more than 60% in Group 1 and more than 70% in Group 2). However, a quite significant number of buyers became aware after they bought the houses and before they moved in (31% in Group 1 and 22% in Group 2). This suggests that the experience of living in the houses and buyers' growing needs contributed to the awareness.

Table 5.7
Differences tests for when awareness arose of the need for housing and on-plot infrastructure improvement

Variable	Means of Group-1 (The aware group)	Means of Group-2 (The unaware group)	Mann-Whitney U-test	Asymp.Sig. (2-tailed)	Significant level of 0.05	Ordinal Scale
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Housing Renovation</i>						
When awareness arose of the need for housing renovation	3.51	3.63	3070.000	.237	>	1 to 4
<i>On-plot Improvement</i>						
When awareness arose of the need to provide and improve on-plot infrastructure	3.53	3.72	3111.000	.011*	<	1 to 4
<i>On-site Improvement</i>						
When awareness arose of the need to perform mutual self-help to improve the on-site infrastructure	3.48	3.65	3531.000	.249	>	1 to 4

Source: author's analysis and household survey 2002; p=95%;

* the Asymp.Sig. (2-tailed) was less than the significant level of 0.05, and hence H_0 was rejected (or H_1 was accepted) and the two groups of buyers are different.

b. The awareness of the need for carrying out on-plot infrastructure improvement

The test results regarding the category of housing improvement differed to the results regarding on-plot infrastructure in two aspects. Firstly, the on-plot results suggested that there were significance differences between the two groups in terms of when they became aware of the need improvements themselves. Secondly, some buyers in both groups became aware of the need to improve their houses before they became aware that they needed to improve the on-plot infrastructure.

Group 1 (the aware group) became aware before Group 2 (the unaware group) of the need to improve the on-plot infrastructure. Many buyers in Group 1 became aware *after they bought their houses* (31%). In contrast, the majority of buyers in Group2 did not become aware until after they moved into their houses (81%). The high percentage in both groups (73%) to whom awareness came late shows that knowing the inadequacy was not the same as becoming aware of the need for carrying

out improvements. Earlier it was shown that a narrow majority of buyers believed that the on-plot infrastructure was adequate. Further evidence in the last part of this chapter shows that almost all buyers within the two groups eventually carried out improvements themselves of various types of on-plot infrastructure.

c. The awareness of the need for carrying out on-site infrastructure improvements

The results suggested that there were no significance differences between the two groups in terms of when they became aware that mutual self-help was needed to improve on-site infrastructure (Table 5.7). The two groups probably shared similar experiences in dealing with the inadequacy of the on-site infrastructure after living in the area, although they had opposing assessments of the condition of the on-site infrastructure when they had just moved in. Group 2 (the unaware group), who assessed the on-site infrastructure as '*adequate and very adequate*', were among the ones that became aware after they moved in (79.5%). While Group 1 (the aware group), who assessed the on-site infrastructure as '*inadequate and very inadequate*', and who could have been expected to become aware of the need for improvements before bought the houses or before they moved in, only experienced the awareness after they moved in. Although aware of the inadequacy, the majority of them did not become aware of the need to make improvements until much later. In other words, having an understanding of the inadequacy of on-site infrastructure does not mean, automatically, having an awareness of the need to carry out improvements of on-site infrastructure. Probably the experience of living in the area after moving in was the important factor that raised the awareness. A large majority of buyers in both groups experienced the awareness after they moved in (76%).

5.3.3 Discussion and summary

The data suggested that groups of aware and unaware buyers had similar backgrounds and came from similar middle-income populations. The exceptions were the variables of household income and goods ownership in relation to the on-plot infrastructure improvement which suggested that the aware group was slightly better off in their economic capability than the unaware. The difference between the two groups regarding the variable of economy capability suggested that one of the groups was more aware of the on-plot infrastructure condition than the other. However, this

difference alone was not enough to distinguish the aware group from the other group and to conclude that they were different middle-income groups, since the other tests suggested the two groups in the on-plot infrastructure category were no different. Buyers' differences when seeing the condition of the on-plot infrastructure mostly came from their expectations regarding that infrastructure.

The aware group was slightly better off than the other, but those in it were not significantly different in their abilities to afford better types of houses. Their efforts to own houses, decisions of when to move in (time gap), and their length of residence did not suggest any differences. However, this was the group to which an awareness of the need for the improvements came early. In contrast, the unaware group (Group 2) was the one that experienced an extreme transformation from believing they had adequate on-plot infrastructure to finding out that improvements to the on-plot were necessary.

Households showed a misunderstanding of the housing package that they purchased. Either they did not consider on-plot infrastructure to be part of that housing bundle, or they believed that this was part of the housing bundle, but believed that it was adequate, which apparently it was not in the end.

It appears that buyers' awareness of the needs to make improvements to their houses and infrastructure were somewhat related. There was not an awareness regarding housing improvement without the same awareness regarding the improvement of on-plot infrastructure. Struyk et al (1990) and Tipple (2000; 1996) have indicated that householders carried out improvements to on-plot infrastructure - toilet facilities and water - following the improvement of their houses. However, these authors did not reveal when households became aware of the need to make the improvement, and they did not note any correlation between the improvement of the houses and improvement of the on-plot infrastructure or the correlation of those two with the improvement of the on-site infrastructure. However, this study has obtained evidence that buyers started to formulate strategies, before they undertook to improve their houses and infrastructure.

First, it seems buyers were more aware of the need to improve the houses than the on-plot infrastructure before they moved in. This indicated that, in the beginning, the shelter needs were of more concern to buyers than the condition of the on-plot infrastructure. However, what they experienced after they moved in gave buyers an opportunity to recognise the need for improvements on both the house structure and the on-plot infrastructure.

Second, awareness of the need to carry out housing renovation came early to the two groups, starting during *the period after they bought the houses but before moved in* (Table 5.5). This was important to see relation to on-plot infrastructure. The evidence suggested that there is a significant difference between the two groups in terms of when they became aware regarding the need for improving on-plot infrastructure. It suggests that the unaware Group 2 became aware later than the aware Group 1. So, it supports the suspicion that actually buyers in general were more aware of the house condition than the on-plot infrastructure condition³. When buying a house, it seemed they had expected to obtain an appropriate condition of on-plot infrastructure.

Third, there was no difference between the two groups in the on-site infrastructure category regarding the improvement of the on-site infrastructure. Both groups recognised the inadequacy of the on-site, but apparently their awareness of the need to do something arrived later, in the period of *'after buyers moved in or lived in the area'*.

Fourth, analysis showed that when buying houses, buyers thought that they would receive adequate on-plot infrastructure, but would not receive adequate on-site infrastructure. While they were more sensitive about the condition of their houses and made improvements to them, they lacked – in general –an awareness of the need to improve on-plot and on-site infrastructure. There was an exception, however, that applied to Group-1 who had an early awareness to make improvements to housing and on-plot infrastructure at the same time.

Fifth, although they knew that the on-site infrastructure was inadequate at the time when they had just bought their houses, both groups in the on-site infrastructure category did not become aware of the need to make improvements until later. Evidently the improvement of on-site infrastructure needed agreement among neighbours. This included discussion with them of what type of infrastructure needed to be improved and how to organise the improvement. Such a process would normally require significant time in which to make strategies for implementation. Crow (1989) and Munro and Madigan, (1998) pointed out that this naturally is long-term work and not an ad hoc activity. This certainly is in accordance with common knowledge of housing strategies, and it is not just unconscious or culturally transmitted knowledge.

³ Earlier in Section 4.6.13 it was found that the condition of the on-plot and that of on-site infrastructure were not the important factors in a decision to buy a house in the study area. They were less important than factors such as *affordable housing price, distance from work places, location of the house, and accessibility to public transport*.

In fact, setting up strategies for improvement, either for the on-plot or the on-site infrastructure, required time for preparation. For example, mutual self-help action over the on-site activities required time for negotiation with neighbours to achieve agreement upon the strategies for implementation. This could include the collection of the funds and design of the plans (see Chapter 6).

Finally, this section has revealed that buyers' strategies for improvements mostly started after they had moved in. The aware group regarding the on-plot infrastructure was a minor exception in that they began to implement their strategies before they moved in. However, in general this result demonstrated that buyers started their strategies for improvements only after they found out the inadequacy of infrastructure, which was after they bought the houses and mostly after they moved in.

The results of analysis suggest that buyers had confidence that adequate infrastructure would be provided as part of the houses they bought. Strategies to make the improvements, as revealed in Chapter 6, started with the idea of having a good living environment provided by good on-plot and on-site infrastructure.

5.4 Buyer's decision-making and the results of improvement

This section provides evidence of buyers' decision-making behaviour regarding implementation of improvements to infrastructure. Their decision-making involved the transformation during the period of '*after moving in*' of those assessments made in the period of '*after buying*'. A large majority of buyers in the on-plot infrastructure category changed their perceptions, from believing that the on-plot infrastructure was '*adequate and very adequate*' to realising that they needed to do some improvements. Similarly, in the on-site infrastructure category, more buyers became aware of the need to carry out improvements of the on-site infrastructure after living in the area.

5.4.1 Transformation of the assessment and the improvements made to the on-plot infrastructure

5.4.1.1 Transformation of assessment

Changes in the assessment of the on-plot infrastructure were evident after buying. Initially the majority of buyers stated that the on-plot infrastructure was *adequate and very adequate* (55.6%), and only the minority said that it was

inadequate and very inadequate (44.3%), (Table 5.1). However, this picture was not consistent with the fact that most of the buyers carried out on-plot infrastructure improvements. The group who said that the on-plot infrastructure was *adequate and very adequate* still proceeded to carry out improvement to their on-plot infrastructure (see Tables 5.8 and 5.10. This denied their earlier assessments that they were satisfied with the on-plot infrastructure when they had just bought their houses (Table 5.1). However, nearly 3/4 of buyers claimed they did not become aware of the need to make on-site infrastructure improvements until after they had moved into their houses (Table 5.5). The evidence suggests, then, that the experience living in to the houses was an important factor in their decisions to improve the on-plot infrastructure.

The following tables compare the infrastructure provision of the developer to the improvements of the on-plot infrastructure carried out by all the house-buyers (N=176, see Table 5.8) and by each of the two groups of buyers distinguished earlier (N=78 and N=98, see Tables 5.9 and 5.10). Each table shows two things: firstly, it shows the on-plot infrastructure provided by developer on the basis of respondents' answers. Secondly, it shows the improvements carried out by respondents. The tables show that there was a general improvement to every aspect of the on-plot infrastructure. In other words most of the on-plot infrastructure was not quite ready for when homebuyers moved into their houses. Somehow, buyers had to carry out improvement to their on-plot infrastructure, although the awareness of the need to do so could come before or after moving in.

Table 5.8
Comparison between developer's provision and respondents' improvement of the on-plot infrastructure (N=176)

On-plot infrastructure	Provision by developer		Improvement by homebuyers	
	Frequency	%	Frequency	%
(1)	(2)	(3)	(4)	(5)
Hand pump	156	88.6	24*	13.6
Electric pump (jet pump/non jet pump)	15	8.5	145	82.4
Wells	0	0.0	20**	11.4
Borehole	56	31.8	63	35.8
Individual water tank	13	7.4	114	64.8
Plumbing system within the house	46	26.1	116	65.9
Septic tank	170	96.6	77	43.8
Drainage in front of the house	156	88.6	59	33.5
Sewerage behind the house	162	92.0	54	30.7
Garbage bin	102	58.0	128	72.7

Source: Household Survey 2002; Notes: the percentage refers to N = 176 respondents;

*Improvement but still using the manual means; **Improvement but through traditional means.

Table 5.9
Comparison between developer's provision and respondents' improvement of
the on-plot infrastructure - The First Group (respondents who assessed that
the on-plot infrastructure was inadequate/very inadequate, N=78)

On-plot infrastructure	Provision by developer		Improvement by homebuyers	
	Frequency	%	Frequency	%
(1)	(2)	(3)	(4)	(5)
Hand pump	67	85.9	12*	15.4
Electric pump (jet pump/non jet pump)	7	9.0	65	83.3
Wells	0	0.0	11**	14.1
Borehole	24	30.8	31	39.7
Individual water tank	3	3.8	51	65.4
Plumbing system within the house	15	19.2	55	70.5
Septic tank	76	97.4	41	52.6
Drainage in front of the house	70	89.7	31	39.7
Sewerage behind the house	73	93.6	26	33.3
Garbage bin	43	55.1	61	78.2

Source: Household Survey 2002; Notes: the percentage refers to N = 78 respondents;
 *Improvement but still using the manual means; **Improvement but through traditional means.

Table 5.10
Comparison between developer's provision and respondents' improvements to
the on-plot infrastructure - The Second Group (respondents who assessed that
the on-plot infrastructure was adequate/very adequate, N=98)

On-plot infrastructure	Provision by developer		Improvement by homebuyers	
	Frequency	%	Frequency	%
(1)	(2)	(3)	(4)	(5)
Hand pump	89	90.8	12*	12.2
Electric pump (jet pump/non jet pump)	8	8.2	80	81.6
Wells	0	0.0	9**	9.2
Borehole	32	32.7	32	32.7
Individual water tank	10	10.2	63	64.3
Plumbing system within the house	31	31.6	61	62.2
Septic tank	94	95.9	36	36.7
Drainage in front of the house	86	87.8	28	28.6
Sewerage behind the house	89	90.8	28	28.6
Garbage bin	59	60.2	67	68.4

Source: Household Survey 2002; Notes: the percentage refers to N = 98 respondents;
 *Improvement but still using the manual means; **Improvement but through traditional means.

5.4.1.2 The results of the on-plot infrastructure improvement

The developer provided basic on-plot infrastructure facilities, which were not networked and therefore cheaper to provide than networked ones, i.e. a water supply and a septic tank. However, this study identified other on-plot facilities that buyers commonly cared about, e.g. garbage bins, drainage and sewerage. The installation of

non-networked facilities was not an exception since many builders of other housing areas in the country chose similar alternatives, and it was believed that this might make houses more affordable.

To buyers in the MRRA, this choice of non-networked facilities affected their position as users. A large number of buyers improved the infrastructure to support their daily activities (Tables 5.8, 5.9, and 5.10), suggesting that the infrastructure provided was insufficient and improvement was necessary. This also was a sign that buyers were not satisfied with the developer's provision, although they did not expect developers to make any improvements. Their efforts of improvement covered many aspects of on-plot infrastructure, e.g. water supply installation, sanitation, drainage-sewerage, and part of solid waste disposal.

a. Water supply system

The water supply installed by the developer was in two forms. The developer normally provided hand pumps and only provided electric pumps for certain types of houses. However, neither system could guarantee a good quality of water, even for cooking or domestic use. The hand pump or electric pump was without any plumbing system or water storage. Even worse, the depth of boreholes which were commonly set up between four and eight meters was not enough to draw good quality water. This situation triggered need for further improvement by house-buyers.

An electric pump was one of the most important improvements made by buyers, either by upgrading to electric jet pump or to ordinary electric pump. The first one could pump water from 30 meters depth in order to have better quality water. The second pump could only draw from a shallow groundwater table with less quality. Actually neither was suitable for drinking due to the high contamination of iron and manganese, even after they have been boiled. Such water is suitable only for domestic use other than drinking and cooking. Around the city, such a water quality was commonly found within housing area located on land that previously was used for agricultural uses.

In the mid 1990s buyers must have spent around 2.5 to 3.5 million IDR to install new boreholes and electric jet pumps. This included labour costs, pumps of medium quality, and other components and materials. This cost was high compared to

the down payment on houses, which was 5 million IDR out of the total house expenditure of 32 million IDR for houses T36/90.⁴

The poor water quality compelled the new homebuyers to purchase water for drinking and cooking from petty water vendors or as bottled mineral water from local shops. These alternative sources of daily water required extra costs in the long run. A household survey (1996) conducted in formal housing area in eastern part of the city of Bandung found that 94% of the low-income group and 29% of middle-income group acquired water from water vendors. It revealed that amount spent for water from vendors was higher than from PDAM. Households had to pay between 12,500 and 20,000 IDR/m³, while PDAM's water cost only 1,000 to 1,200 IDR/m³ (Maryati and Sutriadi, ca2001).

Homebuyers usually installed a system of individual water supply. It consisted of an electric jet-pump or non jet-pump, a water tank, a plumbing system within the house, an additional source of electrical power, and a deeper borehole. These kinds of works needed extra efforts and cost, and normally were carried out while the owners were renovating their houses. However, some households did the improvements in traditional ways by digging wells (11.3%) or keeping the old hand pumps (13.6%). By digging wells and improving the inside wall of the wells with concrete, they stored water in the wells and sought to have clean water through a filtering mechanism. The water was filtered through porous soils at the bottom of the well.

However, excessive use of ground water in Bandung and surroundings for domestic use (not to mention industrial activities) had damaged the groundwater table, which was dropping between six to seven meters every year. Formal housing areas were increasing the number of new boreholes (of electric jet-pump) by between twenty to forty units annually, and this resulted in a water crisis in 22 districts (*Kecamatan*) in the city of Bandung. The PDAM could supply only 50% of the city population, and the other half got their water from the groundwater table (Republika, 2003).

Some house-buyers installed water filters to increase the clarity of water, expecting to have better quality of water. However, this technique did not guarantee to attain a desirable quality of water for drinking/cooking purposes. The technique aimed for the use of water for washing, bathing, and cleaning the dishes (kitchen use). In

⁴ The US dollar exchange rate in 1995 was around 2,000 to 2,500 IDR for 1 USD. After the crisis in 1998 the exchange rate was around 10,000 to 12,000 IDR. In the 2000 the exchange rate was stable at around 10,000 IDR.



Figure 5.3 Purchase of clean water from petty water vendor for cooking purposes. The water from the improved water supply installation was commonly not sufficient for cooking and drinking purposes. Many, then, purchased mineral water from local shops, while they used groundwater for other domestic purposes. *Source: field survey 2002.*



Figures 5.4, 5.5, 5.6, and 5.7 A typical of water installation made by individual households. Residents installed new boreholes or wells, electric jet pumps, elevated water tanks, and plumbing systems for water circulation inside the houses. As the quality of groundwater was not good, they purchased mineral water for drinking purposes. *Source: field survey 2002.*

general this water filter consisted of a layer of certain materials that could reduce the red-brown colour of water, but did not guarantee to reduce the metal contents such as Mg or Fe. Increasing the clarity of water reduced the red-brown colour that could stain surfaces of the kitchen, bathroom, toilets, and even clothes. The water filters installed varied from self-made to locally made ones that were available from a local vendor.

b. Sanitation: the septic tank

A septic tank was one of on-plot infrastructure elements that were most often improved by homebuyers. It was the kind of facility that would create a bad environment if not managed well and would possibly contaminate soil and water (Canter and Knox, 1986; Qadeer, 2004). However, poor quality improvement of a septic tank called for frequent hiring of sanitation services to draw the sludge. In many cases, sludge had to be removed out of septic tank twice a year, which was too often and placed additional costs on homeowners. It was questionable that the groundwater was safe from contamination of septic tanks. Frequently, the distance between the point of boreholes and septic tank was less than 10 meters, the minimum distance permitted in Indonesian. Not surprisingly, the densely populated MRRA area could not achieve that requirement since many house plots were too close for the groundwater supply and septic tank to be separated by that distance. Qadeer (2004) and Canter and Knox (1986) suggested that a high density area requires communal sanitation network facilities (not individual septic tanks) to avoid land pollution, as a septic tank is only useful at the lower end of the range of residential densities. For up to 15 houses per km² in North America and up to a density of one dwelling unit per acre in Canada the use of individual septic tank is permitted (Qadeer, 2004).

The developer of the MRRA placed the septic tank in the front yard for all types of houses; probably this is to make it easy for maintenance. Commonly the septic tank consisted of one simple chamber of about one-meter in diameter and one meter in depth. A septic tank should have two chambers. The first chamber normally has two rooms for water and sludge storage, and the second one – consisting of loose solid material – functions as a filter before the wastewater escapes into the ground.

Many respondents found out that their septic tanks were without filtering chambers. The lack of the second chamber had been suspected as the source of problem to many houses, e.g. septic tank overflow or leaks that caused bad odours and sludge on the surface of the ground. Similarly, if the second chamber did exist, many buyers also found out that the connection between the two chambers was broken,

allowing wastewater to escape. Both cases needed improvements to fix the technical faults and regular septic tank services. This was the reason that many buyers had improved the septic tank construction before they moved in, or carried it out after they had moved in if they have not done it beforehand.

c. Drainage and Sewerage

Buyers' found that the developer had poorly constructed the drainage-sewerage, as had been done with the septic tank. Residents had carried out regular maintenance of drainage-sewerage ditches to reduce sedimentation and weeds and to avoid flooding during the rainy season. However, the runoff coming from outside the MRRA contributed to the problem of flooding as well. Hence, individual maintenance seemed not enough and in need of wider participation from neighbours.



Figures 5.8, 5.9, and 5.10. A typical combination of drainage-sewerage. It was common that rain/grey water could not flow freely because of high sedimentation, weeds, and even garbage blocking the ditch. Households arranged regular collective work either by contributing labour or hiring somebody else to make the drainage-sewerage function. The position of the ditch behind the two rows of houses prevented it from spreading bad odour to the front sides of the houses. *Source: field survey 2002.*

Drainage and sewerage joined in a single network using an open ditch. The difference between them was the position of the ditch; that for drainage was located in the front of house plots and that for sewerage was at the rear. A wastewater treatment plant was not available in the area and the sewerage system did not connect to the city sewerage treatment plant. This situation was common in many newly-built housing areas in the country.⁵

⁵ The absence of a wastewater treatment plant had happened in many other newly-built housing areas in the country, and this was regardless of the specific target group. An exception was the new satellite city of LIPPO Karawaci, Tangerang, Jabotabek, which was built with an integrated sewerage system that



Figure 5.11 Collective collection of solid waste disposal. Each group of households (an RT or RW) collected the fees to hire a local collector for 300,000 IDR monthly. The collection took place one time in a week. Other groups of residents bought their own trucks and hired the operators. *Source: field survey 2002.*



Figures 5.12 and 5.13 Example of garbage bins. Residents improved garbage bins and drainage construction (which was located under the bins) individually while carrying out housing improvements or collectively with neighbours. *Source: field survey 2002.*

included a wastewater treatment plant to serve new houses as an integrated sewerage system. However, such a system was expensive, and if the cost was passed on to the purchasers, that might have eliminated a large number of potential buyers.

The rear sewerage ditch was the destination of ‘grey water’ or sullage from domestic use, such as cooking, washing, cleaning, and bathing. Locating it at the back of the plot minimized the bad odours in and in front of the house. The sullage flowed into the sewerage ditch and mixed with rainwater from the drainage ditch and flowed untreated into public water bodies, which were part of the city drainage system. However, before it flowed to a city drainage system, the mixed water ran through an existing irrigation ditch inside and surrounding the MRRA. The existing irrigation network was an advantage to the area, although the use of it for disposing of wastewater was not in keeping with its use for providing water to paddy fields nearby. The remaining pockets of paddy fields inside and surrounding the MRRA led to conflicts between farmers and the developer over the use of the ditch. The farmers complained about unhygienic polluted water reaching their paddy fields.

d. Solid waste facility: garbage storage

Many homebuyers found that their garbage bin was already broken when they moved in and this compelled them to rebuild it or to obtain a new one. Many responded by building it individually without consulting neighbours, and many other considered doing it collectively with neighbours. In the latter case, uniform bins were chosen for some groups of houses for the good appearance they gave to the area, as was done with collective improvement of street lighting.

This improvement of bins related to a wider system of solid waste collection. In the next stage, explained later, many groups of houses set up a collective collection of solid waste as part of their improvement of on-site infrastructure.

5.4.2 Transformation of the assessment and the improvements made to on-site infrastructure

5.4.2.1 Transformation of assessment

Homebuyers revised their assessments of on-site infrastructure after buying their houses and living in the MRRA. This resulted in improvements to service infrastructure in the area. Three periods were identified, which were *before purchase*, *when buyers had just moved in*, and the *current condition* at the time of this research.

Before purchase, a slight majority of buyers thought that the on-site infrastructure was inadequate (59.6%). This view seemed to come from their

understanding that there was discrepancy between what the developer offered in the advertisement and what was available in the MRRA. Notably, it was contrary to their thoughts on the condition of the on-plot infrastructure, for a slight majority of buyers believed that the on-plot infrastructure was adequate. Buyers were educated and middle-income, and they purchased houses on the basis of information they received.

When buyers had just moved in, they still thought that the on-site infrastructure condition was inadequate (55.7%). There was a slight decrease from the previous period that showed that a few buyers might have changed their mind after seeing and experiencing living in MRRA. It seemed that these few buyers thought that the condition of the on-site infrastructure was not so bad as they judged before. However, this number was insignificant and did not change the total buyers' assessment that, in general, the on-site infrastructure was still unsatisfactory.

This second period was when buyers started to learn about living in the area. At this point buyers had a little chance to start mutual self-help, since many residents were newcomers. However, this was the period when buyers developed their awareness of the need for improving on-site infrastructure.

In the next period buyers showed total satisfaction with the condition of on-site infrastructure. Between moving in and the survey conducted for this research, buyers had implemented various kinds of social and public facilities improvement one after another. The improvements had amplified buyers' satisfaction such that the on-site infrastructure condition was then considered adequate (81.3%), (Table 5.11 and Figure 5.14).

In addition, many buyers had been warned to prepare for additional top up costs when they purchased houses in a newly-built housing area. But, this was only the case when they chose to do improvements or renovations to their newly-built houses and the on-plot infrastructure.

This history of buyers' changing their assessments adds another dimension to knowledge gained from studies of residents' participation in facilities improvement that did not consider the past experiences of residents with the facilities they had been provided (notably, Rukwaro and Olima, 2003; Permata and Bonar, 1999). Besides, this transformation and improvement also showed the capacity of buyers to perform both individual and collective improvement efforts. Many studies have found that householders' focused less on their surrounding neighbours and more on individual efforts, i.e. on meeting the basic needs for space and a supportive environment for

family, such as through a housing extension and the installation of new toilets (notably, Kardash, 1999; Tipple, 1996; Tipple, 2000).

Figure 5.14
Transformation of buyers' assessment of on-site infrastructure conditions

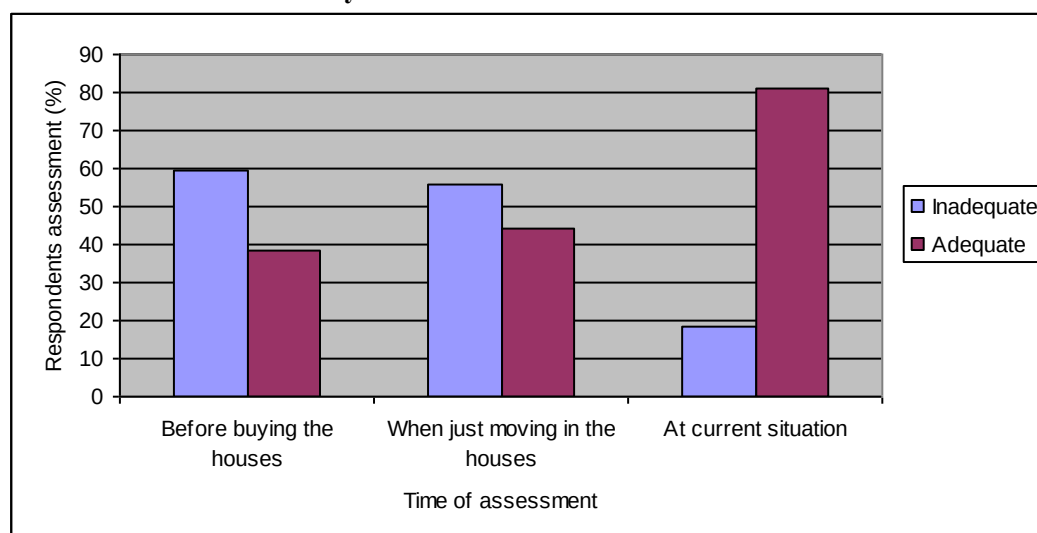


Table 5.11
Transformation of buyers' assessment on on-site infrastructure condition

Time of assessment	Grouping of assessments				Total	
	Inadequate		Adequate			
	Freq.	%	Freq.	%	Freq.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Before buying the houses	105	59.6	68	38.6	173	98.2
When just moving in the houses	98	55.7	78	44.3	176	100.0
At current situation	32	18.2	143	81.3	175*	99.5

Notes: (a) *inadequate* is the total of the answers of 'very inadequate' and 'inadequate'; and *adequate* is the total of answers of 'adequate' and 'very adequate'; (b)*the row does not come up to 100% (N=176) and this is identified, in the SPSS, as 'system missing' because one respondent answered 'others'. However, this does not disturb the whole set of data.

5.4.2.2 The improvements made to the on-site infrastructure

Buyers demonstrated that they were capable, regardless of the length of their residence in the MRRA, of carrying out improvements to on-site infrastructure and of using mutual self-help to do this. Respondents recalled their experiences of improvement regarding each type of facility and noted that each effort differed from the others. New facilities were provided, and existing facilities were maintained and rehabilitated.

Four categories of social and public facilities were identified. Each represented the character of the improvement made, such as a desire to resurface a tarmac road with concrete or to buy a mini truck for collecting solid waste rather than hire a truck.

Table 5.12
Buyers' engagement with provision, rehabilitation, and maintenance of
social facilities through mutual self-help

Type of Social Facility	Provision		Rehabilitation		Maintenance	
	Freq.	%	Freq.	%	Freq.	%
Leisure and Sport Facility:						
Garden	44	25.0	30	17.0	61	34.7
Playground	26	14.8	13	7.4	23	13.1
Volley ball field	92	52.3	51	29.0	61	34.7
Basket ball field	10	5.7	7	4.0	12	6.8
Badminton field	39	22.2	13	7.4	25	14.2
Security Facility:						
Security building	100	56.8	43	24.4	65	36.9
Hiring security guards	52	29.5	6	3.4	32	18.2
Telephone installation for security building	5	2.8	-	-	2	1.1
Radio communication for security guards	5	2.8	2	1.1	3	1.7
Religious facility:						
Mosque	119	67.6	64	36.4	87	49.4
Musholla (small mosque)	27	15.3	15	8.5	21	11.9
Kindergarten for Koran teaching	77	43.8	33	18.8	47	26.7
Communal Facility:						
Multipurpose building	114	64.8	42	23.9	56	31.8
Buying land for social facilities	9	5.1	1	.6	3	1.7
Ambulance and services for the dead	2	1.1	2	1.1	2	1.1

Source: Household Survey 2002; Notes: the percentage is to N=176

Table 5.13
Buyers' engagement with provision, rehabilitation, and maintenance of
public facilities through mutual self-help

Type of Public Facilities	Provision		Rehabilitation		Maintenance	
	Freq.	%	Freq.	%	Freq.	%
Solid Waste Facility:						
Garbage pail in front of each house	120	68.2	69	39.2	68	38.6
Garbage cart	19	10.8	9	5.1	20	11.4
Hiring garbage truck	97	55.1	11	6.3	58	33.0
Buying garbage truck	6	3.4	5	2.8	8	4.5
Drainage and Sewerage Facility:						
Drain/sewer dredging	69	39.2	54	30.7	99	56.3
Drain/sewer rehabilitation	48	27.3	78	44.3	77	43.8
Flood dike/embankment	12	6.8	6	3.4	9	5.1
Road Facility:						
Road improvement with con block (paving block)	25	14.2	19	10.8	12	6.8
Road improvement with asphalt	78	44.3	65	36.9	40	22.7
Road improvement with cement	34	19.3	29	16.5	22	12.5
Street name direction/indicator board	37	21.0	14	8.0	20	11.4
Street portal installation	84	47.7	35	19.9	43	24.4
Bridge installation	11	6.3	6	3.4	10	5.7
Street Lighting Facility:						
Street lamp installation of city street standard	51	29.0	16	9.1	26	14.8
Lamppost installation on each house plot	116	65.9	39	22.2	52	29.5

Source: Household Survey 2002; Notes: the percentage is to N=176

Homeowners even set up insurance-like services and purchased an ambulance to help transport the sick and the dead. The provisions most frequently taken up (more than 40%) were associated with street lighting, roads, and religious, communal, security,

leisure-sport, education, and solid waste facilities. This engagement slightly decreased when it came to maintenance or rehabilitation (Tables 5.12 and 5.13).

Certainly, not all of those might be thought to be the responsibility of the developer to provide, such as the ambulance services. However, altogether they showed that buyers had done a great deal to improve the service infrastructure.

In Chapter 4, the mechanism of handing over a newly-built housing area to local government was indicated, noting that a large number of new housing areas failed to be transferred to local government due to the insufficient provision of on-site infrastructure. The MRRA had this experience. Until the day of the fieldwork in 2002 – which was after twenty years of development – none of the built sections of the MRRA had been handed over. Negotiations between the developer and the local government were deadlocked.⁶

This failure of the transfer had created a vacuum of responsibility that affected the management of the MRRA. The local government refused to take over the responsibility for the maintenance of the area,⁷ whereas the developer wanted to avoid the continuous expense of maintaining the infrastructure in the MRRA. Homeowners felt that the developer had let them down, so they thought that it was their '*fate*' to fulfil their infrastructure needs for themselves.

A. The character of social facilities improvements

a. Education facilities

A playgroup and kindergarten were set up by residents as a continuation of the construction of a mosque. This provision of playgroup and private kindergarten rarely happened, as many groups of residents stopped when a mosque was built and a kindergarten for Koran teaching was established. However, a few were able to organise beyond that, such as by expanding the mosque building when land was available to accommodate an education facility that operated like a private school. One of these, the *Al Muhajirrin* mosque, developed many facilities, i.e. a mosque, a two-

⁶ The developer's strategy was to hand over the area in sections according to stages of construction. However, this did not work, even in the area of the highest income group in the northern side, which was the best planned part.

⁷ Interviews with local government agencies revealed that the difficulties of the handing over of the MRRA reflected some problems within the development process. Two examples were provided. First, in the southern part, houses were built on some plots dedicated for on-site infrastructure. Second, there were discrepancies between plans for facilities and actual development, such as measurements of facilities that were not as in the approved plan.

storied school building for a kindergarten and playgroup, a telecommunication shop, a community playground and a sport facilities in the yard. Like some other facilities in the MRRA, because of the lack of designated site, the facility 'squatted' on land marked on the plan for public open space.



Figure 5.15 A typical tiny park. The developer usually provided tiny open spaces and called them 'parks'. The residents next to the park maintained their condition, including growing some plants or grass. It was common that residents used the limited open space available for public purposes such as a security building (in the background, the building with a public phone attached). *Source: field survey 2002.*

b. Leisure and sport facilities

The developer had provided limited sport facilities and little gardens at certain locations. However, frequent self-provision of these facilities by buyers showed that the developer's provision was unsatisfactory, and this was related to the distribution and type of facilities. Many respondents felt that the proportion of facilities for each building block was not sufficient.

The developer provided two types of gardens, *first*, a planned garden of a good size suitable for a playground or other facilities, and *second*, a small plot, located between building blocks that could not accommodate a playground or sport facilities. Apparently, the first types were not distributed evenly about the MRRA.

However, buyers had made persistent efforts to create facilities nearby when land was available, irrespective of size and legality. Buyers transformed many gardens and open spaces into playgrounds and sports facilities as well as other social facilities,

e.g. a multipurpose building, a security building, a mosque, or a mixed use sports centre. In some cases when land was not available, buyers used road space nearby for sports activities during weekends, e.g. a badminton court, Sunday morning mass aerobic exercises, and other physical exercises.

c. Security facilities

Many communities set up security facilities to avoid burglary. The MRRA was famous for its vulnerability to burglary, particularly during working hours, that is, when all residents are at work and children are at school. Buyers built security buildings and hired security guards in their neighbourhoods. Each security facility served its locality without any coordination between groups of communities and the police.



Figure 5.16 Another example of a tiny park. Areas under the high-voltage overhead transmission lines (HVOTLs) were considered as a park land that was provided by the developer. Houses next to this park were sold at higher prices. Residents collectively maintained the beauty and order of the park by hiring someone to do it, as seen. However, the road in the picture had been damaged and left without improvement. In another neighbourhood such a park might have been taken over as a site for an improvement project. *Source: field survey 2002.*

Some security guards, called *satpam*, were equipped with bicycles, telephone landlines, and radio. They were uniformed and they were present twenty-four hours in a day. *Satpam* also controlled any gate to a neighbourhood, particularly from midnight to morning, and monitored cars for those without the stickers issued by community. In some cases, buyers deposited with the *satpam* the keys to the gates of their houses



Figure 5.17 An example of a combined volley-basketball court. Residents set up this facility using mutual self-help. However, maintenance apparently stopped, for the basketball board was broken and the road in the foreground was left damaged. The land was initially a vacant site that was given to the project by the developer. *Source: field survey 2002.*



Figure 5.18 Another example of combined volley-basketball court resulting from mutual self-help provision. The surrounding area lacked shade trees which made the area inappropriate for a children's playground. The land was initially a vacant site that was granted by the developer to the project. *Source: field survey 2002.*

when going out of town, in order that the satpam could control the house lights to avoid burglary.⁸ In other cases, employers sent satpams for training from the local police department to improve their performance and paid for their training.

Residents managed the hiring of security guards in various ways, such as by contributions of monthly fees or a nightly contribution of a spoonful of rice. However, not all neighbourhoods were able to hire *satpam*; instead they hired a *petugas ronda* or *hansip* as a security guard during night shift only. In some neighbourhoods, household members shared in guarding neighbourhoods during the night shift with *hansip*.

d. Religious facilities

A mosque was commonly built by buyers and found in every RW and some RTs. The developer actually had provided some mosques, but it seemed that buyers thought many were still needed. Hence, mosques of various sizes were developed in many places within the MRRA.

The lack of free land was not a constraint for the development. It happened many times that residents would negotiate with the developer to have permission for land use change, such as for little open spaces nearby. The developer not only granted permission for land use change but even granted house plots for mosque buildings. It was also found that residents employed vacant houses for mosque uses by permission of the owners. Within the mosques residents set up a kindergarten aiming for Koran teaching for the little ones that operated in the late afternoon after public school time was over.

e. Communal facilities

The most common communal facility was a multipurpose building that was considered as highly important. Due to the limited availability of free land, this building, usually of medium size of about 30m² to 40m², was constructed on a designated open space, small vacant plot, or even space found at the end of a dead-end road. It was reported that some residents bought land for a mosque. Certainly this small size facility could not contain all the residents of a neighbourhood, but it was essential for holding community meetings and some other activities. Such a building was to serve residents of an RW (community unit); it was supported by donations

⁸ Leaving the light on during the night and off during the day was a method to prevent a burglar from identifying a house as vacant.



Figure 5.19 A security building and a combined volley-basket ball court in the background. The developer granted this plot after a long negotiation process. The security building was equipped with its own electricity meter, telephone line, and a TV unit. This area had been used as a children's playground as well. *Source: field survey 2002.*



Figure 5.20 Another security building and a combined volley-basketball court. Residents commonly used vacant plots in their neighbourhood for building need facilities. This security building was equipped with its own electricity meter. The sports ground was used as a children's playground as well. In the background are a system of water filtration (the small tank) and water storage (the big tank) installed by a household. *Source: field survey 2002.*



Figure 5.21 An example of a mosque and kindergarten that were provided by a community. The plot was a public open space located under high-voltage overhead transmission lines. The need for a religious building compelled the residents to occupy a restricted area. In the beginning the community developed the mosque and set up a mosque organisation. In the end, they were able to erect a two storied building for a kindergarten and a combined playground-sports field next to the mosque. *Source: field survey 2002.*



Figure 5.22 An example of a multipurpose building development. After more than fifteen years the community group (an RW) decided to construct this building. The lack of free land for a plot compelled them to erect the building on an area that was previously a tiny park. *Source: field survey 2002.*

from residents and it sometimes received financial support from the local government.

Another communal facility created, although not common, was an ambulance service for transporting the sick and the dead, and this found in one RW. The RW bought a new car and converted the car into an ambulance. RW members paid small monthly fees to support an insurance-like system; for instance, when members needed the service no additional cost would be paid, and the service would transport the body to the place as required, such as out of town.

B. The character of public facilities improvements

a. Solid waste disposal

Mutual self-help efforts regarding solid waste disposal included the provision of a garbage pail in front of each house, garbage carts, hired or purchased garbage trucks, and hired operators for the trucks. House-buyers arranged all the systems of solid waste management within the neighbourhood (an RT or RW). Some solid waste management projects had their origins in beautification efforts. Some neighbourhoods preferred to have a uniform garbage bin, resulting in the selection of a uniform model and colour. Many preferred to hire a garbage truck from a local private sector service that collected the garbage once in a week. This cost around 250,000 to 300,000 IDR monthly. Some neighbourhoods preferred to buy their own garbage trucks and hire the operators. All of these systems collected directly from the houses and took the garbage to the end dumping location (the sanitary land fill), without using an intermediate collection point.

Respondents had to pay monthly fees to the community for garbage disposal. This cost around 5000 IDR to 10,000 IDR depending on the number of community members bearing the expenses. Residents still had to pay a monthly garbage bill from the local government, between 1,500 IDR to 2,500 IDR depending on the wattage of the electricity bill at home. This bill was considered to be payment for government services of garbage disposal, probably at the end-dumping site. However, there was no direct collection operated by the local government.

b. Drainage systems

The drainage system is usually located at the two sides of the road system. The developer built the drainage system, but many parts of it were damaged because of poor construction. The drainage system was also vulnerable to a high level of

sedimentation, and it served as a fertile place for weeds. Buyers engaged in various improvements to the drainage system so that it worked better.

During the existence of MRRA, damage was done to the drainage system by heavy trucks bringing materials for house construction. This could have been for residents who are doing house improvements or by the developer who was undertaking new housing development in a neighbouring area. So it was usual that house buyers had to repair the drainage in their surrounding areas.

The location of the case study, which was in the Southeast of Bandung, was prone to floods, as shown on the city's drainage map. The map shows that the city's drainage flows to the southeast. Although the case study area was not vulnerable to floods, in years recent to the survey flooding was common, particularly on the roads. The water could rise to 20 cm to 30 cm. The worst case was in February 2002, during the fieldwork, when on a day of heavy rain, some parts of the MRRA were under 50 cm of water.

The increasing frequency of flooding could not only have been the result of local problems, but it could be the impact of the neighbouring areas as well, when their additions to flows downstream cause a back-up in the MRRA. The fact is that the case study area, as in many other new formal housing areas, did not have a good proportion of built-up to non-built up areas. It was common that in many newly built housing projects the non-built up area was not the concern of developers, and small proportion of non-built up area would result in high water runoff during rainy season. What house-buyers could do to prevent this situation was limited, i.e. weeding, removal of sedimentation, and repairing the drainage systems. Beyond those actions they could not do more.

Buyers could also have contributed to the increasing incidences of flooding through their activities of housing extension. Houses were extended for many purposes, including terraces, garages, septic tanks, boreholes and other constructions that placed solid covers on the ground. Normally, the space left open in a housing plot according to the original layout plan was around six to twelve square meters. Many of the housing renovations left only little spaces at the fronts of the houses which were permeable. In many cases, the housing renovation and the on-plot improvements took up all the open space. Housing extensions in the MRRA had reduced the amount of permeable open spaces just as has been reported for extensions in low-income housing areas (see for example Tipple, 2000). This had potentially increased the runoff and the incidence of flooding.

c. Road improvements

Road improvement was the most common collective work carried out by buyers. The improvement was from a tarmac surface of poor or damaged quality to concrete block (paving block), asphalt, or concrete. As the results of the improvement lasted only for some years, residents repeated the work when required. This demonstrated that road improvement was not a one-off activity, and it showed that mutual self-help could be sustained.

Buyers used methods to protect the newly-refurbished road by installing a portal to prevent heavy vehicles from passing through their areas. Sometimes the developer nevertheless used a road for transporting materials for building new houses in a neighbouring area, or residents did the same thing when they renovated their houses. Certainly this caused early road damage. The portal was also useful for security purposes, as noted earlier. Portal installation was also a sign of collective action distinct from that of a neighbouring area. It was common to place portals where the road the improvement started or ended. Beyond this edge, neighbours were not involved in mutual self-help work on road improvement.

Other important feature was the installation of street name signs to identify the newly-upgraded roads. Residents and outsiders recognised house addresses by the name of building blocks instead of a street name, whilst the street name was unobserved. Many streets, even, did not have a street name sign, and residents printed the name of their building block – initially used by the developer to identify development stages – on walls or any landmark nearby.

d. Street lighting installation

Street lighting was an important facility for public safety, which supported mobility and neighbourhood security. The residents installed two kinds of street lighting, the small one – a lamppost – that was attached to housing plots, and the city standard. Many of these low wattage ones were installed as a result of mutual self-help, for which residents collected funds to have uniform lamppost in every house plot. Each household paid around 20,000 to 30,000 IDR per unit and this was



Figure 5.23 The northern gate of the MRRA. This connected to the main regional road, the Soekarno-Hatta Road, and it was the main access to the neighbouring areas. The MRRA had physical borders that created an environment like a gated community. *Source: field survey 2002.*



Figure 5.24 The absence of collective road improvements at the northern gate of the MRRA. The road quality was so poor because of the absence of a proper drainage system. Rainwater and traffic had contributed to the severe damage of the road construction. Residents seemed more concerned about the improvement of infrastructure in their neighbourhood that was needed more immediately. *Source: field survey 2002.*



Figure 5.25 An example of road improvement by the residents. Residents preferred paving-blocks to tarmac for the improvement. A portal fence was installed to prevent heavy vehicles from entering, and this was also used as a security barrier during the night, as robbery was common in the MRRA. Source: *field survey 2002*.



Figure 5.26 Another example of collective road improvement. Residents of this neighbourhood preferred tarmac to other materials and portal fences were installed for security reasons. A distinctive mark under the portal fence (at the edge of the tarmac), which is a hump, distinguished the start of the neighbouring community that was not involved during the mutual self-help action. Source: *field survey 2002*.



Figures 5.27 and 5.28 The absence of collective road improvement. When this happened, households improved the road in front of their houses individually. The main purpose was for sheltering their cars while they were out of the garages. *Source: field survey 2002.*



Figure 5.29 Road improvements. The community in this neighbourhood had recently finished its road improvements and used tarmac (in the background). However, it neglected part of the road in the foreground, considering that this was an access to another neighbourhood. *Source: field survey 2002.*



Figure 5.30 An example of street lighting installation. Public street lighting was only available in the main public area, which was in the surroundings of a shopping centre. Most of the road network in the area was in total darkness, unless residents installed lighting. The picture shows the work of a community that decided to install street lighting of a good standard. It was common for residents to install a simple street light (a lamppost), such as the one standing in front of the house. That was actually a result of previous mutual-self help project to install uniform simple street lighting in each house plot. *Source: field survey 2002.*

maintained as an individual's personal property. This uniformity gave the area a good appearance.

The city standard was the recent trend in installing street lighting through mutual self-help. It had the advantage of better lighting for the area than the lamppost type, but it was more costly than many neighbourhoods could afford. However, some were able to install many of these, i.e. twelve units.

To install, normally, residents had to obtain permission from the local government and PLN. However, the study found that neighbourhoods had their own ways to afford the units and install them. Some believed that they had the right to install this without permission, while other followed the official procedures for installation. Some were able to buy and others financed with donations from the

employers of the residents.⁹ Some installed the units by themselves, which is not recommended, and others hired PLN staff to do it.

The nature of this facility – which is the illumination level – made the distribution costs unique to members of mutual self-help. It was found that residents who lived close to the unit paid more than the ones who lived further away, and the contribution was uneven, being between 250,000 and 400,000 IDR.

5.5 Summary

This chapter has presented the behaviour of buyers (the respondents) when purchasing houses and finding that improvement of infrastructure was necessary. Three periods of buying, moving in, and living were identified, and within each period buyers revealed different degrees and kinds of awareness of the need to improve service infrastructure.

Before purchasing, buyers had thought that they knew what they would get when buying houses. The majority had believed that the on-plot infrastructure would be adequate, whilst the on-site infrastructure would be inadequate. Just after purchase, their thinking was no different. A slight majority still thought that the on-plot infrastructure was adequate, whilst the on-site was inadequate. However, the experience after they had moved in and lived in the area had raised the awareness of buyers. At the end they realised that improvement of both types of infrastructure was necessary.

The decision to make improvements followed the arrival of an awareness of the need to carrying out improvements. This realisation was a big turning point for buyers. Many had understood that the infrastructure was inadequate, but this was not enough since it was the arrival of awareness that made them take action.

According to the initial assessments of infrastructure condition that they made, buyers were split into two groups, the aware and unaware, in each of the on-plot and on-site infrastructure categories. This division raised a concern that there might be two distinct groups of middle-income buyers, each having a different pattern of behaviour. However, the differences tests showed that the two groups of buyers related to each category of infrastructure were very little different. They apparently came from the

⁹ On the market, the three types of city standard units cost 650,000 IDR, 900,000 IDR, and 1,250,000 IDR.

same pool of middle-income buyers. However, that group which was aware of the inadequacy of the on-plot infrastructure was economically better off than group which was not aware of it.

In general, groups in both infrastructure categories behaved similarly in that they eventually carried out improvements to both the on-plot and the on-site infrastructure. However, regarding the on-site infrastructure, there was a slight difference of behaviour because one group became aware of the inadequate condition of the on-plot infrastructure earlier than the other, whilst they did not show differences in the timing of their awareness of the need for housing renovation.

The improvements finally was carried out by both groups of buyers were clear evidence that there had been a change in some buyers' perceptions of the infrastructure quality that happened during the process of purchasing and moving into a house. Whereas before, these buyers thought the infrastructure to be adequate, they then decided to make improvements. The improvements were also evidence that buyers were actually dissatisfied with the on-plot and on-site infrastructure that the developer provided.

This situation in the MRRA was no different from many other newly-built housing areas in Indonesia where flaws were common as discussed in Chapter 4. Buyers' beliefs that the on-site infrastructure was inadequate were consistent with concerns that had been raised about flaws in the practice of the country's housing industry. Yet, the existence of these concerns regarding house builders' practices had not seemed to influence some buyers' initial beliefs that the on-plot infrastructure would be adequate.

This chapter also showed the capability of buyers to undertake two categories of improvements, which were the on-plot and the on-site infrastructure. The first was focused inward on the basic needs and supportive environment of households, and the second was focused outward on facilities for neighbourhoods. The first required the efforts of individual households, while the second required collective efforts among neighbours.

Gradually, both the on-plot and on-site infrastructure improvements were carried out in a piece-by-piece manner. First, improvements were made to the on-plot, which were the most immediately necessary for living in a house. When they had been implemented and buyers had settled down, the improvement of on-site infrastructure started.

It is questionable that, in general, buyers gave much thought to the infrastructure components when they envisioned the houses they would purchase. In Chapter 4 it was reported that buyers said that the condition of the on-plot and on-site infrastructure was not among their main reasons to purchase houses in the MRRA. This chapter has presented other evidence that their statements might be true. Firstly, some buyers believed the on-site infrastructure was inadequate, but they purchased houses despite this. Secondly, some buyers believed the on-plot infrastructure was adequate before learning, after they moved in, that it was not. This suggested they initially assumed adequate on-plot infrastructure would be part of the houses offered to them. Accordingly, there were buyers who were aware that housing bundle they bought was not complete with adequate infrastructure components. There were also buyers who did not think of the housing that they were buying as a bundle that should include adequate infrastructure or who did not realise that the infrastructure was actually unsatisfactory.

Chapter 6

Housing Strategies in the Improvement of Infrastructure: the Role of Individual and Mutual Self-help

6.1 Introduction

This chapter supports Chapter 5 by describing how buyers carried out the improvement of the on-plot and on-site infrastructure without the presence of external leverages. Individual and collective housing strategies had an important role in these infrastructure improvements. Housing strategies, either individually or collectively, were of the nature of gradual improvement. On-plot infrastructure improvements were carried out before or after buyers moved in, whereas those of on-site infrastructure were always carried out after buyers moved in. In the end, many of the on-site works were connected to each other in a process of gradual improvement. Each work of the on-site improvement had its own strategy, and it was not part of a grand strategy that covered the overall needs for improvements. The strategy itself was performed as a growing strategy that moved on from one state to another, when there was sufficient motivation, until the work was completed. In other words, improvements of social and public facilities had the character of piece-by-piece progress. Every piece followed a long-term strategy which differentiated it from an ad-hoc activity and an element of a short-term strategy.

Although all these works have been ‘progressive’ in nature, they can be differentiated from the current concept of *progressive improvement of infrastructure* of Choguill (1995, 1996a, 1999) and Choguill et al. (1993) that required a grand design for works that are implemented gradually as a community was able. Moreover, this grand design was seen as one that was externally supported by third parties from outside of the target community who provided the guidance for implementing the step by step improvements.

The following sections present the formulation of housing strategies in the MRRA and their practice as performed by respondents. It starts with the general housing strategies practiced by respondents in responses to their physical housing conditions. These general strategies were important for buyers’ strategies for

infrastructure improvement. They provided contexts that showed that strategies for infrastructure improvement were not separated from commonly recognised shelter-focused strategies. These sections cover many social and economic aspects of buyers' strategies for housing.

They are followed by a discussion of individual and collective housing strategies that focuses on infrastructure provision. The two are different as each addresses different aims in improving infrastructure. The individual formulated household-based strategies, while the collective used group-based strategies. The two had different implications for the improvement of infrastructure. Their progressive improvement nature was not the same as that of the concept created by Choguill, as noted above.

The last part of the discussion in this chapter argues that the absence of external leverages did not affect or prevent collective improvement in this case, and it explains how this collective action could work without external leverages. Finally, an afterthought closes the discussion of housing strategy involving the progressive improvement of infrastructure. It suggests that the two natures of self-sufficiency and collective working could have been inherently within the nature of the respondents of this middle-income community – and not necessarily culturally transmitted knowledge.

6.2 General forms of household housing strategy practiced by house-buyers

It was recognised earlier in this study that the housing strategies for residential infrastructure provision found should be examined in the larger context of general household housing strategies. While the concept of a general household housing strategy has been the focus of study by some authors, there are not many studies available concerning housing strategies that focus on households and that deal with the inadequacies of residential infrastructure. In addition, studies of household housing strategies have focused on poor urban communities. Following this, a concern for livelihood strategies, which aimed to better understand poverty, made only a preliminary identification of the role of infrastructure in physical capital. While rich in social and economic aspects, this lacked information on infrastructure improvement.

However, many of these acknowledged that infrastructure, including basic services, were important to make livelihood strategies sustainable.

General housing strategies, as studied by many authors, have focused on the ability of the household to deal with immediate and long-term problems of every aspect of their lives. The aspects extend from the need to have a structure giving shelter to aspects of their livelihoods. In some respects, their choice of strategies can be explained in terms of their decision-making process when dealing with their housing problems. In many cases, those have focused on low-income communities (Larsson, 1989; Lokshin et al., 2000; Rakodi, 1995a; Rakodi, 1995b; Schlyter, 1988; Schlyter, 1989).

The term general housing strategies in this section focuses on the internal aspects of a household, including the physical and the socio-economic aspects of housing. The middle-income respondents in the MRRA made their own choices and decisions on housing under the circumstances of formal housing markets. Their responses to that context of a market situation had to fit with their own household situation. This was reflected in their strategies for housing before and after buying, including strategies to renovate their houses and to use their houses for income generating activities, in the forms of home based enterprises (HBEs). Their behaviour challenges arguments that housing strategies are shelter focused, and that households are incapable of contributing to infrastructure provision (Rakodi, 1993). This section argues that there can be sheltered-focused as well as infrastructure-focused general housing strategies. A focus on infrastructure is not by itself alien to the general housing strategy concept. In other words the two focuses can be set side by side and do not compete with each other within a households' perspective. Attention to one or the other is merely in a matter of a household's preference according to the necessities of the social and economic circumstances of the moment. Because they were middle-income, the respondents in this study had different financial capabilities and bases of knowledge from those in similar studies of urban poor housing.

6.2.1 Buyers' expectations of housing conditions

Turner (1976) characterised as housing strategies the efforts of householders to house themselves through various actions, including maintaining their ownership and extending their shelters. The idea of progressive housing was drawn from the way that poor urban people not only maintain their houses but also gradually improve them. This same behaviour was found by this study among buyers of newly built formal

houses. These buyers, in fact, did not limit the improvements to housing as a shelter, but extended them to housing seen as a bundle containing services.

House-buyers of the MRRA understood that to achieve better housing conditions they had to formulate strategies for creating them. In the beginning when they had just bought their houses, they realised that these houses did not conform to their preferences; 60% stated that the houses were *inadequate/very inadequate*. However, they assessed that the house conditions were basically *adequate/very adequate* (54%), (Tables 6.1 and 6.2). Those assessments were made when they had just bought the houses, before they had experienced living in their houses, when they learned better the actual conditions. This again indicated that buyers had good expectations of their houses when they were buying them.

Table 6.1
Buyers' assessments of their houses when they had just bought them

Assessment	Frequency	Percent	Valid Percent	Cumulative Percent
very inadequate	11	6.3	6.3	6.3
inadequate	70	39.8	39.8	46.0
adequate	93	52.8	52.8	98.9
very adequate	2	1.1	1.1	100.0
Total	176	100.0	100.0	

Source: Household survey 2002

Table 6.2
The conformity of buyers' preference for houses to the ones they had just bought

Assessment	Frequency	Percent	Valid Percent	Cumulative Percent
very inadequate	11	6.3	6.3	6.3
inadequate	95	54.0	54.0	60.2
adequate	67	38.1	38.1	98.3
very adequate	3	1.7	1.7	100.0
Total	176	100.0	100.0	

Source: Household survey 2002

That situation created two consequences for buyers. Firstly, the good houses they expected turned out to be unfit with regard to their preferences. Secondly, to achieve good or ideal houses, buyers had to put some additional expenses into housing renovation. This, then, turned out to resemble a story of housing for poor urban residents in which a shelter grows progressively as a householders' needs grows. This can be seen from buyers' assessments after experiencing living in their houses. They reckoned that the houses in which they were living were not ideal houses (54.5%). This particularly occurred regarding smaller housing types (T21, T36, and T45).

Those who lived in the larger types of housing (T54 and T70) said that their current houses had already achieved the needs of their ideal houses (see Table 6.3). In relation to that, buyers acknowledged the importance of housing strategies, particularly to achieve and maintain a good housing condition in the future. They stated that they had housing strategies (95.4%) that were able provide good housing conditions (Table 6.4).

In order to achieve good housing conditions, buyers implemented housing renovation, either partly, or overall. Some even built new houses after demolishing the previous ones. In one sense the renovation was a waste of money (Struyk et al., 1990). On the other hand, this was a way to express their housing needs through ‘progressive housing’. A partial renovation could be done, for example, by replacing the previous tiles or windows frames with better ones, while, an overall renovation could be in terms of improving the whole parts of the houses or extending the houses. Hence, it is questionable whether a renovation necessarily served their minimum basic needs for shelter. It was actually a mix of serving basic shelter needs and an expectation of good housing that served the householders’ needs. This included the improvements needed as family members grew up or new ones arrived, such as was the case with housing extensions, or at the worst, when a buyer discovered a major fault in a house. Further explanation of how buyers carried out renovation is given in the next section.

Table 6.3
The conformity of a current house to a buyer’s ideal house

			Housing Types					Total
			T21/50 - T21/66 m2	T36/80 - T36/100 m2	T45/100 - T45/120 m2	T54/100 - T54/120 m2	T70/120 - T70/200 m2	
C1-conformity of current house to ideal house	No	Count	13	33	31	13	6	96
		% within Housing Types	72.2%	54.1%	55.4%	46.4%	46.2%	54.5%
	Yes	Count	5	28	25	15	7	80
		% within Housing Types	27.8%	45.9%	44.6%	53.6%	53.8%	45.5%
Total	Count	18	61	56	28	13	176	
	% within Housing Types	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Source: analysis

Table 6.4
The existence of buyers’ housing strategies

			Housing Types					Total
			T21/50 - T21/66 m2	T36/80 - T36/100 m2	T45/100 - T45/120 m2	T54/100 - T54/120 m2	T70/120 - T70/200 m2	
C4-existence of housing strategy on each household	No	Count	3	1		3	1	8
		% within Housing Types	16.7%	1.7%		10.7%	7.7%	4.6%
	Yes	Count	15	58	55	25	12	165
		% within Housing Types	83.3%	98.3%	100.0%	89.3%	92.3%	95.4%
Total		Count	18	59	55	28	13	173
		% within Housing Types	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: analysis

6.2.2 Housing renovation and improvement

There is academic debate concerning the term 'housing improvement' that represents migration from a previously inadequate quality of house to a better one. In slums or squatter areas, the strong term 'upgrading' has been used to picture the process of housing improvement (Arimah, 1999; Kardash, 1999; Tipple, 1996, Tipple, 2000; Tipple et al., 2000). In this study, respondents used the term renovation (*'renovasi' in Bahasa Indonesia*) to express 'improvement' of their houses. In fact, respondents avoided using the term *'perbaikan rumah'* which is literally means 'housing improvement'. However, this thesis uses the two terms 'renovation' and 'improvement' interchangeably to represent improvement of a 'good' or 'adequate' condition to a 'better' or 'more satisfying' condition.

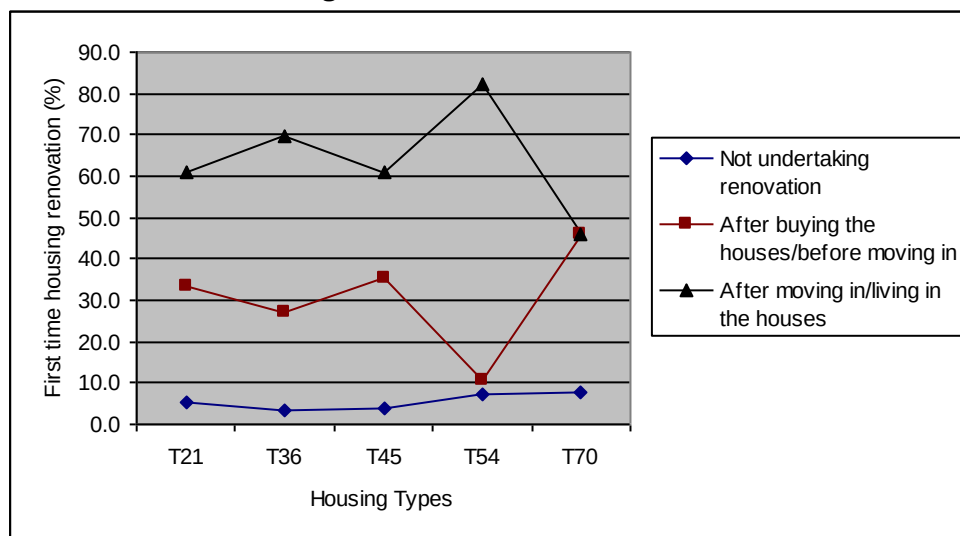
In reality, respondents carried out housing improvement for various reasons, such as to have more rooms as their households grew; because they were economically better off; to fulfil their needs for beautification; to increase the functionality of rooms by having bigger kitchens or more bathrooms. Arimah (1999) pointed out that user modification of houses is a bottom-up approach, which seeks to correct some of the deficiencies associated with direct production of housing which is top-down in nature. In the case of this study, the housing structure itself is as adequate as buyers expected, although the houses did not fit with their preference (see Tables 6.1 and 6.2). The market mechanism had successfully offered houses that fulfilled the average demands of buyers. Beyond that, it was up to buyers to decide to make improvements in pursuit of their ideal houses.

Buyers had exchanged between living in a planned housing area (the MRRA) and carrying out housing renovation. Living in the MRRA had the advantage of neighbours with relatively similar social and economic backgrounds. Its uniformity of housing types did not prevent them from renovating their houses right after buying. Around a third of the buyers (29.1%) had renovated their houses before they decided to move in (see Figure 6.1 and Table 6.5). This also reflected the phenomenon that the deterioration of houses was not a normal cause of renovation. It was more a result of their preferences following an assessment of the houses they received. Moreover, respondents reported that it was better to make improvements at an early stage than after they moved in. The improvement of on-plot infrastructure could be done at the same time as the housing improvement, and this was easier when no one was living in the house. This, in fact, was a strategy in itself, which was formulated when it was

found out that on-plot infrastructure had to be improved, particularly the stand-alone water supply and sanitation.

The period *after buying a house and before moving in* was a critical period. Buyers could assess the condition of their housing and decide to renovate the house as well as the on-plot infrastructure. This decision was not dependent on the housing type, as it was made by the majority of those who bought the three smallest housing types (T21, T36, and T45) as well as by a majority of those who bought the biggest housing type (T70). Bigger houses, then, did not guarantee more satisfaction to buyers. Or, in other words, buyers answered that the housing condition that was previously *adequate/very adequate* became questionable. As the buyers giving that answer were only a narrow majority (53.9%), (Table 6.1), it was logical to conclude that almost half of the buyers saw their new houses as *inadequate/very inadequate*. This was why improvement was a common phenomenon in this newly built housing area. This situation was rather similar to the one in the case of on-plot infrastructure as discussed in Chapter 5.

Figure 6.1
Time when housing renovation was carried out for the first time



Notes: T21 = 21sqm house on 50 to 66sqm land plot; T36 = 36sqm house on 80 to 100sqm land plot; T45 = 45sqm house on 100 to 120sqm land plot; T54 = 54sqm house on 100 to 120sqm land plot; T70 = 70sqm house on 120 to 200sqm land plot.

The fact that something of the nature of progressive housing happened in the MRRA can be seen from the decision to make improvements. Many buyers carried out more than one improvement while living in the area (Figure 6.2). There were 20.5% of them who did it twice and some 2.8% did it three times. Within the time frame of the survey, buyers performed or had planned to perform renovation in three periods: in the

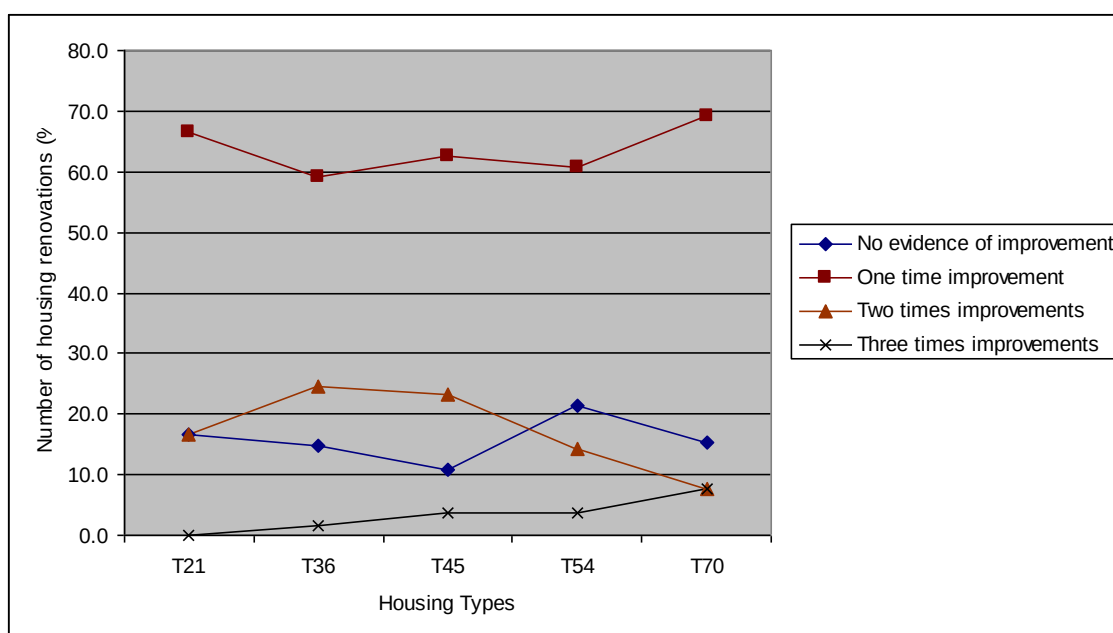
past, at the present (on-going), and in the future. These renovations were in the form of part-renovation, over all renovation, or building new houses after demolishing the ones built by the developer (Figure 6.3). This practice of renovation reflected the ‘freedom to build’ of middle-income buyers. It showed that respondents possessed housing strategies for satisfying their housing expectations by carrying out renovations, supporting the statements of buyers that they had housing strategies (95.4%).

Table 6.5
Time when housing renovation was carried out for the first time

When housing renovation was carried out	Type of house										Total	
	T 21	%	T 36	%	T 45	%	T 54	%	T 70	%	Freq	%
No renovation undertaken	1	5.6	2	3.4	2	3.7	2	7.1	1	7.7	8	4.7
After buying the house/before moving in	6	33.3	16	27.1	19	35.2	3	10.7	6	46.2	50	29.1
After moving in/living in the house	11	61.1	41	69.5	33	61.1	23	82.1	6	46.2	114	66.3
Total number of houses	18	100.0	59	100.0	54	100.0	28	100.0	13	100.0	172	100.0

Sources: Household Survey 2002; four entries are missing

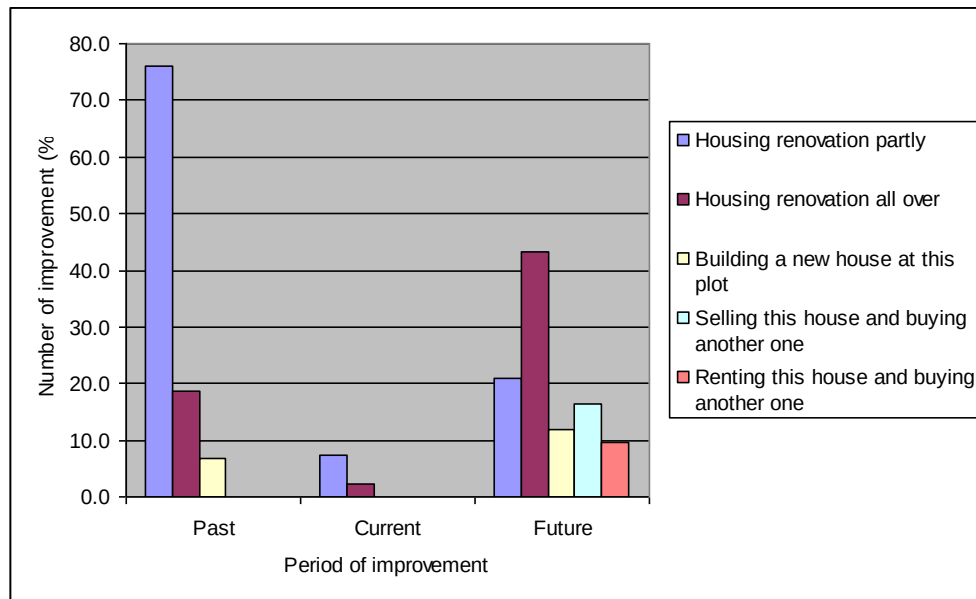
Figure 6.2
Number of Housing Renovations



Source: analysis

Notes: T21 = 21sqm house on 50 to 66sqm land plot; T36 = 36sqm house on 80 to 100sqm land plot; T45 = 45sqm house on 100 to 120sqm land plot; T54 = 54sqm house on 100 to 120sqm land plot; T70 = 70sqm house on 120 to 200sqm land plot.

Figure 6.3
Past, current and planned housing renovations



Source: analysis

6.2.3 Support for the purchase and renovation of housing

The use of support from relatives or friends is commonly found in the implementation of strategies in housing (Crow and Hardey, 1991; Lokshin et al., 2000). Buyers of houses in the MRRA were no different. They had had support from various sources such as their employers or immediate relatives or network of friends, for the realisation of their plans to buy houses or to renovate them. More than 28% of buyers had financial support, particularly for the provision of a down payment. This down payment was commonly set as a third of the total house price. Financial support mainly came from their employers (14.8%), parents (9.1%), and another bank (2.8%), (Table 6.6).

Among the total respondents, only 4.5% of them did not carry out housing renovation. The majority (95%) conducted renovations as they were needed. However, the number of buyers who had financial support for renovation was relatively less than those who had financial support when buying houses. Only 16.5% of the total respondents had this support, while 78.4% relied on themselves. That support also came from various sources, such as their employers (2.8%), parents (8%), and another bank (2.3%), (Table 6.7).

Table 6.6
Financial support for purchasing houses and sources of support

Having support	Freq.	%	Sources of support	Freq.	%
No	125	71.0	Offices (employers)	26	14.8
Yes	50	28.4	Parents	16	9.1
Subtotal	175	99.4	Friend	1	.6
No response	1	.6	Another bank	5	2.8
Total	176	100	Subtotal	48	27.3
			Not having support	125	71.0
			No response	3	1.7
			Total	176	100

Sources: household survey 2002

Table 6.7
Financial support for housing renovation and sources of support

Having support	Freq.	%	Sources of support	Freq.	%
No	138	78.4	Offices (employers)	5	2.8
Yes	29	16.5	Parents	14	8.0
Subtotal	167	94.9	Other bank	4	2.3
No renovation	8	4.5	Subtotal	23	13.1
No response	1	.6	Not having support	143	81.3
Total	176	100	No renovation	8	4.5
			No response	2	1.1
			Total	176	100

Sources: household survey 2002

6.2.4 Income generating activities

Part of buyers' strategies for housing was to use their houses as a place for income generating activities, usually in the form of home based enterprises (HBEs). Such use of their shelter for income generating activities has been common in the strategies of low-income urban households. In many instances, low-income women have played important income generating roles by doing business at home. As urban poor people are often unable to compete in formal job markets, running income-generating activities at home offers some flexibility for managing households at the same time (Larsson, 1989; Lokshin et al., 2000; Rakodi, 1991; Rakodi, 1995b; Schlyter, 1988; Schlyter, 1989; Schlyter, 2001).

This practice of HBEs has demonstrated the importance of shelter as a place for both living and generating income for the urban poor (Cotton et al., 2002). Such informal activities can replace work in the formal economic sector and are significant because many households rely on them for employment, income, and services (Tipple, 2005). Most of the HBE studies have focused on low-income communities (Gough and Kellett, 2001; Gough et al., 2003; Kellett and Tipple, 2000; Mahmud, 2003;

Strassmann, 1986; Strassmann, 1987; Tipple, 1993; Tipple, 2005), and HBEs in planned residential areas, such as in the MRRA, are still not given much attention.

Orthodox land use planning tries to restrict HBEs on the disputed assumption that their presence significantly reduces the quality of life for other residents (Tipple, 2005). Such restrictions were not effectively applied in the study area. In Indonesia, many informal activities, including HBEs, are commonly found in planned residential areas outside the places designated for commercial activities. These are widely accepted by residents as activities that support their daily lives.

Ikejiofor (1998) identified strategies of middle-income urban families to use their houses as income-generating activities by renting rooms. Although Tipple (2005) argues this activity is not an HBE, it is still an income-generating activity that those residents to whom houses belong can use in their housing strategies as a source of finance. Respondents in the MRRA did not rent out rooms; rather they involved themselves with commonly recognised HBE activities. HBEs in the MRRA consisted of activities that produced new products (such as food catering, food processing, and workshop operations) and ones that provided services (such as telecommunications, tailoring, hair dressing, photocopying, and retailing of consumer goods, foods, vegetables, fruits, mineral water, cooking gas/LPG, etc). Those HBEs fall under Tipple's (2005) classification of activities that have a home-based component. He also identified activities having a non-home-based component, such as retailing on the street.

The interviews revealed that some respondents had strategies before they bought the houses to conduct home businesses (Table 6.8). Initially 43 buyers (24.4%) out of total 176 respondents had plans to start income generating activities at their houses. However, there were some changes in their plans; only 16 buyers (9%) pursued their plans and 18 buyers (10.2%) did not. Eight of them (4.7%) decided to conduct another types of HBE than that they had planned. By the time of the interviews, 51 buyers (29%) had run or were running income-generating activities (HBEs), showing the importance of their houses as places of production. As many were still in active formal employment, those numbers shows the importance to the households of other sources of income. One spouse maintained the HBE, for example, a shop, while the other was working in the formal sector. In fact, shops were the most preferable HBE among the respondents. They were easier to operate in comparison to some other types (such as hair dressing, tailoring, computer services, and food catering) that required more difficult production and management skills.

Table 6.8
Buyers who had planned to start income generating activities in their houses

Type of Income generating activity	Buyers who made plans (43 buyers out of 176 or 24.4%)				Buyers who finally ran activities	Past and current activities (51 activities or 29%)
	Plans to Start the Activity	Pursued	Not Pursued	Changed the activity from that planned		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Shops/kiosks	23	12	10	1	15	31
Food catering	-	-	-	-	2	2
Food supplier	-	-	-	-	1	2
Café/restaurant	1	-	-	1	-	-
Tailor	1	-	-	1	1	1
Boutique	2	-	2	-	-	-
Shoes production	-	-	-	-	1	1
Handicraft production	-	-	-	-	1	1
Hair salon	-	-	-	-	1	1
Furniture showroom	1	-	-	1	-	-
Electronic equipment seller	-	-	-	-	1	1
Computer service	1	1	-	-	-	1
Public facilities (TV)	1	-	1	-	-	-
Telecommunication kiosk (wartel)	1	-	1	-	1	1
Wholesalers	1	-	-	1	-	-
Machinery supplier	-	-	-	-	-	1
Garage (Workshop)	-	-	-	-	1	3
Car rental	1	1	-	-	-	1
Renting the house	1	-	1	-	-	-
Services (not specified)	1	-	1	-	-	-
Health services (Midwife Practice)	1	1	-	-	-	1
Other HBEs (not specified)	2	1	1	-	-	-
Still did not know at the mean time	4	-	1	3	-	-
Subtotal	42	16	18	8	25	48
No response	1	-	-	-	-	3
Total	43					51

Source: household survey 2002

Tipple (2000) related housing extension with income-generating activities and HBEs. Extending a house to accommodate income-generating activities is an indication of a strategy to use shelter as the place of production. Some renovations in the MRRA involved extensions. Although, in the first place, the renovation of a house was part of a strategy to have better place for living, the setting up of an HBE (e.g. a retail shop or telephone kiosk) would need further adjustment of the house in order to provide space for the activity.

The pattern of housing improvement and HBEs did not suggest any particular relationship to house type (Table 6.9) and thus to income level. Hence it was not possible to suggest that the lowest cost housing type (T21) was more likely to be a base for an HBE, or that HBEs were more attractive to those households who had the lowest incomes in the MRRA.

Table 6.9
Housing improvement and income-generating activities

Housing Types (m2)	No Housing Improvement			Carried out Housing Improvement		
	Freq.	Plan to start HBEs	Past and Current HBEs	Freq.	Plan to start HBEs	Past and Current HBEs
(1)	(2)	(3)	(4)	(5)	(6)	(7)
T21/50 – T21/66	1	1	-	17	4	5
T36/80 – T36/100	2	-	-	58	15	13
T45/100 – T45/120	2	1	1	54	13	14
T54/100 – T54/120	2	-	-	26	7	11
T70/120 – T70/200	1	-	-	12	2	7
Subtotal	8	2	1	167	41	50
<i>No response</i>	-	-	-	1	-	-
Total	8	2	1	168	41	50

Source: household survey 2002

Table 6.10
Distribution of HBEs among those buyers who planned and those who ran HBEs, and their jobs types

Type of Jobs	Buyers who had plans to set up HBEs (43 buyers or 24.4%)				Buyers who ran HBEs (51 buyers or 29%)			
	Husband		Wife		Husband		Wife	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<i>Holding formal jobs</i>	33	18.8	9	5.1	34	19.3	15	8.5
Entrepreneur	4	2.3	-	-	6	3.4	2	1.1
Working in private company	13	7.4	4	2.3	13	7.4	4	2.3
Working in government company	10	5.7	1	0.6	6	3.4	1	0.6
Civil servant	6	3.4	4	2.3	9	5.1	8	4.5
<i>Not holding formal jobs</i>	9	5.1	32	18.2	16	9.1	32	18.2
Entrepreneur	4	2.3	5	2.8	6	3.4	9	5.1
Pensioner	5	2.8	1	0.6	8	4.5	-	-
Not working	-	-	26	14.8	-	-	23	13.1
Others	-	-	-	-	2	1.1	-	-
Subtotal	42	23.9	41	23.3	50	28.4	47	26.7
<i>Single female/widow (no husband)</i>	1	0.6	-	-	1	0.6	-	-
<i>Single male (no wife)</i>	-	-	2	1.1	-	-	4	2.3
Total	43	24.4	43	24.4	51	29.0	51	29.0

Source: Household Survey 2002; Notes: percentage is to N = 176

Buyers who ran HBEs were not the ones who did not have formal employment. Similarly, buyers who planned before buying their houses to set up HBEs already had jobs in the formal sector (Table 6.10). The number of buyers who had formal and non-formal jobs, between husband and wife, is not significantly different. Hence, not having formal employment was not a factor in deciding to create

an HBE. However, while many husbands had formal employment, many wives did not. In effect, the running of HBEs rested on the women's shoulders, particularly those who declared themselves as not working. Women who did not have formal employment (who were said to be not working) were the majority among those who planned HBEs before buying houses. This percentage decreased slightly among those operating HBEs at the time of the interviews, but women remained the ones who took the principal roles in running the HBEs (13.1%).

6.2.5 Household income and its spending management

Income and spending management has been of interest to many writers on household housing strategies, particularly the ability of a household to balance its spending to its income level (see for example Crow and Hardey, 1991; Pickvance and Pickvance, 1994). Housing affordability is a matter of this balance. Households have to sacrifice other spending to achieve a certain level of expenditure for housing, or vice versa, they must sacrifice housing to sustain spending for other needs. Here, education for children is usually one that is maintained in the long run. Whilst income and expenditure pictures are easily drawn for struggling households (Rakodi, 1995a; Rakodi, 1995b), middle-income households usually manage their finances in a more complicated way.

Middle-income respondents in this study showed no difference in their general strategy to maintain various spending and income patterns. Basically, spending on housing improvement or maintenance followed the presence of strategies for improvement. The allocation of income for housing did not serve merely improvement or maintenance. Rather improvement or maintenance was driven by something going wrong in the house or by the availability of funds. The most important thing was to use part of the income for paying the monthly instalment on the mortgage (housing credit). That constituted a third of household income at the date of buying. Although demand-driven, maintenance or improvement did not serve a coping strategy, because when one thing or the other had to be done, households would carry it out in a proper way. In a very simple manner, some respondents considered allocations to monthly expenditures (including those for daily needs, mortgage repayment instalments, and services bills such as for telephone and electricity), maintenance of their houses, and all over maintenance of their houses. Except for the expenditure on the payment of housing loans and the service bills, this classification was flexible. Many admitted that

disciplined spending was not easy. For example, a respondent allocated the spending into separate envelopes according to each category of spending, but this did not work in the long run. Such a strategy in housing does not require high skill of management. It is more a matter of compromising between households' needs and preferences. According to some authors, it requires consciousness and long-term consideration, while at practical level it is also about choices regarding some constraints (Crow, 1989; Crow and Hardey, 1991; Pickvance and Pickvance, 1994; Roberts, 1991).

Generally all respondents agreed that spending on food, transport, insurance and recreation activities were important, but they were not the main concerns. Notably, life and health insurance were not yet mandatory requirements¹. However, all respondents agreed that children's education was paramount, and it was the subject of a long-term strategy. Some of the interviewees thought it was important to have education insurance to guarantee the financing of their children's education.

Providing their children's higher education was the aim that had to be secured in the long run. This was reasonable as a good education was essential if their children to find suitable employment in the current and future labour market. In this respect, women were the parties that commonly sacrificed to adjust to the situation within the households. For example, a household formulated a strategy that the wife would take early retirement from her formal sector job while her husband would maintain his career. By taking early retirement she would receive a considerable amount of money as compensation. They planned to invest the money into their children's education (by having education insurance) and housing renovation, as well as setting up an HBE. That strategy had been going well, and it showed that, as middle-income, they had a lot of choices regarding their household situation.

However, securing children's educations could not take priority over some spending on housing: sustaining the monthly mortgage payment secured their abilities to live in and own their houses. However, renovations could come later when the needs for children's education had been fulfilled. This could come at any one of several points in the educational system, which is six years of primary school, three years of junior high school, three years of senior high school, and university. Usually, according to interviewees, the starting year of each period of a child's education was the most crucial one for avoiding spending on housing renovation. Respondents faced

¹ Housing insurance had been required when buying a house with a mortgage.

more complicated problems if they had more than one child starting the first year on any level of education.

Almost in general the interviewees did not provide evidence of any hardships concerning their economic situations, particularly with regard to the very basic needs such as foods and clothes. A survival strategy, the choice of low-income urban households in economic hardship when coping is not possible, was not relevant in this case study (see the discussion of coping and survival strategy of the low-income in Rakodi (1995a) and Rakodi (1995b)). In line with their economic situations, the interviewees emphasised the importance of good education for their children. This particularly was common in the contemporary Indonesia, as many believed that having a good university education was a ticket to a better position in the urban labour market. As these respondents were middle-income with higher education backgrounds, they also believed that their children should have a better education or at least the same as they had. Interviewees expressed this situation as *'the parents provided the opportunities while the children must carry out the duty (of studying until higher education level)'*.

Respondents spent on the on-plot infrastructure improvement during two periods. The first was before they moved in, and second was the period after they moved in. The first was part of a plan to improve their houses and the infrastructure within them. This was something that they were mostly well prepared for. Some did the improvement of houses and on-plot infrastructure after they moved in. This also required a well-prepared spending plan. However, it happened sometimes that they found the on-plot infrastructure needed maintenance, for instance a water pump breakdown or overflowing septic tank. This would have been, certainly, an additional spending beyond the plan, but it was bound to happen sometime in the future.

The spending on the on-site infrastructure, on the contrary, was much more demand driven than that on the on-plot infrastructure. Because the decision to do the improvement of the on-site infrastructure was beyond the power of an individual household, the spending was the contribution agreed with other members of the group. Such a requirement did not always fit a households' decision on expenditures. In many cases, as reported by the interviewees, the mutual self-help works provided a leeway if a household could not pay in cash. A situation of that kind did not prevent the collective work from happening. Usually, there were households that were capable to tackle temporarily the total costs of the work.

6.3 Individual housing strategies for on-plot infrastructure provision

Chapter 4 and 5 have shown that MRRA buyers were middle-income and that they individually chose to improve their housing situations. This contrasted with a typical low-income housing situation in which lack of choice has forced households to act together in the form of community collective action or to carry out a survival strategy (Moser, 1982; Gough, 1999; Van Lindert, 1997, Meert et al., 1997). The structure of housing development in Indonesia had put buyers in the position of the provider of their on-plot and the on-site infrastructure. Land developers and local government agencies failed to deliver sufficient service infrastructure. Since they were middle-income, buyers in the MRRA had the resources to provide for themselves. This section focuses on the behaviour of respondents in that role.

6.3.1 The role of awareness in the formulation of an individual housing strategy and the nature of improvements

This study holds that housing strategies were created in the time between the arrival of awareness and the implementation of improvements. Before purchase, buyers believed that they would have adequate infrastructure. However, soon afterwards they found out that it was not the case. Buyers' awareness emerged only after they moved in. Even before they moved in (after purchasing houses) they still believed that the on-plot infrastructure was adequate. This emergence of awareness was the starting point for buyers to feel the need to improve the on-plot infrastructure.

Individual housing strategies regarding infrastructure were limited to certain facilities within a housing plot, such as water supply and the sanitation system. These basic needs were essential to support households from the moment they began to live in their houses. When these, particularly water supply, were not available, buyers had to do something.

For many authors, water supply has been an example of collective provision carried out in low-income settlements, and this has also illustrated the act of providing for a community's basic needs for which methods, such as progressive improvement, have been developed (see Choguill references). It is logical that improvement of this facility would follow housing renovation, as indicated by several respondents. In comparison, there are similar examples of housing extension that were accompanied

by new sanitation facilities (e. g. toilets) (notably, Kardash, 1999; Tipple, 1996; Tipple, 2000).

Apparently their awareness of the need to make improvements was self-generated. Buyers' indicated that they realised the needs of the improvement from their own thoughts (95.5%), (Table 6.11). Satisfying immediate needs was paramount in the early days of moving in. It was common that new occupants found out that the water supply installation was not adequate, e.g. the quality of hand-pump water was murky. The ninety days guarantee in the contract of sale did not cover this. Although buyers complained about it, they did not get together and march to the developer, demanding that something be done. Instead, they carried out a do-it-yourself strategy by hiring someone to improve on-plot facilities.

In many cases, buyers carried out renovation of their brand new houses, as well as improvements to on-plot infrastructure (>30%). This action eliminated the possibility of contacting the developer to discuss the insufficiency of on-plot infrastructure, because for them there was no point to complain while they had a plan to renovate their brand new houses as well as the improvement of on-plot infrastructure.

Table 6.11
The sources of awareness and knowledge to do improvement of housing and on-plot infrastructure (N=176)

Type of Sources	Frequency	Percent
Reading books	9	5.1
Reading newspaper/magazines	11	6.3
Informed by friends/relatives	9	5.1
Own thoughts	168	95.5
Others	12	6.8

Source: Household survey 2002

Notes: Respondents might provide more than one answer

Buyers who did not carry out improvement before they moved in had a high possibility of finding a broken element of on-plot infrastructure, such as a septic tank, after living some months in the houses. This demanded immediate action. Buyers reacted to this sort of thing because it was within their own plot boundary. Buyers thought that this was a necessity which needed to be done by themselves. The need to create newly-built houses that satisfied more than their immediate needs was part of an awareness which sometimes did not come until later.

As a result of their answers, this study reasoned that buyers generated from within themselves their strategies for handling their housing problems by viewing their households in their housing situations and making decisions to improve their houses and infrastructure according to their preferences and possibilities. Their strategies took into account their capability to improve infrastructure by themselves.

Buyers' strategies had another feature, which was the achievement over the long term of much better quality and conditions than the developer's provision. This long-term feature is not characteristic of a coping strategy, which is short-term and ad hoc in nature, sustains or maintains a current position, and tends to minimise negative consequences (Barnett, 2001; McLaverty and Kemp, 1998; Forrest and Kennet, 1996; Pickvance and Pickvance, 1994; Roberts, 1991; Munro and Madigan, 1998).

6.3.2 The practice of an individual household housing strategy

The on-plot improvements consisted of five infrastructure elements, i.e. water supply, septic tank, drainage, sewerage, and garbage storage (see the list of improvement in Tables 5.8, 5.9, and 5.10). The most crucial one for buyers was the water supply installation, followed by septic tank improvement. Buyers, following their strategies, improved the water installation according to their preferences, many of which were much superior to the developer's provision. This preference certainly was not chosen in an ad hoc manner, because the water supply was improved as a whole system within the house for long-term betterment which covered a lot of items. Improvement of a complete network within a house consisted of new borehole (35.8%), electric jet pump (82.4%), water storage (65%), and plumbing within houses (66%), (Table 5.8).

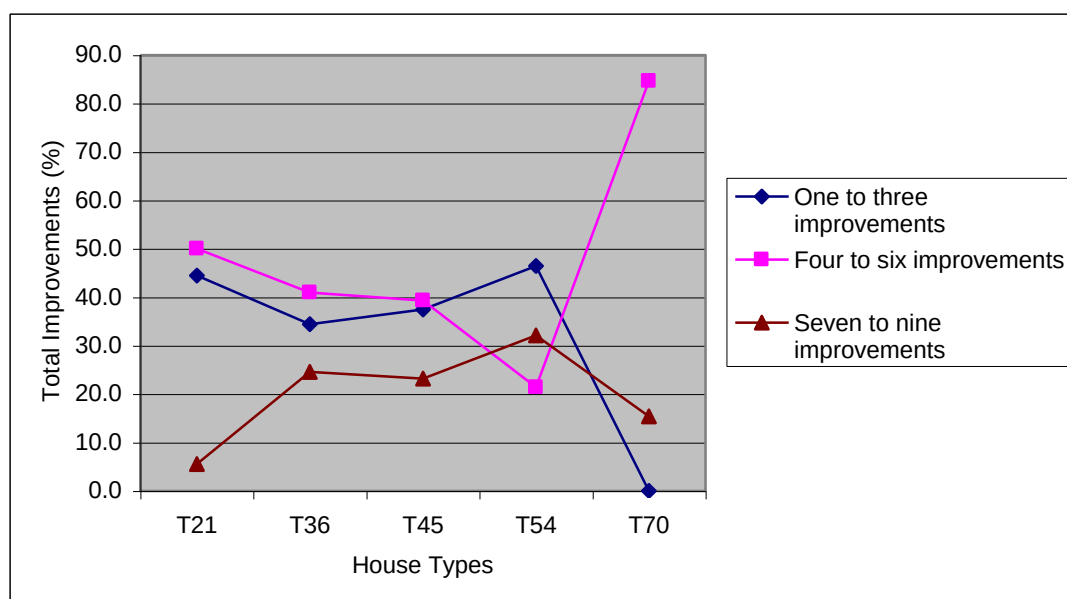
Many buyers improved the construction of their septic tanks (43.8%), which was almost half of the total respondents (Table 5.8). It seems that buyers with a good education understood the way of healthy living. Having a well constructed septic tank would minimise leakage and pollution of land and the groundwater table. However, as explained earlier, the distance between the location of the water borehole and the septic tank was less than ten metres, which is less than the country's standard. Surprisingly, a borehole of one house might be too close to the septic tank of the next house.

The other facilities, such as drainage and sewerage, were part of a network. For these, buyers commonly were careful to make sure that sullage or rainwater did not flow back to their houses. The flows of wastewater and rainwater were not free.

Firstly, they were influenced by geographic level; secondly, there was no good public water body available in the surrounding area into which they could go.

Not all construction of sewerage and drainage was unacceptable, and it was expensive to reconstruct drainage and sewerage separately. Some 34% buyers had improved the drainage and 31% improved the sewerage. They are probably the same householders because the position and interconnection of drainage and sewerage would logically encourage buyers to deal with both.

Figure 6.4
Total number of improvements of the on-plot infrastructure



Source: Household survey 2002

Notes: T21 = 21sqm house on 50 to 66sqm land plot; T36 = 36sqm house on 80 to 100sqm land plot; T45 = 45sqm house on 100 to 120sqm land plot; T54 = 54sqm house on 100 to 120sqm land plot; T70 = 70sqm house on 120 to 200sqm land plot.

Evidence showed that many buyers combined the improvement of several types of on-plot infrastructure. There were many houses where seven to nine improvements of on-plot infrastructure were undertaken. On average, buyers made four to six types of improvements (Figure 6.4). This evidence emphasised that households commonly understood the improvement of on-plot infrastructure in terms of packages for particular systems, for example, a water supply system that consisted of electric pump, borehole, plumbing, and water storage, or a sanitation system made up of a septic tank with its plumbing and toilet inside the house.

6.4 Collective housing strategies in on-site infrastructure provision

Collective housing strategies present a plan for concerted action among community members, and commonly deal with housing development and infrastructure provision (Gough, 1999; Moser, 1982). This section investigates and explains the collective action practiced in the MRRA by new house-buyers in terms of mutual self-help. This was performed through community groups made up of residents living near to one another. This happened mainly regarding on-site infrastructure, with the exception of only a few cases of on-plot infrastructure. This section answers the question of whether external leverages were the key to mutual self-help, as believed by many researchers (Bryant, 1980; Friedmann, 1992; Lee, 1998). It explains the preference of buyers to adopt a self-help strategy instead of protesting to the developer or local government over the inadequate infrastructure. Firstly, this section explains the importance of self-awareness in building up collective strategies. Secondly, the section presents the practices of mutual self-help found by this study.

6.4.1 The role of awareness in the formulation of a collective housing strategy and the nature of improvements

a. The role of self-awareness in collective household housing strategy

The need to make on-site improvements became part of respondents' conscious strategies after their experiences with on-plot improvements. The experience of living in the new residential area, and getting to know new neighbours may have contributed to the feeling of togetherness (see Bengtsson, 1998). Neighbours shared the same experience of the lack of playgrounds for children and sport facilities for all members, the fear of burglaries, and many other concerns. This revealed to them new needs that required strategies to fulfil. Everybody was affected by the '*adverse*' situation.

Table 6.12
Sources of awareness and knowledge to improve on-site infrastructure through mutual self-help

Type of Sources	Frequency	Percent (of N=176)
Reading books	6	3.4
Reading newspaper/magazines	4	2.3
Informed by friend/relatives	15	8.5
Own thinking	127	72.2
Others	31	17.6

Source: household survey 2002

Note: Respondents might have provided more than one source

Respondents indicated that living in the neighbourhood gave them an understanding of the on-site infrastructure provided and what was lacking. They identified the source of their motivation to carry out mutual self-help as being within themselves - their own thoughts. Some might have exchanged experiences with other neighbours, or learned from another sources (see Table 6.12).

In a collective strategy that comes from within, an internal network of information exchange in the form of groups of kinship is paramount (Moser, 1982). However, no evidence of this could be found in this study. The community was not made up of small-scale groups based on the same kinship or cultural background, since all residents came randomly from different backgrounds. Their major common features were that they all had higher education, held formal jobs and were not poor. The self-awareness of the need to act that came from within the community was different from an induced awareness that was stimulated from the outside.

b. “Progressive” improvement

Improvement of on-site infrastructure followed the pattern of *‘complete one job and start another’*. However, this was an unscheduled activity which followed the growing needs of a community. The selection of infrastructure in many cases was a response to an immediate situation.

Responding to immediate problems of growing needs characterised the on-site infrastructure improvement in the MRRA. As a household could be moving out of the area at any time according to its individual needs, a grand plan for improvement for the whole area, like that of a government-based long-term strategy, seemed far from the thoughts of households. Such a grand plan for neighbourhood facilities improvement is common when actors and financial supports from outside are present (Bryant, 1980; Yeung and McGee, 1986a).

Therefore, the collective housing strategy was to formulate projects one after the other. For every selected project there had been a process of needs selection, consensus seeking, and deciding how to implement the work of mutual self-help. New needs could appear in the next year or further on, when a community’s concerns might have changed.

6.4.2 The role of residents’ groups and local community organisations

Studies of housing and participatory urban services have pointed out the importance of local groups or organisations for the success of programmes led by

government and NGOs (Andreasen, 1996; Yeung and McGee, 1986b). Similarly, the role of local groups has also been significant in non-government led programmes to mobilise action (Rukwaro and Olima, 2003). In comparison to these top-down situations, this study presents local community groups that created at grassroots level individual projects that were outside of any programme.

‘Group’ in this study refers to three kinds. The first were those formed spontaneously by households in several houses. The second were groups of residents in the form of RTs (*Rukun Tetangga* or community unit); and the third were groups of residents in the form of RWs (*Rukun Warga* or neighbourhood unit). The three kinds of groups were the mediums used by residents to implement their infrastructure improvements. Authors have concluded that small to medium-sized groups in combination with geographical closeness make collective action possible (Bengtsson, 1998; Rydin and Pennington, 2000).

The first kind of group had a loose membership decided by the geographic position and proximity of their houses, and this happened usually within the area of one RT. The membership was around ten to twenty houses. Formation of this group occurred when there was on-site infrastructure nearby that needed to be improved. Therefore, only those residents who live nearby engaged in mutual self-help, and not the whole membership of an RT. At the level of an RT and an RW, the number of residents involved was larger. The common work of a group of this kind was the improvement of a road, a small garden nearby, and drainage/sewerage.

Although RTs and RWs were semi-formal organisations within the local government structure, they did not have administrative authority, because they were not part of a local administration. The lowest administrative authority within the local government structure was a *kelurahan*, with a *lurah* as its head.

The work of RTs and RWs was still relevant in post authoritarian Indonesia, particularly so in the case study. Many of these organisations had been co-opted by the previous government regime. However, in the case study, the two kinds of organisations had been formed differently from many similar organisations, which had made them relatively independent from government influence. The respondents explained that they had been required to create neighbourhood units (RWs) and community units (RTs) during the early days of their living in this area, following the rules of thumb suggested by the local government, which were that 40 to 50

households should form a new RT, and 5 to 15 RTs should form a new RW.² However, this was not always easy since the developer had practiced a scattered development strategy during twenty years of housing construction. When only a small number of houses were built at some distance from any previous development, the new residents were reluctant to create a new RT. They joined an existing one nearby. Sometimes, the occupants of a large group of new houses refused to create more RTs, because they wanted to stay within an existing RT which they saw as the '*new community*' into which they had moved.

The importance of RT and RW was recognised by both local government and local communities. To local government, RTs and RWs were – traditionally – the mediums to deliver messages to communities, including those about many government-led programmes. Hence they were considered as extended hands of the local government. This function continued during the New Order era, when government used the two for political purposes, such as devices for controlling communities and monitoring political parties during elections.

To communities, RTs and RWs were the closest semi-formal organisation that helped in daily social activities, such as with administrative matters relating to ID card extension, selling and buying houses, moving out and in, having new baby, and reporting peculiar events. However, this study showed that in the MRRA the two had extended their functions beyond just the administrative ones. Firstly, they identified neighbourhoods, particularly when mutual self-help was being organised. Secondly, the two were means to achieve better living environments for the sake of the residents' concerns, i.e. doing improvement of on-site infrastructure. Therefore, it was evident that since their initial formation, RTs and RWs in the MRRA had shown some independence from government influence.

As neighbourhood units, the two acted as local community-based organisations, with certain advantages of recognition from local government. The respondents explained that during mutual self-help process, when a community had to contact local government or negotiate with the developer, it had to show evidence of its group identity – which was the RT or RW. For example, a community identified its RT and RW when sending a proposal for competition funds to local government – such as for improving social and public facilities or for hiring tools and staffs – or when appealing to the wider community when it planned to build new religious

² The RT and RW system originally came from Japanese occupation in the 1940s. This has been formally applied in urban and rural communities until today.

facilities. The identity of the RT and RW was also useful when a community had to negotiate with the developer over land use changes, land borrowing, or land donations. When RTs and RWs mediated between a local government's concerns and a community's perspectives on improvement of infrastructure, they could be seen as '*straddle*' community organisations.³

However, the mechanisms of RTs and RWs did not always work smoothly, particularly regarding the coverage of facilities given by the results of previous mutual self-help efforts. For example, 200 households identified themselves as one community and refused to create more than one RT. However, after seven years there was disunity among the members over the coverage of facilities. Finally the RT agreed to split into three new RTs with separate geographical areas. One RT kept the right to own the sport facilities, security building, and their surrounding areas. The other two had to provide their own security buildings and security guards. This break up was followed with the disintegration of garbage collection. The three new RTs – although they still hired the same company - had different policies, particularly regarding the monetary contribution from each household.

Collective action often disappeared at the end of a street. Many small groups used the end of the street as physical boundary. Spontaneously formed groups often carry out collective action on the basis of geographical closeness (see Bengtsson, 1998). The closest obvious physical feature that is shared by households is the street. It is the first public space into which they go when they leave their individual houses. They all use it for access and to identify their addresses. However, association with a street can lose some of its intensity at junctions, which not only cause physical breaks in the continuity of the street, but also act as 'gates' or points of access to a larger world. Hence, it was easy for groups of households, RTs and RWs to use this physical feature as the boundary for a collective work.

6.4.3 The role of leadership in mutual self-help infrastructure provision

The issue of leadership in this study, as explained by the respondents, refers to collective leadership, with which communities achieved consensus on their own needs, the works to be done and how to implement them. Among the three types of community group there was no formal leader. The lowest level of formal leader in the area was the *lurah*, the head of the lowest administrative unit, the *kelurahan*. The

³ Read and Pekkannen (2004) proposed the term 'straddle organisation' for a community-based organisation that functions as vehicle as well as mediator between community and local administration.

heads of RTs and RWs, although recognised as ‘formal leaders’ by the local government, actually performed as informal leaders because they were selected by and rotated among members. Although they informed the *lurah* of various activities, problems or events in the area and *vice versa*, they could not give promises of support from local government for infrastructure improvements.⁴

The *lurah*, as a formal leader, did not have a significant role within the mutual self-help examined in this study. This was rather different from participatory urban services in Indonesia where leadership was centralised in the *lurah* (Steinberg, 1992; Yeung and McGee, 1986a). The difference probably was because this study was of a community that was not poor; formal leadership has commonly been employed in poor communities for fostering government-led community programmes, such as the Kampong Improvement Programme.

The direction of a collective in the MRRA was determined by the group’s leader, promoter, and members. As there was no guidance from external actors, the three components guided themselves. However, the quality of the leader and the promoter was always important. In RTs and RWs, leadership was elected and rotated, and anyone could have been elected. However, the leader commonly was male, the head of a household. Previous leaders, who had some experience of managing communities, became potential promoters. A promoter, however, could be anybody and not necessarily have experience in community leadership. This was because a promoter was someone who could convey ideas to members. In a spontaneous group, there were mechanisms similar to those within RTs and RWs, and a significant difference was that there was no elected leader. Anybody could be a promoter, and someone was then appointed to manage the work with help from members.

The collective leadership of this study was effective in terms of its capability to identify needs, achieve consensus, and respond to community needs, as identified by Yeung and McGee (1986a), and more importantly, in terms of its capability to manage mutual self-help. Communities seemed to experience no major problems in finding their true needs or felt-needs, in contrast to some guided participatory urban services provisions (Dudley, 1993; Moughtin et al., 1992). Neither did they experience major

⁴ The leadership formation of an RT or an RW was voluntary and carried out through democratic election. Leaders had no remuneration like a *lurah* who is a civil servant. The election for RT was commonly on a ‘one voice for one household’ basis. Respondents indicated that this election was carried out during an evening meeting attended mainly by male members. However, there were occasions that the election was carried out by distributing ballot papers. This mechanism was taken as an alternative when many could not attend the evening meeting. An RW election was based on voting by RT leaders.

problems in the development of leadership, as in the case of guided participatory leadership in which residents are guided to take leadership roles (Sanderson and Hedley, 2002). The needs to be satisfied through mutual self-help were identified by statements from community members and verified by their consensus to do the work.

Authors have warned that representatives are sometime very self-seeking or represent only certain interests. Replying to that doubt, this community countered by presenting two conditions. *Firstly*, in many cases the mutual self-help involved only small number of groups, each containing between fifteen to fifty families, which allowed direct communication between members. They represented themselves in community meetings by expressing what was best for them, and this formed a collective decision. *Secondly*, the rotation of a leader, which happened periodically every one or two years, prevented self-seeking people and people with special interests from controlling a group. In many cases the residents thought that the position of leader was not easy, since this was a voluntary job and mostly it was serving the community.

As there was no external actor helping this process, the flow of communication was only between communities through group leaders, promoter, and other members. Their interaction delivered an identification of felt-needs as far as all the members were concerned. However, a discussion followed in order to achieve an agreement on actions for improvements.

The lists of results of mutual self-help provided evidence that those mechanisms of collective leadership seemed to work well. They indicated that there could be strong leadership in a community and that a community could decide for itself in which group it could effectively bring up ideas, either in small collections of households, an RT, or an RW. Strong leadership has been recognised as positively related with successful delivery of participatory urban services (Yeung and McGee, 1986a).

6.4.4 The absence of a role for mass-mobilisation

Mobilisation has been seen as the key in the work of a programme involving large numbers of people and implies inspiring service to a collective purpose. It particularly features in government or NGO led programmes (Gilbert and Ward, 1984a; Gilbert and Ward, 1984b; Lopes and Rakodi, 2002; Rahman, 1993; Yeung and McGee, 1986a). Mobilisation commonly appears in programmes of collective actions that a community should carry out, usually with respect to particular types of

infrastructure that can be provided with uniformity. Effective mobilisation is commonly achieved by employing local community organisation (Andreasen, 1996).

Mass-mobilisation for programmes of uniform projects was not applicable to the activities of the communities studied here. Many small groups developed independent ideas of their priorities for on-site infrastructure needs. This freedom of ideas seemed to discourage joint efforts on a scale that could use mass-mobilisation. Since the priorities of communities were different, joint action on a common interest was rare. When it did happen, it was usually concerned with higher level of interests, such as infrastructure that was needed by an RT or RW. Construction of a multipurpose building and mosque were among the works that needed the involvement of more than one community group, commonly RTs or RWs.

Although '*mobilisation*' could apply to the dissemination of ideas during a community meeting, this was not a tactic to involve as many residents as possible. Geographic proximity and intensity of interest moved residents to join community action (see for example Bengtsson, 1998). This kind of '*limited mobilisation*' resembled democratic practices throughout community decision-making processes. A meeting or any informal medium for dissemination of ideas was the means of the process. For the spontaneous groups of households, daily contact with neighbours – as residents lived nearby – was a common medium (see for example Bengtsson, 1998; Rydin and Pennington, 2000). In comparison, for the case of RTs and RWs, a formal meeting was commonly the medium to arrive at a decision.⁵ A formal letter from the leader of that RT or RW followed to disseminate the decision to community members.

The respondents explained that during collective decision-making, members could refuse to agree and be excluded from the work. However, such a case was rare when a project involved a lot of members or the work was physically attached to the houses. For example, a decision on a road improvement would not be possible without the agreement of all those living on that length of the road. If it was an RT or RW decision, the members would be formally bound by the decision, and the RT and RW would take the burden of cost of those who did not participate. In a spontaneous group of households, a decision was flexible; a member who refused to participate would not be involved in the work, and the services would not be connected to his house. According to some authors, the refusal to take part in such a collective action in a

⁵ A similar process of community meeting could be found in the KIP, and this was called *musyawarah* (deliberation) to achieve a *mufakat* (agreement), with member of RTs or RWs attending the meeting to discuss neighbourhood improvement (Steinberg, 1992).

small community group is not easy because the members know each other and create pressure on one another (Bengtsson, 1998; Rydin and Pennington, 2000; Shilony, 2000).

Certain conditions that make mass-mobilisation work among communities did not occur in the MRRA. Firstly, many spontaneously-formed groups of different combinations of neighbouring households initiated a variety of small collective projects at different times (see Bengtsson, 1998, for the explanation of geographic closeness). In some cases it was possible to elevate the issue of an improvement from groups of houses to RT or even up to RW level. For example, many road improvements were carried out by only groups of households. However, garbage collection or street lighting installation could be taken up to RT level. Such projects, even those at RW level, did not involve such large numbers of households as would require mass mobilisation.

Secondly, when they mobilised themselves, residents associated themselves with various definitions of the neighbourhood they lived in, which was manifested through certain actions, but there was no evidence that they associated with larger areas of the MRRA. For example, many communities set in place uniform street illumination or garbage containers on each plot. Even when the area involved was extended to deal with improvements, such as the installation of security posts, sport facilities and playground, residents aimed to achieve a good living environment in their neighbourhood. Although households used various community groups according to the improvement sought, these were groups representing areas they believed to be their neighbourhoods.

Thirdly, external agencies were not present to promote mobilisation among communities on a broad scale, as they have done in so many cases to create or support participation (Abbott, 1996a; Baud, 2000; Bryant, 1980; Dudley, 1993; Friedmann, 1992; Lee, 1998; Lopes and Rakodi, 2002; Moughtin et al., 1992; Sanderson and Hedley, 2002; Varughese and Ostrom, 2001). This case study found that the initiative for community work came from within a given community, a feature that was an essential factor to initiate and to contribute to community work, and this was supported by the financial capability of the residents.

Initiator or promoter

The importance of initiator or promoter had something to do with the absence of external agencies. This function of external agencies was recognised here as

conveying a particular mission to make possible mobilisation of community and other resources, including the stimulation of awareness. This has been common in external agencies led participation programmes (Bryant, 1980; Lee, 1998; Lopes and Rakodi, 2002).

The respondents explained that the communities had their own initiators or promoters who played the roles of *suppliers of ideas*. Interestingly, any member could be the initiator as long as his/her ideas were accepted, and it was not necessarily the leader of RT or RW, because that leader regularly changed. Communities were more concerned to discuss ideas for good on-site infrastructure, rather than the character of the promoter. They liked to discuss any ideas which were possible in terms of financial resources, land availability, technical possibility, and, at the very least, legality.

A promoter had a limited area of influence, which was only within his own community, either the neighbouring groups of houses, the RT or the RW. Extending certain ideas for improvement into other communities did not seem to be the issue, unless this was a programme of an RT or RW. However, it was possible for communities to monitor one another to see what was happening, with respect to their own priorities for improvement. The fact that these were small to medium-sized groups giving members a good chance to know each other made collective action possible (Bengtsson, 1998; Rydin and Pennington, 2000).

Mass-mobilisation to apply political pressure to the state

Mobilisation used to create political pressure for infrastructure provision from the state (Baud, 2000; Rakodi, 1993) has been seen in urban areas of the developing world (Bennett, 1989; Gilbert and Ward, 1984a; Gilbert and Ward, 1984b; Moser, 1987; Moser, 1982). It has been used differently in Asia as a means to enforce government programmes through collective action for urban services (Yeung and McGee, 1990b).

Those examples are mainly taken from areas of poor urban residents, not like the communities covered in this study. At the time of this study, the formal housing market system in Indonesia did not encourage direct protest to the state but to the land developer. However, the MRRA communities never employed strategies of protest or other means of pressuring the developer regarding on-site infrastructure provision.

Networking

In the absence of mass-mobilisation, it is questionable whether a networking system had been established as part of the operation of collective housing strategies. If it was not among the communities, developer, and local government, this could have been among the communities.

Studies of community networking regarding housing using the new-institutional approach have divided community networks into horizontal and vertical ones (Smith, 2003). However, this concept does not explain respondents' behaviour in this case study for two reasons: first, activities in MRRA were closed in that they involved only the members of a community. This discouraged horizontal networking with members of other communities. Participation in a community action was to a large extent is voluntary and obligatory in nature. Once a group decision had been made, a respondent, as the member of a community group, had little room to reject or neglect the decision (see Bengtsson, 1998; Rydin and Pennington, 2000, on being absent in collective action). For example, in the case of a road improvement, there was little room for member of community group to avoid participation in the work, since, if he could avoid the demanded responsibility, he could not avoid the benefit of the road improvement once the work has finished. The full benefit wanted by the others could not be achieved if the improvement was not made at the front of that resident's plot.

Second, the involvement of other parties, such as the developer, was on an ad hoc basis, and this did not support a long-term vertical relation. Once the developer helped the work, he would withdraw. There was no indication that respondents pursued the construction of networks with outsiders after they had provided assistance. This happened, for example, when a developer gave permission of land use change or when a community borrowed tools for road improvement from a local government agency.

The evidence indicates that networking among the members of an MRRA community was a feature of the functional relationships among the three categories of community: groups of households, RTs, and RWs. This system of networking did not stimulate or require mass-mobilisation across the MRRA in order to connect work among different communities. A collective action was performed as if each group was an island. Interestingly, this changed according to the scale of the work. On one occasion, a road improvement could be performed by only one group, but on another, provision of sport facilities could involve all members of one RT, while provision of a

multi-purpose building could involve the contributions of all members of one RW. Hence, the nature of work to some certain extent followed the community structure (RT and RW organisation). These situations fit Baud's (2000) observation on collective action, that households have multiple identities to attach to a number of different conceptualisations of community when they participate in a variety of collective works.

Another feature of respondents' networking behaviour was the differentiation between the on-site and the on-plot infrastructure. Networks among group members were used for on-site infrastructure provision. In contrast, the on-plot infrastructure was carried out within an individual household. Yet there were cases where respondents carried out collective work on the on-plot infrastructure items, e.g. achieving uniformity of garbage bins and lampposts for street lighting.

Overall, most of the networking found in this case study was connected to on-site infrastructure provision, with few examples relating to on-plot infrastructure. It is almost certain that individual improvement of houses did little to establish such networks outside the household. This differentiates this non-poor situation from those in poor communities. Sometime the latter have shown that a network of communal work is important to tackling individual tasks, such as those of building a house (Gough, 1999; Schlyter, 1988; Schlyter, 1989).

6.4.5 Sources of financial and material resources in mutual self-help

The availability of funds for the mutual self-help to work is of paramount importance, as many cases of collective works have shown. Experience from government-led programmes has provided examples in which resources for collective works mainly come from donors. Programme conceptualisation has evolved to include attempts to involve community contributions, in order to create a sense of ownership of the results of the programme, as well as to educate people for future work (Yeung and McGee, 1986b). In contrast to that general experience, this section presents a case in which finance came mostly from inside the community. The community also contributed material as and when necessary. However, in some instances respondents nevertheless sought additional funds from external sources.

6.4.5.1 Self-provision of financial and material resources (the supports from inside)

The work of mutual self-help needed resources in terms of financial, material, and labour. These resources were vital, and these were contributed by the members of groups who carried out the work, as well as acquired from external resources.

Respondents reported four categories of resources for mutual self-help: money (93.8%), building materials (14.2%), labour (67.0%), and other (7.4%), (Table 6.13). Basically money was obtained through three types of collections, one of which was voluntary donation. Monthly contributions were made to RTs and RWs, and there were obligatory contributions for special occasions. Yet, some house-buyers (22.7%) were generous enough to donate more money to the work beyond the obligatory contribution (Table 6.14).

The contribution of building materials and labour was very specific, depending on the individual case of the mutual self-help. It was common that during the early days of living in the area, buyers carried out housing renovation. Many buyers just dumped the materials that were replaced, such as floor tiles, roof tiles, windows frames, while installing new materials of better quality. When major initiatives for social facilities provision started up, those buyers then donated the materials ejected from their houses to the communal work, such as for erecting a mosque or security building.

The respondents related how the communities had managed well the donations they received, such as floor tiles, rooftops, or window frames. To avoid variations in colours and sizes, the mutual self-help committee would sell or exchange the donated materials to a material supplier in order to obtain others they preferred for the new development. Thus communities would accept any kind of materials from community members.

The labour contributions reported in the interviews were very specific. In general, labour contribution is a physical contribution that is below managerial level. In this case study, labour contributions in terms of physical work could also be found. However, most of the physical work was at the managerial level, such as setting up a committee to organise and implement construction of a social facilities provision. The work could be highly skilled, such as that of designing a building. A few member of the community who were architects were able to do this. Members who understood the legal system managed the legal aspect of the work, such as when acquiring public land

– or to perform squatting.⁶ There were also accountants who could help manage the cash-flow of their little projects, particularly to present the financial situation of the collective work to all members.⁷ As many buyers had formal jobs – or worked in offices, either government or private – each had the option to appeal for donations from their office colleagues. This commonly worked when they needed to build mosques.

Table 6.13
Evidence of respondents' contributions to mutual self-help

Type of Contribution	Frequency	Percent (of N=176)
Money	165	93.8
Building materials	25	14.2
Labour	118	67.0
Other contributions	13	7.4

Source: household survey 2002

Notes: other contributions could have been in terms of food and drink;

Respondents could have provided more than one answer

Table 6.14
Evidence of the sources of funds for making on-site infrastructure provision through mutual self-help

Type of Fund Sources	Frequency	Percent (of N=176)
Monthly money contribution to RT	118	67.0
Monthly money contribution to RW	42	23.9
Obligatory money contribution for special occasion	134	76.1
Non-compulsory money contribution	40	22.7

Source: household survey 2002

Note: Respondents might have provided more than one answer

An example of an 'other contribution' was the collection made each night of one or two spoonfuls of rice per household in one RW, which built up a significant amount of rice in every month. The rice collection was chosen to support the hiring of

⁶ There was a case when one community was offered a plot of land for building a new mosque by a private landowner. The mosque committee rejected it because someone else had claimed ownership of the plot. The committee preferred to squat on an open space for public use near to their neighbourhood. This option seemed feasible because there had never been an example of the demolition of a building standing on public land in this area.

⁷ A dispute took place when a community member was appointed to set up the provision of street lighting for one RT. The community suspected that the appointee had pocketed the profit by contracting out the work, and he failed to present an account of the cash-flow.

the night security guards. They received a monthly salary of roughly sixty thousand IDR, accompanied with some twenty kilograms of rice.⁸

An obligatory contribution was necessary when the monthly contribution for an RT and RW was not quite sufficient to finance the work, or when the work was not of the scale of the concern of an RT or RW. The last case, explained during the interviews, was when the work was carried out by residents of houses near to one another, such as for a road improvement. This seems logical, as obligatory contributions were the most frequently used (76.1%) of the other sources of funds (Table 6.14). Even when the work was carried out under the management of an RT or RW, an obligatory contribution was still necessary. This is so because some of the monthly contributions to an RT or RW were required for running the group. Such a monthly contribution of money varied between 5,000 and 15,000 IDR and was considered as quite small in daily life. As a comparison, the cost of a rickshaw ride at daytime was around 3,000 IDR on average during the period of the survey.

The RT was the smallest unit of organisation and the lowest level of the voluntary arm of the local government bureaucracy, and it had intensive direct contacts with residents of its area. Monthly contributions were mostly required at this level. However, respondents indicated that a small number of RWs required their members to make monthly contributions of money as well. The work of an RW was mainly to coordinate RTs under it, and it did not necessarily have to have as close contact with its residents as did the RT. However the way RTs and RWs worked was not uniform, as it depended on the dynamics of their members. So, it was found that some RWs could construct a social facility, such as mosque or a multipurpose building, and other could not. By contrast a social facility, such as playground, sport facility, or security post could be carried out by RT.

Such efforts of self-provision of funds and materials for mutual self-help were specific to this case study. It was found that in many other housing areas in Bandung and in other cities, buyers refused to pay the monthly instalment of the housing credits to the lending bank (BTN) when they found that the social and public facilities were absent.⁹ There was a protest by new house-buyers who found that their expectations of a good living environment had not been met. However, not all new housing projects

⁸ Twenty-kilograms of rice would be enough to support a family of four to five persons for a month. The community considered that an additional wage in terms of staple food (rice) was a great help to the night security guards' families.

⁹ Source: interview with Ir. Agusman Effendi, member of DPP REI (central committee board of Real Estate Indonesia).

had similar situations that led to buyers' protests. There was another example of buyers who, after living for a while in a formal housing area near to the city of Bandung, had contributed to the work of a road improvement (Permata and Bonar, 1999).

6.4.5.2 Additional external supports for mutual self-help

The majority of respondents (64.2%) said that they never asked for any support from external actors (Table 6.15). There had been a robust refusal to seek external supports (but not necessarily contributions of land from the developer). In other words many of them had been employing a *self-reliance strategy* in carrying out mutual self-help. However, some respondents had asked for help from other parties. These different answers can be understood as coming from members of different groups of houses or RTs/RWs that may have carried out different kind of works, using different participants and resources in different ways.

It was interesting that self-reliant house-buyers still sought support from outside. They asked for support from local government (21%) and the developer (13.1%), besides other external parties (14.2%), (Table 6.15). Relying on local government and developer was logical since they understood that the system within formal housing market had been working under certain circumstances that connected local government, bank, developer, and buyers.

Table 6.15
Evidence of respondents having ever asked for help

Evidence	Frequency	Percent (of N=176)
Never	113	64.2
From the local government	37	21.0
From the developer	23	13.1
From other parties	25	14.2

Source: household survey 2002

Notes: Respondents could have provided more than one answer

The developer was the only external actor that would directly interact with the house-buyers. After the 90 days of grace guaranteed by law, the developer could just get rid of any responsibility to the buyers regarding infrastructure. But this was not always the case for several reasons. First, the developer of the MRRA was still at site while the construction and marketing of houses continued. The developer of the case study area was a holding company of many projects of new formal housing located in

Bandung and other cities within the West Java Province. Its head-office was located within the case study area. Secondly, to carry out further housing construction, the developer had to regularly use the existing road networks within the area. On at least one occasion the developer had to reinforce the road networks due to the damage that resulted.

Because the physical presence of the developer was much greater than that of the other actors in the process of house purchasing, and it was easier for house-buyers to complain to the developer about the on-site infrastructure condition. The interviews showed that the close encounters between the developer and house-buyers had resulted in some forms of support from the developer to the buyers. These forms can be categorised into '*gift*', '*loan*', and '*permission*'. A *gift* was perhaps the most usual method for the developer to support the buyers, for example by giving away a plot of land, usually after a long negotiation and letters of protest from buyers. Usually buyers questioned the developer over the absence of a certain element of on-site infrastructure, for example a mosque, sport facilities, or playground. However, a land donation usually was not done through a legal handing over process involving an agreement that was signed in front of a notary. Regarding this, respondents in general could not predict the legal implications in the future should a dispute of ownership take place between the developer and the residents. If a dispute surfaced, the results of community work (such as the *in-situ* building) would be insecure. To avoid that, for the case of a mosque development, legal ownership of the land to the mosque was obtained from the developer.

In case of *borrowing*, the developer allowed use of plots of land free of charge for community purposes. This was done many times when a group of buyers (or the newly formed community) asked permission to use land at the end of dead-end roads for a multi-purpose building, a mosque, or another social facility. The community was aware that the building might be destroyed and removed when the developer was in need of the land in the future. Dead-end roads were a common result of a developer failing to acquire land from its owner as expected.¹⁰

The developer gave *permission* for the changing of the use of a plot of land. This usually was an open space that was allowed to receive buildings, such as mosque.

¹⁰ Respondents in the local government agencies indicated that failure of a developer to buy designated land from its owner occurred in many housing projects. Such a failure affected a developer's decision to provide land for social and public services. It was found that many developers designated for these purposes land adjoining their housing areas that was not in their possession. Developers commonly designated for housing plots the land they possessed and designated for future on-site infrastructure land nearby which they speculated they could purchase.

Such a plot was part of land designated for social and public facilities that was to be the subject of the process of handing over. To change the use, a long process of negotiation between house-buyers and developer could have taken place, particularly when it was a matter of changing the initial land use. The permission granted, on one hand, was an advantage to buyers of new houses because they could afford their own facilities without relying on the developer's provision. It appeared that the community nearby had the first right to engage in use of that plot. On the other hand, this resulted in a change from the original plan approved by the local planning authority. A departure from the approved plan could create a significant problem, should the developer try to hand over to the local authorities the lands with public facilities. Such inconsistencies that existed at the time of this study were negotiated between the developer and the local government as part of the process of handing over. Buyers had not thought about the possible effects on results of their mutual self-help. Buildings constructed by residents would certainly have to be included in future negotiations during the process of handing over, but they would have to be seen as the result of a community's efforts, not the developer's.

It was likely that outside supports were not critical for the mutual self-help to work. The evidence was that the majority of house-buyers (64.2%) denied they ever asked for help from outside (Table 6.15), while those that actually received help from outside were not many. Among the most frequently received supports were money (19.9%), asphalt (14.2%), plots of land (7.4%), and building materials (6.3%), (Table 6.16).

Table 6.16
Support from outside received by respondents

Type of Supports	Frequency	Percent (of N=176)
Money	35	19.9
Plot of land	13	7.4
Asphalt	25	14.2
Street lamps	1	.6
Building materials	11	6.3
Additional facilities/building equipments	2	1.1
Labour	2	1.1
Do not know the type of supports	1	.6

Source: household survey 2002

Notes: Respondents identified supports they knew and they might provide more than one answer

The respondents explained that on many occasions members of a community had distributed letters among friends and/or relatives asking their support for the construction of a mosque. On some occasions, money was received from central

government under the programme of '*social safety net*' which came into existence after the economic crisis in 1998.

The *lurah* admitted that new buyers had come to him with ideas for mutual self-help provision of social and public facilities. He was able to point out major works going on in the MRRA. His knowledge of the activities of mutual self-help came from reports by the leaders (heads) of RWs and RTs as well as his own observations. There were always formal and informal meetings between the *lurah* and all RWs and RTs in the administration of Kelurahan Sekejati. Although communication was bureaucratic, the leaders of RWs and RTs were not part of the local government administration, and the works of RWs and RTs were mostly voluntary. Coincidentally, as his office located within the MRRA, the *lurah* had many opportunities to observe the situation there.¹¹

Commonly the *lurah* gave an account of new social and public facilities within his reports on the locality. However, he pointed out that there were major community works in his administrative area of *Kelurahan Sekejati* that had some financial support from the local government. For example, when one RW was developing a new multipurpose building, the local government gave up to seven and half million IDR out of the total cost of sixty seven million IDR (the rest was provided by the community). Apparently, for a multipurpose building, it was common for the community to send an appeal along with the proposal to the local government in order to obtain some financial help. Although the support was not much – only seven and half million IDR maximum – it still was a significant help to the community's efforts.

From the local government side, it was declared that an RW or RT could ask for some funds for community project. They were given as was part of a programme called '*Manunggal Satata Sariksa*' (united together in goodwill), in which the local government provided seven and half million IDR to any RW or RT when its proposal was accepted. However, there was no knowing how much money was available in total annually for this competition. In addition, the proposal had to be the result of agreement or acclamation among community members. This accord among community members would normally happen anyway when a community took an initiative.

¹¹ The MRRA is located in Kelurahan Sekejati, which has an administrative area much larger than the MRRA.

6.4.6 Gender awareness in mutual self-help infrastructure provision

Contrary to some studies of gender-related basic services provision, this study found some gender bias. The mutual self-help was mostly undertaken through organised meetings of groups (RWs, RTs, and spontaneous groups of households) that were dominated by men. Men were considered the heads of households and to have a political role in mutual works. Although women were also active, their roles were confined to matters traditionally related to women, e.g. *Posyandu* (activities for caring mother and young children to maintain good health)¹², the celebration of the Independence Day where all members of community would participate in various preparations, or celebration of a religious day.

Some authors have identified the importance of the roles of women in poor communities for their voluntary work to ensure the provision and maintenance of basic services. Men, in contrast, have had a "community politics" role (Moser, 1987; Moser et al., 1997). In the MRRA, men had the dominant roles in on-site infrastructure provision. The role of women was important but was not central to decision-making. However, at household level, particularly in decisions regarding on-plot infrastructure improvement, the awareness of both men and women was central. It was found during interviews that women's views on on-plot infrastructure were quite vital. They delivered the message that the on-plot infrastructure was the first area to be tackled, particularly the water quality.

Women's labour contributions were very rare to mutual self-help provision of on-site infrastructure. However, there was an exception in a community of more than seventy families in the smallest housing type, T21. There, women supported the activities of men during the road improvement. While the men were contributing manual labour using hired tools, the women were provided the logistics (e.g. food provision). This contrasted with most of the work in the MRRA, which was contracted out to a third party.

¹² *Posyandu* was basically a government-induced activity to support good health for mothers and young children, particularly in rural and low-income urban areas. This included monitoring the health of young children and exchanging information of family planning. The task to set up this voluntary programme had been given to RTs and RWs, the extended hands of government at local level, and was carried out on a monthly basis by women. However, as this was a voluntary programme, not all neighbourhoods undertook the activity. Meanwhile, some RTs or RWs that had started it then ceased the activity. It was understandable because they were middle-income communities and they had better health awareness than those of the targeted groups in rural and low-income communities. In addition, they also could afford private health services, such as obstetrics, gynaecology, and paediatrics.

6.4.7 Sustainability of mutual-self help residential infrastructure provision

It is not clear what had compelled respondents to make improvement of the on-site infrastructure. Literature reviews suggested three possibilities could arise for resolving problems of inadequacies: firstly, protests could be addressed to the developer or local authority; secondly, communal work could be undertaken with support from the developer or local authority; and thirdly, a do-it-yourself strategy of self-reliance strategy could be carried out by a community without outside support.

The first option was not taken by the community in this study, although it might have happened in another formal housing area. The second option has been followed in some formal housing areas in Indonesia; the developer and local government have engaged with residents in the improvement of the on-site infrastructure, particularly roads and drainage (Struyk et al. 1990). However, information on how the work was carried out has apparently not been obtained. The third option is the one that was found in this study.

This thesis argues that respondents informed themselves prior to tackling the inadequacies of on-site infrastructure by (a) individually making improvements to on-plot infrastructure; (b) negotiating with the developer for some improvements to the on-site infrastructure provision; and (c) realising that before the housing area was handed over to the local authority, the developer alone was responsible for on-site improvements.

Large numbers of respondents engaged in on-plot infrastructure improvement. This showed that respondents relied on themselves for the on-plot infrastructure instead of the developer or local government. This was an individual decision of each household. Similarly, after living in the area for some time, it was up to them to decide whether they would make further improvements or not.

The sustainability of collective work has been a concern of many studies, Most of these were cases of externally induced collective work (Dudley, 1993; Moser, 1998; Moughtin et al., 1992), suggesting that collective action could be very dependent on external support. In such cases, when external actors left the communities they had supported, either the community continued to work but at a lower capacity (Dudley, 1993; Moser, 1998; Moughtin et al., 1992), or it did not work at all. This, again, highlights that it is rare in the literature for sustained collective action to be an inherent capacity of a community. A positive response to the departure of external agencies is when a community helps itself (Berner and Phillips, 2005; Dudley, 1993; Moser, 1998; Moughtin et al., 1992).

This study did not collect evidence of how to sustain collective work, but it found evidence that the collective efforts in the MRRA might be sustained over the long term. Most respondents stated they were willing to participate and contribute to collective work as almost all of them felt the benefits of the works already performed (90.3%), and many declared that they would like to do it again on another occasion and with a group representing a larger community (62.6%), (Table 6.17). However, it is recognised that benefit to a community does not automatically sustain the collective working.

The physical evidence of the benefits of mutual self-help could be seen in the surroundings of MRRA households. However it was important to investigate whether mutual self-help had been perceived to be of benefit to them, and therefore could be a possible means for further improvement of infrastructure. It was found that 90.3% of respondents felt they had benefited from the mutual self-help that provided on-site infrastructure. This evidence showed that almost all respondents had an interest in improving their living conditions through on-site infrastructure improvement (Table 6.17).

The respondents indicated that they would be ready to contribute to the further improvement of the on-site infrastructure through mutual self-help. Some 56% were ready to do mutual self-help again on another occasion, and 6% were ready to carry out a programme of a broader community group (Table 6.17). However, a small portion of respondents saw no need for more mutual self-help (0.6%). This evidence showed that majority of respondents had an interest to carry out further mutual self-help on-site infrastructure improvement.

Table 6.17
Assessment of the benefit of mutual self-help in on-site infrastructure provision

Type of Assessment	Frequency	Percent (out of N=176)
Not really giving benefit	7	4.0
Giving very much benefit	159	90.3
No need to do it again	1	.6
Need to do it again on other occasions	98	55.7
Need to do it again for community programmes	11	6.3
Need to involve the reluctant community members	1	.6

Source: household survey 2002

Notes: respondents might identify more than one benefit/answer

Sustainability can be seen from a different angle as well - that of a community as a whole. From this point of view, sustainability was a matter of the continuation of efforts by groups that together performed as a total community. However, as it was unlikely that every group had been connected to others through networks, this perception of the sustainability of community self-help was inappropriate for the MRRA. Instead, it was possible to examine the sustainability of self-help that was performed by a group, such as a spontaneous group of households, or an RT, or an RW.

A typical group of respondents continuously produced ideas for self-provision of infrastructure, according to their situation and the length of their residence in the area. But the need for certain on-site infrastructure, such as a mosque, could grow during the time they lived there; it could not be identified with a particular point in their residence. It was found that the need for a mosque could be felt at any time after they began to live in the neighbourhood.

For a group within the community, sustainability was examined in terms of a one-time provision of improvements, a repeated provision, and maintenance (which involved continuous working together). A one-time provision of infrastructure involved a single process to obtain land, plan, manage, finance and build. It was not repeated at the same location. Examples were the provision of a mosque, playground, security building, and a multipurpose building.

Repeated provision of infrastructure usually involved infrastructure that needed possible redevelopment. This included communal provision of uniform lampposts, garbage bins, and even road improvements.¹³ Some street-lighting was redeveloped to bring it up to city standard. Garbage bins were replaced as they deteriorated. Road improvements were repeatedly made to the initial provision by the developer. The quality and form of each road improvement varied according to individual group decisions.

Maintenance and rehabilitation were by their natures repeatable. This included garbage collection, beautification of the environment (by planting, mowing, and care of small gardens), and the collective improvement of drainage/sewerage. The maintenance and rehabilitation carried out by residents was evidence of repeated work. They variously engaged in providing similar types of public and social facilities. For the social facilities, a decrease was seen in the number of respondents who

¹³ Road improvement was considered as provision rather than maintenance or rehabilitation, because it treated the whole surface of the road.

previously engaged in the provision of maintenance and rehabilitation. This also happened with public facilities, except for work on drainage problems. In the two cases, the number of respondents engaged in sewer dredging and rehabilitation was greater than that engaged in the provision. In some cases, there were more respondents engaged in the rehabilitation than in the maintenance. This was seen regarding the provision of garbage pails, and improvements to drains/sewers and roads. These were evidence of dynamic responses to immediate problems (see Tables 5.12 and 5.13).

Provision and improvement through collective housing strategies had replaced provision and maintenance of the on-site infrastructure in the area by the developer. On the one hand, the continuation of these actions by respondents by itself answered the question of *'whether this mutual self-help of infrastructure could be sustainable'*. On the other hand, respondents acknowledged that there was no guarantee that the handing over process, if successfully done, would make the local government take over the responsibilities of infrastructure provision and maintenance, or even to support what has been started by groups within the community.

6.5 The role of external leverages in collective housing strategies

External leverages can be paramount in collective action, and many are in the form of material and non-material supports. The latter can be in the form of external actors who stimulate awareness and mobilise participation (Abbott, 1996a; Bryant, 1980; Dudley, 1993; Friedmann, 1992; Lee, 1998; Lopes and Rakodi, 2002; Moughtin et al., 1992; Sanderson and Hedley, 2002; Varughese and Ostrom, 2001). The support of external actors can come from governments, NGOs, and others, such as intermediary organisation (Bryant, 1980; Lee, 1998; Lopes and Rakodi, 2002).

However, contrary to those beliefs, the mutual self-help in this study showed little evidence of a connection with external leverages and actors. This lack of external leverages could be seen throughout the process of mutual self-help. It was detected from three sources: the questionnaire, the semi-structured interviews, and the observations. From the questionnaire, the sources of supports were mostly identified as community members themselves. Sources from outside were in response to communities' appeals for additional funds, and commonly they were for development of a religious building (mosque). It was clear that these funds from outside were not given to stimulate awareness of or to mobilise participation. In the interviews,

respondents denied any external involvement in their initiatives and works of on-site infrastructure improvement. From the observations, no physical signs were noted of the involvement of external agents in the work. It was common in the country at that time that any intervention by an external agent would eventually be honoured publicly and widely acknowledged by a community. Those symbolic acts were not found in the case studied here.

Although the presence of external leverages was not identified, other sources of knowledge appeared to have been there to encourage the work of mutual self-help among residents. *First*, there was the experience of individual self-help obtained while improving infrastructure that was on the plot. This experience developed a sense of self-reliance within households to '*do-it-yourself*'. This sense was promoted by a realisation by buyers that the contract of sale was legally binding, so they could not escape it. In the sale agreement there was a clause giving buyers ninety days in which to complain. However, the ninety days guarantee was limited only to certain acts of rehabilitation of a house and its components; it did not permit the buyer to return the house and be refunded. Respondents indicated that when buyers complained to the developer over the inadequate condition of their houses, it took a long and painful process to make the developer carry out rehabilitation, which sometimes was abandoned before it achieved a result. A little or trivial inadequacy a house was certainly not a major concern to the developer. Unless a major problem arose, action was not quick. Although when buying a brand new car or television, a scratch on their surfaces would devalue the items and buyers would refuse to receive the items, the equivalent did not happen when purchasing the houses in this case study.

Probably there were buyers who had fought for the attention of the developer during the period of the guarantee, especially the ones that needed to have their houses immediately. In contrast to them, there were house-buyers who had plans in mind for renovations which they would have rather pursued than complained to the developer. Their behaviour may have influenced the developer's motivation to provide housing, since there would have been no point to providing finished houses if, in the end, buyers were going to undertake major renovations of them. However, neither the developer nor the buyers could be expected to confirm this possibility. An admission by the developer would have made the developer vulnerable on legal grounds, whereas the buyers expected to receive good houses regardless of their plans for major housing renovations. Nevertheless, the developer fulfilled the requirements of the lending bank for houses that were suitable to serve as collateral when buyers took out housing

loans. There was less need for the developer to fulfil the buyers' concerns than to fulfil a bank's concern, since getting the cash from the bank was essential if the developer was to run the business.

Buyers' experiences of dealing with the developer had created self-reliance. It showed that 'do-it-yourself' was an effective way to obtain improvements of the housing and its on-plot infrastructure. The resulting experiences of formulating individual housing strategies were key for developing collective strategies.

Second, buyers had obtained some understanding of the relationship between the developer and the residents, between the local government and residents, and among the residents themselves. Buyers acknowledged during the interviews that local government had certain funds available for neighbourhood improvement and that they could be acquired through certain procedures. The *lurah* usually would inform the heads of RWs and RTs of the availability of funds through regular meetings in his office. To the *lurah*, a successful proposal for funds would enhance the performance of his administration. To the RW or RT, this was a good chance to get the funds for the improvement of the housing environment.

However, as the *lurah* explained, the funds were competitive and the City of Bandung accepted only a limited number of proposals. Apparently there was no guideline available to explain what kind of proposal or how a proposal would be accepted. A logical measure was that only good proposals would be accepted. The competition usually discouraged a community when it considered the amount of the funds likely to be given to any single winner. The amount was probably too small for a typical improvement of facilities, while there were hundreds of RWs and RTs from all over the city that would like to have it. Interviews with the *lurah*¹⁴ of *Kelurahan Sekejati*¹⁵ suggested that the total funds for competition were seven and half million IDR each year (see the further discussion in section 6.4.5.2).

Third, sources of awareness and knowledge were important for mutual self-help. Some 72% of house-buyers replied that their 'own-thinking' was the source of their awareness and knowledge for doing mutual self-help (Table 6.12). They also suggested that they were middle and lower-middle income groups who generally were better off and that most of them (husband and wife) had a university background. They were able to afford houses placed on formal markets, marking themselves as beyond the poverty of just surviving. They were also different from low-income people in the

¹⁴ The head of the local administrative area where the case study took place, a civil servant

¹⁵ The name of the administrative area.

sense that the latter could only afford core-type houses. This was evidence that they were highly self-motivated by their self-knowledge and self-awareness, and that they had ample resources for improving their living conditions.

These conclusions also suggest two things: first, external leverages of a kind that might have stimulated the awareness of the need for carrying mutual self-help did not exist. Second, for some respondents, being informed through friends and relatives, books, and newspaper/magazines played a role in introducing self-awareness (14.2%). However, their own thinking was the most dominant source of self-awareness among respondents (72.2%), (Table 6.12).

The implications of no external actors

The gradual improvement of infrastructure was carried out through mutual self-help without the presence of external actors. It is questionable whether their absence had been good for the community. The answer is found from the nature of the progressive improvement carried out by respondents. There were events that were not associated with the external actors and were exclusively the results of mutual self-help, e.g. there was no 'uniformity of action' among groups of new house-buyers in terms of timing and processes, the possibilities to develop networks between communities or groups of house-buyers were unexplored, and there were conditions that made uncertain the transfer or dissemination of knowledge within a community – and possibly across generations.

However, the means to spread knowledge of progressive improvement could be different in a middle-income community from a low-income community. Although external leverages have been found to be essential in many low-income communities, the respondents in this case study were educated people, who largely relied on printed-material, such as books, newspaper, and magazines, as well as news delivered by television and radio, to obtain informal knowledge, despite their formal educational backgrounds. The latter has contributed to the formation of a cognitive impression and expectation of what 'community could and should do'. This situation may have largely contributed to the making of community action in this study.

In addition to that was the capability of a new community to build up a store of knowledge that could cover the list of possible mutual self-help activities, and the ways to perform them. This was shown by the stream of on-site infrastructure projects carried out by residents over the years of the MRRA's existence. Those projects were continually supported by the willingness of community members to participate and

contribute funds. A successful one, such as the organisation of solid waste management, was a starting point. From there a community could move on to a road improvement or another project that was necessary.

The success of experience of working together has indirectly neglected the possibility of the contribution of previous experience such as from rural tradition (Yeung, 1990; Yeung and McGee, 1986b). The building of a store of knowledge – such as happened in the case studied here – is an example of a '*bottom-up*' activity that has opposite results from a collective activity that is '*top-down*', such as in the case of an infrastructure upgrading programme. In a top-down programme, it can be much more difficult to mobilise a community for the purpose of improvement, and the community is less likely to build up a store of experience and social capital for future action, as found by Moser et al. (1997). This situation sometimes becomes worse with the contribution of local political support, leaving bottom-up initiatives undeveloped (Moser et al., 1997).

6.6 Afterthoughts on housing strategy involving residential infrastructure

Crow (1989) distinguished the *conscious* and *unconscious* as two important aspects of a strategy (Crow, 1989), but Pickvance and Pickvance (1994) proposed not to include them in the concept of a strategy. This study found the two aspects to be important in the experiences of buyers. Conscious meant that buyers got the knowledge of the need to do improvements from within themselves and knew what to expect and what to do; while unconscious meant buyers got the knowledge of improvement as culturally transmitted knowledge across generations. The latter implies that individual or collective improvement would be a common phenomenon in newly-built housing areas, which apparently had not happened in Indonesia. Therefore, it seems that the infrastructure improvement studied here was part of the housing strategies conceived by buyers in formal housing market situations, and it was not the result of a tradition of collective works (Yeung and McGee, 1986).

There was a general recognition in the country that someone buying a house in a formal housing area should be prepared for additional costs for fixing houses and infrastructure. However, the proportion of original occupants carrying out improvements to on-plot infrastructure was less massive than the total percentage

recorded in this study. Struyk et al. (1990) reported that less than 26% of original occupants of houses built by private developer had engaged in improvements to each category of infrastructure. In contrast, for houses built by Perumnas (the state-owned developer) the percentages were higher, as much as 40% in one category. One interpretation of this information was that private developers' infrastructure provision was better than Perumnas. A very different message these figures gave regarding the formal housing market situation in Indonesia was that there was a common need for residents to improve the infrastructure provided by a developer (see Table 6.18).

Unfortunately, there was no further explanation concerning the position of original homeowners who were engaged in the improvements as reported in Struyk et al. (1990). Rather, it was reported that residents, developers (private and Perumnas) and local governments had engaged together in the work of improvements. There was no clarification of how the work had been carried out, either individually or collectively and of which aspects had been performed by either individual or collective work. Even more, strategies by homeowners to carry out the improvement of infrastructure and services were not discussed. The study, then, only reported without further exploration the positions of 'residents', 'buyers', and 'original or non-original homeowners'. The commonality of residents' contribution to infrastructure improvement – as shown in the table – was not self-evident and there was no evidence that strategies might be present to direct the processes of improvement and that external leverages were involved in the processes.

Table 6.18
Percentage of original occupant homeowners reporting improvements and deterioration in infrastructure and services during the previous few years, by type of developer and unit type^a

Type of Improvement	Private Developer		Perumnas Non-Flat	
	Improved	Deteriorated	Improved	Deteriorated
Streets	19	17	39	4
Footpaths	1	1	12	^b
Electricity	19	0	26	10
Water Supply	13	1	21	11
Sewerage	25	5	32	2

Source: adapted from Struyk et al. (1990), a representative survey of households in BTN-financed units

a. Only includes h households who have occupied their units for at least one year

b. Less than 0.5.

6.6.1 The transfer of individual housing strategy knowledge

This thesis has presented evidence that within their individual housing strategies the original house-buyers have realised the need to make improvements after

seeing the condition of the on-plot infrastructure delivered to them. Although the timing of the arrival of the awareness to carry out the improvements varied, buyers indicated that the awareness came out from themselves without any chances for external leverages to mediate. If there were sources of knowledge that buyers could have adapted, they came from – mostly – the respondents' own thinking (95.5%). If there were other sources beyond themselves, these came from friends and relatives which are not considered as external leverages as generally understood in the literature (Table 6.11). In addition, the evidence revealed that self-awareness from within the respondents was much greater than the possibility for the cultural transfer of knowledge to community members. This also explained why less than 12% of respondents reported that they learned about making improvements from the national news media, magazines, or books. Although these media for the cultural transfer of knowledge had informed them about the formal housing markets, the news media, magazines or books were not used to learn about the improvement of infrastructure.

Comparison of this study to that by Moser (1982) shows that different sources of knowledge characterise particular situations when households face adverse situations in their lives. Moser's (1982) study on low-income community in Guayaquil, Ecuador, presented an explanation different from that of this study. She found that squatter housing strategies had been constructed through a transfer of knowledge among community members. Potential inhabitants heard about vacant plots through their families (37%) or friends (40%), and over 54 per cent had families in the area. The provision of illegal settlements and attempts to obtain infrastructure had frequently been carried out in collective ways and been copied by members of a community. The figures showed the importance of the existence of kin in the location before other members of family or relatives joined them in that the area. The data also showed the close relationship among community members when responding to collective and individual needs.

The situation of her study was rather different from this one as respondents of this study come from various backgrounds and were not necessarily close kin. That most respondents reported learning for themselves how to do improvements reduced the possibility that knowledge transferred between community members had an important role. This study defined culturally transferred knowledge as that passed through direct contact between community members (e.g. neighbours, friends, family members, relatives) or indirect contact through many information media (e.g. books, newspaper, and magazines).

Respondents who read newspapers would have found many critiques of the housing and residential infrastructure development in Indonesia. Newspapers were important sources of useful information for homebuyers. They also provided significant information on the housing situation within the city, although, when it came to the formal housing area of buyers' choice, there was a lack of information on it. This to some extent answers the question of 'did they know what they bought?' as buyers had access to a general knowledge of the nature of current housing development at the time of purchasing their houses.

Hence, it was not a matter of friends or relatives informing respondents about becoming house owners, but rather what respondents thought they had to do when they became owners. Respondents well understood what they would get before they bought their houses and decided to act. There was a slight inconsistency, however, when the second group (Group 2 or the unaware group) assessed that the availability and condition of on-plot infrastructure was adequate or very adequate. This second group also declared that they knew before they purchased the houses that they would get on-plot infrastructure of adequate or very adequate condition. But, finally they made some improvements to their on-plot infrastructure, like the other group (Group 1 or the aware group) did.

6.6.2 The transfer of collective housing strategy knowledge

Mutual self-help action in a low-income urban community often has been seen to originate in rural areas and to be brought to urban areas by rural-urban migrants. Yeung and McGee (1986b) have argued that it is basically culturally transferred to and reshaped within a low-income urban community. On many occasions, self-help has been employed by governments to pursue their various community programmes of urban services improvements (see for example Karamoy and Dias, 1986; Kuan et al., 1986; Lau et al., 1986; Park et al., 1986a; Park et al., 1986b; Ramos and Roman, 1986a; Ramos and Roman, 1986b; Salih et al., 1986; Yeung and McGee, 1986b). The evidence in most of these cases was that the use of mutual self-help was driven from outside. This mutual self-help could easily be generated because it was natural to a community, particularly in Asia, and perhaps in Africa as well (Moughtin et al., 1992). Although Yeung and McGee (1986b) may be correct, their argument is not sufficient to explain the mutual self-help found in this case study.

It might be true that an element of culturally transferred knowledge was one of the sources of the self-drive of respondents when they gave the answer of 'own thinking'. However, the leverage or '*external drive*' to make any '*cultural inheritance*' work was not present in this case study. Examples of community works on urban services are dominated by external drive, the external factor that makes a community carry out collective action. Part of this external factor is related to funds, generated by external actors, such as government and NGOs. Hence, this study has raised the idea that the transfer of knowledge alone is not enough to make community work on collective urban services. Another point, which is very important, is that the leverage could come from within the community. Even Moughtin et al. (1992) claim that traditional mutual self-help has been eroded to the point that it needs some external leverage to make it work.

Indonesian communities believe that mutual self-help (*gotong royong*) has been embedded in their daily life, and they are proud of it (Prawiro, 1998). This could be a distinctive character of a nation, for such claims can be found elsewhere in Asia or Africa (Moughtin et al., 1992; Yeung and McGee, 1986b). As in many other countries, government or NGOs have employed mutual self-help in Indonesia for implementing their programmes and to foster their own goals, such as in the Kampong Improvement Programme. They have performed the roles of external leverages that awakened the mutual self-help dormant in a community. In contrast, the self-provision and improvement of infrastructure by house-buyers in the MRRA appeared to have been triggered by needs arising within themselves to adapt the conditions around them to their liking (Table 6.12). The surrounding situation highlighted the dormant character of the capacities within individuals and communities to engage in mutual self-help. The developer of this area had failed to comply with the concept of housing as a package or bundle that included adequate infrastructure (Crooke, 1983; Shroder, 2002), by providing substandard infrastructure. In the end, residents took over the role of provision through individual and communal action. In actuality, the promoter came from within the community and exerted leverage from the inside. The respondents claimed that their community works were the products of their initiatives. They claimed that their awareness of the need to improve on-site infrastructure came from within themselves. In practice, this idea of working together had been agreed by community members and enriched by the process of discussion, and finally was attained through planned implementation. In some cases even, a division of labour

could be identified, through which a community maximised the use of available resources, such as by employing the educational background of members.

The continual initiation of projects by groups of houses supported a transfer of experience among communities. This suggests that the mutual self-help was not so much brought from a rural culture to this new housing area as it was an accumulation of significantly important experience within communities, across groups of houses. In contrast, a top-down approach to infrastructure upgrading does not motivate a community to accumulate its experiences and learn from them, meaning that a community will not build up experience and social capital for future action. This is true of local level politics of a top-down nature when it provides the basis for community action (Moser et al., 1997). The case study presented in this thesis has shown that new house-buyers could form themselves into groups in the absence of supporting external leverages and that their groups could build up stores of experience and social capital within themselves and transfer their knowledge among community members.

The evidence does not support the idea that the transfer of knowledge came from outside the community. First, this community was newly formed and could be traced back over twenty years of MRRA development. Second, the other sources of knowledge beyond respondents' 'own thinking' (Table 6.12) were not major contributors to the motivations of individual buyers to engage in the collective work, nor were they triggers for acts of working. In fact, many respondents reported that their own thinking was the most important source of motivation although they drew on other sources of knowledge. Third, knowledge was transferred among members of the community throughout their periods of residence, building a store of experience based on previous collective works.

6.7 Summary

Chapter 6 has presented and elaborated the formulation and practice of individual and collective housing strategies. In the beginning, it explored general housing strategies, focusing on the shelter and socio-economic aspects of housing. It revealed that buyers generally had carried out strategies for housing to support their household situations. These strategies included their needs for housing renovation, the resources for buying and renovating the houses, and the use of houses for income

generating activities (HBEs). The message obtained from this section is that some aspects of the strategies of these middle income households were similar to the housing strategies found in poor communities. A major difference was in the infrastructure aspect which these middle-income buyers included within their housing strategies. Although the provision of infrastructure has been seen as beyond the capacity of households, this study has shown otherwise. Buyers of houses in the MRRA carried out the provision of infrastructure through self-help and gradual improvement after recognising that the provision by the developer was inadequate. These buyers improved three aspects of their housing situations, which were the houses, the on-plot infrastructure and the on-site infrastructure.

This chapter has shown that strategies for on-site infrastructure were formulated within individual households, generally by husbands and wives. Those for the on-plot infrastructure were created within groups of households and therefore were community based.

This chapter also discussed many aspects of housing strategies involving infrastructure. These included the gradual nature of improvements, the role of mutual self-help, the absence of external leverages, the presence of other supports for collective activities, the importance of local organisation, the roles of leadership and promoters in them, and the sustainability of mutual self-help.

Chapter 7

Conclusion and Future Research

7.1 Introduction

In the city of Bandung, Indonesia, private sector housing development exhibited flaws in its residential service infrastructure provision. It provided an infrastructure of inadequate quality that made house-buyers add their own improvements. Although these flaws had been highlighted by discussion in the national mass media, government had taken no action in response. Meanwhile, problems of on-plot and on-site infrastructure improvement were taken on by new house-buyers through individual and collective action.

The study investigated the behaviour of middle-income house-buyers when purchasing and occupying new houses in the Margahayu Raya Residential Area (MRRA) of Bandung. It focused on their responses to the condition of service infrastructure provided when they bought their houses, their housing strategies to cope with these conditions, and their processes of progressively improving these conditions. The actions taken to tackle residential infrastructure deficiencies, either individually or collectively, revealed new dimensions to the notion of progressive improvement and as well as to notions of housing strategies. These actions contradicted assertions that collective community action in infrastructure provision normally needs the support, if not the initiative, of external actors, as has been recognised as the common case in low-income urban communities.

This study found empirical support for its main hypothesis. This was that middle-income households can choose to make significant improvements to the service infrastructure of new house that they purchase. They can do this without the intervention of external leverage. These infrastructure improvements can be elements of strategies that the households create for housing themselves. This can be so whether or not a household recognises that the infrastructure provision is unsatisfactory before purchasing the house. Strategies can use both individual and collective approaches to infrastructure improvement. Improvements can be made progressively, yet without any intention to connect them with formal municipal networks. Homeowners'

behaviour regarding on-plot improvements and on-site improvements can be substantially different.

Data for this study were collected from a number of sources, using a distributed questionnaire and followed by in-depth interviewing. Some 300 questionnaires were completed and 176 respondents were identified as the original buyers of their houses. In-depth interviews were conducted with 11 respondents and with some private developers and local government officials. Interviews with the developers and local government officials were aimed at obtaining information that framed the issues of formal housing development and its infrastructure problems in Bandung, Indonesia and its surroundings.

7.2 Findings of the research

7.2.1 General findings of the research

Middle-income and lower-middle-income residents of a developer-built housing area in Bandung, Indonesia were found to have carried out substantial changes and additions to the service facilities that were provided by the builder of their houses. It was first hypothesised that households chose to purchase in this area because they knew the infrastructure was deficient and this made housing more affordable to them. However, this was not the case, since many reported they were unaware of the inadequacy of on-plot infrastructure (although the majority recognised the inadequacy of *on-site* infrastructure). Because many house-buyers believed that they were receiving adequate on-plot infrastructure, they could not have chosen housing with inadequate services as part of a strategy to afford other housing features.

Generally, formal housing development is understood to be a package or a bundle that consists of a shelter-providing structure and the necessary basic service facilities to make a good environment for habitation (Crooke, 1983; Shroder, 2002). However, most respondents in the case studied appear to have had another perception of what is adequate housing, one that did not include the adequacy of the infrastructure on their plots and in their area. It was only sometime later after living in their houses and in the area that they realised their dissatisfaction. Their awareness led them to make progressive improvements to their on-plot and on-site infrastructures.

Residents decided to do infrastructure provision individually (on on-plot infrastructure) and collectively (on on-site infrastructure). These decisions were influenced by the experiences of buying and occupying the house and living in the area.

The most important factor to stimulate the residents to act was the awareness of the need for a better provision of infrastructure. The decision to act required time to come up, but it – like the awareness of deficiencies – was self-generated, the result of their own assessments of the existing service infrastructure and of the possibilities for action.

The timing of both awareness and action in response to it differed somewhat according to the dimension of the service. Sometimes the awareness of on-plot needs came up before or as soon as residents moved into their houses, and decisions to act followed quickly afterward. In contrast, for on-site infrastructure provision, the action in response to awareness was taken only after residents lived in the house for a while.

Their collective action through mutual self-help operated without significant intervention, either from government, or from NGOs, or from other actors external to their communities. On various occasions, respondents had taken the roles of providers, instead of becoming recipients of assistance from external actors. It is suggested that the adversity of the context had many influences on the way residents participated in providing infrastructure for themselves. The adversity was the failure of the housing developer to provide adequate infrastructure for the future residents.

The term progressive infrastructure improvement was created by Choguill and his colleagues (see Choguill and Choguill, 1996; Choguill, 1996a; Choguill, 1999; Choguill et al. 1993; Choguill et al. 1994). This basically was a concept of infrastructure improvement formulated from observations of actions in low-income communities. Choguill transformed the idea of formal residential infrastructure provision into something informal, which is more affordable for and implementable by low-income communities. The results of this informal provision should be capable of being connected to the formal infrastructure system, which is the town system, sometime in the future (Choguill, 1995). By undertaking improvements progressively, a community basically is practising the idea of freedom to build in housing, as suggested by Turner (1976), but especially with regard to infrastructure (Choguill, 1995; Choguill, 1999).

Although some aspects of what was found by this study fit with Choguill's concept for low-income communities, other findings were rather different. Although

improvements were carried out progressively, no external leverages operated to initiate or drive this activity and no guidance from outside was used – neither that of a local land use plan (one was initially prepared by the developer) nor that of local government. In keeping with Turner’s concept of freedom to build, new residents constructed what they wanted, when they wanted and how they wanted.

Overall, this study has shown how self-help, as part of household housing strategy, can cover a wide range of residential infrastructure. Individual self-help focused on on-plot infrastructure, while mutual self-help that was a collective action among residents focused on on-site infrastructure. These household housing strategies took the place that interventions from outside commonly play in low-income communities. At the same time they demonstrated an expansion of the concept of a housing strategy to include service infrastructure as an equal partner or even to make it the focus of the strategy.

7.2.2 Other findings of the research

7.2.2.1 The findings regarding the nature of the improvements

Respondents reported that self-help groups not only constructed facilities that their neighbourhoods lacked (e.g. a mosque). They also improved facilities provided by the developer, often doing this because the facility, such as a road, had deteriorated. Moreover, they undertook group action later on to maintain both new facilities and one they had improved.

Specific on-plot infrastructure improvements included the improvement of the hand pumps provided as a water source by the developer, their replacement with electric pumps, the drilling of deeper wells or of new boreholes, the putting in place additional individual water tanks, the setting up of plumbing systems within the houses, the extension of septic tanks, the construction of storm water drainage in front of houses and sewerage behind the house, and the installation of garbage bins. The most common of these were improvements to water pumping, water tanks, plumbing, and garbage storage.¹

The kinds of social facilities provided on-site included playgroup space, a kindergarten for Koran teaching, a park, a playground, sport facilities (e.g. volley ball

¹ The developer provided open ditches in front of and behind houses called drainage and sewerage. Both were connected to networks and had no physical differences. The difference was that the back ditches were intended for sullage disposal, e.g. from kitchen and bathroom, whilst the front ones were for rainwater. Both rainwater and sullage flowed into the same public drainage system, which previously was an irrigation system. There was no municipal sewerage.

space, basket ball space, badminton space, etc.), an office for security personnel, a religious facility, and a multipurpose community building. Also, an ambulance for transporting the sick and the dead was provided. The public facilities created included a solid waste management system (including a garbage cart and pail and a purchased or hired garbage truck), road surfacing, installation of a gate to a road, storm water drainage along a road, sewer improvement, bridge construction, street lighting installation, and the mounting of street signs and direction boards.

In addition to new facilities of the kinds illustrated above, the efforts to improve the provision of social and public facilities on-site extended to maintenance and rehabilitation. The maintenance and rehabilitation covered infrastructure that residents provided earlier for themselves, as well as ones provided by the developer.

7.2.2.2 The findings regarding the housing bundle and infrastructure components

Although a housing bundle is often thought of as including an infrastructure component, this was not so for the MRRA. On the one hand, the developer of the MRRA was no different from the majority in the country that provided insufficient infrastructure. On the other, buyers of MRRA houses (the respondents) omitted infrastructure, on-plot as well as on-site, from their main reasons for purchasing their houses. An infrastructure component might be significant in the concept of a housing bundle, but buyers reasoned that house price and distance to work place were most important. Buyers *who were aware* of the inadequate condition of the infrastructure apparently did not consider infrastructure to be part of the housing bundle they were buying. Buyers, *who were unaware* of infrastructure inadequacy, either believed that the houses they bought contained adequate infrastructure or they also did not consider adequate infrastructure to be part of a satisfactory housing bundle.

This inattention to infrastructure considerations continued through the process of selecting and purchasing houses. With respect to the on-plot infrastructure, a majority believed that they knew what they would get, and just after they had purchased the houses, a slight majority of them still thought that the on-plot infrastructure was adequate. It turned out that their beliefs were not accurate, as many were compelled to do self-help improvement. Contrary to their expectations regarding on-site infrastructure, buyers, before purchasing, consistently believed that they would

not get adequate on-site infrastructure. This turned out to be right when they moved in, and in the end they engaged in actions to improve on-site infrastructure.

7.2.2.3 The findings regarding mutual self-help

Respondents engaged in mutual self-help on the basis of their needs for facilities that were shared among households living very near to one another (for example, the need to improve the road surface or to install street lamps). Their mutual self-help used local organisations (RTs or RWs) when social facilities were wanted that served the needs of a larger number of community members. The RT (community unit) and RW (neighbourhood unit) were local organisations set up by residents themselves that, on the one hand, were autonomous and self-funded and, on the other, considered local community organisations that helped while being subordinate to the lowest government administrative unit (the *Kelurahan* or sub district).

Although they did not initiate or drive self-help, the developer and the local government did participate in the process. In creating social facilities, the new house-buyers asked for land from the developer or they illegally took possession of public open spaces and built the necessary structures on that land. Sometimes the developer dedicated a plot to a particular group, with or without conditions. Usually the developer kept the right to repossess the land when it was required for further construction sometime in the future. After twenty years, this so far had not ever taken place. When the land was provided, it usually happened after a long process of negotiation between the new house-buyers and the developer.

Local government participation occurred when the new house-buyers hired it to perform work, usually, road improvements. As it was better equipped than nearly all private sector enterprises with the necessary skilled staff, materials, tools and machinery, the public works agency commonly entered into business agreements of this kind.

The communities' studies appear to have found the mutual self-help they have practiced to be worthwhile. This was shown by their willingness to repeat or maintain their group activities over substantial periods of time. A one-off piece of work was sometimes carried out again when the initial result was seen to be deteriorating. Similar work of this kind could be repeated at another time. This showed a continuation of collaboration among new residents. In other words, continuing mutual self-help was maintained over time and employed when it was necessary.

It was shown that the mutual self-help was basically carried out by three bodies of residents: RTs, RWs, and spontaneously formed groups of households. The first two were used by residents of a neighbourhood with recognised boundaries. Because it is at a higher level in hierarchy than the RT, the RW covered more territory. The third was formed by residents living near to one another who recognised a common need.

The promoter who initiated a process of mutual self-help could be anybody within a community group. Occurring in a middle-income neighbourhood, this was different from what seems most often to happen in a low-income community, where the intervention of a local leader has been important for such mutual self-help to happen. The study found that promotion by someone and then the creations of a committee for carrying out the works were important parts of the process. Further on, a plan was drawn up, sources of funds were identified, and the works were implemented, following the group's agreement.

7.2.2.4 The findings regarding progressive improvement of residential infrastructure

Middle-income buyers in a formal housing area individually up-graded services on their plots and collectively improved the provision of service facilities for the neighbourhoods. Because changes and additions were done bit by bit, they can be said to have been progressive. Normally an element of on-plot infrastructure is part of a larger network. However, in this case study, the housing developer had provided water supply, sanitation, and other services as stand-alone items. The on-plot water sources and septic tanks were almost always improved immediately by the new house-buyers before they moved in. The new residents did this individually and therefore maintained the stand-alone character of these facilities. This condition can be seen as informal compared to the formal system of a town's government. Such stand-alone elements are almost impossible to integrate into a town system in the future. This was not an informal process of service up-grading that nevertheless had some possibilities to be integrated with town's system, as Choguill called for in his concept of progressive improvement.

While not wishing to put down the efforts of the new house-buyers, it should be questioned why they improved such services individually and not collectively, so as to make possible an eventual connection with a formal network. The answer is

perhaps located within the time frame of the buying and moving-in process, which characterised the process of progressive improvement. Households carried out changes and additions at times that were different from one another, reflecting their somewhat different circumstances, characters, and experiences. These individualised decisions to act were an expression of a freedom to act alone, the same as characterised by Turner. Some carried out improvements just after they bought the house (or before they moved in), and some others undertook improvements sometime later, after experiencing living in the area. Their various experiences of employing the existing on-plot services resulted in variously timed realisations of the need to act. It seems that this variety of experiences and the freedom to build as they liked did not lead individual households to seek collective improvement of water supply and sanitation.

Their status as members of middle and lower-middle income groups provided them with a financial capacity to carry out improvements individually, without depending on other house-buyers getting together with them. This clearly can be contrasted to low-income housing situations in which communities have tended to carry out the improvement of on-plot infrastructure within collective frameworks in order to share the burdens. This implied that households in low-income housing situation were less capable financially to do individual improvements.

In contrast, the improvement of on-site infrastructure, i.e. social and public facilities, was treated totally as a collective mutual self-help undertaking. This suggested that the improvements responded to communal needs. A community developed its needs in response to its own priorities, and it acted in accord with its own capacity to carry out improvement/provision of on-site infrastructure. This led to different provisions and improvements of public and social facilities among the different communities, as well as resulting in different times when projects were carried out. All of those factors characterised the practice of progressive infrastructure improvement. In the end, the whole phenomena of on-site infrastructure provision and improvement within this case study provided a picture of progressive improvement of social and public facilities.

This informal on-site provision/improvement mostly was in the form of ‘point’ infrastructure (not elements of networks), projects regarding roads, sewers and storm drains being the major exceptions. The majority of the projects within this study did not fit with Choguill’s concept of progressive improvement that conventionally targets network infrastructure. This finding suggested that the practice of progressive

improvement of residential infrastructure in the MRRA had gone beyond the limits of Choguill's vision of progressive improvement.

In addition, the provision of on-site infrastructure was characterised in terms of three kinds of house-buyer groups, which were the RW, the RT, and the spontaneous group of householders. The three groups supported ideas of 'collective needs' that arose at different times within them.

To summarise some details of the findings, examples of on-plot and on-site infrastructure were as follows. On-plot infrastructure improvements involved hand pumps, electric pumps (jet pumps/non-jet pumps), wells, boreholes, individual water tanks, plumbing systems within the houses, septic tanks, storm water drains in front of the house, sewerage behind the house, and garbage stores.

The efforts to improve social and public facilities (on-site infrastructure) could be categorised into three kinds: provision, maintenance, and rehabilitation. As these works were on collective basis, they depended on the initiatives of groups within the community. Depending on the type of facilities and situation of each community group, some works were one-off efforts, and others repeated.

Examples of social facility improvement/provision were places for playgroups, kindergartens for Koran teaching, parks, playgrounds, sport facilities, security facilities, religious facilities, multipurpose buildings and ambulances for the sick and the dead. Examples of public facility improvement/provision were the provision of solid waste management systems (this included purchasing of or hiring garbage trucks, and the provision of garbage cart and bin), road improvements and portal installations, storm water drainage and sewer improvements, bridge installations, street lighting installation, and street indication/direction board installation.

7.2.2.5 The findings regarding household housing strategies

The findings show that housing strategies were the drivers for households and community groups to do self-help provision of infrastructure. These strategies responded to the concerns of buyers that arose after seeing the unsatisfactory condition of infrastructure in general. Buyers decided to carry out improvements by themselves instead of mobilising a protest against the developer because of the insufficient infrastructure.

These strategies emerged mostly after they moved into their houses. However, there was ample evidence that some buyers had started earlier upon recognising the condition of housing and its infrastructure at the time they purchased houses. It also

showed that some buyers might have understood the inadequacy of the infrastructure, but it took time for them to develop strategies for improvement.

Buyers' strategies covered aspects of improvement that could be carried out individually, such as the on-plot infrastructure. They also picked up aspects of improvements that were best carried out collectively.

For the on-plot improvement, buyers' strategies were immediate, that is, very short term. Many completed the improvements right after purchasing houses or before they moved in. There was ample evidence that buyers carried out on-plot improvements within the *time gap* period, i.e. the time between purchases and when they moved in. However, a large number of buyers started rather late. This was after moving in, when they realised that they need to carry out the improvement to support daily lives, such as water supply and sanitation.

For the on-site improvements, they took a longer route for improvement than they took for on-plot infrastructure, since the decision required was collective. A collective decision could take time because a community needed to prioritise the most felt needs. In addition, there were new residents that needed to get together with established residents through local neighbourhood organisations or spontaneous groups. This was normal since the 'adequacy' of on-site infrastructure could only be felt after someone lived with what had been provided.

Other improvement might follow, but at later times when agreements were reached. They depended on a community's decision regarding their timing. This process of completing one facility after another followed the path of gradual improvement, pursuing collective strategies.

Their strategies were not like detailed plans, since they knew what improvements they wanted, but they were flexible, even ad hoc, about the ways of doing them. Their strategies were not just for achieving improvements to what was provided, since they could put in place alternatives that were a substantial advancement on the original provision. For the on-plot infrastructure, for instance, buyers could install a better system for water supply and sanitation. In the on-site infrastructure, buyers could provide additional social and public facilities in response to their felt needs. Creating these facilities showed a long-term vision, and it was not just an ad hoc reaction to adverse circumstances. This was merely a result of perceived situation, such as the hindrances and possibilities.

7.2.2.6 Other findings regarding shelter-focused household housing strategies

Buyers also provided evidence that they formulated ordinary shelter-focused strategies before they purchased houses and after they moved into them. These featured housing renovations (transformations) and the use of their houses for economic activities (home-based enterprises, HBEs). Some buyers even started to implement their strategies before they purchased their houses, e.g. almost a third of buyers had renovated the houses before they moved in.

HBEs were set up in the form services and production. There was evidence that some of the buyers who were able to formulate their strategies before they purchased houses started to realise them as soon as they moved in. All in all, these strategies were pursued even when they were illegal according to restrictions on the location of economic activities in new residential areas. However, circumstances made this possible for buyers to go ahead without being obstructed by the local government or the developer. That they were middle-income did not seem to discourage buyers from pursuing this objective in their housing strategies.

Other elements of their housing strategies were also identified, such as securing the right to pay monthly instalments for the mortgages, and focusing on children's future education by offsetting or/and sacrificing some components in housing improvements. These were strategies that buyers actually implemented, often taking advantage of housing credits.

7.3 Contributions to knowledge

7.3.1 Contributions regarding collective action: mutual self-help

It has been argued that collective action in the provision of community infrastructure needs external leverages to work. The leverages can be material or non-material, including supports from intermediate organisations or external agents. These leverages stimulate awareness and mobilisation (Baud, 2000; Bryant, 1980; Friedmann, 1992; Lee, 1998; Lopes and Rakodi, 2002; Varughese and Ostrom, 2001). The case study of this thesis showed that the collective action could be self-generated, and therefore did not need external leverages to stimulate the awareness that led to

action. The function of an external agent as stimulator was replaced by the presence of a promoter who came from within the community.

The sustainability of collective action is an issue. Many studies have shown that the involvement of external leverages was vital; therefore, the departure of these leverages would wind down community action (Dudley, 1993; Friedmann, 1992; Lee, 1998; Lopes and Rakodi, 2002; Sanderson and Hedley, 2002). The communities studied in this research showed a self-driven empowerment in the absence of external actors who might stimulate awareness. Therefore, the continuous occurrence of infrastructure improvement was possible without external leverage.

Group size appears to be important for the success of collective action, with smaller groups having a higher success rate. Small groups create community ties among members that can put pressure on a member who does not participate in collective action (Bengtsson, 1998; Rydin and Pennington, 2000). Other factors, geographical closeness between residents and the long-run character of the relations between residents, contribute to make collective action possible (Bengtsson, 1998). These three aspects apply to the case study of this thesis. Many of the community groups studied were small. The smallest group was about ten households and the largest group is around 500 households (an RW). The physical proximity of the houses defined the forms of some community groups, i.e. the spontaneously-formed groups. There was no evidence of networks or other significant relationships among the many small groups and, therefore, no reason to think the work of one group mobilised action in another. It seemed that each small group only considered its own immediate needs for action without reference to those of other groups.

It has been noted in low-income communities, that households have multiple identities when practicing collective action, i.e. they identify themselves with different communities carrying out different collective actions (Baud, 2000). The communities in this study had similar multiple identities when carrying out mutual self-help. Three major community groups were the RW, RT and spontaneously-formed groups. Households identified themselves with these groups as necessary. However, on many occasions, the spontaneously formed groups were the most viable. The closeness of residents living within recognisable geographical boundaries, such as on the same road or block, made clear the aims they might have in common for collective action. Hence, a household could identify with more than one spontaneously formed group, depending on its perception of its needs.

There is empirical evidence that government-led programmes of service infrastructure provision require a local community leader to mobilise communities. The government itself functions as a stimulator through its agencies. The result is a top-down programme (Yeung and McGee, 1986; Yeung, 1990). In contrast to this, the communities in the case study provided their own bottom-up methods for initiating collective work through a democratic process. The leader, selected on rotating basis, was not the main figure for realising collective action, and this was contrary to the belief of some authors that strong leadership is required for the continuation of community work (see Laverack, 2001; Gilbert and Ward, 1984a). There was a promoter for each of the projects in this case, who could be anybody within a community group who wanted to initiate a process of collective action.

Olson's (1965) theorem of collective action states the impossibility of collective action because of the paradox that the rational behaviour of individuals is to take a free ride on the expense of others. This study has added to others that challenge the universality of that theorem (Oliver, 1993; Rydin and Pennington, 2000; Bengtsson, 1998 and 2001) and of the idea that free riding is an acute problem (Johansen, 1977; Shilony, 2000). This study found that collective action for infrastructure provision did happen, and that the occurrence of free riding did not prevent the collective action from working.

7.3.2 Contribution regarding the progressive improvement of infrastructure provision

Choguill (1995) believed that the concept of freedom to build in housing (Turner, 1970) could be applied to infrastructure provision. His model referred mainly to low-income communities and lacked empirical examples. The successful examples were from limited case studies (Abbott, 1996b). This study has shown that practices of infrastructure provision/improvement that resemble 'freedom to build' have existed. They occurred in a middle-income planned housing area (the MRRA) and they gave a new dimension to the initial concept of freedom to build, which was based on the experiences of low-income communities. This research, hence, has added case studies of communities which could carry out infrastructure improvement gradually with processes that were generated from within themselves.

Choguill's model suggested some steps to enable a community to carry out progressive infrastructure improvement. First, the model required that there be two

channels of infrastructure provision available, i.e. informal and formal. The existing formal infrastructure (the town infrastructure) was that to which the informal infrastructure should be connected as part of future upgrades. This combination of informal and formal did exist in the case study area. The informal infrastructure was that provided by residents for themselves which was not shown of the developer's official plan. The formal infrastructure in the case study was the road network provided by the developer, whereas Choguill's definition included the water supply and sanitation networks provided by government or private companies. Other provisions of the developer of the MRRA were non-network elements which were not connected to town system, such as for water supply and sanitation, and some social facilities.

Second, the model required a town system of infrastructure operated by government or private firms. Apparently, the town system did not operate to a great extent in this case study. Residents made better the on-plot infrastructure that was initially provided by the developer and built or improved many new social and public facilities without referring to town standards. Moreover, the communities did not think about connecting their infrastructure to the town system.

Third, the model required residents to resolve situations of irregular land tenure. However, the case study was a newly planned housing area in which irregular land tenure did not figure significantly.

Fourth, the model called for two things when a community built informal infrastructure. First, the infrastructure should be designed and built with external help able to supervise the technical development. Second, it must be upgradeable from a basic standard to that of the town system. However, there was no evidence in this case that there had been external help assisting the design and building, except when local government equipment was hired. Communities employed their abilities to hire someone or to do it themselves when possible. Moreover, the residents did not consider connecting their buildings, particularly the social facilities, to the town system.

Fifth, the model suggested that local communities should have control over the informal infrastructure that they build: that they should be more active in the process of progressive improvement, with the freedom to decide what best for them. This study showed communities that could be completely independent in their decisions to carry out improvements and maintenance.

Sixth, the model suggested that communities should maintain the technology adopted for informal-sector infrastructure. Apparently, there was no particular technology used in the improvement. Since this suggestion referred to the technology for network services, the MRRA case study said nothing with regard to this step.

Seventh, the model required that the informal structure be affordable by its low-income users. The MRRA communities were not low-income. However, it was clear that the middle-income communities in this case study chose improvements that were affordable. They set their own standards of improvement as necessary.

Eighth, the model required that the informal-sector infrastructure be socially acceptable to the community. The improvements carried out in the MRRA were the result of community action that was decided through a democratic process and involved members who were willing to do informal provision. Hence, the 'informal provision' was basically acceptable to the members involved.

Ninth, the model called for government to adopt the role as facilitator and enabler rather than as provider to achieve city-wide coverage of infrastructure. On the contrary, the community improvement in this case showed a mutual self-help that was free from government's involvement. There was no expectation of city-wide coverage.

Tenth, the model held that an NGO had a key role in assisting communities to develop infrastructure systems. In contrast, the communities studied here had worked completely on their own initiative.

The model also advocated the use of M. Choguill's (1996) ladder of citizen participation to direct efforts at community empowerment, i. e. enable the community to attain the top rung on the ladder. However, this study was of communities that were already there.

The case study in this thesis was a middle-income community whereas Choguill's model only referred to a low-income community. There are similarities and contrasts between the model and the case study. One similarity is that both focus on gradual improvement of infrastructure by a community. They contrast regarding the initial work required. The model relied on an external agent to start the work and for designing and building the informal-sector infrastructure, with the expectation of community empowerment in the end by giving the local community greater control over the improvement. In contrast, the case study of the thesis has shown that the initiative to work came from within the community without external agent involvement. During the process of improvement, the community showed its capability to manage the work and to have control over the improvement, including

decisions on need, means, and expectations of the end results. Another contrast concerns the type of work. The model was about network infrastructure, and the gradual improvement was to a single type of infrastructure, such as water supply. The case study showed improvement that was mostly on non-network infrastructure, that for roads being an exception. Gradual improvement dealt with one type of infrastructure after another. Each project was carried through to completion, although there was the possibility of a repeat of the work (e.g. on a road network) and of maintenance. The communities in the case study already had the capability to decide what was best for them, including the decision of whether to hire a specialist or to ask a member of the community to do the job. Therefore, this research showed that Choguill's model does not always apply and raises the question of whether the lack of fit in this case was due to it being a middle-class community.

Choguill's method was criticised as burdening the community with heavy management responsibilities and leaving them without power or control over the policy decision-making process (Abbott, 1996b). On the contrary, this case study has shown that, although the freedom to build gave many responsibilities to the community, it also gave communities power and control over their collective efforts.

Abbott (1996b) suggested considering income level when implementing his modified methods of progressive improvement for particular communities. He pointed out that communities with better than low incomes would have different demands for service infrastructure, and they might not need the structured hierarchy of improvement as in Choguill's progressive improvement. This study has shown that a middle-income community could have the resources, choices, and means to implement their own preferences for service infrastructure. This includes the capacities to exercise their freedom to build infrastructure improvements.

7.3.3 Contribution regarding infrastructure aspects of household housing strategies

The findings empirically show that the housing strategies of the MRRA middle-income buyers consisted of shelter-focused strategies, social-economic focused strategies, and infrastructure-focused strategies. Conceptually, they are comparable to the current knowledge regarding two of the strategies, i.e. shelter-focused and social-economic focused strategies (see for example Barnett, 2001; Chant, 1984; Gilbert, 1993; Gough, 1999; Larsson, 1989; Lokshin et al. 2000; Rakodi, 1995a;

Rakodi, 1995b; Rakodi 1993; Schlyter, 2001), and less comparable to the current knowledge of infrastructure-focused strategies as practiced by poor communities that mostly rely on exerting pressure on government for public services and infrastructure (see for example Bennet, 1989; Gough, 1999; Van Lindert, 1997; Lopes and Rakodi, 2002; Moser, 1982). The findings also challenge the belief that households are incapable of including infrastructure provision within their strategies for housing (see Rakodi, 1993).

Rakodi (1993) found the provision of service infrastructure to be an external affair from a household's point of view, and, as a result, households considered that provision as beyond their internal affairs. Households usually were passive, or assumed the role of passive recipients, and did not take any positive action to influence the service infrastructure to which they had access. They took advantage of what was available (Rakodi, 1993). However, households in this research were active, making the provision of service infrastructure an internal affair and taking it into their housing strategies.

The exclusion of infrastructure from housing strategies, found in many studies, has led many outsiders to try to stimulate the work of infrastructure improvement that involved community participation and to use external leverages to make the improvement possible (Dudley, 1993; Friedmann, 1992; Lee, 1998; Rakodi, 1993; Lopes and Rakodi, 2002; Sanderson and Hedley, 2002). In contrast to this, the study found that infrastructure was included in housing strategies of MRRA residents and that the households were capable of stimulating themselves to act without support from outside.

Many studies have shown that a community can be mobilised to protest to government when infrastructure provision is inadequate (notably Baud, 2000; Bennett, 1989; Gilbert and Ward, 1984a; Gilbert and Ward, 1984b; Moser, 1987; Rakodi, 1993). That strategy apparently was not followed in the case study of this thesis. Instead, households used individual and collective strategies to make improvements themselves. The individual self-help strategy was used for the improvement of on-plot infrastructure. The collective mutual self-help strategy was used for on-site infrastructure.

This study has provided evidence that problems of residential infrastructure provision do not take place just in low-income communities, for they can occur in a middle-income community of a newly-built housing area. However, the fact that service infrastructure was included in the housing strategies of this community of

people who were not poor does not mean that the inclusion of service infrastructure, as found by this study, is generally the case for the housing strategies of those who are not poor.

7.3.4 Contribution regarding non-infrastructure aspects of household housing strategies

Shelter-focused and social-economic focused strategies consist of survival and non-survival strategies, many of which were observed in poor households (for example Barnett, 2001; Chant, 1984; Gilbert, 1993; Gough, 1999; Larsson, 1989; Lokshin et al. 2000; Rakodi, 1995a; Rakodi, 1995b; Rakodi 1993; Schlyter, 1988; Schlyter, 1989; Schlyter, 2001). Only some were seen in households that were not poor (for example Crow and Hardey, 1991; Munro and Madigan, 1998; Pickvance and Pickvance, 1994). In the case of the community in this study, there was not any evidence that economic adversity made them employ such survival strategies, e.g. multi-habitation/co-residence or experiencing a struggle for housing. Even so, the community employed non-survival strategies for dealing with their housing situations, such as for obtaining help from family or relatives and sacrificing one option to favour another.

The use of a house as a place for income-generating activities has been found mainly in a poor housing environment, i.e. the use of houses for HBEs (Gough and Kellett, 2001; Gough et al. 2003; Kellett and Tipple, 2000; Mahmud, 2003; Tipple, 1993; Tipple, 2000). Normally, it does not happen in a new, planned housing development where sites for commercial and residential activities are already designated on a plan (Tipple, 2005). However, the middle-income respondents of this study formed strategies to use their new houses for income-generating activities; some of them even created strategies to employ the new houses for HBE activities long before purchasing a house. The use of their new houses for HBEs was not in the areas designated for commercial activities, and this did not comply with the regulations for planned housing development.

7.4 Policy implications and suggestion for future research

7.4.1 Policy implications

This study found evidence of freedom to build – of service infrastructure provision – in a planned housing area of Indonesia. The provision was carried out gradually and covered individual on-plot infrastructure and on-site collective communal facilities. Such a provision is familiar in low-income housing, where many authors suggest it occurs to combat infrastructure deficiency. But, in a newly-built housing area, this is a new phenomenon, and the initial plan for housing development did not make preparations for it. Changes of land use or the occupation of public land by residents became common, as there was a contradiction between the facilities residents felt were needed and the facilities provided by the developer.

There are several possibilities for responding to that phenomenon. First, local government might accept and accommodate that practice with an application of flexible regulations. Government might take the position that residents have the potential to provide service infrastructure for themselves, i.e. in terms of non-networked and networked facilities, and through individual and collective efforts. Government could decide the type of facilities that residents could provide and, by having this list, government might update the housing regulations so that they require the developer to provide sufficient land for residents to build infrastructure for themselves.² However, this would need firm law enforcement, since land is precious in newly-built housing area, to avoid fraud. As for the buyers, their better education might lead them, when purchasing houses, to expect only a few infrastructure components within the housing package they are offered.

A disadvantage of this option is that residents might be reluctant to spend more money to develop facilities and instead pressure the developer or local government to provide them. This, certainly, would be a drawback for mutual self-help activities, for residents would feel that they were being guided by the government to carry out collective work.

Second, local government could prevent that practice from happening in the future through strict law enforcement. The reason for doing this is that a certain level of provision of service infrastructure is imperative for public health and safety and for

² At the time of the survey, it was not clear who was responsible for the development of facilities for which a developer was required to provide land. In many cases it depended on the agreement reached between a developer and a local government during approval of the development plan.

the economy of the city. Government might force a developer to conform to the housing regulations by providing sufficient service infrastructure.

However, the disadvantage of this option is that government has been incapable of controlling large numbers of housing projects with its limited number of staff. The flaws in housing development that already exist have indicated that this option would not be easy, as there is no guarantee that local government could avoid such flaws in the future.

7.4.2 Suggestion for future research

This study has recognised that further research can be carried out with respect to the practice of formal housing development in developing countries and to buyers' behaviour when they contribute to the improvement of service infrastructure. There are two main areas for further research.

7.4.2.1 Progressive improvement of residential infrastructure through communal provision

This study has recognised the roles of house-buyers in the progressive improvement of residential infrastructure, through individual and mutual self-help. However, further investigation is necessary to understand, first, the sustainability of mutual self-help in a situation of frequent change of house ownership and occupation, and second, the roles of group size and of gender in the process of mutual self-help. Such issues have been given some explanation with regard to low-income housing areas, but not in the housing situations of those who are not poor.

a. Questions of sustainability of improvement work in formal housing areas

Because provision in a low-income community led by external actors deteriorates from the time these actors leave the community, it is questionable whether self-help provision could be sustainable if the composition of a community is continually changing. Questions should be directed at the nature of house ownership following a high level of transfers of ownership and changes in residents' occupations. It would also be relevant to investigate the sustainability of mutual self-help in terms of the changing composition of community members from the original buyers to their successors, and over different periods of time.

b. Group size and gender roles

In a community that is not poor, particularly in a newly-built housing area, aspects of group size and gender roles in mutual self-help of infrastructure provision are not clear. First, how the size of householders' groups affects the performance and effectiveness of mutual self-help should be investigated. Second, how gender roles affect the effectiveness of collective action should be studied. This research observed that both husbands and wives were highly educated and most often both of them were breadwinners. Their roles in MRRA self-help activities could be compared with the gender roles in residential infrastructure provision that take place in low-income communities (see Moser, 1987).

7.4.2.2 Economic studies

Another research suggestion – with regard to Indonesian situation – is to investigate the relation between affordable house price and the quality of residential infrastructure provision by the developer. Many believe that housing markets would provide buyers with affordable houses having infrastructure that is ‘acceptable’. However, this study found evidence that the original homebuyers filled in the gaps in the developer's provision of infrastructure. It is not known if these gaps were the result of the developer's decision to avoid responsibilities or because the developer calculated that affordable houses with sufficient service infrastructure could not be provided at the rate of return the developer wanted.

7.5 Summary

In summary, this study demonstrated that collective action to provide residential infrastructure is possible without leverage or assistance from external actors. In the case examined, collective action was a means for progressive improvement of infrastructure in the form of the mutual self-help provision of on-site infrastructure. Self-help provision by individual households also was the means for progressively improving the infrastructure provision on their housing plots.

Most of the house-buyers expected good residential infrastructure, but a quite significant number of them recognised that the houses they had bought were provided with infrastructure of low quality. Apparently the quality of the infrastructure was not

a major consideration to them when buying, nor was the low quality seen by buyers as a factor that reduced prices and made them more affordable. Although the majority of buyers said that the low price was one of the important reasons for buying a new house in the study area, it seems that they had confidence that they would receive good infrastructure at this price.

Because of these expectations that the infrastructure would be adequate, house-buyers did not put the self-help provision of infrastructure into their housing strategies before they bought the house. Apparently they made up these aspects of their housing strategies after they had bought their house and had had some experience of living within them and the neighbourhood. They regarded improving the existing infrastructure and adding to it to be important aspects of their strategies.

Self-help provision was performed in two ways. Infrastructure improvement that was directly within the capacity and responsibility of a household was carried out as individual self-help action. Directly attached to the house, this was called on-plot infrastructure. The other one involved infrastructure improvement or provision that was public service in nature and therefore needed collective decisions and collective provision through mutual self-help. This was called on-site infrastructure. The latter occurred whenever a collective agreement could be achieved among members of a community group.

From experiences elsewhere involving poor households, it is thought that community participation in infrastructure provision usually requires external leverages to make it work. In this community that was not poor, self-awareness performed the functions of external leverages, resulting in self-motivated and self-generated action.

It was found that a majority of buyers were unaware of the inadequate condition of the infrastructure on the plots at the time when they bought houses but had not yet moved into them. At the same point in the process, the great majority of buyers were aware of the inadequacy of on-site infrastructure. However, the experience of living in the area appears to have been important to the development of strategies to deal with both the on-plot and the on-site infrastructure problems.

These housing strategies were constructed in terms of their abilities to become aware of the need to undertake self-improvement of their on-plot and on-site infrastructure. Where it dealt with the improvement of on-plot infrastructure, a strategy was the result of the decisions of an individual household. These were decisions regarding immediate infrastructure and service needs, particularly water supply and sanitation. The housing strategies took up on-site infrastructure provision

as householders became aware of their common needs for facilities. Similar experiences among householders who lived with the absence or inadequacy of particular facilities stimulated the expansion of their strategies to include on-site improvements. This resulted in plans for community action to make the facilities available through mutual self-help. Thus the concerns of these household housing strategies expanded to cover infrastructure, going beyond traditional concerns for the shelter, economic, and social aspects of households (Larsson, 1989; Rakodi, 1991; Rakodi, 1995a; Rakodi, 1995b; Schlyter, 1988; Schlyter, 1989; Schlyter, 2001). It was found that, even before buying, some households already had plans in mind to employ a house for economic production as well as for shelter.

Both on-plot and on-site infrastructure improvements took place gradually. An individual household improved its on-plot infrastructure according to its social and economic situation, as it gained the experience of living in a new house. This resulted in early improvements made before moving in, or later improvements made after moving in, when there had been some experience of living with the on-plot infrastructure received with the house. A household's self-improvement that was free from the interventions of other parties would normally be called self-help provision. This self-help provision was the answer to dissatisfaction with the on-plot infrastructure provided by the developer. In contrast to this, when it dealt with on-site infrastructure, a household negotiated some arrangements with neighbours. There were three kinds of groups for mutual self-help action: the RW, the RT, and the spontaneous group of neighbouring householders. It was found that this mutual self-help was free from the interventions of external leverages that have been reported as usual in community participation.

It is important to note that the awareness of the need to make improvements that arose within a community depended on each community situation, as well as on the needs for infrastructure improvement. Hence, each group of householders that belonged to an RW or RT or that formed itself spontaneously produced a different project and did this at a different time than other groups. Some of the timing difference was possibly due to the phased construction of the site which supplied houses to the market during different years. Because the case study involved houses that were built and purchased at different points in time over many years, and because an individual household could participate in any number of groups, the picture of continuous self-help infrastructure provision that emerged was an overall one of what was occurring in different neighbourhoods as performed by different community

groups. Although a picture of sustained provision referring to a particular community group could not be constructed, many individual respondents attested to their participation in several improvement projects, as well as to their willingness to participate again in the future.

This practice of progressive improvement differed from Choguill's method of progressive improvement in that it was not externally guided and did not follow certain stages that he identified. However, it produced infrastructure that was informal in character in answer to an inadequate formal provision and that was not expected to be connected to town systems in the future.

Appendices

Appendix-1 Questionnaire for household

Department of Regional and City Planning Institute of Technology Bandung

Questionnaire for household

Identification

No :

Code :

Name of Respondent : (Male / Female)

Address :

.....

Telephone/Mobile :

Name of the Developer :

Name of the Housing Project :

Original housing type : T -/.....

Status of ownership : a. Housing Owner b. Tenants c. Other Status

Date :

Time :

Interviewer :

Dear Sir/Madam,

Please allow me to introduce myself. My name is Sugiyantoro, and I am a lecturer at The Department of Regional and City Planning Institute of Technology Bandung. I am conducting a research to investigate the patterns and characteristics of residents of newly-built houses in fulfilling their housing needs and infrastructure. By infrastructure it refers to on-plot infrastructure (e.g. water, solid waste and domestic waste), and social and public infrastructure (e.g. sport facilities, security facilities, education facilities, roads facilities, drainage, etc.). The results of the research will be an important contribution in understanding residents' behaviour that would lead to improve policy on housing and residential infrastructure.

I am greatly indebted for your help and cooperation in completing this questionnaire. Your information is very important and will be kept secretly and used only in academic ways. May God bless and reward you in various ways. Thank you.

Your Sincerely,

Sugiyantoro

Lecturer at The Department of Regional and City Planning
Institute of Technology, Bandung
Jl. Ganesha 10, 40132 Bandung

QUESTIONNAIRE GUIDANCE

Please read before filling in the questionnaire!

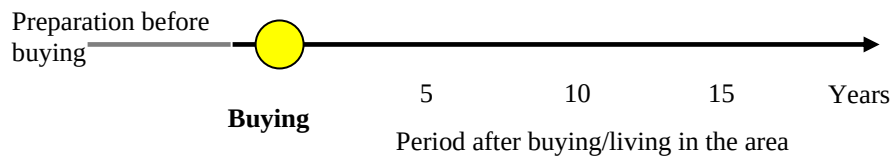
You are invited to recall back your past experiences from over five to fifteen years ago, which is back to the time when you were starting to search for a house and to choose the most suitable housing areas to live. There must be events during those periods which were important and easy to remember, such as the events when you purchased and renovated the house, improved the on-plot infrastructure, moved in, lived in the area during early days, met new neighbours, and contributed to the improvement of social and public facilities (on-site infrastructure) in your neighbourhood.

You will find some words and terminologies that are frequently used in this questionnaire and presented here to help you get used with them.

- a) Seeking housing area and choosing a house;
- b) Purchasing a house;
- c) Renovating the house;
- d) Carrying out improvement and provision of on-plot infrastructure (*see example in the next page*);
- e) Moving into the house;
- f) Living in this housing area in the early stage;
- g) Carrying out provision of social facilities and public facilities in this housing area (*see example in the next page*);
- h) Doing mutual self-help;
- i) Having forward thinking on planning of needed facilities for habitable housing area;
- j) Having forward thinking on planning of on-plot infrastructure improvement;
- k) Having forward thinking on planning of social and public facilities improvement (on-site infrastructure).

This survey investigates the above aspects that refers to sequences of house-buyers in purchasing houses, which are sequences of period before purchasing a house (looking for a house), buying a house, moving in and early living (see figure).

Figure:
Time period of before and after buying a house



Some questions might not be suitable for you if you are NOT THE OWNER of this house, such as tenants or other status. These questions are as follows:

Part A : None (All are suitable)

Part B : All questions

Part C : C10, C11, 12

Part D : D13, D14, D15, D16

Example of Social Facility	Example of Public Facility
Education Facility a. Play Group b. TPA Al-Quran (An Education Place for Koran teaching) c. Kindergarten d. Primary School	Garbage (Solid Waste) a. Garbage bin in front of each house b. Garbage cart c. Hiring a garbage truck d. Buying a garbage truck
Park and Playground Facility a. Park b. Playground for children	Drainage and Sewerage a. Drainage/sewerage dredging b. Drainage/sewerage rehabilitation c. Flood dike/embankment provision
Sport Facility a. Volley Ball field b. Basket Ball field c. Badminton field d. Soccer field	Road a. Road improvement with con block b. Road improvement with asphalt c. Road improvement with cement d. Bridge development e. Road portal installation f. Street name installation
Security Facility a. Security Building b. Security Persons c. Security equipments (e.g. communication radio, telephone, bicycle, etc.)	Street Lamp a. Street Lamp on the road (of National Electricity Company Standard) b. Individual street lamp at each house plot
Religious Facility a. Mosque b. Musholla (Small Mosque)	Clean Water Supply a. Provision and installation of clean water supply system
Other Social Facility a. Multipurpose building (meeting halls)	Other efforts for Public Facility provision: a. Buying a plot of land for public facility
Other efforts for Social Facility provision: a. Buying a plot of land for social facility	

Example of on-plot infrastructure
a. hand pump b. electric pump (jet pump / non-jet pump) c. borehole d. wells e. individual water tank f. plumbing system within the house g. septic tank h. drainage in front of the house i. sewerage behind the house j. garbage bin

A. MUTUAL SELF HELP IN ON-SITE INFRASTRUCTURE PROVISION

A1. How do you assess the availability and condition of the on-site infrastructure at this location BEFORE you bought / rented the house? 1 ☐

- a. On-site infrastructure was very inadequate
- b. On-site infrastructure was inadequate
- c. On-site infrastructure was adequate
- d. On-site infrastructure was very adequate
- e.

A2. How do you assess the availability and condition of the on-site infrastructure at this location when you just MOVED INTO the house? 2 ☐

- a. On-site infrastructure was very inadequate
- b. On-site infrastructure was inadequate
- c. On-site infrastructure was adequate
- d. On-site infrastructure was very adequate
- e.

A3. According to the answer of A2, BEFORE YOU BOUGHT / RENTED THE HOUSE, did you know that you would get on-site infrastructure of that availability and condition? 3 ☐

YES / NOT YET

A4. How do you assess the availability and condition of the on-site infrastructure AT CURRENT SITUATION? 4 ☐

- a. On-site infrastructure was very inadequate
- b. On-site infrastructure was inadequate
- c. On-site infrastructure was adequate
- d. On-site infrastructure was very adequate
- e.

A5. Please give (✓) at the social facilities that have been built, rehabilitated, and maintained collectively, which you have participated/ engaged in the events either directly or indirectly!

No	SOCIAL FACILITIES	New Provision/ Building/ Development	Rehabilit ation	Maintenance
1	Play Group			
2	Kindergarten			
3	TPA Al-Quran (An education place for Koran teaching)			
4	Park			
5	Playground			
6	Volley Ball court			
7	Basket Ball court			
8	Badminton court			
9	Security building			
10	Hiring security person			
11	Telephone installation for security building			
12	Radio communication for security person			
13	Mosque			
14	Musholla (small Mosque)			
15	Multipurpose building (meeting halls)			
16	Buying land for social facilities			
17	.....			
18	.....			
19	.....			

5

A6. Please give (√) at the public facilities that have been built, rehabilitated, and maintained collectively, which you have participated/ engaged in the events either directly or indirectly!

No	PUBLIC FACILITIES	New Provision/ Building/ Development	Rehabilita tion	Maintenance
1	Garbage pail in front of each house			
2	Garbage cart			
3	Hiring garbage truck			
4	Buying garbage truck			
5	Drainage/sewerage dredging			
6	Drainage/sewerage rehabilitation			
7	Flood dike/embankment development			
8	Road improvement with Con-block			
9	Road improvement with asphalt			
10	Road improvement with cement			
11	Street sign indicator board installation			
12	Street portal installation			
13	Bridge installation			
14	Street lamp installation of National Electricity Company standard			
15	Street lamp installation on each house plot (lamppost)			
16	Water supply installation			
17	Buying land for public facilities			
18	.....			
19	.....			
20	.....			

6

A7. When did you become AWARE and KNOWING of the need to carry out mutual self-help for provision/rehabilitation/maintenance of SOCIAL AND PUBLIC FACILITIES?

7

- a. When seeking a house
- b. When having chosen a location
- c. After buying the house, but before moving in
- d. After moving into (living in) the house
- e.

A8. WHERE did you get THE AWARENESS and KNOWLEDGE on the need for doing mutual self-help on the provision/rehabilitation/maintenance of SOCIAL AND PUBLIC FACILITIES? – the answer can be more than one—

8

- a. Reading books
- b. Reading newspapers/magazines
- c. Informed by friends/relatives
- d. Own thought
- e.

A9. How do you assess the mutual self-help that had been carried out? --the answer can be more than one—

9

- a. It was no use / no benefit at all
- b. It did not really give benefit
- c. It gave very much benefit
- d. No need to do it again
- e. It is needed to do it again for other occasions
- f.

10

A10. WHERE did you get the money for funding the mutual self-help on provision/ rehabilitation/maintenance of SOCIAL and PUBLIC FACILITIES? --the answer can be more than one—

- a. monthly contribution to RT
- b. monthly contribution to RW
- c. obligatory contribution for special occasion (excluding regular contribution to RT/RW)
- d. donation, from

11

A11. Have you ever asked for supports to these mutual self-help activities from other parties? To whom was it? --the answer can be more than one—

- a. NEVER
- b. EVER, Local government officials
- c. EVER, Developer
- d. EVER, other parties which are.....

A12. IF YOU EVER received any supports from other parties, please list this kind of supports! 12

- a. money
- b. land
- c. asphalt
- d.
- e.
- f.

.....

A13. What was your contribution to the mutual self-help which had been undertaken in this area 13
--the answer can be more than one--

- a. money
- b. building material
- c. labour
- d. land
- e.

.....

B. ON-PLOT INFRASTRUCTURE

B1. What kind of on-plot infrastructure did the developer provide WHEN YOU JUST BOUGHT the house?

--the answer can be more than one--

1

- a. hand pump
- b. electric pump (jet pump / non-jet pump)
- c. borehole
- d. individual water tank
- e. plumbing system within the house
- f. septic tank
- g. drainage in front of the house
- h. sewerage behind the house
- i. garbage bin
- j.
- k.

B2. According to your assessment, how were the availability and condition of on-plot infrastructure WHEN YOU JUST BOUGHT the house?

2

☐

- a. very inadequate
- b. inadequate
- c. adequate
- d. very adequate
- e.

B3. According to the answer of B2, BEFORE YOU BOUGHT THIS HOUSE, did you know that you would get on-plot infrastructure of that availability and condition?

3

☐

YES / NOT YET

B4. WHEN did you become AWARE of the need to carry out renovation of your house?

4

☐

- a. When seeking a house
- b. When having chosen a location
- c. After buying the house, but before moving in
- d. AFTER moving into (living in) the house
- e. I DID NOT carry out renovation of my house
- f.

B5. WHEN did you become AWARE of the need to carry out improvement of your on-plot infrastructure?

5

☐

- a. When seeking a house
- b. When having chosen a location
- c. After buying the house, but before moving in
- d. AFTER moving into (living in) the house
- e. I DID NOT carry out improvement of my on-plot infrastructure
- f.

B6. WHERE did you get THE AWARENESS and KNOWLEDGE of the need to carry out renovation and improvement of your house and on-plot infrastructure?

--the answer can be more than one—

6

- a. reading books
- b. reading newspapers/magazines
- c. informed by friends//relatives
- d. own thinking
- e.

B7. What are the results of the on-plot infrastructure improvement that you carried out?

--the answer can be more than one—

7

- a. hand pump
- b. electric pump (jet pump / non-jet pump)
- c. borehole
- d. wells
- e. individual water tank
- f. plumbing system within the house
- g. septic tank
- h. drainage in front of the house
- i. sewerage behind the house
- j. garbage bin
- k.
- l.

C. HOUSING STRATEGY

C1. Is the house you are living in suitable with what you perceive as an IDEAL HOUSE?

1

☐

YES / NO

C2. According to your assessment, how was the condition of this house when you just bought / rented?

2

☐

- a. very inadequate
- b. inadequate
- c. adequate
- d. very adequate
- e.

C3. Was the condition of the house when you bought suitable with your expectation and aspiration?

3

☐

- a. very unsuitable
- b. unsuitable
- c. suitable
- d. very suitable
- e.

C4. Did you have a thought about how to achieve and what the steps (strategies) are to have an ideal house?

4

☐

YES / NO

C5. To fulfil your expectations and aspirations to have an ideal house, which steps have been / are being / will be undertaken? Please give (✓)

No	Steps	have been undertaken	are being undertaken	will be undertaken
a.	Housing renovation partly			
b.	Housing renovation all over			
c.	Building a new house at this plot			
d.	Selling this house and buying another one			
e.	Renting out this house and buying another one			
f.	.....			
g.	.....			
h.	.....			

5

--the answer can be more than one--

C6. When did you buy / rent this house?

6

.....

Month/Year

C7. What were the reasons to buy / rent this house? Please identify (✓) and put the THREE MOST IMPORTANT reasons in order.

No	Reasons	(1) First	(2) Second	(3) Third
a.	Distance from working place			
b.	Accessibility to public transport			
c.	No possibility of having flood			
d.	Location of the house is still in the city			
e.	Affordable housing price			
f.	Close to friends or relatives			
g.	The housing area has been established			
h.	Social environment condition of the community			
i.	Future investment			
j.	Quality of the building			
k.	Availability of on-plot infrastructure			
l.	Quality of on-plot infrastructure			
m.	Availability of on-plot infrastructure			
n.	Quality of on-site infrastructure			
o.	.....			
p.	.....			
q.	.....			

7

C8. Did you receive any financial support to buy / rent this house?

8

☐

YES / NO

.....

If YES, from WHOM was it?

C9; C10; dan C11 if you are THE OWNER of the house

C9. Did you receive any support when renovating the house?

9

☐

YES / NO

If YES, from WHOM was it?.....

.....

If NO go directly to C12, and if YES continue to C11.

C10. What kind of supports did you receive when renovating your house?
--the answer can be more than one--

10

- a. money
- b. building material
- c.
- d.

.....

C11. When had the renovation been undertaken?
-- the answer may be more than one --

11

☐

- a. After buying the house, but before moved in
- b. After moving into (living in) this house
- c.

.....

C12. Do you have any plan to set up a new business in this house?

12

☐

YES / NO,

If YES, what is it?

.....

C13. Did you ever use or still use this house for business activities?

13

☐

YES / NO,

If YES, what is it?

.....

D. HOUSEHOLD DATA

D1. What is your education level? a. Postgraduate b. Graduate c. Undergraduate d. High school e. Self educated f.	1	<input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/>
D2. What is your spouse's education level? a. Postgraduate b. Graduate c. Undergraduate d. High school e. Self educated f.	2	<input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/>
D3. What is your occupation? a. Entrepreneur b. Working in private company c. Working in government company d. Not working e. Pensioner f. Civil Servant (explain.....) g.	3	<input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/>
D4. What is your spouse's occupation? a. Entrepreneur b. Working in private company c. Working in government company d. Not working e. Pensioner f. Civil Servant (explain.....) g.	4	<input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/>
D5. Where do you place yourself in the list of social group? a. High-income group b. Middle-income group c. Middle-low income group d. Low-income group	5	<input style="width: 30px; height: 20px; border: 1px solid black;" type="checkbox"/>
D6. How much is your annual earning? IDR	6	
D7. How much is your spouse annual earning? IDR	7	

D8. Do you possess any of these items? Please identify (✓)!

Items	Yes	No
a. Car		
a. BMW/Baby Benz Class		
b. Honda Accord Class		
c. Kijang Class		
d. Suzuki Carry Class		
b. Motor Bike		
c. Television		
d. Telephone		
e. Hand phone		
f. Video/VCD/DVD Player		
g. Another house		
h. Land		

8

D9. What is the size of your household (incl. any relatives/helper)?
..... persons

9

D10. How old are you? years old

10

D11. How old is your spouse? years old

11

D12. How long have you been living in this house?.....years months

12

.....

D13; D14; D15; D16 if your status is THE OWNER OF THE HOUSE

D13. How did you procure this house?

13

- a. Buying the house from DEVELOPER in cash
- b. Buying the house from DEVELOPER using Home Loan facility
- c. Buying the house from the previous owner in cash
- d. Buying the house from the previous owner through TAKING OVER the Home Loan

D14. Is this your first house you ever possess? YES / NO

14

If NOT go to D15; and if YES go directly to D16.

D15. IF NOT, then which house is this?

15

- a. the second one b. the third one c.

D16. IF YES, how did you live before living in the first house?

16

- a. Renting a house
- b. Renting a room in someone's house
- c. Living with parents
- d. Living with other relatives (kin)
- e.

D17 If your status is TENANT / OTHER STATUS

D17. How did you live before living in this house?

17

- a. Renting a house
- b. Renting a room in someone's house
- c. Living with parents
- d. Living with other relatives (kin)
- e.

Appendix-2 Supporting Tables for Section 5.2

Table A2-1 Time gap and vacant houses (>6 months of time gap)

Time Gap	Frequency	Percent	Cumulative Percent
No time gap	8	5.44	5.44
1 to 6 months	67	45.58	51.02
>6 months*	72	48.98	100.00
Total	147	100.00	

Sources: household survey 2002

* vacant houses; no response=29

Appendix-3 Supporting Tables for Table 5.2, Section 5.2

Table A3-1 A cross tabulation table of buyers who remembered to be knowing the on-plot infrastructure condition before purchasing houses

			Recoded B3: knowing that will having such onplot infra before buying		Total
			not yet know the availability and condition	already knew the availability and condition	
Recoded B2: Assessment on the availability and condition of onplot infrastructure when just bought the house	not very adequate	Count % within Recoded B3: knowing that will having such onplot infra before buying	5 16.7%	3 2.1%	8 4.5%
	not adequate	Count % within Recoded B3: knowing that will having such onplot infra before buying	15 50.0%	55 37.7%	70 39.8%
	adequate	Count % within Recoded B3: knowing that will having such onplot infra before buying	10 33.3%	86 58.9%	96 54.5%
	very adequate	Count % within Recoded B3: knowing that will having such onplot infra before buying		2 1.4%	2 1.1%
Total		Count % within Recoded B3: knowing that will having such onplot infra before buying	30 100.0%	146 100.0%	176 100.0%

Table A3-2 A cross tabulation table of buyers who remembered to be knowing the on-site infrastructure condition before purchasing houses

			Recoded A3: knowing that will get on-site infrastructure of such availability and condition before buying		Total
			not yet knowing the availability and condition	already knew the availability and condition	
Recoded A2: respondent assessment when just moving in	not very adequate	Count % within Recoded A3: knowing that will get on-site infrastructure of such availability and condition before buying	4 7.3%	3 2.5%	7 4.0%
	not adequate	Count % within Recoded A3: knowing that will get on-site infrastructure of such availability and condition before buying	31 56.4%	60 50.4%	91 52.3%
	adequate	Count % within Recoded A3: knowing that will get on-site infrastructure of such availability and condition before buying	19 34.5%	56 47.1%	75 43.1%
	very adequate	Count % within Recoded A3: knowing that will get on-site infrastructure of such availability and condition before buying	1 1.8%		1 .6%
Total		Count % within Recoded A3: knowing that will get on-site infrastructure of such availability and condition before buying	55 100.0%	119 100.0%	174 100.0%

Appendix-4 Supporting Tables for Chapter 5, Section 5.3.1 – Buyers' Background

Table A4-1 A cross-tabulation of the two groups and buyers' self-identification according to social-income group under the on-plot infrastructure category

			Recoded B-2: The Two Groups of assessment on onplot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
Recoded D5: household's self-identification of social income group	low-income group	Count	6	4	10
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	7.7%	4.3%	5.8%
	middle to low income group	Count	45	59	104
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	57.7%	63.4%	60.8%
	middle to high income group	Count	27	30	57
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	34.6%	32.3%	33.3%
Total		Count	78	93	171
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	100.0%	100.0%	100.0%

Table A4-2 A cross-tabulation of the two groups and buyers' self-identification according to social-income group under the on-site infrastructure category

			Recoded A2: The Two Groups		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
Recoded D5: household's self-identification of social income group	low-income group	Count	4	6	10
		% within Recoded A2: The Two Groups	4.2%	8.0%	5.8%
	middle to low income group	Count	60	44	104
		% within Recoded A2: The Two Groups	62.5%	58.7%	60.8%
	middle to high income group	Count	32	25	57
		% within Recoded A2: The Two Groups	33.3%	33.3%	33.3%
Total		Count	96	75	171
		% within Recoded A2: The Two Groups	100.0%	100.0%	100.0%

Table A4-3 A cross-tabulation of the two groups and household's income under the on-plot infrastructure category

			The Two Groups - on-plot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
household's income - class interval (ordinal)	2.85 - 15.86	Count	19	33	52
		% within The Two Groups - on-plot infrastructure	25.3%	35.5%	31.0%
	15.87 - 28.88	Count	19	34	53
		% within The Two Groups - on-plot infrastructure	25.3%	36.6%	31.5%
	28.89 - 41.90	Count	21	12	33
		% within The Two Groups - on-plot infrastructure	28.0%	12.9%	19.6%
	41.91 - 54.92	Count	9	5	14
		% within The Two Groups - on-plot infrastructure	12.0%	5.4%	8.3%
	54.93 - 67.94	Count	2	3	5
		% within The Two Groups - on-plot infrastructure	2.7%	3.2%	3.0%
	67.95 - 80.96	Count	3	1	4
		% within The Two Groups - on-plot infrastructure	4.0%	1.1%	2.4%
Total	80.97 - 93.98	Count	1	1	2
		% within The Two Groups - on-plot infrastructure	1.3%	1.1%	1.2%
	93.99 - 107.00	Count	1	3	4
		% within The Two Groups - on-plot infrastructure	1.3%	3.2%	2.4%
	107.01 - 120.02	Count		1	1
		% within The Two Groups - on-plot infrastructure		1.1%	.6%
		Count	75	93	168
		% within The Two Groups - on-plot infrastructure	100.0%	100.0%	100.0%

Table A4-4 A cross-tabulation of the two groups and household's income under the on-site infrastructure category

			The Two Groups - on-site infrastructure		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
household's income - class interval (ordinal)	2.85 - 15.86	Count	28	24	52
		% within The Two Groups - on-site infrastructure	30.1%	32.0%	31.0%
	15.87 - 28.88	Count	29	24	53
		% within The Two Groups - on-site infrastructure	31.2%	32.0%	31.5%
	28.89 - 41.90	Count	17	16	33
		% within The Two Groups - on-site infrastructure	18.3%	21.3%	19.6%
	41.91 - 54.92	Count	8	6	14
		% within The Two Groups - on-site infrastructure	8.6%	8.0%	8.3%
	54.93 - 67.94	Count	3	2	5
		% within The Two Groups - on-site infrastructure	3.2%	2.7%	3.0%
	67.95 - 80.96	Count	4		4
		% within The Two Groups - on-site infrastructure	4.3%		2.4%
Total	80.97 - 93.98	Count	1	1	2
		% within The Two Groups - on-site infrastructure	1.1%	1.3%	1.2%
	93.99 - 107.00	Count	2	2	4
		% within The Two Groups - on-site infrastructure	2.2%	2.7%	2.4%
	107.01 - 120.02	Count	1		1
		% within The Two Groups - on-site infrastructure	1.1%		.6%
		Count	93	75	168
		% within The Two Groups - on-site infrastructure	100.0%	100.0%	100.0%

Table A4-5 A cross-tabulation of the two groups and goods ownership under the on-plot infrastructure category

			The Two Groups - on-plot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
Goods ownership	1 - 4	Count	4	11	15
		% within The Two Groups - on-plot infrastructure	5.1%	11.2%	8.5%
	5 - 8	Count	8	19	27
		% within The Two Groups - on-plot infrastructure	10.3%	19.4%	15.3%
	9 - 12	Count	20	24	44
		% within The Two Groups - on-plot infrastructure	25.6%	24.5%	25.0%
	13 - 16	Count	18	21	39
		% within The Two Groups - on-plot infrastructure	23.1%	21.4%	22.2%
	17 - 20	Count	13	11	24
		% within The Two Groups - on-plot infrastructure	16.7%	11.2%	13.6%
	21 - 24	Count	12	7	19
		% within The Two Groups - on-plot infrastructure	15.4%	7.1%	10.8%
	25 - 28	Count	3	4	7
		% within The Two Groups - on-plot infrastructure	3.8%	4.1%	4.0%
	29 - 32	Count		1	1
		% within The Two Groups - on-plot infrastructure		1.0%	.6%
Total		Count	78	98	176
		% within The Two Groups - on-plot infrastructure	100.0%	100.0%	100.0%

Table A4-6 A cross-tabulation of the two groups and goods ownership under the on-site infrastructure category

			The Two Groups - on-site infrastructure		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
Goods ownership	1 - 4	Count	6	9	15
		% within The Two Groups - on-site infrastructure	6.1%	11.5%	8.5%
	5 - 8	Count	17	10	27
		% within The Two Groups - on-site infrastructure	17.3%	12.8%	15.3%
	9 - 12	Count	27	17	44
		% within The Two Groups - on-site infrastructure	27.6%	21.8%	25.0%
	13 - 16	Count	22	17	39
		% within The Two Groups - on-site infrastructure	22.4%	21.8%	22.2%
	17 - 20	Count	11	13	24
		% within The Two Groups - on-site infrastructure	11.2%	16.7%	13.6%
	21 - 24	Count	11	8	19
		% within The Two Groups - on-site infrastructure	11.2%	10.3%	10.8%
	25 - 28	Count	4	3	7
		% within The Two Groups - on-site infrastructure	4.1%	3.8%	4.0%
	29 - 32	Count		1	1
		% within The Two Groups - on-site infrastructure		1.3%	.6%
Total		Count	98	78	176
		% within The Two Groups - on-site infrastructure	100.0%	100.0%	100.0%

Table A4-7 A cross-tabulation of the two groups and the initial housing type under the on-plot infrastructure category

			Recoded B-2: The Two Groups of assessment on onplot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
Initial housing type when it was purchased	T21/50 - T21/66 m2	Count	5	13	18
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	6.4%	13.3%	10.2%
	T36/80 - T36/100 m2	Count	31	30	61
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	39.7%	30.6%	34.7%
	T45/100 - T45/120 m2	Count	29	27	56
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	37.2%	27.6%	31.8%
	T54/100 - T54/120 m2	Count	11	17	28
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	14.1%	17.3%	15.9%
	T70/120 - T70/200 m2	Count	2	11	13
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	2.6%	11.2%	7.4%
Total		Count	78	98	176
		% within Recoded B-2: The Two Groups of assessment on onplot infrastructure	100.0%	100.0%	100.0%

Table A4-8 A cross-tabulation of the two groups and the initial housing type under the on-site infrastructure category

			Recoded A2: The Two Groups		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
Initial housing type when it was purchased	T21/50 - T21/66 m2	Count	11	7	18
		% within Recoded A2: The Two Groups	11.2%	9.0%	10.2%
	T36/80 - T36/100 m2	Count	33	28	61
		% within Recoded A2: The Two Groups	33.7%	35.9%	34.7%
	T45/100 - T45/120 m2	Count	34	22	56
		% within Recoded A2: The Two Groups	34.7%	28.2%	31.8%
	T54/100 - T54/120 m2	Count	14	14	28
		% within Recoded A2: The Two Groups	14.3%	17.9%	15.9%
	T70/120 - T70/200 m2	Count	6	7	13
		% within Recoded A2: The Two Groups	6.1%	9.0%	7.4%
Total		Count	98	78	176
		% within Recoded A2: The Two Groups	100.0%	100.0%	100.0%

Table A4-9 A cross-tabulation of the two groups and the respondent's education background under the on-plot infrastructure category

			Recoded B-2: The Two Groups of assessment on onplot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
Recoded D1: Respondent's education level	others	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	6 7.7%	4 4.1%	10 5.7%
	High School	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	21 26.9%	29 29.6%	50 28.4%
	Undergraduate	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	14 17.9%	22 22.4%	36 20.5%
	Graduate	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	32 41.0%	36 36.7%	68 38.6%
	Postgraduate	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	5 6.4%	7 7.1%	12 6.8%
	Total	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	78 100.0%	98 100.0%	176 100.0%

Table A4-10 A cross-tabulation of the two groups and the spouse's education background under the on-plot infrastructure category

			Recoded B-2: The Two Groups of assessment on onplot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
Recoded D2: Spouse's education level	others	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	9 12.5%	5 5.4%	14 8.5%
	High School	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	21 29.2%	42 45.2%	63 38.2%
	Undergraduate	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	13 18.1%	21 22.6%	34 20.6%
	Graduate	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	23 31.9%	23 24.7%	46 27.9%
	Postgraduate	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	6 8.3%	2 2.2%	8 4.8%
	Total	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	72 100.0%	93 100.0%	165 100.0%

Table A4-11 A cross-tabulation of the two groups and the respondent's education background under the on-site infrastructure category

			Recoded A2: The Two Groups		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
Recoded D1: Respondent's education level	others	Count	8	2	10
		% within Recoded A2: The Two Groups	8.2%	2.6%	5.7%
	High School	Count	26	24	50
		% within Recoded A2: The Two Groups	26.5%	30.8%	28.4%
	Undergraduate	Count	18	18	36
		% within Recoded A2: The Two Groups	18.4%	23.1%	20.5%
	Graduate	Count	38	30	68
		% within Recoded A2: The Two Groups	38.8%	38.5%	38.6%
	Postgraduate	Count	8	4	12
		% within Recoded A2: The Two Groups	8.2%	5.1%	6.8%
Total		Count	98	78	176
		% within Recoded A2: The Two Groups	100.0%	100.0%	100.0%

Table A4-12 A cross-tabulation of the two groups and the spouse's education background under the on-site infrastructure category

			Recoded A2: The Two Groups		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
Recoded D2: Spouse's education level	others	Count	11	3	14
		% within Recoded A2: The Two Groups	11.7%	4.2%	8.5%
	High School	Count	35	28	63
		% within Recoded A2: The Two Groups	37.2%	39.4%	38.2%
	Undergraduate	Count	18	16	34
		% within Recoded A2: The Two Groups	19.1%	22.5%	20.6%
	Graduate	Count	23	23	46
		% within Recoded A2: The Two Groups	24.5%	32.4%	27.9%
	Postgraduate	Count	7	1	8
		% within Recoded A2: The Two Groups	7.4%	1.4%	4.8%
Total		Count	94	71	165
		% within Recoded A2: The Two Groups	100.0%	100.0%	100.0%

Table A4-13 A cross-tabulation of the two groups and the length of after buying period under the on-plot infrastructure category (in months)

			The Two Groups - on-plot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
C6 length of after buying period	15 - 46	Count	2	4	6
		% within The Two Groups - on-plot infrastructure	2.6%	4.2%	3.4%
	47 - 78	Count	3	2	5
		% within The Two Groups - on-plot infrastructure	3.8%	2.1%	2.9%
	79 - 110	Count	7	10	17
		% within The Two Groups - on-plot infrastructure	9.0%	10.4%	9.8%
	111 - 142	Count	13	13	26
		% within The Two Groups - on-plot infrastructure	16.7%	13.5%	14.9%
	143 - 174	Count	30	32	62
		% within The Two Groups - on-plot infrastructure	38.5%	33.3%	35.6%
	175 - 206	Count	12	16	28
		% within The Two Groups - on-plot infrastructure	15.4%	16.7%	16.1%
	207 - 238	Count	5	7	12
		% within The Two Groups - on-plot infrastructure	6.4%	7.3%	6.9%
	239 - 270	Count	5	11	16
		% within The Two Groups - on-plot infrastructure	6.4%	11.5%	9.2%
	271 - 302	Count	1	1	2
		% within The Two Groups - on-plot infrastructure	1.3%	1.0%	1.1%
Total		Count	78	96	174
		% within The Two Groups - on-plot infrastructure	100.0%	100.0%	100.0%

Table A4-14 A cross-tabulation of the two groups and the length of residence under the on-plot infrastructure category (in months)

			The Two Groups - on-plot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
D12-length of stay (living span) in the house	6 - 37	Count	2	5	7
		% within The Two Groups - on-plot infrastructure	2.6%	5.1%	4.0%
	38 - 69	Count	3	4	7
		% within The Two Groups - on-plot infrastructure	3.8%	4.1%	4.0%
	70 - 101	Count	12	14	26
		% within The Two Groups - on-plot infrastructure	15.4%	14.3%	14.8%
	102 - 133	Count	14	20	34
		% within The Two Groups - on-plot infrastructure	17.9%	20.4%	19.3%
	134 - 165	Count	19	21	40
		% within The Two Groups - on-plot infrastructure	24.4%	21.4%	22.7%
	166 - 197	Count	17	16	33
		% within The Two Groups - on-plot infrastructure	21.8%	16.3%	18.8%
	198 - 229	Count	1	2	3
		% within The Two Groups - on-plot infrastructure	1.3%	2.0%	1.7%
	230 - 261	Count	3	6	9
		% within The Two Groups - on-plot infrastructure	3.8%	6.1%	5.1%
	262+	Count	7	10	17
		% within The Two Groups - on-plot infrastructure	9.0%	10.2%	9.7%
Total		Count	78	98	176
		% within The Two Groups - on-plot infrastructure	100.0%	100.0%	100.0%

Table A4-15 A cross-tabulation of the two groups and the length of time gap period under the on-plot infrastructure category (in months)

			The Two Groups - on-plot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
time gap - period between buying and moving with system missing	0 - 22	Count	47	54	101
		% within The Two Groups - on-plot infrastructure	69.1%	68.4%	68.7%
	23 - 45	Count	12	9	21
		% within The Two Groups - on-plot infrastructure	17.6%	11.4%	14.3%
	46 - 68	Count	2	5	7
		% within The Two Groups - on-plot infrastructure	2.9%	6.3%	4.8%
	69 - 91	Count	2	5	7
		% within The Two Groups - on-plot infrastructure	2.9%	6.3%	4.8%
	92 - 114	Count	3	1	4
		% within The Two Groups - on-plot infrastructure	4.4%	1.3%	2.7%
	115 - 137	Count	2	3	5
		% within The Two Groups - on-plot infrastructure	2.9%	3.8%	3.4%
	138 - 160	Count		1	1
		% within The Two Groups - on-plot infrastructure		1.3%	.7%
	184 - 206	Count		1	1
		% within The Two Groups - on-plot infrastructure		1.3%	.7%
Total		Count	68	79	147
		% within The Two Groups - on-plot infrastructure	100.0%	100.0%	100.0%

Table A4-16 A cross-tabulation of the two groups and the length of after buying period under the on-site infrastructure category (in months)

			The Two Groups - on-site infrastructure		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
C6 length of after buying period	15 - 46	Count	1	5	6
		% within The Two Groups - on-site infrastructure	1.0%	6.4%	3.4%
	47 - 78	Count	3	2	5
		% within The Two Groups - on-site infrastructure	3.1%	2.6%	2.9%
	79 - 110	Count	8	9	17
		% within The Two Groups - on-site infrastructure	8.3%	11.5%	9.8%
	111 - 142	Count	18	8	26
		% within The Two Groups - on-site infrastructure	18.8%	10.3%	14.9%
	143 - 174	Count	36	26	62
		% within The Two Groups - on-site infrastructure	37.5%	33.3%	35.6%
	175 - 206	Count	18	10	28
		% within The Two Groups - on-site infrastructure	18.8%	12.8%	16.1%
	207 - 238	Count	5	7	12
		% within The Two Groups - on-site infrastructure	5.2%	9.0%	6.9%
	239 - 270	Count	7	9	16
		% within The Two Groups - on-site infrastructure	7.3%	11.5%	9.2%
	271 - 302	Count		2	2
		% within The Two Groups - on-site infrastructure		2.6%	1.1%
Total		Count	96	78	174
		% within The Two Groups - on-site infrastructure	100.0%	100.0%	100.0%

Table A4-17 A cross-tabulation of the two groups and the length of residence under the on-site infrastructure category (in months)

			The Two Groups - on-site infrastructure		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
D12-length of stay (living span) in the house	6 - 37	Count		7	7
		% within The Two Groups - on-site infrastructure		9.0%	4.0%
	38 - 69	Count	4	3	7
		% within The Two Groups - on-site infrastructure	4.1%	3.8%	4.0%
	70 - 101	Count	16	10	26
		% within The Two Groups - on-site infrastructure	16.3%	12.8%	14.8%
	102 - 133	Count	18	16	34
		% within The Two Groups - on-site infrastructure	18.4%	20.5%	19.3%
	134 - 165	Count	21	19	40
		% within The Two Groups - on-site infrastructure	21.4%	24.4%	22.7%
	166 - 197	Count	24	9	33
		% within The Two Groups - on-site infrastructure	24.5%	11.5%	18.8%
Total	198 - 229	Count		3	3
		% within The Two Groups - on-site infrastructure		3.8%	1.7%
	230 - 261	Count	3	6	9
		% within The Two Groups - on-site infrastructure	3.1%	7.7%	5.1%
	262+	Count	12	5	17
		% within The Two Groups - on-site infrastructure	12.2%	6.4%	9.7%
		Count	98	78	176
		% within The Two Groups - on-site infrastructure	100.0%	100.0%	100.0%

Table A4-18 A cross-tabulation of the two groups and the length of time gap period under the on-site infrastructure category (in months)

			The Two Groups - on-site infrastructure		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
time gap - period between buying and moving with system missing	0 - 22	Count	58	43	101
		% within The Two Groups - on-site infrastructure	72.5%	64.2%	68.7%
	23 - 45	Count	11	10	21
		% within The Two Groups - on-site infrastructure	13.8%	14.9%	14.3%
	46 - 68	Count	3	4	7
		% within The Two Groups - on-site infrastructure	3.8%	6.0%	4.8%
	69 - 91	Count	3	4	7
		% within The Two Groups - on-site infrastructure	3.8%	6.0%	4.8%
	92 - 114	Count	3	1	4
		% within The Two Groups - on-site infrastructure	3.8%	1.5%	2.7%
	115 - 137	Count	2	3	5
		% within The Two Groups - on-site infrastructure	2.5%	4.5%	3.4%
Total	138 - 160	Count		1	1
		% within The Two Groups - on-site infrastructure		1.5%	.7%
	184 - 206	Count		1	1
		% within The Two Groups - on-site infrastructure		1.5%	.7%
		Count	80	67	147
		% within The Two Groups - on-site infrastructure	100.0%	100.0%	100.0%

Appendix-5 Supporting Tables for Chapter 5, Section 5.3.2 – Buyers' Awareness

Table A5-1 A cross-tabulation of the two groups when buyers became aware of the need to improve their houses

			Recoded B-2: The Two Groups of assessment on onplot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
Recoded B4: time when awareness comes up for housing renovation	When searching/selecting for a house	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	3 4.1%	2 2.2%	5 3.0%
	When having a choice of location but no decision yet	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	2 2.7%	4 4.4%	6 3.6%
	After bought the house/before moved in	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	23 31.1%	20 22.0%	43 26.1%
	After moved in into the house	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	46 62.2%	65 71.4%	111 67.3%
Total			74 100.0%	91 100.0%	165 100.0%

Table A5-2 A cross-tabulation of the two groups when buyers became aware of the need to improve their on-plot infrastructure

			Recoded B-2: The Two Groups of assessment on onplot infrastructure		Total
			Group-1 "the not adequate"	Group-2 "The adequate"	
Recoded B5: time when awareness comes up for onplot infra improvement	When searching/selecting for a house	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	2 2.6%	3 3.1%	5 2.9%
	When having a choice of location but no decision yet	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	3 3.9%	2 2.0%	5 2.9%
	After bought the house/before moved in	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	24 31.2%	14 14.3%	38 21.7%
	After moved in into the house	Count % within Recoded B-2: The Two Groups of assessment on onplot infrastructure	48 62.3%	79 80.6%	127 72.6%
Total			77 100.0%	98 100.0%	175 100.0%

Table A5-3 A cross-tabulation of the two groups when buyers became aware of the need to improve their on-site infrastructure

			Recoded A2: The Two Groups		Total
			Group-1 "the not adequate "	Group-2 "the adequate"	
Recoded A7: time of awareness to come up for doing mutual self-help	when searching for a house	Count % within Recoded A2: The Two Groups	11 11.2%	4 5.1%	15 8.5%
	when having a choice of location but no decision yet	Count % within Recoded A2: The Two Groups	2 2.0%	3 3.8%	5 2.8%
	after buying the house but not yet moving in	Count % within Recoded A2: The Two Groups	14 14.3%	9 11.5%	23 13.1%
	after moving in/living in the area	Count % within Recoded A2: The Two Groups	71 72.4%	62 79.5%	133 75.6%
	Total	Count % within Recoded A2: The Two Groups	98 100.0%	78 100.0%	176 100.0%

Appendix-6 Houses that had been developed in MRRA during 1979-1998

Stage of development	T21/60	T36/80 & T36/84	T45/105 & T45/102	T50/144	T54/120	T65/128	T70/204 & T70/176	T80/128	T86/176	T120/240	Total Houses
Stage I				240							240
Stage II				200							200
Stage III							250				250
Stage IV				1,000							1,000
Stage V							500				500
Stage VI				700							700
Stage VI ADD				50							50
Stage VII							250				250
Stage VIII				195			110				305
MR TIMUR		210			90						300
MR BARAT I			216				77				293
MR BARAT II		151	63								214
MR BARAT II ADD		49	21								70
MR BARAT III		151	63								214
MR BARAT IV		383	163								546
MR BARAT V		133	50								183
MR BARAT VI		277	73								350
MR BARAT VI ADD		21	10								31
MR BARAT VII	136										136
MR BARAT VIII		81	54								135
MR BARAT VIII ADD - 1		58	42		26						126
MR BARAT VIII ADD - 2	9	24	36		5						74
MR BARAT VIII ADD - 3		36	57								93
MR BARAT VIII ADD - 4		45									45
MR BARAT VIII ADD - 5			6		7	1					14
MR BARAT IX					100						100
BTN +			1		8	6	19				34
MR BARAT ESTATE I A							65				65
MR BARAT ESTATE I B							90				90
MR BARAT ESTATE II A							80				80
MR BARAT ESTATE II B						11					11
MR BARAT ESTATE III A							20				20
MR BARAT ESTATE III B					65		58				123
MR BARAT ESTATE III B ADD					7		4				11
MR BARAT ESTATE III C						4		43			47
MRI								21			21
MR BARAT X STAGE I	9										9
MR BARAT X STAGE II		8	21		21						50
MR BARAT X STAGE III		27	26								53
MR BARAT X STAGE IV		14	6								20
METRO SHE					62		345		37	59	503
Total Houses	154	1,668	908	2,385	391	22	1,868	64	37	59	7,556

Source: the data was provided by Raya Incorp during the field survey in 2002

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- Kompas (1996c) Pengembang acapkali serobot lahan fasos-fasum (*Developers have frequently occupied land for social and public residential infrastructure*) October 8.
- Kompas (1996d) Developer tetap wajib penuhi fasum dan fasos (*Developer must comply to the provision of on-site infrastructure*) October 15.
- Kompas (1996e) Banyak fasum dan fasos perumahan tak memadai (*Large number of on-site infrastructure is inadequate*) October 29.
- Kompas (1997a) Menelantarkan jalan, fasum, dan fasos (*Neglecting road, public facility and social residential infrastructure*) April 7.
- Kompas (1997b) Warga Bukit Cikasungka unjuk rasa minta lahan kuburan (*Bukit Cikasungka residents ask for cemetery land*) November 18.
- Kompas (1998a) 7000 Konsumen RS/RSS korban pengembang bermasalah (*7000 buyers of modest and very modest houses were victimised by bad developers*) March 9.
- Kompas (1998b) Terus ditagih, kewajiban pengadaan fasos dan fasum (*Keep requesting the fulfilment of the obligation for provision of social and public residential infrastructure*) December 5.
- Kompas (2000a) Warga Japos pertanyakan fasilitas umum perumahan (*Japos residents ask for public residential infrastructure*) March 13.
- Kompas (2000b) Lahan fasilitas sosial di Tangerang tidak terurus (*Land for social facilities has been neglected in Tangerang*) March 17.
- Kompas (2000c) Pengembang Bintaro utang fasos dan fasum (*The Developer of Bintaro owes social and public residential infrastructure*) April 18.
- Kompas (2000d) Tunggakan Fasos Fasum diduga karena kolusi (*Social and public residential infrastructure's debt apparently due to collusion*) April 26.
- Kompas (2000e) Kepentingan pribadi dulu, umum belakangan (*Private concerns come first, public concerns come later*) May 1.
- Kompas (2000f) 830 pengembang belum daftar ulang di REI (*830 developers have not reregistered to Real Estate Indonesia*) June 17.

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