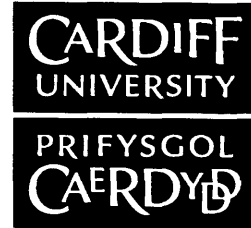


School of City and Regional Planning

Cardiff University



Gated Communities in China: Urban Design Concerns

Thesis for the degree of Doctor of Philosophy

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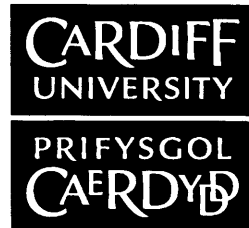
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Abstract

Against the backdrop of market transition and urbanisation, the gated community have gained a strikingly fast growth in China in the last two decades. Looking at the key forces shaping the design and the socio-spatial consequences, this research aims to understand the design issues of gated community with respect to the well-being of the neighbouring public spaces and urban life in-between. From the perspective of spatial political economy, and based on Manuel Castells's definition of 'urban design', this study develops a research framework emphasizing the significance of context around the gated community phenomenon. A two-phase strategy is adopted to explore firstly the historical background of gated community in China with respect to the general morphological transformation and the socio-cultural and political-economic impetus behind it. Then, it narrows the focus on to a case study of a set of gated communities in the Dragon Lake Garden urban neighbourhood in Chongqing, aiming to examine in detail the design process and consequences for local public spaces. The specific methods of documentary analysis, secondary survey, direct observation, semi-structured interview are used for this research.

It was the reform towards commodity housing system, and fundamentally, the *de facto* neo-liberal governance, that decisively gave birth to China's gated community in an era of rapid urbanisation, rural-to-urban mass migration, widening gap and confrontation between the rich and poor. But the conventional roots help account for the prevalence of the gated community in contemporary China, which embodies, or re-interprets, the traditional values, habitat culture, and morphologies that are deeply embedded in Chinese urban history. As the *laissez-faire* attitude in local authorities has created a favourable context for gated community development, the specific physical features have been decided largely by the developers who emphasize their own economic interests and the needs of their member-residents. However, this private-oriented approach does not necessarily result in a negative relationship between gated community and the neighbouring public spaces. The empirical investigation in this research shows that both spatial-morphological and socio-behavioural outcomes vary greatly according to different physical arrangements, and could be either positive or negative. In this regard, the design features have played an effective role in manipulating such relationship, and there are three key elements for the design of gated community. By limiting the enclosure size, diversifying the boundary effect visually and functionally, and maximising the shared amenities and facilities, a spatially and socially integrated urban neighbourhood can be fostered on the basis of a reciprocal and interdependent relationship between the gated community and the adjoining public spaces. Such physical manipulation and changes, although oriented to the public good, were not contradictory to the private interest of gated communities by nature. The private effort in this case should be encouraged and supported, but it should also be supervised and guided by the public sector. Therefore, sufficient supervision/support from government is the prerequisite of the successful physical manipulation and the final performance of the gated community development at large. Unfortunately, the local government failed to take a leading role in this regard. Very often, it was the failings or inactions on the part of the current planning regime rather than the gated community itself that resulted in the fragmented urban space which amplified the negative impacts of gated communities.

Publications

- ***Journal articles (in English)***

Xu, M. & Yang, Z. 2008. Design history of China's gated cities and neighbourhoods: prototype and evolution. *Urban Design International* **13** (4), pp.213-216

Xu, M. & Yang, Z. 2009. Theoretical debate on gated communities: genesis, controversies, and the way forward. *Urban Design International* **14** (2), (forthcoming)

- ***Journal articles (in Chinese)***

Xu, M. & Yang, Z. 2008. Rethinking the multi-disciplinary studies of gated communities: urban design perspectives. *Urban Planning International* **22** (4), pp.24-28 (also the co-editor of this special issue)

- ***Book sections (in Chinese)***

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CHAPTER ONE

INTRODUCTION

1.1 Research background

The gated community has become a heated topic in academia internationally. Many researches have been made on it from various perspectives, including social, political, economic, anthropological, and geographical ones. Due to the obvious social exclusiveness and spatial demarcation expressed by the fortress-like forms, the social-spatial aftermath of gated community development (i.e. spatial fragmentation and social segregation), has been the major focus of those multidisciplinary researches and debates. However, the view from the field of urban design, or even from the whole realm of environmental design, has been rarely expressed, although the well-being of public spaces in the face of spatial privatisation has been one of the major concerns of urban design research. As public policy (Barnett, 1974), urban design is by its very nature focused on the design issues in relate to the social interaction and spatial integration in the public realm.

As the gated community is now recognised as a global phenomenon, much research has focused on its general features and socio-spatial consequences. However, any materialization of space as urban form is not limited to arbitrary architectural or planning interventions in the urban realm, but is fundamentally shaped by and embodies the deeper, more enduring social forces that emanate from the overall production of the material basis of life, that is, from the economy as a whole (Cuthbert, 2005). Place and locale cannot be

understood comprehensively within the logic of globalization, because the operational mechanism of globalization (information, finance and authority) exists outside the local culture and experience. In fact, more and more empirical researches have been made worldwide, emphasizing the significance and specificity of local context that substantially mediates the outcomes of adapted gated communities in specific loci. However, there is little studies made on gated communities in China. This is highly disproportionate to the importance and prevalence of the gated community development in Chinese cities in the last two decades of housing reform and urbanisation. Moreover, the academics, professionals, and media have generally expressed a neutral and even welcoming attitude rather than negative views of this pattern of housing development and the overwhelming popularity of gated community in the real estate market. This is not in accordance with the common conditions in other countries, especially in the developed ones where the gated community is widely viewed as a symbol of social segregation and strongly criticised (Blakely and Snyder, 1997; Coy, 2002; Low, 2003 and 2006; Atkinson et al, 2004). Does this mean gated community functions differently in China? If yes, why? Or is it just that not enough time has elapsed to see the negative impacts? An empirical research into the gated community in China needs to be done to answer these questions. And such an investigation is of great urgency as some believe that since the late 1980's, housing commodification as an institutional mechanism, together with the gated physical form, has significantly deepened the socio-spatial segregation and polarization in Chinese cities (Wu, 2005).

Housing reforms and urbanisation pressures are the major drivers of the contemporary gated community in China. With housing reform, both the residential development and the provision of many related infrastructure and services have been gradually transferred from the local government and work units to the private developers (Chen, 1993; Wu, 1996). The 'development first' attitude prevailing among local authorities has fostered a neglect of the development control process which is inherently deficient when the planning administration was abandoned during the ten years 'Cultural Revolution' and only restored in the early 1980's. Therefore, while large-scale demolition, construction,

expansion and regeneration are forming a common scenario in the process of urbanisation of China today, the private sector is playing the leading role in the urban development. Meanwhile, the surplus labour force in rural areas migrating into large cities has increased by 10 per cent annually (National Bureau of Statistics of China, 2004). And this rate will be much higher in the future as the immediate consequence of the reform of the household registration (hukou) system, which prohibited rural-to-urban migration for nearly 30 years¹. In this case, urban resources have become increasingly contested. Moreover, the poor peasants and well-off city dwellers, formerly spatially separated in rural and urban areas, are now co-existing and closely confronting each other in cities. Thus, the strain on urban resources and the ensuing social confrontation are the unmistakable reality that lies behind the gated community development of today.

1.2 Research objectives

This research attempts to understand the design issues of the gated community in China with respect to the well-being of the neighbouring public spaces and urban life 'in-between' these communities. It tries to give answers to the following three questions: 1) What are the socio-cultural and political-economic factors behind the making of gated communities in China? And how have they shaped the design in the development process and the final design outcomes? 2) What is the impact of gated community in China on the neighbouring public spaces in people's perception and real-life use? And how is this impact related to the physical features of gated community? 3) How could the gated community be guided and controlled in Chinese planning regime today for a better integration with the adjoining urban neighbourhood in both social and spatial terms?

Two clarifications need to be made in particular. One is that gated communities are the 'walled or fenced housing developments, to which public access is restricted,

¹ The household registration (Hukou) system, which defines a person's socioeconomic status and access to welfare benefits (Huang, 2005), has functioned as the biggest barrier for the farmers entering into cities for almost half a century.

characterised by legal agreements which tie the residents to a common code of conduct and (usually) collective responsibility for management' (Atkinson et al., 2004). The term 'gated community' is used in this thesis, because it is a usage well established in mainstream academia. But in fact, the term 'gated residential development' is more appropriate, because it has a neutral connotation whereby 'community' is too 'loaded' in value orientation among researchers, either pro or con. The other key point is that, from the urban design perspective, this gated community research focuses on the socio-spatial impact on the public spaces around the gated community rather than the internal areas within its gated enclosure. Therefore, the investigation of the design dimension centres on the socio-spatial relationship between the gated community and the adjoining public spaces and the wider urban neighbourhood.

By answering the questions outlined above, this research aims to make contributions on four aspects. Firstly, this research intends to fill the intellectual gaps in previous gated community studies, which are generally mentioned in the research background above and will be presented at length in the literature review in Chapter 2. Secondly, the problems within the Chinese planning system in managing gated community development will be identified. Accordingly, improvements of the normative principles, guidelines and procedures will be recommended, helping to establish an effective design control for gated community development within the current planning regime in China. Thirdly, a theoretical contribution is expected, as the normative principles prescribed for the design of gated community can be further generalised and extended to the design of other private developments which are a threat to the well-being of the adjoining public spaces. Moreover, the deficiency of the orthodox planning theories and practices can be discovered by examining their influence on the design of gated community. Lastly, working on the evidence from both physical 'space' and the 'people' living in it, this research tries to explore a creative methodological approach in urban design to connect the 'urban forms' (e.g. the physical features of gated communities) and the 'urban meaning' (e.g. the socio-spatial consequences of gated communities).

1.3 Thesis outline

There are eight chapters in this thesis. Chapters one to three constitute the preliminary part, reviewing the previous studies, defining the existing intellectual gaps and the main questions of this research, and developing a viable methodological framework. The following four chapters (i.e. Chapters four to seven), are the main body of this thesis, presenting and elaborating at length the findings in the research. While chapter four is based mainly on a documentary literature review, the other three chapters are based on fieldwork in the four gated communities of Dragon Lake Garden within an urban neighbourhood in Chongqing in south-west China. Finally, chapter eight reviews and concludes the whole thesis, summarising the key findings, making recommendations for policy making, and proposing potential directions for further research.

After the introductory chapter one, chapter two attempts to establish a theoretical framework to guide the whole research, by means of a cross-disciplinary literature review of the previous researches on the phenomenon of the gated community from an urban design perspective. Grounded in the analysis of the political-economic backdrop, this chapter reviews the genesis and evolution of the gated community, the dilemmas and intellectual gaps in existing studies, and the related theories and practice in urban design history. It reveals the importance of this research carrying out an urban design inquiry, which focuses on the quality and use of public space around gated communities and proposes that the three aspects of physical features, i.e. enclosure size, boundary effect, and shared amenities and facilities, are playing an important role.

Chapter three develops the research framework and methodology, explaining systematically the epistemological and methodological issues of this urban design research of gated community in China. Firstly, based on Manuel Castells' definition of urban design, an ontological framework guiding the whole research design is clarified. Secondly, three research questions are raised explicitly. In addition, a hypothesis is made

on the design of gated community, following the three key elements extracted from the literature review (Chapter 2). Then, after setting up a two-phase research strategy (i.e. a desk-based historical inquiry followed by a single-embedded case study in Chongqing), this chapter explains at length the data collection and the specific research methods which include secondary survey, direct observation and semi-structured interviews.

Chapter four is a historical review, aiming at a holistic understanding of the background behind the gated community development in China. It has two themes. One is to review the tradition of gated cities, neighbourhoods and residential compounds in Chinese history, dissecting the ingrained prototypes of enclosed physical forms and organisational patterns in the Chinese history of city planning. The other theme is to trace the evolution of the gated community during the post-socialist era since 1978 when it emerged from the commodity housing market in the wake of housing reform, and then gradually gained momentum in China. While interpreting the socio-cultural and political-economic factors in the evolving process, this chapter summarises the general features of the gated community in China in an attempt to provide a comprehensive context for the single-embedded case study that is addressed in the next three chapters.

From this chapter on, the research focuses on a specific case study, namely, the four gated communities in the Dragon Lake Garden urban neighbourhood, to examine in detail both the process and outcomes of the design practice and the consequent impacts on the local public spaces around. Chapter five firstly presents the different physical features of the four gated communities in the Dragon Lake Garden urban neighbourhood with respect to their impact on the adjoining public spaces; then, it dissects the disparities of the perceived quality of these public spaces using a secondary survey of residents' views; and finally it explores the underlying relationship between the different physical features and the disparate perceptions. It concludes by pointing out the capability, feasibility and prerequisites of manipulating the design characteristics of gated community, in terms of the well-being of the neighbouring public spaces.

By means of direct observation, chapter six investigates the detailed physical settings and usage conditions of the public spaces (i.e. streets, squares and green parks, etc.) around the four gated communities in Dragon Lake Garden urban neighbourhood, and the underlying relationships between them. The analysis centres on the socio-spatial interactions across private and public space on the one hand; on the other hand, it elaborates how this interaction has been influenced by the design features of the neighbouring gated communities. Complementing and combining the evidence in chapter five, chapter six presents a holistic evaluation of the real interrelationships between the gated communities and the neighbouring public spaces within the Dragon Lake Garden urban neighbourhood, and the specific role of key design features, namely, enclosure size, boundary effect, and shared facilities. Moreover, the evaluation highlights the problems in the private and public sectors in dealing with the design issues of gated community.

Driven by the problems and questions emerging from the preceding two chapters, chapter seven examines the different forces involved in decision-making on the design of four gated communities of Dragon Lake Garden: the general attitude and approaches, aspirations and speculations, as well as their capability and limitation in practice. It starts by enquiring about the decision-makers' general perceptions of gated communities, especially on the two controversial issues (i.e. segregation and privatisation of public spaces), and their visions of a good gated community. Then it proceeds into the details of the development process of Dragon Lake Garden, looking at the reasons behind the changing physical features across the four gated communities with respect to the three key aspects: enclosure size, boundary effect, and shared facilities. The analysis focuses on why and how the public and private effort had, or had not, been made as regards the public spaces around the gated communities in terms of design. The final part discusses the possibility of a design-led solution to gated community development in the current planning regime in China, in order to secure the quality of the adjoining public spaces and cultivate the socio-spatial integrity of urban space as a whole.

Chapter eight summarises and discusses the major research findings, drawing conclusions

relating to the three major research questions put forward at the beginning of this thesis. Based on these findings, recommendations are made for current Chinese planning regime to establish a long-term commitment on public space and an effective policy framework for the design control of gated community development, in order to secure a spatially and socially integrated urban space. Finally, the limitations of this research are summarised with potential future research themes.

CHAPTER TWO

THEORETICAL DEBATE ON GATED COMMUNITIES: GENESIS, CONTROVERSIES, AND THE WAY FORWARD

2.1 Introduction

As a global phenomenon, the gated community¹ has become a heated research topic around which multidisciplinary studies and debates are found in the social, economic and geographical domains. From the perspective of urban design, or even within the whole realm of environmental design, comparatively less has been written about the well-being of public spaces in the face of spatial privatisation, which is however one of the major concerns of urban design research (Sorkin, 1992; Ellin, 1997 and 1999; Madanipour, 1996 and 2003; Carmona, et al. 2003). This chapter therefore intends to present a theoretical discussion of the phenomenon of the gated community from an urban design perspective. It will dissect the gaps in previous studies, review the related theories and practice in design history, define the potentials and emphasis of the urban design approach, and propose the key principles for ensuring a quality public realm. The literature review in this chapter provides the theoretical framework for the thesis.

Arguing that environmental disciplines are epiphenomena of deeper, more enduring social forces that emanate from the overall production of the material basis of life, that is, from

¹ The term 'gated residential development' is actually more accurate than 'gated community' as 'it does not carry the same weight of sociological baggage' (Bowers and Manzi, 2006) and more relevant to the territorial enclosure which distinguish it from other private housing developments.

the economy as a whole, Alexander Cuthbert develops Castells' definition of urban design¹, and points out that the materialization of space as urban form is not arbitrary. The whole discourse of urban design should be built on spatial political economy (Cuthbert, 2005). Consequently, the discussion in this chapter starts from a broad review of the political-economic and social impetus behind the gated community, to provide a well-founded background for dissecting the multidisciplinary debates around gated communities in the second part. Together, they would make the exploration of the physical manipulation of gated community in the last part understandable and convincing. Also in this regard, this review focuses on the fundamental economic-political impetus behind the increasingly ubiquitous gated communities which have also been shaped by historical and cultural factors in different urban contexts (Blakely and Snyder, 1997; Grant and Mittelsteadt, 2004; Huang and Low, 2007). Likewise, rather than develop universal prescription which can be replicated in different types of gated community developments worldwide, this discussion about urban design approaches tries to put forward the central theme and key elements, which are practically feasible at design and policy levels in contemporary China to ensure that a quality public realm is produced between adjacent gated communities.

2.2 Privatisation and gated community: genesis and evolution

Since the end of 1970s, privatisation has become a powerful impetus creating a political-economic transformation in both developed and developing countries (Harvey, 2005). Among all of the consequences, the privatisation of public space has emerged as a striking worldwide urban phenomenon, affecting 'our culture's very notion of urbanism' (Goldberger, 1996, p.135), reshaping public urban life, and transforming contemporary urban form (Soja, 1989; Davis, 1990; Punter, 1990; Sorkin, 1992; Zukin, 1995; Smith, 1996; Briffault, 1999; Ellin, 1999; Kayden, 2000; Low, 2000 and 2006; Marcuse and

¹ 'We call urban design the symbolic attempt to express an accepted urban meaning in certain urban forms' (Castells, 1983, p.304).

Kempen, 2002; Kohn, 2004).

Compared to shopping malls and theme parks, the privatisation of the public realm has advanced more dramatically in residential functions with the huge increase of private or corporate communities, where the streets are technically private places rather than public ones. 'In literally thousands of such communities, entire neighbourhoods become, in effect, one vast piece of private property' (Goldberger, 1996, p.135). The gated community, is normally defined as "*walled or fenced housing developments, to which public access is restricted, characterised by legal agreements which tie the residents to a common code of conduct and (usually) collective responsibility for management*" (Atkinson et al., 2005). So, the gated community is perhaps the most radical kind of the such private / corporate community in terms of physical barriers demarcating clearly private and public spaces. Therefore, the gated community is in essence one of many spatial outcomes in privatisation of urban spaces. The privatisation can be dated back to the first wave of suburbanisation in the age of the Industrial Revolution.

2.2.1 Sense of fear and individual retreat from public life

Sense of fear in massive urbanization

'Fear has never been absent from the human experience', and 'protection from invaders was in fact a principal incentive for building cities, many of those were defined by vast walls, from antiquity through Renaissance' (Ellin, 1997, p.13). However, contemporary cities themselves have become the major source of fear since the Industrial Revolution, which was accompanied by the fast migration of the rural population into the cities. Generally, the process of urbanization triggered by the Industrial Revolution in the 19th century has been inevitably associated with both environmental deterioration and social unrest, both of which endangered the living conditions of citizens. Moreover, the accompanying political-economic restructuring and increased mobility, the result of improved technologies, have weakened existing social relations and the local control

achieved by conventional mechanisms and their associated institutions (Tönnies, 1887; Foucault, 1975; Devine, 1996; Schlosser, 1998). Therefore, compared with the incremental and piecemeal growth in pre-industrial cities, 'the only secure thing about modernity is insecurity' (Harvey, 1989, p.11). In some countries with persistent apartheid geographies like South Africa (Lemanski, 2006), racial conflict is another key issue behind fear. In addition, terrorism after 9.11 is becoming a new source of threat that has greatly exacerbated the sense of insecurity in many cities (Sorkin, 2008).

The genesis of the objects of fear, and the ways to dissolve it, are argued to be one of the key impetuses underlying the transformation of living patterns and urban morphology. Researchers in the last two decades have observed that various expressions of the individual's withdrawal from public spaces and common urban life in contemporary cities have been closely connected with the increasing sense of fear of environmental deterioration and social disorder, and of crime in particular (Davis, 1990 and 1992; Sorkin, 1992; Miethe, 1995; Blakely and Snyder, 1997; Ellin, 1997; Sennett, 2002; Low, 2003).

Escapism

The foremost direct response of the most affluent and mobile people has been to leave the inner city for suburban areas where they can experience less impact from massive urbanization. This individual choice of relocation was greatly propelled by the invention of the motor car, the communication revolution, and state housing policies, which triggered massive suburbanization involving a series of economic, social and spatial rearrangement, especially in the US. This eventually led to the fundamental transformation, in both visible and invisible parts, of the urban structure. This centrifugal trend is expressed in both the Chicago School model of concentric zones (Park et al., 1984), a classic modernist vision of the industrial city, and the Los Angeles School model of the polycentric 'heteropolis' (Jencks, 1997), representing post-modern metropolises. 'Edge cities' (Garreau, 1991) emerging in the second wave of suburbanisation trend are

another spatial consequence. As suburban life is apparently less collective and more self-administrative than living in inner cities, 'the presumption of disengagement and an elevation of private space' are argued to be the two profound aspects of suburban values (Goldberger, 1996, p.135). Therefore, *suburbanization* may be regarded as the foremost individual escape from the larger community, from public life on an urban scale, and from the problems of the real world.

Control

Nevertheless, escapism is just one of the overlapping responses to the common fear felt regarding living conditions in contemporary cities. The others can be summarised as retribalisation, nostalgia, and spiritual return (Ellin, 1997), which respond to the fear of the *loss of community* in the urban experience of modernity addressed above.

As the counteracting response, therefore, more and more self-governed neighbourhoods are being developed to regain control and the conventional sense of community in the process of re-agglomeration. In such neighbourhoods, many social and civic functions that were traditionally delivered by the public sector are supplied by privately owned organizations to achieve absolute control over the private living space. Meanwhile, the obsession with security and self-governing assets demand a high standard of control over the territories of these communities, resulting in the proliferation of the gated community, an extreme model for individuals retreating to an enclosed fantasy world. It both symbolically and materially demonstrates the attitude of the 'NIMBY' (not in my backyard) in a physical form. Residents retreating into gated communities appear to create settlements for themselves where they live in a stable environment secured by autonomous control based on physical and contractual bonds. The subsequent feelings that they are safe from harm, affiliated to the community, having an individual and collective identity bonding with a certain territorial scope, and proud of the self-dependent solution way, correspond exactly to the four higher levels of basic human

needs, namely safety and security, affiliation, esteem, and self-actualisation (Maslow, 1968).

Escape and control, aiming at avoidance and self-protection respectively, are the major means for individuals to deal with their sense of fear. The resulting spatial segregation and privatisation are the genesis of, and are epitomized by, the remarkable phenomenon of the gated community. However, although fear is obviously the original impetus on the part of the individual in pursuit of privatisation and gated community, there is arguably a more fundamental force on the part of the public or the state to sustain and propel the whole process. The political-economic ideology of this powerful force is mostly defined as *Neoliberalism*.

2.2.2 Neoliberalism and governmental retreat from public affairs

Neoliberalism and the shrinking of the public sector

Neoliberalism originally emerged as a theory of political economy in the 1960s, and was developed subsequently into a set of ideologies, policies and practices. It gained 'cosmopolitan currency' (Harvey, 2005, p.2) after the stagflation crisis of the 1970s, the developing world debt crisis of the 1980s, which primarily affected Latin America but was felt elsewhere (Sachs, 1991), and the Soviet collapse of the early 1990s. While the US and the UK are the foremost and most active protagonists among the advanced capitalist countries in this wave, many developing countries including reforming and transitional China after 1978 are also seen to be heading in this direction (Harvey, 2005). With the rapid growth of capitalist globalisation and the support of powerful international institutions such as the World Bank, the International Monetary Fund (IMF) and the World Trade Organisation (WTO), Neoliberalism is now hegemonic as a mode of discourse on a global scale.

Proposing theoretically that 'human well-being can best be advanced by liberating

individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade' (Harvey, 2005, p.2), Neoliberalism strongly argues for *privatisation*, transferring previously public-owned enterprises, goods, and services to the private sector, and *limiting governmental intervention*. It aims to transform the established, largely centralized Fordist-Keynesian welfare systems established after WWII in favour of post-Fordist decentralised ones, within which, 'a political emphasis on 'rugged individualism' and on the private sector rather than the state has encouraged individual self-help solutions and approaches' (Oc and Tiesdell, 1997, p.xi). Both privatisation and the weakening of governmental intervention have greatly reduced the capabilities of central and local governments in public affairs. The consequence is the tremendous shrinking of the public sector, cutting expenditure on public realms such as education, health, housing, transport and communication, etc., and, not exceptionally, investment in the building and maintenance of public facilities and amenities in cities.

Privatisation and deterioration of public spaces in consequence

This massive governmental retreat from public affairs, accompanied by a set of institutional and financial policies, has had a fundamental impact on the socio-spatial order of contemporary cities. The direct consequence is the global boom in privately governed public spaces, typically represented in recent decades by different kinds of shopping malls. A neo-liberal climate makes it impolitic to devote significant public funds to the creation of new public places, and most cities have welcomed and encouraged the willingness of the private sector to create spaces accessible to the 'public' within private buildings. To cash-starved urban officials, allowing public places to become a function of private enterprise is a fair price to pay; they see the alternative as having no new public places at all (Goldberger, 1996). But no matter how public these places look, they are not actually public in the traditional sense. Because of their legally private attributes, a set of security rules and forms of policing in favour of the owners and managers is applied to

prevent crime or other unwanted behaviour. They have often reduced the accessibility and authenticity of these 'public spaces', and are therefore criticized as 'pseudo-public space' (Sorkin, 1992).

The other consequence is the compromised quality of public space mainly due to deficient public resources in terms of the creation and maintenance of public spaces. With their resources strained, few ambitious projects have been launched for public space improvement, and all that most cities can do is to endeavour to maintain the qualities and quantities of the public places that they already have. The causal relationship is highlighted by the critical difference between contemporary Anglo-American and continental European and Scandinavian cities (Marcuse, 2002), as the latter generally provide a broad range of municipal services and amenities for cities and the public. In these European cities, quite a few comprehensive programmes for improving the quality of public spaces were initiated by the public sector and implemented, among which Barcelona's 160 new plazas and over 115 public spaces in and around Lyon have been notably successful.

The worsening quality of traditional public spaces resulting from state retreat has, *inter alia*, led to many unsafe and dilapidated urban spaces like 'dead corners' and 'back alleys', and therefore aggravated the fear of environmental deterioration and individual disengagement. Retreating from public spaces and life is the easier, if not the only, option available for common individuals. Garreau (1991) points out that one essential feature of the edge city is that politics is not yet established there, and that into the political vacuum moves a 'shadow government' – a privatised proto-government which can tax, legislate for, and police its communities. In fact, private housing development based on common-interest development (CID) and administered by homeowners' associations has become the quintessential edge-city residential form in the United States (Dear and Flusty, 1998). The gated community is the most exclusive type of private housing development or CID, which eventually differentiates itself through enclosed physical forms accompanied by the omnipresent application of high-tech policing methods.

Therefore, being part of the process of privatisation, which is actually an act of government strategically abdicating its power (Marcuse, 2002), the rise of the gated community in post-modern cities could arguably be viewed as the individual response to the strategic governmental retreat powered by the political-economic reconstruction of post-Fordist capitalist accumulation, and guided by Neoliberalism in general. In this regard, the market demand for gated communities will continue and become even stronger as long as this political-economic context is sustained.

2.3 Multi-disciplinary debate on gated community: controversies and gaps

Many researchers have actively engaged in the heated debate of gated community from various perspectives, including social, political, economic, anthropological, urban geographical and so forth (Blakely and Snyder, 1997; Webster, 2001 and 2002; Low, 2003 and 2006; Atkinson and Blandy, 2005; Grant, 2004 and 2005). Some of the opposing discourses are outlined below.

2.3.1 Controversies and dilemmas

The gated community, putting a barrier between itself and the outside world, was initially developed in upscale housing developments for the wealthy middle class and above (Blakely and Snyder, 1997) or ethnic ghettos (Marcuse, 1997). Due to the obvious social exclusivity and spatial demarcation expressed by gated forms, the social-spatial aftermath of the gated community has been the focus of the multidisciplinary researches and debates. The largely negative dominant academic narratives argue that physical obstruction by means of enclosure results in less inter-neighbourhood interaction, and eventually in both spatial fragmentation and social segregation (Blakely and Snyder, 1997;

Coy, 2002; Low, 2003 and 2006; Atkinson et al, 2004). This perspective gains its support from some empirical studies (Caldeira, 2000; Low, 2003; Roitman, 2005). Moreover, from the standpoint of political economy, some opponents insist that privately governed common goods, including those provided by gated communities, would gradually privatize public spaces and resources and hence undermine public life and social justice (Davis, 1990 and 1992; Kohn, 2004; McKenzie, 2005). However, in the past decade, the consumer groups of gated communities have no longer been confined to the 'super-rich'. In fact, 'the ordinary middle class urban professional now plays an important part in sustaining the demand for the global boom in private cities' (Webster, 2001, p.150). According to statistics, only 13 per cent of Phoenix's gated communities are upper class; most are middle class, and 2 per cent are lower class (Frantz, 2001). In England, an enquiry shows that the people most likely to be in favour of gated communities are younger and lower-income respondents, and not, as one might have expected, the higher-income, older ones (Blandy and Lister, 2005). In China, over 80 per cent of new commodity housing developments are generally gated (Miao, 2003). Therefore, the prevalent and critical perspectives, as we can observe from the following analysis, are challenged not only by contradictory empirical evidence and viewpoints, but also by the *de facto* increasing demand in the market.

Firstly, rather than the gated community *per se*, it is suburbanisation that acts as the fundamental way of realizing social segregation, especially in Anglo-American cities with serious suburban sprawl (Marcuse, 1997). In fact, a few researchers argue that the gated community can provide acceptable living conditions for residents to settle in diverse communities and groups in a proximate territory, because enclosure and gating can reduce their worries about possible congestion and environmental deterioration caused by 'free-riding' (Foldvary, 1994; Webster, 2001; Manzi and Bowers, 2005). Thus, more compact and mixed living conditions can be more feasible. With cultural and commercial privileges, inner cities can provide an attractive urban lifestyle competing with suburban areas. In this regard, gated communities can help to reverse the trend of low-density suburban sprawl and improve social and environmental sustainability. Moreover, while

segregation by distance eliminates almost any possibility of social interaction, close juxtaposition can at least provide many opportunities for encounters, which are the bedrock of local sociability. If properly arranged, local communities can benefit from the positive externalities initiated by up-market gated communities. Researches in Santiago show that while in the past the affluent were exclusively located in one specific area of the city, gated developments have dispersed them. Gated communities, functioning at the smaller scale of segregation, bring poor and rich closer together and are more benign for the poor, who benefit from some of the externalities when new neighbours bring better services such as roads, stores, jobs, and an improved reputation to peripheral districts that were stigmatised in the past (Sabatini et al., 2001; Salcedo and Torres, 2004). Moreover, in the tradition of urban design, several clustered buildings or houses that share a communal open space is a common configuration as well.

‘This communal zone creates an extension of the private domain and an additional layer in the transition between the city and community. It offers protection to the community members and creates intimate environment wherein local rules and rituals can be exercised. Living spaces are oriented towards communal spaces that are perceived as an extension of the home.’

(Bobic, 2004, p.74)

Therefore, neither the negative nor the positive potentials of gated community for social and spatial impact can be denied.

Secondly, as regards the critics of the market failure¹ of gated community in terms of the external cost paid by the public, it actually comes down to another controversial topic about the appropriate way in providing public goods. The defenders of the gated community, writing from the perspective of institutional economy, and supported by Buchanan’s ‘club theory’ (1965), regard private government as an efficient approach to deal with municipal government’s failure to provide neighbourhood services. It is believed that the private community can provide a package of communal goods according

¹ ‘While land and property markets are well equipped to handle private costs and benefits, they are unable to take account of social costs and benefits’ (Adams, 1994, p.70).

to local residents' personal preferences while exempting them from the fees paid for public services they will never use (Foldvary, 1994; Webster, 2001 and 2007; Glasze, 2005). Obviously, these debates focus on two sets of very intricate discourses, the state vs. market failure in providing public goods, and justice-efficiency (social justice vs. economic efficiency). As long as such debates cannot reach an agreed conclusion, the controversies about gated communities will persist.

Last but not least, in spite of the heated debates between scholars, the increasing demand for gated communities in the global housing market and the powerful impetus of privatisation discussed above are facts that cannot be overlooked. The deadlock in the academic debate regarding the consequences of gated community in terms of positive vs. negative virtues places the professionals, who are closely engaged in practical city-making, in a dilemma as to how to respond to the pressing demand for gated communities. In this regard, there is currently a gap between research and practice in terms of how to deal with the design issues appropriately in the development process. This, revealed in the following section, is largely because the supply side story is generally absent from the whole discourse of the gated community, and there has been comparatively less exploration of the physical features of gated communities in previous research.

2.3.2 Absence of an integrated urban design approach and supply side story

The above analysis shows the complicated factors involved in the genesis of the gated community, and the intricate effects gated communities may generate in diverse local contexts. Either the positive or the negative externalities of gated community cannot be denied. Based on this recognition, therefore, rather than prohibiting or promoting gated communities from a unilateral perspective, the crucial point of research on gated communities, is how to obtain a balance, taking full advantage of the benefits of the gated community while minimizing the possible damage to the immediate public spaces and

activities around it. As for the negative impacts, which have been regarded as a case of market failure, government-led control could take a leading role in amelioration (Webster, 2001), especially when it is governmental retreat that decisively propels the development of gated communities. Appropriate measures and policies should be developed by the public sector to secure public goods. Urban design, working as public policy (Barnett, 1974) over urban forms, 'by its very nature' focuses on 'social interaction and communication in the public realm' (Cuthbert, 2006, p.10), can avoid the negative impacts of gated communities at minimum cost from the very initial stages. Moreover, 'appreciation of externalities and spill-over effects is a crucial part of urban design, which is often about enhancing positive effects and minimising negative ones' (Carmona, 2003, p.49). In this regard, research on an urban design approach is necessary to explore the appropriate configuration and possible delivery methods in the development process of gated communities.

However, this approach has long been neglected and underdeveloped, while the whole supply-side story is mostly absent from the existing literature. In practice, the enclosed physical forms of gated communities are shaped by market demands and the combined effects of design practices, planning legislation and the approval process, and negotiations between local government, developers and interest groups. All those involved in the development process compose the supply-side story of gated communities, which 'brutally informs us of the operating ideologies, the economic conditions and the social relations' and also 'allows us to capture the discrepancy between talking about and acting on the reality' (Panerai et al., 2004, p. x). Therefore, the full exploration of the supply-side story is the necessary groundwork for effective urban design. Within the supply-side story, the physical features of gated communities and their capacities for reconciliation are also greatly underestimated.

2.3.3 Underestimating the physical features and their capacities

There is a tendency to abstract and symbolise the physical features of the gated

community in the mainstream academic literature. Although almost all of the research starts from the description of gated community, conflating the idea of 'physical' neighbourhood (defined by territory or boundaries) with 'social' communities (defined by the relationships, associations, etc.), the physical features of gated community are treated merely as an abstract or general morphological backdrop. There is no detailed analysis of the diverse spatial characteristics concerning the environmental, social and economic impact on the wider urban district. All the boundaries of the gated developments, whatever they are, walls, fences, natural landscapes or buildings, are perceived to have only the one similar function of separation and therefore to undermine social-spatial integration in the local area. This tendency generally leads to two consequences.

The first is that the role that the physical features play in social segregation is exaggerated. Marcuse (1997) points out that while everything has a boundary, 'boundary' itself is a neutral term. He further argues that the critical point of the relationship between the residents inside and outside the enclosures is whether the insiders are held in a subordinate, superior or equal position by the outside world in all legal, social, economic, and political matters (Marcuse, 2002). In this regard, rather than the visible gated form of gated community that is mostly criticised, the invisible, political-economic barriers are the decisive factors determining the social relationship between gated communities and their outer areas. In addition, the conflicting empirical evidences above show that the social-spatial consequences are very much dependent on the specific context and the types of physical features applied.

The other consequence is a great underestimation of the varied physical features and their capacities for minimising negative impacts, maximising positive aspects, and reconciling the social and spatial relationship between gated communities and their surroundings. It is believed in environmental-behavioural research that people's behaviour may be constituted through, constrained, and mediated by space (Dear and Wolch, 1989). Moreover, apart from the spatial layout, the social, economic, and cultural conditions of a place are necessarily influenced by the various characteristics of physical form, not in a

deterministic way, but rather in terms of possibilities and probabilities (Jacobs and Appleyard, 1987). So, while the exploration of physical issues disregarding their political-economic impetus that lies behind them is meaningless and a kind of environmental determinism, underestimating the physical features of gated communities and their capacities could be another kind of environmental determinism, and potentially obscures the physical essence of gated community which differentiates it from other private communities.

As far as the gated community is concerned, physical boundaries can be both barriers, harming the use and visual quality of the immediate public spaces, or, if properly arranged, active components of benign public spaces, taking full account of the local economic, cultural, and physical context. For example, the boundaries made by commercial buildings facing the street can actively contribute to the prosperity of street life and the local economy. However, boundaries made up of high blank walls often discourage the presence of locals and social activities in the streets along the walls. Besides boundaries, the size of enclosure, the land-use arrangement in both horizontal and vertical dimensions, the space-building relationship, etc., can give different, sometimes even entirely opposite, physiological and psychological meaning to users, triggering diverse social-spatial interaction processes in consequence. Thus, the physical dimension endows gated communities with possibilities and capacities to modify their impact on the local urban neighbourhood.

2.4 Toward an integrated urban form: the alternative way forward

In the history of city design, the tension between public and private space, which is the key issue in the gated community, is by no means new. It is widely agreed today that by 'establishing a flexible and elaborate boundary between the two realms, urbanism can be enriched' (Madanipour, 2003). In this regard, whether and how it may be feasible to build up a 'flexible and elaborate boundary' for the gated community between itself and the

public spaces around it is the major issue to be explored in this research. This section, therefore, will first analyse the related design theories and practices in the past; then discuss the limits and possibilities imposed by gated community; and finally explore the feasible approach and key elements for the design of the gated community with respect to an integrated urban form.

2.4.1 The previous theories and practice in residential planning: segregation or integration?

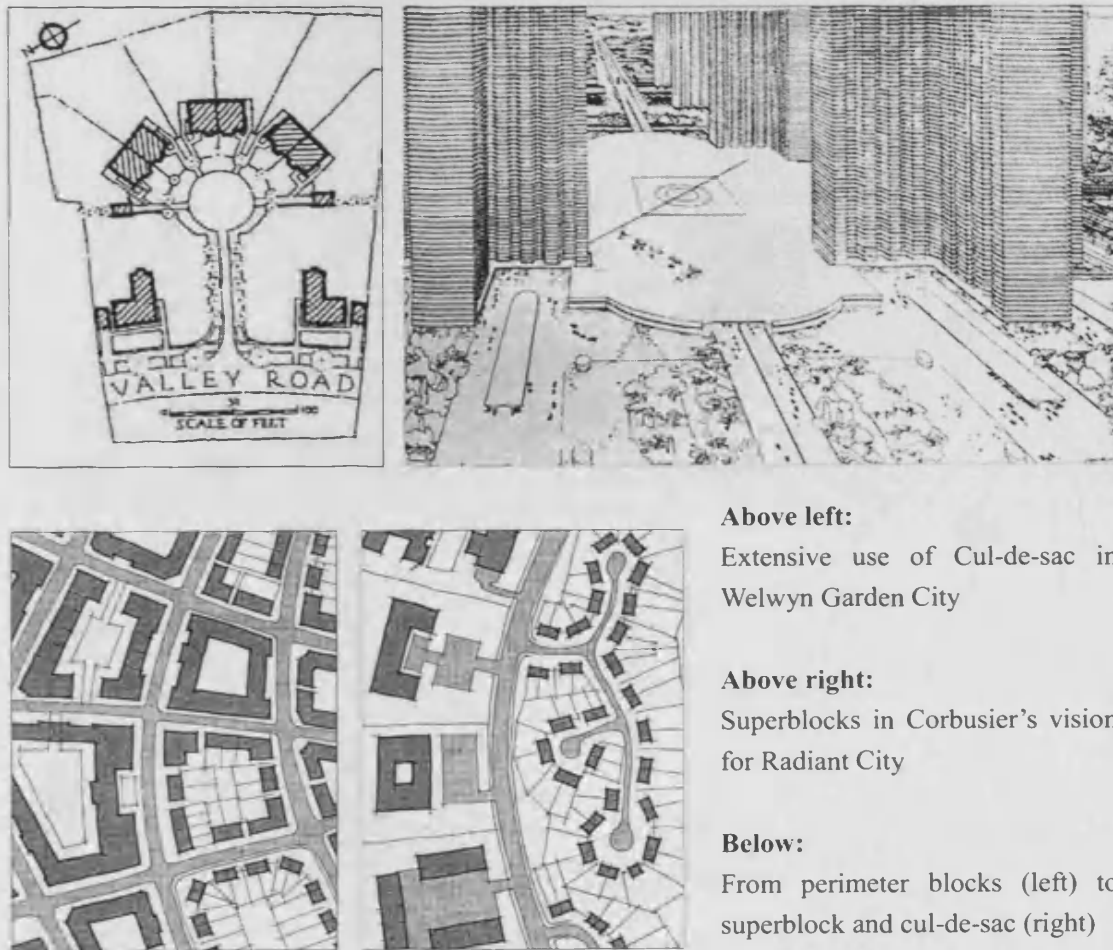
This section will examine the theories and practices in residential planning, focusing especially on their methods and consequences with respect to social-spatial integration. The analysis begins with modernist planning, progresses through postmodern rethinking and new approaches to date, and finally addresses the design principles for crime prevention that are particularly relevant to the concerns of the gated community.

The Modernist experiment

Modernist city planning initially started with a major aim to counteract the severe degradation of urban environmental conditions and social problems caused by industrialization in the late 18th century and early 19th century. Two groups of concepts *inter alia* had the most fundamental influences. One is Ebenezer Howard's *Garden City*. Although the physical forms expressed in Raymond Unwin's plans for Letchworth and Welwyn are more widely recognizable and referred to world wide, the *Garden City* is *de facto* the social vision and financing approaches that Howard put forward for a private city, a self-governing community (Hall & Ward, 1998; Webster, 2001). The other pool of ideas, based mainly on Le Corbusier's vision for *Radiant City*, were clearly stated in *The Charter of Athens*, the report of the 1933 CIAM (International Congress of Modern Architecture) which was founded in 1928 by a group of 28 European architects organized by Corbusier. The *Charter* advocated rigid functional zoning of city plans, separation of

vehicular roads and pedestrian routes, and freestanding higher rise slabs and point blocks in an open landscape. These design concepts led arguably to an erosion of the perimeter block pattern and traditional streets that were mixed-use and spatially defined by each other. The superblock came into being when a large area was circumscribed by highways. The fine-grid 'streets', bearing many social qualities and once the major part of public space, were degraded into the 'roads' - only functioning as movement channels - in a loose mesh and often cul-de-sac style (Figure 2.1).

Figure 2.1 From perimeter block to superblock and cul-de-sac



Above left:

Extensive use of Cul-de-sac in Welwyn Garden City

Above right:

Superblocks in Corbusier's vision for Radiant City

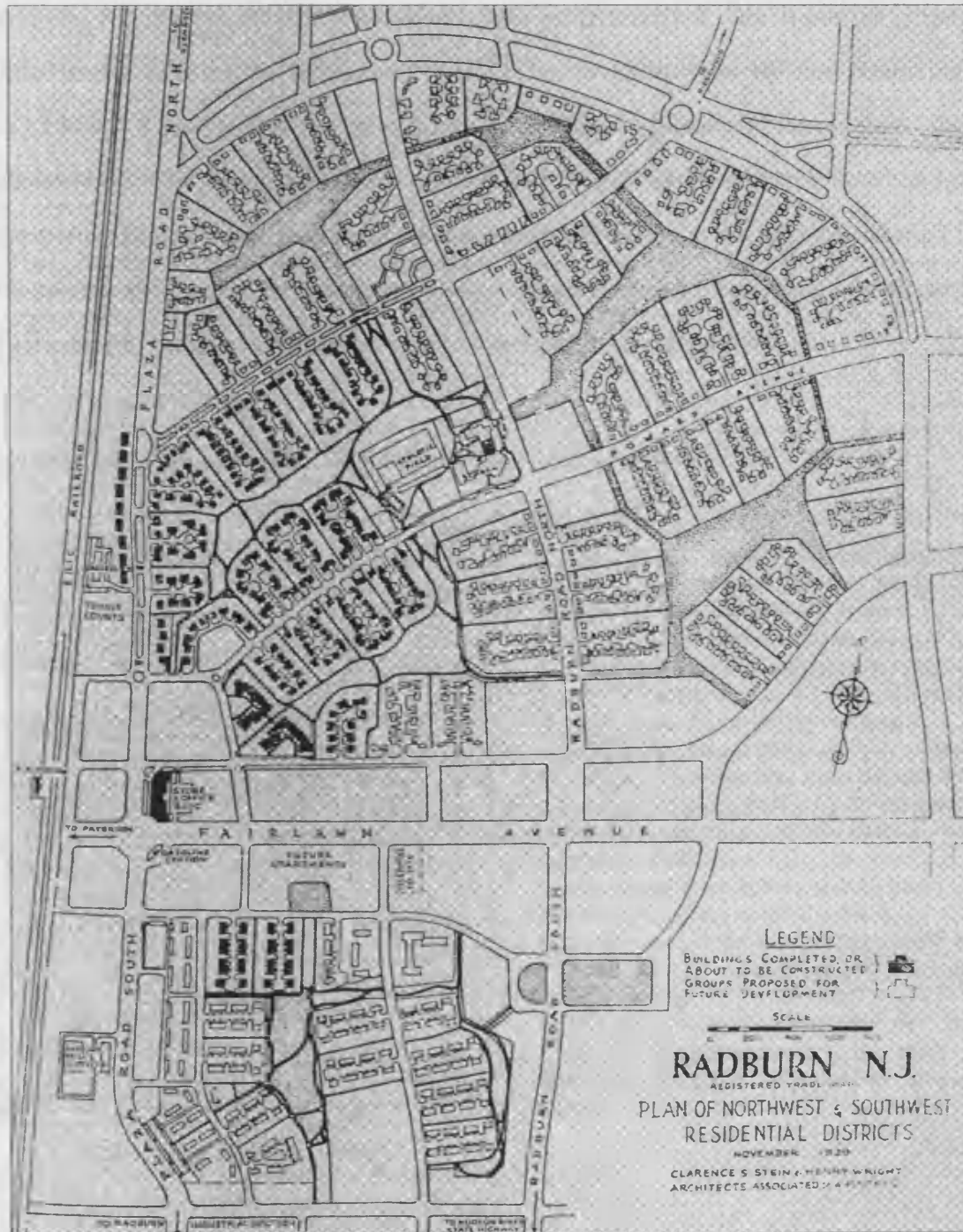
Below:

From perimeter blocks (left) to superblock and cul-de-sac (right)

(Source: compiled from Rudlin and Falk 1999)

Radburn was a case in point, as the elements of superblocks, mono-use zoning of residential district, cul-de-sac, separated pedestrian and vehicle roadways can be evidently observed in the plan (Figure 2.2).

Figure 2.2 Part of the proposed plan for Radburn N. J.



(Source: www.cmhpf.org/surveymecklenburgpaper.htm)

As regards the residential planning, Clarence Perry's *Neighbourhood Unit* (Figure 2.3) was almost the sole basis for organizing residential space and guiding residential planning and design (Banerjee & Baer, 1984). Reinterpreted and revived in the mainstream postmodern design thoughts, it has been widely used world wide up to the present. However, as the neighbourhood unit was based on the then-popular notion of the separation of land uses, the self-contained layout proposed by it, which put the common facilities and school in the middle, emphasized an inwardly focused core (Banerjee & Baer, 1984). This model actually suits suburban settlements more than urban neighbourhoods that often interweave one another. So, although the neighbourhood unit concept was firstly presented in a sociological conference held in 1923 aiming for social-spatial well being, the cellular and self-contained model often made it criticized as an instrument to create social and economic segregation (Isaacs, 1948).

Figure 2.3 Clarence Perry's neighbourhood unit concept



Six principles in general:

- The size of a residential neighbourhood should be determined by the population needed for one elementary school: about 750 to 1,500 families on 150 to 300 acres;
- The neighbourhood should be bounded by wide arterial roads that eliminate through traffic to the neighbourhood;
- Within the neighbourhood there should be a hierarchy of streets, each designed to discourage through traffic by an internally curvilinear pattern of narrow streets with minimum widths;
- Streets and open spaces should make up at least 40% of any neighbourhood;
- Schools and other institutions should be grouped at a central point in the neighbourhood;
- Shopping areas adequate for the population should be set up at the edges of the neighbourhood, adjacent to arterial traffic.

The new approaches based on postmodernist planning thoughts

Because of the resultant inhuman, dilapidated, and fragmented urban landscape, the mindset of modernist planning has been discredited and re-examined since the latter half of twentieth century (Jacobs, 1962; Relph, 1976; Fishman, 1977; Hall, 1988; Oldenburg, 1999). It has been further challenged when sustainable development becomes a new global agenda which appeals for an end to the low-density urban sprawling (Figure 2.4) (Barton, et al., 2002; Thomas, 2003; Jenks and Dempsey, 2005). The virtues of traditional urban spaces and the vivid public life in the European cities were rediscovered and appreciated (Rossi, 1966; Alexander, 1979; Krier, 1979; Jacobs, 1995). Emerging from this trend are the new approaches, generally labelled as *Neo-Traditional*, in postmodernist neighbourhood planning, especially in Anglo-American cities.

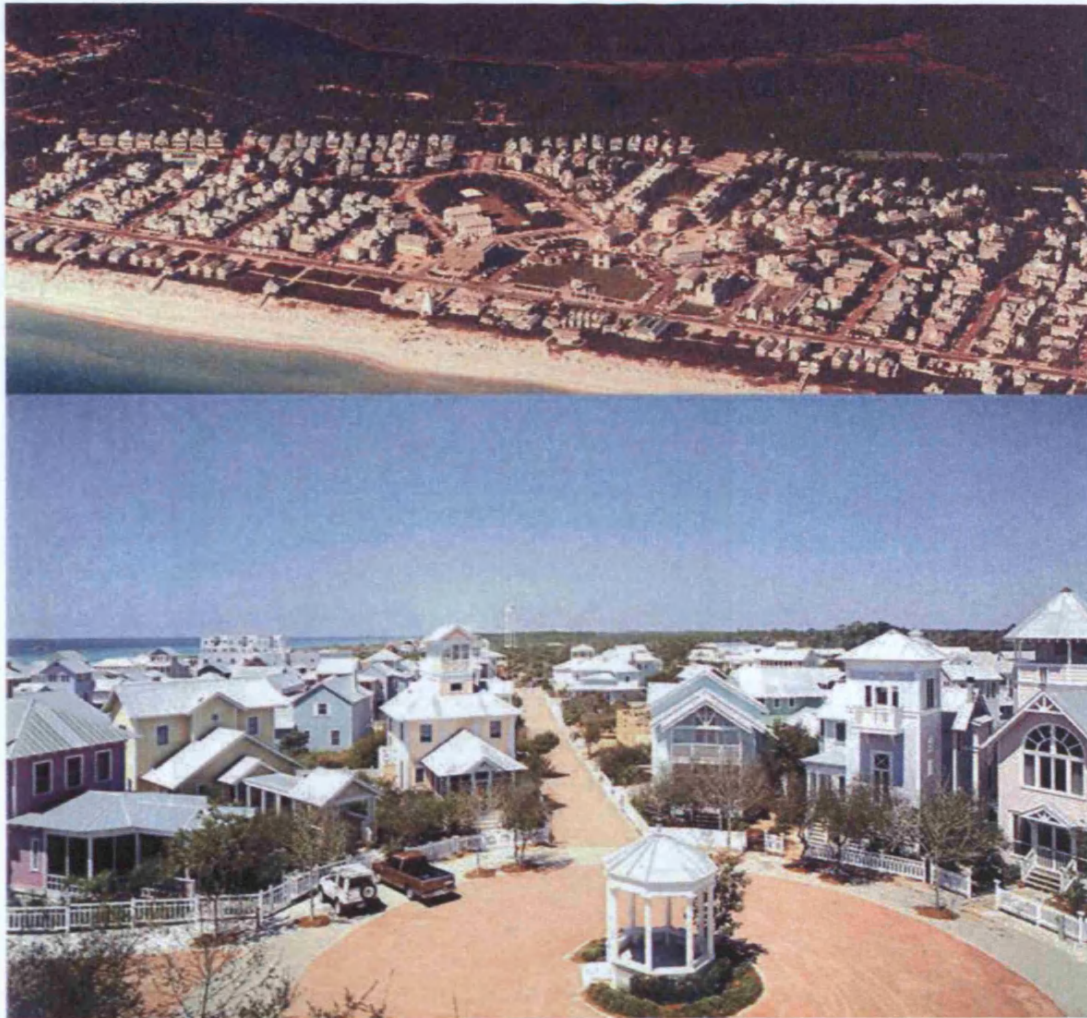
Figure 2.4 Suburban low-density sprawl in Las Vegas, Nevada



(Source: Knox and McCarthy 2005)

However, these Neo-traditional design approaches, such as New Urbanism in US and Urban Village in UK, are arguably incapable to foster a genuine, socially-integrated urban neighbourhood (Goldberger, 1996; Kohn, 2004).

Take New Urbanism for example. First of all, most projects of New Urbanism fail to realize the ideal of creating a mixed-income household condition, although they do contain a range of housing styles and prices, because ‘even entry-level homes are priced well above the median for the region’ (Kohn, 2004, p.130). Secondly, many New Urbanism projects are often private communities, built and managed by community association. The historical physical form has little to do with the inherent exclusiveness of those projects. The streets and town centres in such projects, no matter how public they look like, are still private property and therefore not the real public spaces. The final and most important criticism about New Urbanism is that it is a ‘sub-urbanism’ rather than ‘urbanism’. It provides *de facto* a solution for suburban rather than urban residential development. Although trying to extend the practice into the brown field projects in inner city, New Urbanism is mostly applied to the suburban green field sites like the flagship project in Seaside (Figure 2.5), providing middle-class residents with self-contained neighbourhoods of detached houses to live what essentially a suburban life (Goldberger, 1996). Other than inter-connected and interweaved into urban fabric, these suburban housing developments are virtually enclaves spatially separated from one another and from the real urban life. In this case, New Urbanism only created another kind of ‘theme park’ to satisfy the nostalgia for traditional urban living, but not the genuine urban space and urban life.

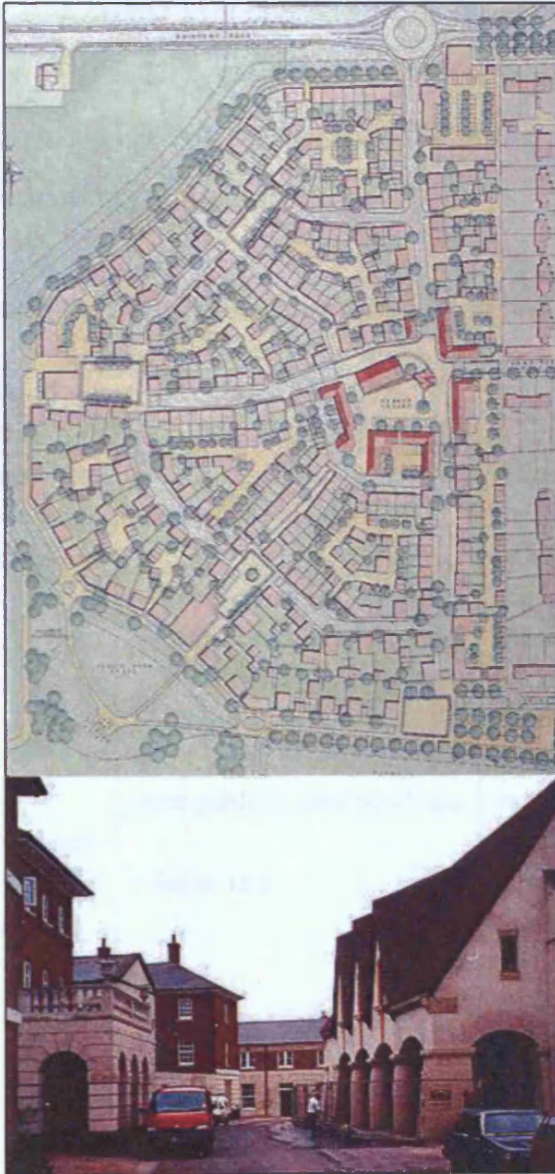
Figure 2.5 New Urbanism approach: the flagship project in Seaside, Florida

(Source: <http://www.eslarp.uiuc.edu/la/LA338-S01/groups/c/>)

As regards Poundbury (Figure 2.6), the flagship project of Urban Village in UK, it has not realised a bustling community where everyone walks and communicates along the streets as people did in bygone days. Although the aesthetics are popular, the interconnected streets and walkways are virtually deserted. Moreover, like many New Urbanism projects serving mostly for wealthy middle class, an element of segregation in Poundbury is introduced by virtue of their selling price and the ability to afford to live there. Moreover, following New Urbanist principles, Poundbury was intended to reduce car dependency and encourage walking, cycling and public transport. However, a survey conducted at the end of the first phase showed that car use was higher in Poundbury than in the surrounding (rural) district of West Dorset (Watson, et al., 2004).

The neo-traditional projects, which largely focus on the physical aspects, could only become the more or less architecturally varied products in real estate market. In this case, the better design and more traditional the neo-traditional projects are, they only attract affluent residents and have limitations in creating a genuine socially and functionally mixed and integrated urban neighbourhood.

Figure 2.6 Urban Village approach: the flagship project in Poundbury



(Source:<http://zakuski.utsa.edu/krier/BUILDINGS/poundb.arcade350.jpg>)

The design principles and practices for crime-prevention

While the sense of fear has significant influences on the transformation of contemporary

urban forms (Ellin, 1997), the issue of security, particularly crime prevention, is always one of the top-task in residential planning and design. The ideas of preventing crime at the neighbourhood scale by means of appropriate environmental design were first suggested by Elizabeth Wood (1961) and Jane Jacobs (1961). Jacobs put forward measures that are more detailed on three major themes: territorial definition and control, surveillance, and activity. Their ideas were further developed by CPTED strategies originated by C. Ray Jeffery (1971) and Oscar Newman in his '*defensible space*' (1973). These principles (Table 2.1), varying in detail, are generally taking an opportunity reduction approach, which sets out to make the crime too difficult for the criminal to proceed by closing off opportunities.

Table 2.1 Opportunity reduction approaches for crime prevention

Elizabeth Wood (Wood, 1961)	Jane Jacobs (Jacobs, 1961)	Oscar Newman (Newman, 1973)
<ul style="list-style-type: none"> • Housing projects can never employ enough police officers, caretakers, service engineers, etc., to prevent crime from occurring. • Manager needed • Physical improvement to the design of public and semi-public spaces 	<ul style="list-style-type: none"> • Clear demarcation between private and public space • Eyes on street, buildings looking onto street • Substantial quantity of shops, pubs, restaurant and other publicly used buildings • Social mix 	<ul style="list-style-type: none"> • Territoriality Territorial definition of space through subdividing it into zones, where private, semi-private/public space and public space are clearly identified and under the residents' influence • Surveillance Positioning of windows to allow surveillance • Building image Use of building forms which are not stigmatized • Juxtaposition of residential with other facilities Careful location with urban areas

Criticizing the abstract green and open space advocated by modernist urban planning for not supplying clearly defined territory (Newman, 1972), Oscar Newman proposed a 'more privatised architecture of walls' (Jencks, 1997, p.218). He conceived 'defensible spaces' as the range of mechanisms – real and symbolic barriers, strongly defined areas of

influence, and improved opportunities for surveillance – that combine to bring an environment under the control of its residents (Newman, 1973). It is noticeable that Newman took defensive attitudes towards the strangers, who, from Jacobs point view, should not be excluded, because many peaceable and well meaning strangers actually ensure the safety of the streets as they pass through (Jacob, 1961).

Newman's approach of territorial definition and control is 'only a short step to the gated community, where the public space of the street is closed to public access by a gate' (Panerai, et al., 2004, p.178). This defensible urbanism is certainly criticised for preventing the natural movement of people by excluding all strangers, regardless of whether they are predatory or peaceable (Hillier, 1996). However, the difficult point is how to tell the predatory from the peaceable, including the latter while at the same time excluding the former. In addition, the opportunity-reduction approaches above raise concerns about adversely affecting civil liberties already, and are arguably less effective in the face of 'professional' or instrumental criminals, which 'may be spatially displaced or resort to other means to achieve their aims' (Oc and Tiesdell, 1997, p.71).

To sum up, the analysis above illustrates that crime prevention through environmental design has been a complicated and controversial issue in residential planning and design. In general, the existing theories and practices have not provided a satisfactory model for creating an integrated urban neighbourhood in the face of intricate urban conditions, not to mention any holistic solution to the gated community development.

2.4.2 An integrated design for gated community: potentials and emphasis

Limits and possibilities of gated community

There are both limits and possibilities for the gated community to be designed to integrate with the wider urban context concerning its characteristics. First, an appropriate concentration of population is the prerequisite of a prosperous urban neighbourhood with

varied land uses and diverse activities on local streets. As discussed above, compared to the spatially segregated and low-density suburban living, the gated community is capable of providing the same sense of security but with the closer proximity of different social groups, and at much higher densities. The collective share of maintenance fees basically requires a minimum threshold of member residents to make a gated community cost-efficient and financially manageable. In this regard, therefore, gated communities potentially promote a higher residential density and could contribute to a higher concentration of people, which at least provides the demographic and economic base for developing a more compact urban neighbourhood in contrast to suburban sprawl. But in reality, without appropriate guiding policies, gated communities are often developed at very low density in suburban areas, such as those in Nana Point, Orange County (Figure

Figure 2.7 The sprawl of gated community, Dana Point, Orange County



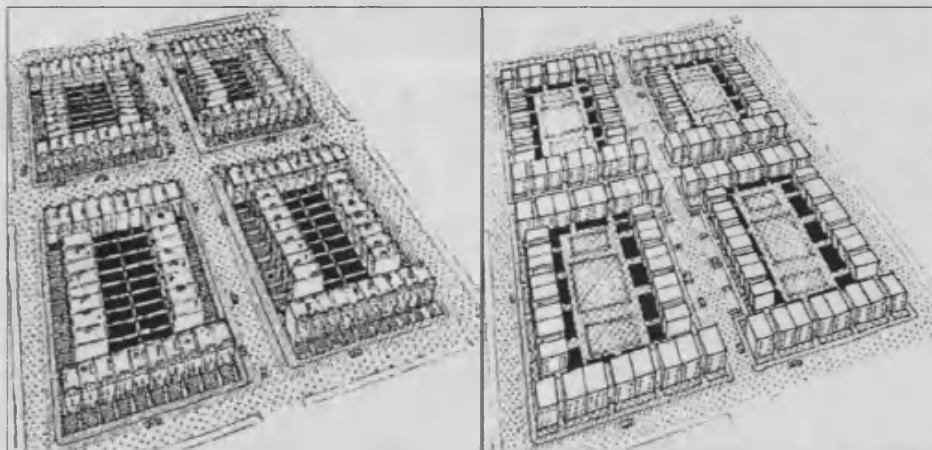
(Source: <http://www.gated-communities.de/>)

2.7).

Secondly, there is probably no fundamental functional conflict between gated communities and the public spaces around them such as streets, parks and plazas. Unlike shopping malls, most of which potentially compete with and replace traditional commercial streets, many gated communities that are not all-inclusive do need additional services located in the wider urban area for daily essentials and wider recreational pursuits.

Finally, although the enclosed forms of gated communities do present a potential obstruction for pedestrians / vehicles in places with an ill-connected street network, measures can be taken to minimize the size of the gated area in order to satisfy the basic needs of a fine-grain urban network and a walkable city. This can refer to the perimeter block as the elementary urban tissue. It was a tradition in pre-industrial era and has been re-emphasised by postmodernist planning in many continental European cities (Bentley, et al., 1985; Panerai, et al, 2004). In contrast to the open structure in modernist superblocks or any mega-structure, moderately sized perimeter blocks are conceived as the robust unit, which are capable of accommodating changing uses, to compose vital and highly accessible street network, and most importantly, as the natural way of dividing the public and private spaces (Figure 2.8).

Figure 2.8 Traditional closed perimeter block and modernist open structure

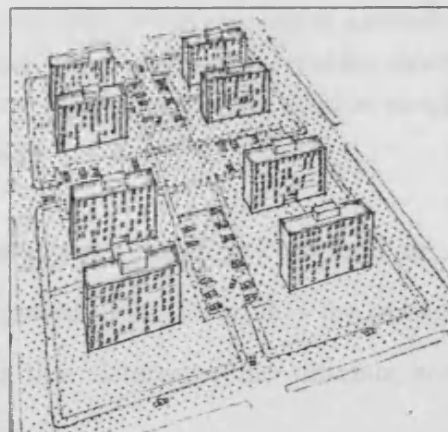


(Without enclosed common space) (With enclosed common space)

Traditional Perimeter Block (above)

- Private
- ▣ Semi-Private
- ▤ Semi-Public
- Public

Modernist Open Structure (right)



(Source: compiled from Rudlin and Falk 1999)

Noticeably, the defensive form of the perimeter block with buildings enclosing a communal space and some internal facilities actually resembles that of a mini gated community (Figure 2.9), except for multiple entrances direct onto the street. Therefore, the traditional perimeter block provides an archetype for exploring the solution to the design of gated community (Figure 2.10).

Figure 2.9 Plan and recent view of Begijnhof, Amsterdam



Begijnhof, established in the 14th century, is an urban block in the inner city of Amsterdam. There are about forty houses are placed around a central green space with a 'hidden church' in the centre. It is secured with a gate at the access road on the east-north corner. (Source: compiled from Bobic 2004 and http://en.wikipedia.org/wiki/Begijnhof,__Amsterdam)

In sum, although the features of gated communities, including both function and form, have both limits and possibilities for an integrated urban form, it is the manipulation of design features in the development process that determine the ultimate socio-spatial

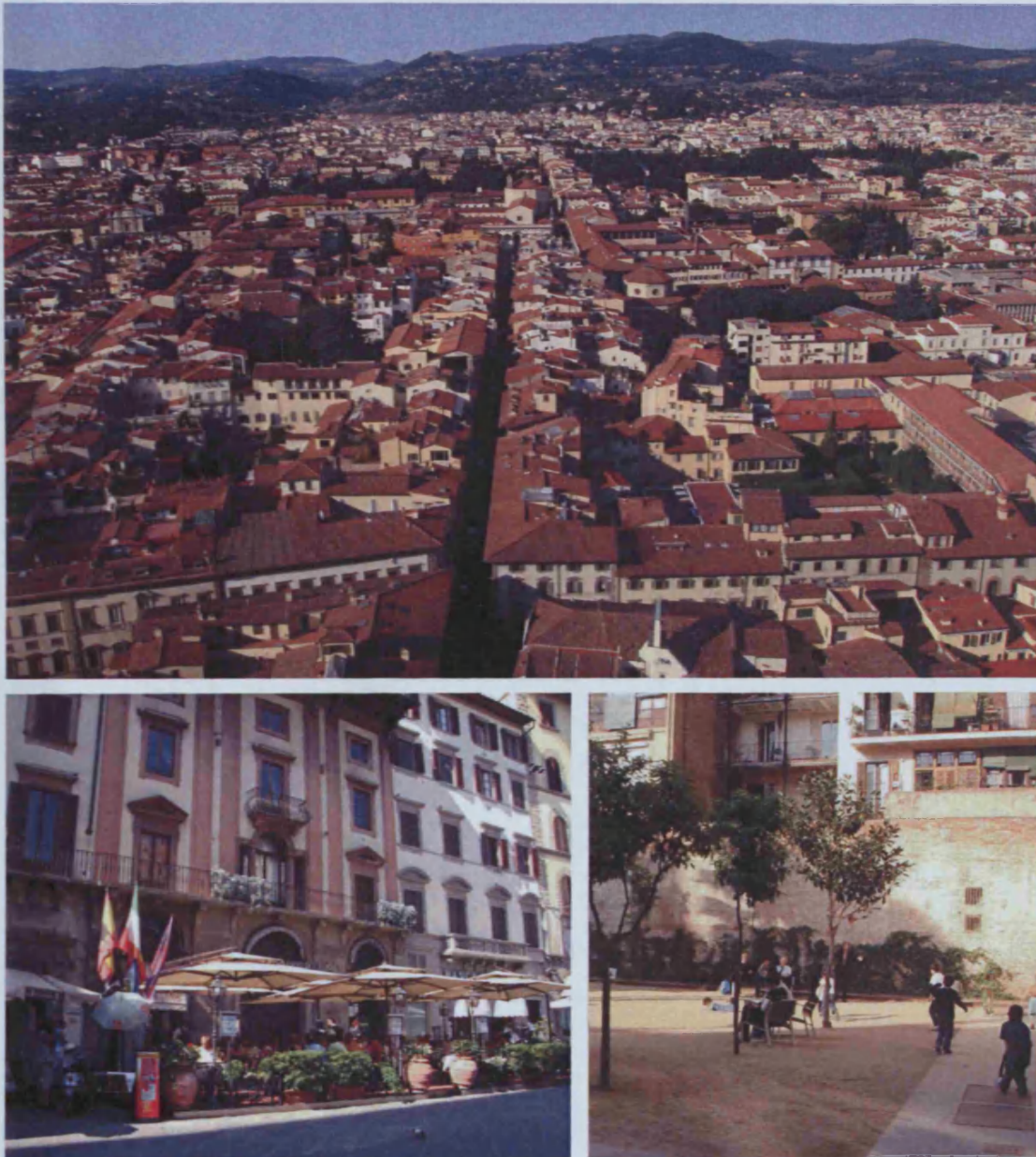
consequences of gated communities. The analysis above, especially that of the perimeter block, suggests that there exists a potential approach to be explored in the design of gated community, in terms of facilitating an integrated urban form with vivid public spaces and high quality communal space. So, what is the start point and central core of this

exploration?

The role of public spaces around gated communities

As regards good urban form for integrated neighbourhoods, there is a set of normative

Figure 2.10 Urban blocks in traditional European cities



Although the access to enclosed courtyard is often controlled and prohibited, the small plots occupied by the perimeter blocks contribute to the dense and well-defined street network, Florence (above). While public activities are thriving in the front (bottom left), the semi-private space behind the building is safe and sociable, working well for the whole community of the block, Barcelona (bottom right).

criteria and principles based on commonly held values and practical evidence in the urban design literature. In *'The Death and Life of Great American Cities'*, Jane Jacobs (1961) describes the four indispensable physical conditions for dynamic urban life, which are multifunctional neighbourhoods with mixed primary use, small blocks and a connected street system, fairly close-grained aged buildings, and a high concentration of people. All these conditions are envisaged to contribute to vivid urban streets, and public urban spaces. Her ideas soon found an echo among urban design researchers and practitioners across the world. Allan Jacobs and Donald Appleyard (1987) regarded 'liveable streets' as the first and foremost 'prerequisites' of a 'sound' (i.e. vibrant, lively, and well-integrated) urban form of city. Appleyard (1982) had demonstrated in detail that urban streets, rather than traffic channels predominantly planned for the use of vehicles in modernist planning, are significant public social spaces, which have many social and recreational functions. In this regard, urban streets, the most ubiquitous public spaces, are both an indication and the focus of good urban form. Moreover, attractive urban space is especially significant to combat the retreat into the gated community, to bring people out of their enclosed precincts, and promote social interaction and public life. Therefore, public urban space is not only the prerequisite of good urban form but also the central theme in exploring better design solution for gated community. Discussion of the physical features, and of the alternative ways forward for gated community design, in terms of integrated urban form should be centred on the interactive relationship between the gated community and the streets or other public spaces around it. What are the potential positive impacts gated communities could bring to the qualities of local public spaces, and how could they be achieved by means of physical adjustment to conventional gated community design practices?

To answer these intricate questions, the exploration should perhaps firstly sort out how the public spaces around gated communities are defined, namely, what design features of gated community are decisive in shaping the neighbouring public spaces. Three elements: *enclosure size*, *boundary effect*, and *shared public spaces and facilities* are proposed in this regard.

2.4.3 An integrated design for gated community: pivotal elements

Enclosure size

Greatly influencing the street and block pattern of the located urban area, enclosure size is the first and foremost design element of the gated community that determines its relationship with the neighbouring urban spaces. Although the scale of the whole site area of gated community development is mostly up to the developer and can vary widely, the enclosure size is the maximum plot area allowed to be gated and can be stipulated in the pre-development regulatory plan.

A properly regulated enclosure size will largely reduce the negative impacts of the gated community on the wider urban neighbourhood. First of all, the appropriate scale of enclosure will largely reduce the negative impacts of the gated community on permeability and accessibility, which is most disliked for destroying easy movement and walkable urban districts. Secondly, compared to urban districts of the same size, those with medium or small gated areas could have more diverse communities with different prices, housing types, or aesthetic styles to cater for different consumer groups. Plots for other uses such as offices and retail could also be mixed up with those of gated communities. If accompanied by other planning and design policies, the whole district or neighbourhood could be developed into a socially, economically and physically heterogeneous urban area, although the small niches in gated communities are more homogeneous and express 'common interest' preferred by the residents. Finally, the well-subdivided plots of small or medium size for each enclosure limit the facilities that can be provided in one enclosure, creating a need for more widely shared services. The enclosures are thereby made largely dependent on local suppliers along the public streets. On the one hand, this can facilitate social encounters and interactions between gated communities and local communities outside, and between gated communities themselves. On the other hand, using the facilities provided in the neighbouring public spaces, the

residents would regard them as the inseparable part of their everyday life and property value, and therefore pay persistent attention to them. This can be an underlying motive to promote the provision and maintenance of the public spaces around gated communities. The developer, for example, who builds gated communities on both sides of a local street, would generally wish to devote extra effort to the well-being of this street.

Therefore, the careful subdivision of land and relevant policies regulating the size of enclosures for gated communities could effectively guide subsequent developments towards a mixed use and heterogeneous urban neighbourhood centred on local public spaces, notwithstanding the presence of gated communities. However, what is the proper enclosure size for the gated community development? The answer is far from straightforward in face of different urban context with great disparities in physical, social, cultural, political and economic aspects.

Boundary effect

The boundary is where the gated community encounters the city outside. It defines not only the gated community, but also the public spaces around. Moreover, it defines the public space not only spatially, but also functionally in terms of its supporting role in facilitating most of the functions and activities in the adjacent public space. Therefore, the boundary effect is inseparable from the quality of the adjoining public space, and the integration of the located urban neighbourhood. So, the physical features of the boundary - the length, the frontages, the permeability, the accommodated facilities, the surveillance conditions, and other amenities - are especially crucial in the interaction between the gated community and its adjacent streets.

There are three main types of boundaries¹ for gated communities. The first is the walls or fences built for no specific use other than separation. Although often exclusive and hostile

¹ As this research is about the strictly gated developments, the discussion about boundaries will not include those like bollards, canopy, portico, texture change (change of pavement material, raised platform) which primarily have psychological implication but do not present a physical restriction to prevent trespassing between domains.

(Figure 2.11), they could nevertheless be made much friendlier to passers-by, by means of low height, transparent materials, sufficient lighting, pleasant greenery, and so on (Figure 2.12). Bobic (2004) pointed out that a high longitudinal hedge defines the spatial and visual limits of street spaces providing clear but soft and friendly division between private property and public space as the different sorts of plants provide a rich variety of form and colour. Even blank walls can be decorated by murals that can add visual attraction to the street.

Figure 2.11 Boundaries hostile to the streets



Lacking of careful design and management makes the rail fences, Chongqing (left) and blank walls, Chile (right) unfriendly to the public walking along the adjoining streets.

Figure 2.12 Better designs for boundaries



Boundaries can be made much friendlier and more interactive to the adjoining streets, Chongqing.

The second and most active kind of boundary to frame and define the neighbouring public realm is made of buildings facing outwards. It can provide diverse uses and therefore facilitating various activities on the adjacent public spaces (Figure 2.13). However, the result can also be negative if the qualities of detailed design, such as the scale and material of frontage, the accommodated uses, access from the street, etc., are ignored. The facade and uses at the ground floor level are especially crucial, as they closely interact with the behaviour and activity of residents and passers-by (Gehl et al., 2006).

Figure 2.13 Mixed-use buildings as boundaries



While the two-storey podium supports diverse uses and activities on street, the apartments above can still enjoy their privacy, tranquility, and sunlight, Chongqing.

The last kind of boundary is the natural or constructed space for public use, such as lakes, public parks, squares, etc., which could on the one hand function as buffer areas between gated communities and the bustling urban environment, and on the other hand can be mutually shared, physically or visually. Nevertheless, if lacking appropriate design and management, such space could be sterile and only function as an enlarged boundary of

gated community, which would not benefit the neighbouring public spaces and public life.

Shared public spaces and facilities

As argued above, the gated community is largely the result of the retreat of the public sector and the insufficient provision of public spaces and facilities. This market-based tendency to segregate can be greatly counteracted if more effort is made by the public sector to improve the conditions of the surrounding local streets. As the major aim in the manipulation of the first two elements is to regulate the negative impact of gated communities on local urban public spaces, the final element emphasizes the amenities of the public spaces themselves, their construction and their maintenance. Well-provided public spaces and facilities are particularly significant in ensuring the quality of life of all the local communities in the whole urban district, and in attracting people out of their enclaves to enjoy the facilities and amenities, thus creating social interaction. The additional and alternative services covering a full range of amenities and facilities, such as public transport, local retail services, or small businesses, connecting well with civic services including health, education and administration within a short walking distance, will make these public spaces attractive and indispensable. Only if the facilities and amenities outside the gated community and in public spaces are well designed and have good quality enterprises, can the barriers and introversion be gradually abandoned or eventually dismantled.

The provision of public spaces and facilities for gated communities and the wider local neighbourhood is closely related to the urban structures which shape living patterns or habits. The daily retailing services along the public streets around gated communities for example, are not necessary if most of the consumption practices of the residents are based on large-scale food stores and shopping malls. Therefore, a prerequisite is a proactive and holistic plan for the quality of public spaces and facilities, including the public transit system, recreational and educational services, the landscape greenery and views, for the

whole urban area where gated community is located.

2.5 Summary

This chapter presents a theoretical discussion of gated community from an urban design perspective. The analysis, starting from the genesis and evolution of gated community, shows that rather than being a creative product of the housing market, the gated community is an individual response to the fast and immense changes in the living conditions and lifestyles of contemporary cities. Moreover, this personal choice is decisively endorsed and propelled by the political-economic transformation of Neo-liberalism toward privatisation, aimed mainly at the “load shedding” of government responsibilities in the provision of public goods and services. So, as long as the political-economic context in favour of privatisation is sustained, the pervasive trend of the gated community will continue and become even stronger. In consequence, there are huge demands from the market for gated communities, which can be predicted to increase rapidly. How can all the practitioners involved in city making, politicians, planners, architects, developers, interest groups, local communities, and so on, respond to these demands?

Unfortunately, market demands and their pressing challenges have not been well addressed in current academic researches and debates. These are by and large dominated by the prevention discourse, and the debates themselves can hardly reach an agreed conclusion when they are focused on either the positive or the negative externalities of gated community, and when they are derived from specific cases with greatly varied social, environmental, political, and economic contexts. Hence, there is an intellectual gap between current research and practical needs in reality in terms of how to deal with the design issues appropriately in the development process. In this case, the more this topic is investigated, the less practitioners know what to do. Because too much attention is paid to the sophistication and various dimensions of gated community, while little attention is

paid to the clear-cut guidelines or principles of design to assist planners manage large scale development. This is due to the comparatively less research carried out in the realm of environmental design, and the fact that most researches focus on the aftermath other than the development processes of gated community. In addition, the capabilities of physical features with respect to the social-spatial consequences and the proactive role of design policy have largely been overlooked in case of gated community development. In this regard, urban design research needs to be carried out to provide an alternative and practical way forward, to create the basis, for urban design is public policy to address this question.

The exploration for the potentially feasible design approaches resorted firstly to the existing theories and practice. The historical review manifested that neither modernist orthodoxies nor postmodernist thoughts on residential planning and design had provided a satisfactory model for creating an integrated urban neighbourhood in the face of intricate urban conditions. No did it suggest an applicable solution to the gated community phenomenon emerging in the last two decades. In fact, modernist planning and design discarded the traditional streets, the most common public spaces bonding the city together in both social and physical terms, and therefore facilitated a segregated urban form. The postmodern approaches, although trying to restore the traditional urban form, have been most limited in the suburban, up-market developments, which have created something like a fantasy or 'theme park' to satisfy the wealthy customers' nostalgia for traditional urban lifestyles, rather than achieve a genuinely mixed and vivid urban neighbourhood in traditional sense. In addition, the review of the design methods for crime prevention shows that there is arguably no satisfactory model or approach so far in this case. The most advocated and used opportunity-reduction approaches are believed to be largely ineffective in the face of 'professional' or instrumental criminals on the one hand; on the other hand, the strictly gated community also raises concerns about adversely affecting civil liberties and only displacing rather than reducing crime.

However, the analysis showed that there still exists a potential approach to be explored in

the design of gated community, in terms of facilitating an integrated urban form with vivid public spaces. Furthermore, three key elements were elaborated and proposed: enclosure size, boundary effect, and shared public facilities, all focusing on creating vivid public urban spaces around gated communities. It can be argued that only vivid public urban spaces can help fill the socio-spatial gaps left between gated communities and their local urban neighbourhoods. As regards the detailed measures, they can only be developed and pinpointed in a specific urban context that often varies in different countries and cities, and even in the different gated community developments. Therefore, the hypothesis about the design approach for gated community will be examined in the empirical chapters of this thesis.

CHAPTER THREE

RESEARCH FRAMEWORK AND METHODOLOGY

3.1 Research framework: epistemology and research questions

3.1.1 Epistemological framework

This research is a study of the gated community in China from an urban design perspective. Urban design, as defined by Manuel Castells, is ‘the symbolic attempt to express an accepted *urban meaning* in certain *urban forms*’ (Castells, 1983, p.304). As for the *urban meaning*, Castells elucidated it as ‘the structural performance assigned as a goal to cities in general by the conflictive process between historical actors in a given society.’ Castells’ definition inherently sets up twofold epistemological ground for this research.

One of the epistemological bases is that any materialization of space as urban form is not the result of an arbitrary architectural or planning interventions in the urban prospect, but is fundamentally shaped by and embodying the deeper, more enduring social forces that emanate from the overall production of material basis of life, that is, from the economy as a whole (Cuthbert, 2005). For this research, gated community, expressing its exclusiveness and retreating from public domain though the symbol of gated form, is a joint result of the environmental, social, and political transformation in contemporary cities. From this standpoint, the political-economic and socio-cultural forces behind the design and physical outcomes are deemed as such indispensable part of this research that they should run throughout the whole investigation, which focuses on the design

dimensions *per se*. In this regard, the forces ranging from the traditional elements in residential planning and architecture, the culture of habitat, the political-economic background, the design principles in vogue, to the regulating development control policies in planning regime, are all relevant foci to be enquired. This research therefore emphasizes the significance and flexibility of context around the gated community phenomenon.

The other epistemological base is that urban design research essentially acknowledges and endeavours to reveal the underlying relationship, though not in a deterministic way, between the two subjects, namely *urban meaning* and *forms*. This delineates the cross-disciplinary nature of urban design research that inherently tries to bridge the visual-semantic communication gap between the researches of environmental design and social sciences, based on evidence from physical 'space' and the people living in it. In this research specifically, two relationships are subject to exploration: one relationship is between the outcomes and the requirements imposed on the design of gated community by different actors during development process; the other is the relationship between the physical features of the gated community and the practical performance in terms of people's perceptions and use in reality.

3.1.2 Research questions

The review of existing theoretical and empirical studies on the topic of gated community in Chapter 2 reveals three major issues for this research. Firstly, it is recognised that although the gated community appears to be a personal choice in face of the contemporary urban condition, it is in fact endorsed and decisively propelled by the political-economic transformation of neo-liberalism toward privatisation, which aims mainly at the off-loading of government responsibilities in the provision of public goods and services to the private sector. Is it relevant to the gated community phenomenon in China? Or should other factors be equally considered? And how have these underlying

forces shaped the design and final physical outcomes of the gated community? Secondly, the socio-spatial outcome of the gated community is a highly controversial issue in current academic circles, because both positive and negative evidence exists simultaneously in both theoretical and empirical researches. The positive and negative consequences mostly depend on the specific local context although the gated community is truly a global phenomenon already. So, what is the *status quo* of the gated community in the Chinese urban context with respect to its characteristics and performance? The third issue is that the increasingly pervasive gated community in worldwide real-estate industry creates an urgent demand for advice and policy on design practice, and this has been largely neglected in previous research. How are the socio-spatial externalities of the gated community to be manipulated by design, especially in the current Chinese planning regime? What are the existing opportunities and problems in this regard?

Furthermore, the literature review also showed that the visible and invisible impact on the public realm is the *de facto* point of gated community research and debates. Therefore, rather than targeting the internal living conditions of the gated community, this research will focus on its external impact on the local public space around. Public space in this research is defined as the *publicly accessed* areas around gated communities, no matter who owns and manages them.

In short, this research attempts to understand the design issues of gated community in China with respect to the well-being of the neighbouring public spaces and urban life in-between, and tries to answer the following three questions:

1. What are the socio-cultural and political-economic factors behind the making of gated communities in China, and the ways they have helped to shape the design in the development process and the final materialised outcomes?
2. What is the impact of the gated community on the adjacent public space in people's perception and real-life use in China? And how is this impact related to the physical

features of gated community and the neighbouring public space?

3. How could the gated community be guided and controlled within the Chinese planning regime to achieve better integration with the wider urban neighbourhood in both social and spatial terms?

The questions above prescribe the exploratory nature of this research, pursuing empirical evidence about the features in terms of form, land use, and supporting facilities of the public spaces shaped by the gated community, and their performance in both user's perception and real-life behavioural interaction. So, an evidence-based theoretical proposition for the design of gated community is propounded on how to minimise its negative impacts on the neighbouring public spaces. The literature review in Chapter 2 has identified three determinant aspects in this regard: enclosure size, boundary effect, and shared facilities in the neighbouring public spaces. Therefore, in order to explore and test the hypothesis, these three factors constitute key thematic lines in organising the data analysis.

3.2 A two-phase research strategy: historical inquiry and case study

In accordance with the epistemological requirement for contextual research, a two-phase strategy is developed to explore firstly the historical background of gated community in China with respect to the general morphological transformation and the socio-cultural and political-economic impetus behind it. Then, it narrows the focus to a case study of a set of gated communities in the Dragon Lake Garden urban neighbourhood in Chongqing, aiming to examine in detail the impacts on, and the design consequences for, local public spaces. It is hoped that this complementary strategy of two-phase investigation will make sure the research questions stated above can be effectively explored in a holistic way.

3.2.1 Historical inquiry

The first phase of research presents a systematic literature review of documents from both printed and electronic resources. It follows a chronological approach and consists of two parts.

The first part is to extensively review the tradition of gated cities, neighbourhoods and residential compounds in Chinese history, because for any theory-building or design in the domain of built environment, 'it is essential to study the traditional environment' (Rapoport, 1989, pp. 79). Moreover, as 'past use and perception of environments can be essential contexts for understanding present use and perception' (Zeisel, 2006, pp.315), this retrospection is indispensable for understanding the context of the gated community. The legacies of conventional living, cultural and vernacular architectural elements have greatly influenced the way people view, expect, and design the pattern of the gated community today. The history is mainly divided into two periods for this examination: the lengthy pre-1949 feudal monarchy when walled residential quarters and introspective courtyard archetypes were sustained; and the socialist period from 1949 to 1978 when gated work-compounds (*danwei*) came to dominate the urban landscape.

The second part of the historical inquiry is to trace the evolution of gated community during the post-socialist era after 1978 when it emerged within the commodity-housing market after housing reform, exploring how it has gradually gained overwhelming prevalence in China. The review also examines in detail the socio-cultural and political-economic factors behind the evolving process of the gated community. Meanwhile, the general characteristics of the gated community in China are summarised in terms of location, housing style, development scale, and so on. The overall picture of the gated community in China today thus delineated provides a general context for the second phase, a detailed field investigation.

3.2.2 A single-embedded case study

A single-embedded case study strategy is developed for the fieldwork at the second phase of research. While the Dragon Lake Garden urban neighbourhood located in New North District of Chongqing city is selected as the 'single case', the four gated communities making up of this neighbourhood, namely South Garden, West Garden, Fragrant Camphor Wood, and Crystal Town, are the 'embedded cases'. All these four gated communities are developed by Chongqing Longhu Real Estate Development Ltd. (Longhu hereafter). The reasons for selecting the single-embedded case study strategy and the Dragon Lake Garden urban neighbourhood as the exemplary case(s) are given below.

Why 'case study'?

On the one hand, in order to develop meaningful and useful propositions for design practice, this research requires a detailed inquiry about the performance of the gated community in China in a naturally occurring, rather than a controlled or simulated, context. On the other hand, the case study as a research strategy is essentially 'an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident' (Yin, 2003, pp.13). Accordingly, the case study is regarded as a suitable and reliable strategy to collect amounts of information in depth across a wide range of features. The comprehensive information gained from case study helps create an understanding of the socio-spatial consequences of gated communities on the neighbouring public spaces and the factors shaping them, and to explore the appropriate principles for designing gated community within China's urban context and planning system. Nevertheless, case studies often have two weaknesses, also summarised by Yin (2003). One is the lack of rigorous procedures of data collection. This concern is actually about the validity and reliability of specific research methods applied in the fieldwork. So this will be addressed in detail later. The other weakness is the potentially insufficient basis in a case study strategy for the scientific generalisation about the findings. But this

worry can be cleared up in this explorative research as it aims at an ‘analytic generalisation’ but not a ‘statistical generalisation’ of a theoretical proposition for the design dimension of gated community. A case in point is Jane Jacobs’ work in her seminal book ‘The Death and Life of Great American Cities’ (Jacobs, 1961). Although based mostly on experiences from New York City, the chapter topics of this book ‘cover broader theoretical issues in urban planning’, and ‘in the aggregate, these issues in fact represent the building of a theory of urban planning.’ (Yin, 2003, pp.38)

Why ‘single’?

The rationale for choosing a single case is to select ‘a setting that is in many ways typical of other settings’ (Zeisel, 2006, pp.99) - the Dragon Lake Garden urban neighbourhood in this research – can capture the usual situation or features of the nation-wide urban neighbourhoods where public spaces are defined by the adjacent gated communities. However, as Yin points out, ‘a case may later turn out not to be the case it was thought to be at the outset’ (Yin, 2003, pp.42), and careful investigation needs to be carried out in advance to minimize the chances of misrepresentation in the single-case design. This again shows the value of the systematic historical inquiry in the first phase. Moreover, the knowledge gained from former experiences in research and design practice is of great help for the researcher in making judgements¹. In sum, the representative nature of the Dragon Lake Garden urban neighbourhood comprising four gated communities can be demonstrated in four aspects below:

- *Location* of the urban neighbourhood: in the newly developed and still fast expanding urban area;

¹ Researching the ‘design issues around a community centre of commodity housing development in China’ for a Masters thesis, I made an extensive review of the nation-wide commodity housing of the time, plus a detailed field investigation in some mega-cities of Chongqing, Chengdu, Guangzhou and Shenzhen. Then working as an architect, I was mostly engaged in the design for commodity housing projects.

- *Price* of the gated communities: targeting middle- to- upper-market product;
- *Development type* of the gated communities: commodity housing;
- *Building type* in the gated communities: covering the common typologies as wide as possible, from medium-, high-rise apartment, to terrace, semi- and detached house.

As regards the location, this case is located in the New North District, a newly built urban area adjacent to the inner city of Chongqing. Set in the centre of the southwest part of inland China, Chongqing has been the economic hub of this region. It has a 31-million population with 10 million in its urban area. Although starting at a lower level of development compared with coastal cities like Shanghai or Guangzhou, Chongqing has speeded up its urbanization process since the central government launched the ‘Development of Western China’ in 2000¹ with 1.6 trillion Yuan (£114bn) invested mainly on the construction of infrastructure such as roads, bridges, dams and pipelines. The massive expansion of the urban area in the last decade therefore has created many newly built districts, of which the New North District is one of the earliest and most well-established. It is a typical newly-built urban district in contemporary urban China in terms of its spatial relationship with the old town, its fast transformation from an entirely sub-urban or rural area into a new, prosperous urban district, and most significantly, in a private-funded and property-led development pattern. This is a typical context for gated community development in China. Another significant reason for choosing Chongqing as the case city is that it is researcher’s home city. The familiarity with the urban context and well established local contacts would facilitate the research, reducing the normal research problems of gaining access to key decision-makers and documents.

¹ ‘Development of Western China’ is a policy adopted by the central government of the People's Republic of China to boost its underdeveloped western regions. It covers six provinces (Gansu, Guizhou, Qinghai, Shaanxi, Sichuan, and Yunnan), five autonomous regions (Guangxi, Inner Mongolia, Ningxia, Tibet, Xinjiang), and one municipality (Chongqing).

The representative nature of the other three aspects, namely price, development type and building type, will be illustrated in the following section.

Why 'embedded'?

As this research intends to explore the impact of the gated community on its neighbouring urban spaces, the four gated communities in the Dragon Lake Garden urban neighbourhood are actually the four independent sub-units for analysis, i.e. the four 'embedded cases'.

Rather than being built by different developers, the four gated communities were all developed in succession by Longhu from 1997 to 2006 when the last phase of Crystal Town was delivered to clients. Covering an area of 76 hectares, the four adjacent gated communities have approximately 7,400 member-households. Combining the public streets, squares, and green parks around, these gated developments have virtually formed an urban neighbourhood both in a physical and perceptual sense. There are three major advantages in choosing these embedded cases.

First and foremost, the development of the four gated communities spans the decade during which real estate industry gradually matured while the gated community emerged and gained popularity in China. As the most serious criticism of the case study approach is the potential vulnerability when 'the entire nature of case study may shift' (Yin, 2003, pp.42), the four gated communities developed in successive periods actually showcase the shifting nature of market driven development over a decade. Their examination would provide a good opportunity to reveal how the context of the time shaped the design and the final outcomes of the physical features of the gated community, and allow exploration of how the physical features were adjusted. They are *de facto* the two major research questions to be answered.

Secondly, the four gated communities demonstrate different development strategies that are eventually expressed in prices, building types and so on. The representative nature of this case is further strengthened by choosing these four gated communities as they subsume most, if not all, of the common features of nation-wide gated communities, thus revealing the general *status quo* of the gated community in China. Such representativeness is assured, as stated above, by the desk-based review in the first research phase, and also by the researcher's knowledge of other gated communities gained from former research and design experiences. Moreover, the different socio-spatial consequences resulting from their neighbouring public spaces can be compared in terms of the three key design aspects.

Last but not least, an advantage is the 'scale effect' of this single-embedded case strategy compared to the multiple-case one. Although the basic analysis unit in operation is the individual gated community in terms of its socio-spatial impact on the neighbouring public spaces, the 10-year consequence of development resulted in an urban neighbourhood jointly from the four gated communities. In this way, both the impact of gated community on the micro- public realm and the trend of socio-spatial transformation of macro- urban space caused by gated community developments can be observed.

In addition, a single developer was responsible for all the four gated community developments. Although this may, to some extent, reduce the complexity of real estate activities and can be considered a weakness in this research, the one-developer approach makes it much easier to acquire in-depth, sufficient and consistent information from four gated communities, which are essential to create a meaningful comparison. In fact, whatever the development conditions, the fact that all housing developments are unexceptionally profit-oriented is the major context for gated community from the perspective of the developer. Therefore, the one-developer approach adopted can still capture the fundamental elements for this research.

3.3 Research method: data collection and analysis

To deal with different research questions, both qualitative and quantitative methods were used in combination for data collection and analysis. While mainly relying on qualitative methods, this research applies some simple quantitative (statistical) analysis to the data gained from surveys. In sum, four specific research methods are used:

- *Secondary survey investigating* user's opinions for the studied public spaces
- *Direct observation* on the use condition of the studied public spaces

(Data obtained from the two research methods above constitute the post-occupancy evaluation (POE) of the design outcomes, and revealed the 'real-life' uses of the studied public spaces around gated communities.)

- *Semi-structured interview* examining the forces shaping the design of the case study projects and the gated community in China in general
- *Documentary analysis* for the desk-based data needed in both the historical inquiry and case studies

3.3.1 Post-Occupancy Evaluation (POE)

To answer the question about the status quo of gated communities in real-life uses, that is their physical features and the socio-spatial impact on the surrounding public spaces, an evaluative approach was adopted to provide 'the systematic assessment of environmental performance relative to defined objectives and requirements' (Sanoff, 2000, pp.85). Observing people's behaviour and attitude for settings 'in a systematic and rigorous manner after they have been built and occupied for some time' (Preiser et al., 1998, pp.3), this hands-on research approach is often used in the domain of environmental design, normally named post-occupancy evaluation (POE). The starting point for this evaluation is the performance of an integrated urban form that has already been generally acknowledged in the urban design domain. As 'the most effective evaluation research is one that combines qualitative and quantitative components' (Babbie, 2001, pp.344), two specific methods were selected for the POE of this studied case. One is a survey of the

users' opinion for the public spaces in Dragon Lake Garden urban neighbourhood. The other is a direct but unobtrusive observation on the use of these public spaces.

Secondary analysis survey

A secondary survey was adopted to reveal the impacts that the gated communities have on local public spaces were perceived by the users. Then, disparities of perceptions between the four gated communities can be identified, in terms of *environmental conditions, services and facilities*, and *social activities* in general and the detailed features in each category. The findings from the survey enable a further speculation on whether these perceived disparities on the qualities of the studied public spaces have a certain relationship with the varied physical features of gated communities in design, and what that relationship is. The object of this survey is therefore the perceptions of normal users of these spaces.

Rather than conducting this survey and collecting data personally, this research used a method called secondary analysis, by which researchers analyse the data collected by others (Bryman, 2004). After confirming the Dragon Lake Garden urban neighbourhood as the case for field study, an initial contact with Longhu was made before beginning the detailed research design in this part. A manager informed that Longhu were about to launch a major residential-satisfaction survey in all the four gated communities, and she would provide access to the original records of this survey. From May 15th to June 18th, 2006, the managers in Longhu undertook semi-structured interviews with 329 randomly selected householders (drawing randomly by household number from each building) in South Garden, West Garden, Fragrant Camphor Wood, and Crystal Town, about their opinions on the quality of their properties. According to the internal report, the length of the interviews ranged from at least 40 minutes to three hours as the longest.

Using the data from Longhu's residential-satisfaction survey can reduce the enormous

expenditure of time and money which is very restricted in a PhD research, while allowing access to a large sample size. However, there are certain limitations and difficulties relating to the use of someone else's survey data. In this regard, two issues should be considered in the first place. One is the reliability of the data collected by the secondary survey. Does it reflect the true opinion of the respondents? Was it manipulated by Longhu? As for the residents, they were informed that their opinions were used as the evidence-base to improve the living environments and management services. Therefore, the residents were encouraged to speak frankly and thoroughly of their views about the living conditions. As regards the developer, because Longhu would have some new housing projects at that time, they wanted to do a market investigation through this survey, which was also a good marketing, advertising the image of a responsible developer. This data would not be published but for the internal use only. Therefore, there was no need for the developer to manipulate/alter the original information in recording process.

The other issue is whether the information provided by the survey is useful and valid for this research. Seven open-ended questions were used by Longhu in their semi-structured interviews (see Appendix 1) and the recorded responses were fully examined before using this body of data as a basis for this enquiry. Does the data collected by Longhu fit well into this research? In sum, three points can confirm it positively. First of all, the residents in four gated communities of Dragon Lake Garden are de facto the primary users of these spaces. Secondly, the seven open-ended questions are mainly inquiring about the residents' opinions about their living conditions, what they expected before moving-in, their satisfactions and dissatisfactions in use, and their suggested improvements. These questions did not suggest that the responses should be confined to the conditions inside the gated communities. In fact, some of the public spaces and facilities are developed and managed by Longhu. Therefore, the answers talked widely about the conditions both inside and outside the gated communities that influenced the overall living qualities of the urban neighbourhood. In this regard, this survey, although undertaken by developer, was not confined to the individual gated Gardens but extended to the wider Dragon Lake Garden urban neighbourhood, and of course, the public spaces adjoining the gated

communities. The extra merit of this survey is that no 'gated' issues used are particularly framed or mentioned in the inquiry. This actually provides an unobtrusive way to observe the residents' consciousness and natural responses on the gated community related issues. Lastly, when data is categorised by each gated community, residents' opinions about the public spaces and facilities as a whole can be analysed and related to multiple variables. For example, which gated community expresses more concerns about the public spaces and in what aspect(s) thereof? These differences of perception provide a good opportunity to analyse and test the hypothesis about the general physical features of gated community and their socio-spatial impact on the neighbouring public spaces. Therefore, both qualitative and quantitative (statistically descriptive) analyses can be developed from this secondary survey, and these will be presented in Chapter 5.

Direct observation

'Observation and behavioural mapping is a method of describing what people do in the designed environment' (Sanoff, 1991, pp.77). As this method enables the observer to unobtrusively record ongoing events and all activities in a real-life situation occurring naturally, it has been widely used in environmental design related researches to understand the social uses of public space. In Whyte's classic study of New York plazas (Whyte, 1988), Jan Gehl's inspiring researches of public spaces in Copenhagen (Gehl, 1996), and Clare Cooper Marcus and her colleague's landscape study in the seminal 'People Places' (Marcus and Francis, 1998) for example, direct observation was developed as the major method in revealing people's experiences and opinions about public spaces. Therefore, the real-life use of the public spaces in Dragon Lake Garden neighbourhood and its relationship with the detailed physical features were studied by means of direct observation.

In order to ensure the data can be collected comprehensively and objectively, a rigorous plan was carefully designed concerning the loci, time intervals, and content to be

observed. There are 8 streets, 3 squares and 2 green parks composing the public spaces in the studied Dragon Lake Garden urban neighbourhood. While all of the squares and green parks are targeted, 11 representative street-segments were selected for the on-site observation. The selection is based on the information from Longhu's residential-satisfaction survey and the pilot field research beforehand. The observation was made during the three-month field research from September to November of 2006. Spanning the late summer and autumn, the observation of the use of these spaces was conducted in a normal weather condition in Chongqing. Observation was carried out in these places on clear days. (See Appendix 2 about the detailed arrangement). As regards the focus, it was mainly concerned with two aspects of the places:

- *Environmental aspect*: What are the spatial characteristics and functional facilities, especially those contributed by the neighbouring gated communities? What are the connections with surrounding spatial texture?
- *Behavioural aspect*: What kinds of activities are happening there and how are they presented in terms of population and legitimate validity? How are the activities facilitated or prevented by the environmental features?

Meanwhile, a few informal interviews were carried out with some users such as storekeepers who are very familiar with the studied public spaces. The information provided by them, ranging from the safety condition to the rent and operational conditions of the commercial facilities are very useful in verifying and supplementing the data collected by observation.

Annotated diagrams/maps, drawings, and photographs are normally used in combination with text to record and analyse the qualitative data acquired in environmental and behavioural aspects. As regards recording the data, there were two stages suggested by Earl Babbie (2001) in terms of comprehensiveness and accuracy. In the first stage, on-the-spot sketchy notes were made to 'keep abreast of what's happening' (Babbie, 2001, pp.296). Then notes in more detail were made soon after the observation, sometimes in the interval period but normally after the daylong observation. The qualitative analysis of

this direct observation is presented in Chapter 6. Also in this chapter, findings from both survey and observation will be synthesised as an overall result of the post-occupancy evaluation on the quality of the public spaces in the Dragon Lake Garden urban neighbourhood, and the correlation with the physical variables in three proposed aspects.

3.3.2 Semi-structured interview

After investigating the performance of the physical outcomes of Dragon Lake Garden urban neighbourhood, this research went on to examine the forces influencing the decision-making behind the design outcomes during development process. These forces are mainly the market requirements represented by Longhu as developers and governmental intervention implemented by local planning officers, while designers and planners are also adding their own professional values when framing or regulating the design. To study the development process is actually to elicit the views, opinions, attitudes and experiences of these players. Therefore, semi-structured interviews were applied for this data collection as it is a primary means in qualitative research to generate 'generally rich, in-depth material that gives the researcher a fuller understanding of the informant's perspective on the topic under investigation.' (Arksey, 2004, pp.268)

To guarantee the effectiveness and validity of the interviews, two aspects were paid special attention. One is the qualified interviewees who should have both knowledge and motivation enough to answer the questions. Based on the established local contact, a 'snowball' kind of approach was developed to find and obtain access to all the relevant interviewees. As the interviewees were introduced by their colleagues in this approach, the researcher does not have to worry so much about their motivation, expertise or veracity. The other aspect is the interview process in which the research questions should be accurately understood by the interviewees. To ensure this, the purpose of the interview was always explained clearly at the beginning. If necessary, the whole research, its aims and objects, were also briefly introduced.

In sum, 21 interviews were conducted with:

8 planning officers in local authorities; 2 planners; 3 experts; 3 architects; 3 project managers; 1 property manager and 1 developer, who were either involved in the development process of Dragon Lake Garden or had relevant experience and expertise. (Detailed information of the interviewees is listed in Appendix 2.)

These interviews were held during the fieldwork from September to November of 2006, and mostly took place in interviewee's offices. The duration of the interviews varied from one to two hours. Initially recorded by a digital recorder, all contents were then transcribed literally before any analysis was applied.

These interviews centred on the design issues of gated communities in general and the Dragon Lake Garden development in particular (see Appendix 4 about the basic questions). Three kinds of information were elicited. Firstly, the decision-makers' general perception of the gated community development and their opinions especially on design issues were elicited. Secondly, the development process of Dragon Lake Garden urban neighbourhood was comprehensively interrogated, to demonstrate the market influences and governmental intervention in the design process, their motivations and consequences. Lastly, the challenge of gated community development for current urban planning in China was explored, including the insufficient control and even the improper policies and regulations that cannot guide a coherent and integrated urban development in the face of gated community. The analysis of these interviews will be presented in detail in Chapter 7, and further discussion will explore the possibility of potential urban design adjustments in future.

3.3.3 Documentary analysis

Documentary analysis is used for the secondary sources obtained in both the historical inquiry and the case study. As the only method in historical inquiry, the documentary analysis was explained in discussing the strategy above. The major materials are *journal articles* and *monographs* as well as books and unpublished theses relevant to the topics of contemporary gated community and the analogous gated urban forms in Chinese history. Chapter 4 will report the analysis and findings in detail.

In the case study, documentary analysis is mainly used to supplement the analysis for the second survey, observation and interviews in Chapter 5, 6, and 7. Documents come from the following sources:

- *Planning and design documents* from both Chongqing Urban Planning Bureau and Longhu, which give detailed information about the design of Dragon Lake Garden development and its located urban neighbourhood.
- *Official planning policies and design guidance* issued by relevant departments of administration at both national and local levels, which are reviewed to illustrate how the design issues of gated community have been perceived and dealt with in current planning regimes in this case specifically and in China generally.
- *News and reports from internet and local media*, which are collected to reflect the wider range of public opinion of the development outcomes of Dragon Lake Garden and the gated community pattern. In addition, information on nationwide gated community developments are also useful to back up the findings in this case study in generalization.
- *Internal reports and marketing materials* from Longhu, which are examined with respect to their expressed interest and effort made for the local urban

spaces outside the enclosures.

- *Official crime records* around the urban neighbourhood of Dragon Lake Garden, which present the security condition around gated communities in this case.

3.4 Summary

This chapter has systematically explained the epistemological and methodological issues of this urban design research on gated communities in China. In the first instance, based on Manuel Castells' definition of urban design, a contextual exploration of two relationships (i.e. the relationship between the physical outcomes and the factors behind in the decision-making, and the relationship between physical features and their de facto performance) is emphasised as the ontological framework guiding the whole research design. Meanwhile, three research questions and a hypothesis are explicitly raised after giving a brief account of the findings in the literature review (chapter 2). The questions and hypothesis emphasize that this research, rather than targeting the socio-spatial consequence within the gated communities, focuses on the external impact of gated communities on their neighbouring public realm.

Then, a two-phase strategy is developed, a historical inquiry for the first phase, exploring general morphological, socio-cultural and political-economic background of the gated community in China in history. Then a single-embedded case study is applied in the second phase, investigating in detail the design dimensions of gated community development today. Apart from elaborating why these two strategies were chosen, more explanation is given of why the Dragon Lake Garden urban neighbourhood in New South District, Chongqing, was chosen as the embedded case(s).

Finally, the specific research methods of data collection and analysis are discussed in

detail. Secondary survey and direct observation are designed to carry out a post occupancy evaluation (POE) of the impact of the four gated communities on the public spaces in Dragon Lake Garden urban neighbourhood, in both people's perception and real-life uses. Semi-structured interviews are adopted to explore the decision-making on the design dimensions in the development process which involves various player and forces. As all of the three methods are applied in the case study, documentary analysis is used in both phases of the research. While acting as the dominant method in historical inquiry, documentary analysis in the case study is only used to supplement the other three methods. Qualitative analysis is used for most of the method while quantitative (statistic) analysis is applied only for the secondary analysis survey to describe the frequency distribution. Meanwhile, diagrams/maps, drawings, and photographs are often combined with the analysis to illustrate the reality described.

By means of the research strategy and methods elaborated above, the historical and contemporary nature of the design dimension of gated community in China can be explored from the perspective of public space and public life in a contextual and comprehensive way.

CHAPTER FOUR

DESIGN HISTORY OF CHINA'S GATED CITIES AND RESIDENCE: PROTOTYPE AND EVOLUTION

4.1 Introduction

Based mainly on the documentary review, this chapter is a historical inquiry about the design dimension of gated community in China. The first part of this review examines the tradition of gated cities, neighbourhoods and residential compounds in Chinese history. The gated community is now recognised as a global phenomenon. While much research on it has focused on general features and socio-spatial consequences (Blakely and Snyder, 1997; Webster, 2001 and 2002; Low, 2003 and 2006; Glasze, 2005; Atkinson and Blandy, 2005; etc.), more and more researchers have been aware of and paid attention to the national-cultural forces involved, which are regarded as substantially mediating the final outcomes of adapted gated communities in specific loci (Sabatini et al., 2001; Frantz, 2001; Wu, 2005; Huang and Low, 2007). As a result, a historical review is valuable for understanding the local context, and carrying out a contextual research. However, the local forces addressed by previous historical reviews in terms of gated communities have much to do with the housing traditions, mainly about their socio-cultural trends and the institutional-economic background. The convention of city design and urban form has by and large been overlooked, though it is always a pivotal issue in the shaping of urban space in history. Therefore, aiming at a holistic understanding of the construction of gated communities in China, this chapter intends to examine the design and morphological history of China's gated cities, dissecting the ingrained prototypes of enclosed physical

forms and organisational patterns in the Chinese history of city planning, especially for residential compounds. Henri Lefebvre (1991) insists that space, in its socially constructed form, is shaped by history, politics and ideology. Therefore, this retrospective examination of the design history is not only about spatial forms, but also about the political-economic background of the time.

The second part of the historical inquiry traces the evolution of gated community during the post-socialist era after 1978 when it emerged from the commodity housing market after housing reform and has gradually gained overwhelming prevalence in China. While reviewing in detail the socio-cultural and political-economic factors in the evolving process, it summarises the general features of gated community in China. The overall picture exhibited in this chapter delineates a comprehensive context for the second phase case study, which will be addressed in the next three chapters.

This historical review will follow a chronological order and is classified into three categories: the lengthy pre-1949 feudal monarchy, when walled residential quarters and introspective courtyard archetypes were sustained; the socialist period from 1949 to 1978 when gated work-compounds (*danwai*) came to dominate the Chinese urban landscape; and the post-socialist era after 1978 when the contemporary gated community has gradually come into being in China and gained overwhelming prevalence in the commodity housing market. A general chronology of Chinese history is attached on the next page for clarity.

Table 4.1 A general chronology of Chinese history

Dates		Dynasty		
B.C.	ca. 2000-1500	Xia		
	1700-1027	Shang		
	1027-771	Western Zhou		
	771-475	Spring and Autumn period		
	475-221	Warring States period		
	221-206	Qin (the first united state)		
206 B.C.-A.D. 9		Western Han		
A.D.	9-25.	Xin (Wang Mang interregnum)		
	25-220	Eastern Han		
	220-581	Period of fragmentation		
	581-617	Sui		
	618-907	Tang		
	907-960	Period of fragmentation		
	960-1279	Song		
	1279-1368	Yuan		
	1368-1644	Ming		
	1644-1911	Qing		
	1911-1949	Republic of China		
	1949- present	People's Republic of China	Socialist era from 1949 to 1978	
			Reform period from 1978	

4.2 The enclosed urban form in Chinese centralised feudal monarchy, pre-1949

The traditional Chinese city generally exhibited five major morphological characteristics, namely *walled enclosure*, *axiality*, *north-south orientation*, *symmetrical layout* and *closed courtyard* (Wu, 1993; Gu, 2001; Dong, 2004). Both ‘*walled enclosure*’ and ‘*closed courtyard*’ indicate the long-existing tradition of walled urban morphology and introverted living patterns during over two thousand years of highly centralised feudal monarchy. While the former describes the urban form at the macro-level, the latter is the elementary urban dwelling typology at the micro-level. But before progressing into the details, this section will firstly discuss the dominant ideologies underpinning the design of ancient Chinese cities. This will aid understanding of the political and cultural factors behind the spatial manifestations over the two thousand years of highly centralized feudal monarchy, which was virtually ended in 1911, and then followed by about thirty years of national political turmoil before 1949, when the People’s Republic of China was established.

4.2.1 Ideologies and Principles in Shaping Ancient Chinese Cities

Two ideologies dominating the normative principles of traditional city planning in ancient China are widely recognized. One is the *Daoist* viewpoint about how to understand and deal with the relationship between human society and nature. This ideology and the derived general principles for settlement will be elucidated later in discussing the ‘closed courtyard’ prototype. The other ideology is the Confucian ritual, which was codified and treated as an all-embracing system of norms, prescribing the appropriate hierarchy of social behavior and spatial arrangement necessary to achieve an ideal social order. The Confucian classic writings called *Zhou Li*, especially the last section named *Kaogongji* (written in *Spring and Autumn Period*, 722 ~ 482 BC), elucidated for the first time the principles about the design of the imperial city or capital city of a dynasty. The general

rules are:

1) The city should be a square of nine by nine Li. (an ancient Chinese measure of distance of approx. 400 m) 2) it should be divided by nine main streets running north-south and nine east-west. 3) According to these eighteen streets, twelve city gates should be located on the four sides of the walled city. 4) The palace, where the emperor and his family and the court dwell, should be located in the middle of the city, facing the south. 5) The administration body of the dynasty should be located immediately in front of the palace complex. 6) An Altar of Soil and Grain should be place to the right of that administration complex, and a Temple of Ancestor to its left.

(Zhou Li, kaogongji)

The spatial order dictated by these rules is congruent with that pursued by the highly hierarchical centralized feudal governments, and therefore implemented as the official planning norm in all the dynasties throughout China's imperial age. The 'walled enclosure' character of this city model in practice will be examined in the next sections.

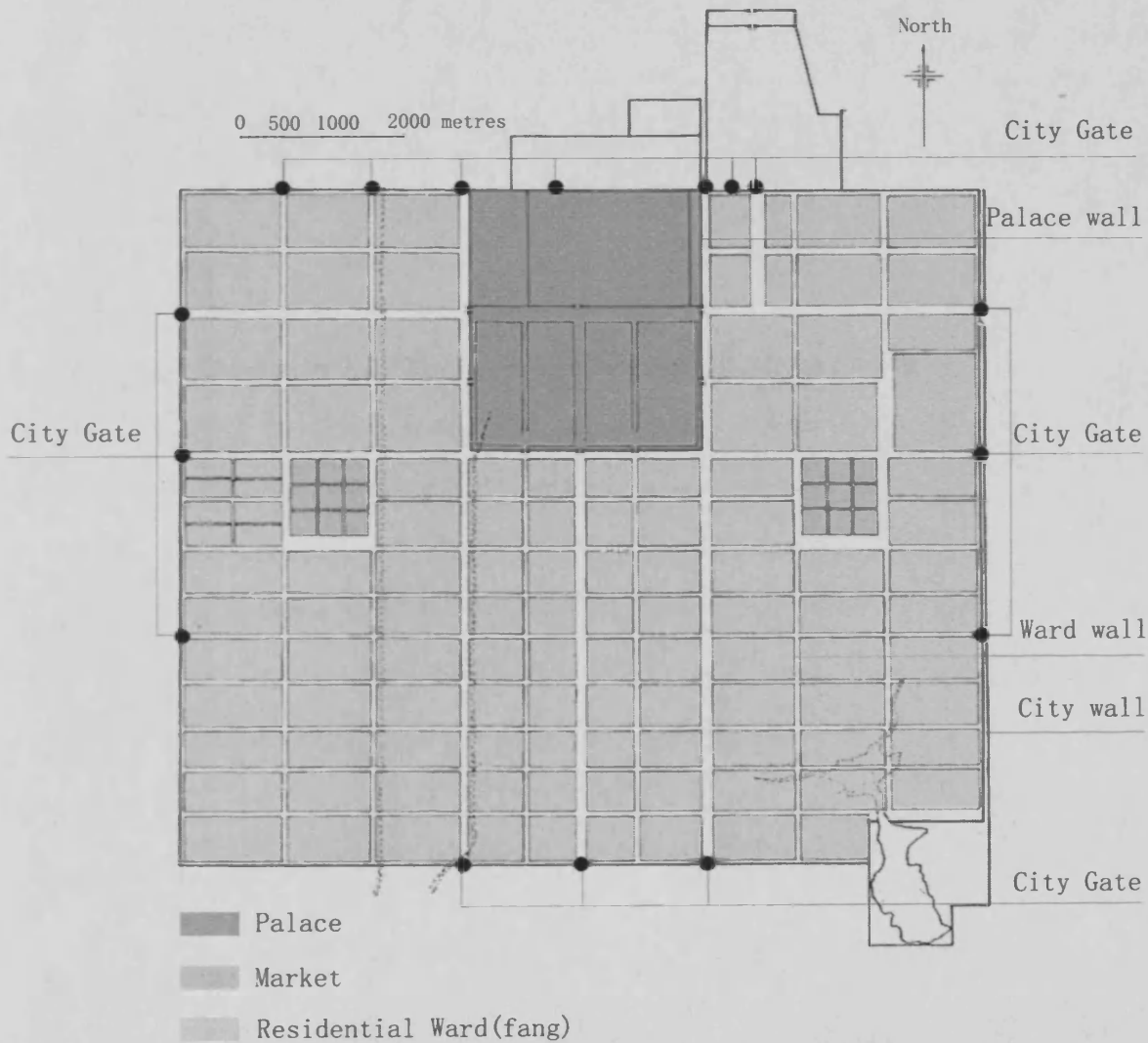
4.2.2 Strictly controlled city and walled residential wards

Manipulated by aristocratic power (Heng, 1999), Chinese cities before the Song Dynasty (960–1279 AD) had a highly hierarchical and controlled social structure while commercial activities were rigidly suppressed. Tang Chang'an (618–906 AD), housing over a million people with a well-developed urban form, is the most typical and influential model¹ of this kind (Figure 4.1). Tang Chang'an was physically a city of walls and fortresses. The city as a whole was walled with 16 city gates, and the perimeter of a rammed earth wall measured 37km. Within this fortified perimeter, the walled palace was located to the north. Eleven north-south and fourteen east-west major streets divided the walled city into 108 *fang*, or wards (residential quarters), and two designated markets. These streets were very wide: while the narrowest streets measuring over 60 metres, the principal avenues reached between 120- and 134-metre wide (Dong et al, 2004). Beside

¹ Tang Chang'an had a profound impact not only on Chinese ancient cities but also on those in North Asian countries such as Korea and Japan.

the streets were the residential wards (*fang*) with earthen walls fortifying their sides of rectangular precinct which ranged from 30–80 hectare. Within the ward, there were organized courtyard houses for families and an internal road system with the width of only ten metres or so (Dong et al, 2004). Apart from the aristocrats and government dignitaries, the commoners of Chang'an who lived in the wards were forbidden to create private gates in the ward walls and have direct access to the external streets. The residents were not allowed to leave the wards during curfew hours (from about 9pm to 3am the morrow), unless a permit was issued in case of an emergency, such as illness or marriage (Heng, 1999).

Figure 4.1 City map of Tang Chang'an.



(Source: compiled from various cartographic sources)

The facts above show that the residential quarters in the strictly controlled ancient Chinese cities like Tang Chang' were uniformly walled with the enclosure size of 600 x 600m ~ 900x 900m. Moreover, while the residential and commercial functional areas were divided into separate zones, the wide public streets beyond the residential wards had little facilities and functions other than transportation. The control and segregation went against not only residents' convenience in everyday life but also, more fundamentally, commercial prosperity. Therefore, when the aristocratic regime went into decline in the second half of the Tang Dynasty, the government's stringent supervision over both walled residential wards and the trading system began to break down.

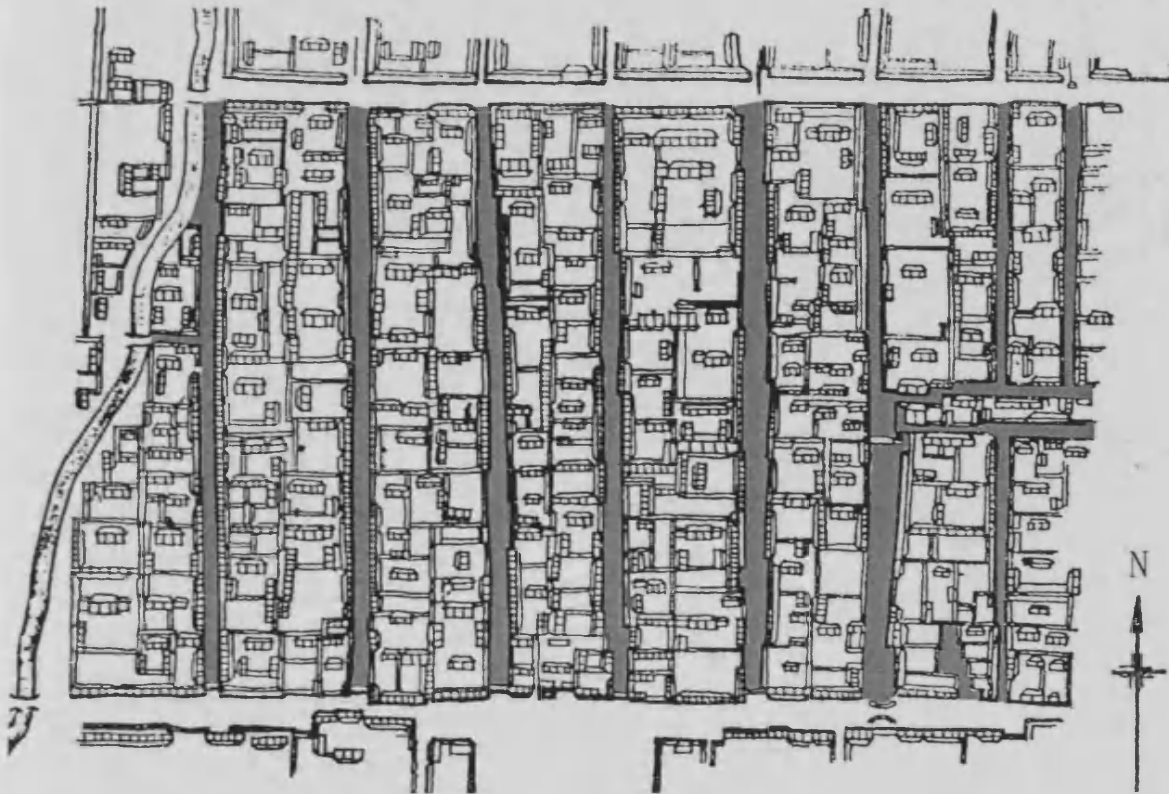
4.2.3 Prosperous mercantile society and fall of ward walls

The economic growth facilitated by long-term social stability and the revolutionary improvement in agricultural technologies in the Song Dynasty (960–1279 AD) was the decisive driving force to overthrow the previous highly demarcated and controlled urban form. On the one hand, an unprecedented growth in urban population and the specialisation of urban production activities like handicrafts substantially promoted the prosperity of commercial activities, which required demolishing the physical and institutional barriers to trade. On the other hand, and more fundamentally, due to flourishing commercial activities, a progressively secular and mercantile society came into being. As a result, the ruling system dominated by aristocratic power gradually gave way to a government managed by pragmatic professional bureaucrats, who turned wall demolition into a money-making opportunity by charging for the demolition of ward walls or street encroachment (Heng, 1999).

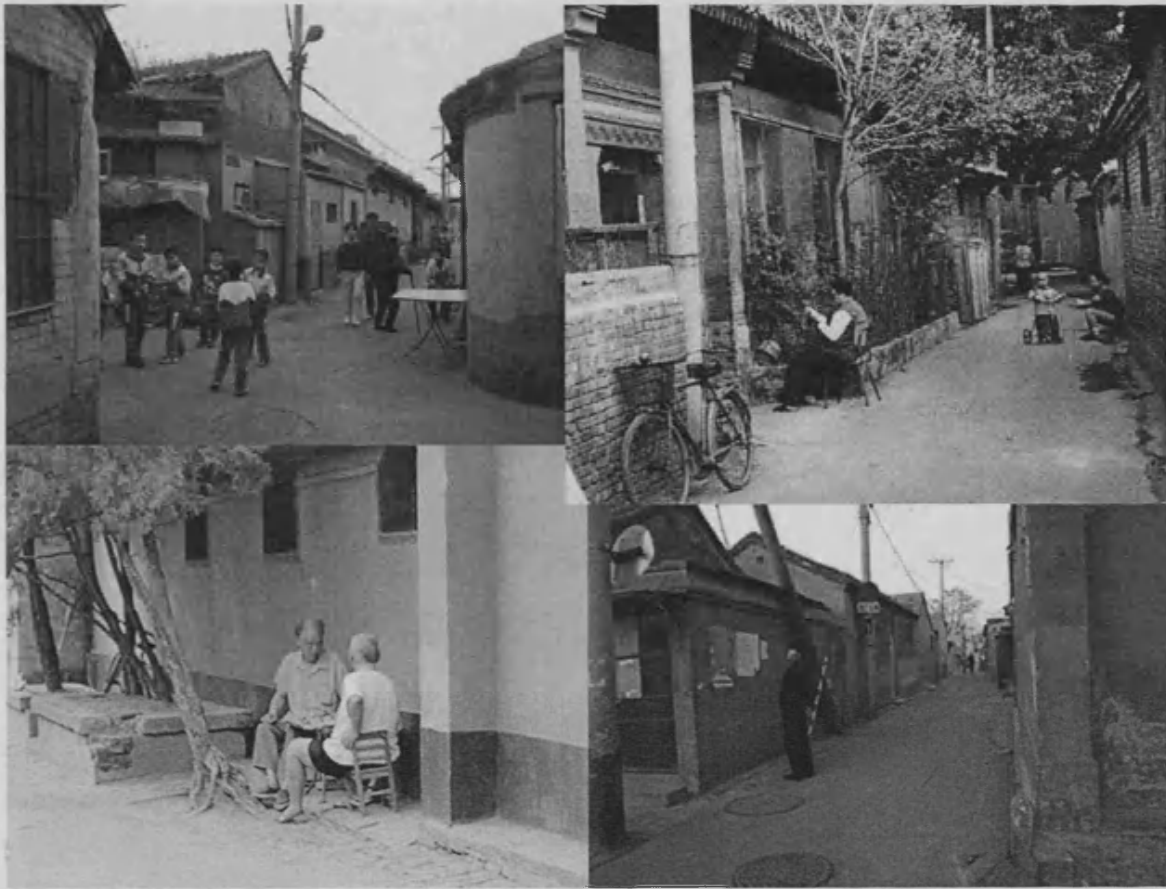
Eventually, the physical and institutional constraints on the city were officially abandoned for an open urban structure. Although the main street-block structure remained, the previously internal roads of the residential wards became accessible to the general public. The residential pattern of *li fang* was replaced by *fang xiang* with free movement and mixed land-use, and this pattern ran through the following thousand years until today.

Fang was commonly a long rectangular residential site naturally divided by a main road and branching streets. *Xiang* (also called *hutong* in northern China) is the street connecting the dwelling units (Figure 4.2) in *fang*. It became in practice a communal linear public space with a strong sense of community for local inhabitants (Figure 4.3).

Figure 4.2 Typical street pattern of *fang xiang*

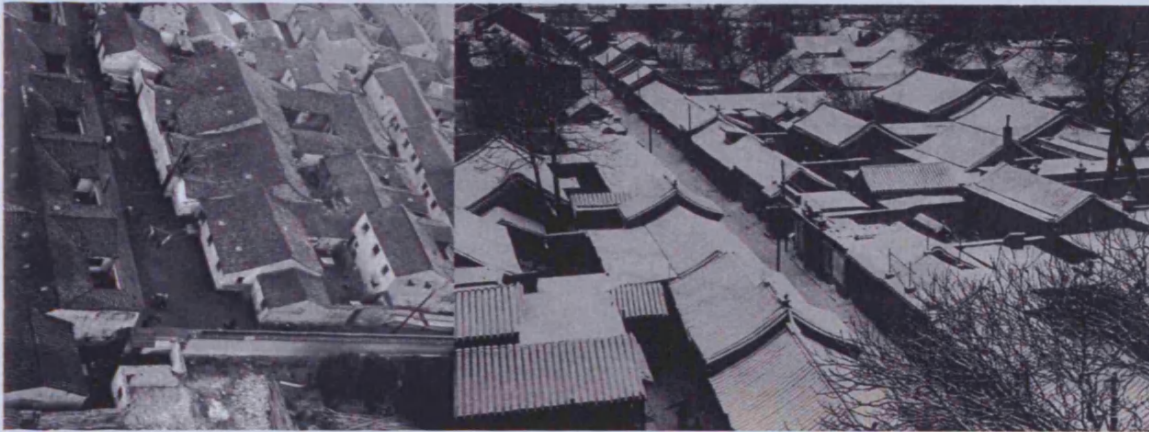


(Source: compiled from Dong 2004)

Figure 4.3 Streets (*hutong*) in Beijing

For over thousand years later, the streets (*hutong*) between walls of courtyard-houses have all along functioned as the communal linear public spaces for local inhabitants. (Source: the photos taken by the author and from <http://www.china.com.cn/culture/> (top right))

The sense of belonging and territorial control became even stronger when there was a door with a nameplate at the gateway of *xiang*. Shops gathered around the gateway, serving the daily needs of local residents within a handy distance (Dong, 2004). This tradition was well preserved during the feudal era and will be illustrated in the next section discussing westernised urban settlements. Although streets (*xiang* / *hutong*) were entirely accessible to the passer-by, most streets were still continuously confronted by high blank walls of housing units (Figure 4.4), even in the bustling urban areas (Figure 4.5).

Figure 4.4 Historic urban settlements in Suzhou (left) and Beijing (right)

Streets are continuously defined by walls of housing units. (Source: compiled from Hua 2006 and Blaser, 1985)

Figure 4.5 Part of “Qing Ming Shang He Tu”, depicted by Zhang Zeduan (960 ~ 1279 AD)

This famous drawing by Zhang Zeduan (960 ~ 1279 AD), depicts the streets in a bustling urban area in Song dynasty. It can be observed that the streets perpendicular to the commercial street were defined by walls of courtyard houses. (Source: <http://img109.icxo.com>)

The walled housing unit, an archetype of traditional Chinese cities, will be discussed at length later. Although the ward walls were dismantled, the wall was still an elementary component in the renewed order of the urban form, separating the private and quiet family space from the public and chaotic urban environment. It is still the wall rather than the home building itself that faces directly onto the street. However, with the demolition

of the ward walls that gated dozens of households and the internal streets connecting them, the enclosure size was largely reduced and the permeability of urban settlements were greatly increased.

From the Tang dynasty onward, there was a steady decline in the imperial power to intervene effectively in local affairs (Skinner, 1977). In this case, particularly in the late imperial era, local elites, organized into federations of trade, craft, temple, neighbourhood, and native place associations, provided the necessary arrangements for construction and/or maintenance of urban infrastructure (Friedmann, 2005). This sort of informal city administration provided by mercantile elites continued right on through the following feudal monarchies and even into the Republican Era (Strand, 1989; Min, 2002).

4.2.4 Westernised urban settlements and retained introverted pattern

The urban transformation described above was by and large an evolutionary process based mainly on a traditional agricultural economy. It progressed very slowly in both size and form. Until 1840 when western capitalistic forces began to encroach upon Chinese territory, there were no modern industries and cities in China. But very soon, over thirty treaty ports were set up in the major cities along the coastline and the Yangtze River, where foreigners were not only permitted to carry out business but also allowed to build their settlements in the leased territories (twenty-seven in all). With western urban structures and lifestyles grafted onto the indigenous residential patterns, these new colonial cities experienced a drastic transformation. The pattern of *li long* appeared in this modernisation process in company with the collision of dwelling culture between the west and east, and gradually became the dominant residential form for the mass of bourgeois citizens in the treaty port cities (Figure 4.6).

Figure 4.6 Urban settlement in the treaty port city of Shanghai



(Source: Hua 2006)

Basically, *li long* was little different from the pattern of *fang xiang* in terms of spatial form and settlement organisation, except that:

- Compared to the large scale of urban block in the traditional pattern of *fang xiang*, the street-block structures organised by *li long* were mostly finer grained (50 x 50m ~ 180 x 180m)
- The low-rise courtyard houses were transformed into higher density of 3- to 4-storey terraced houses with smaller courtyards at the back (but the north-south orientation was retained which led to the emergence of north-south oriented parallel row-housing);
- Most of the units facing the outer streets, especially the ground floor, were more open in form and often transformed into commercial or other uses;
- On each residential site, several clusters were organized by a main alley and a series of branching ones in cul-de-sac style. The hierarchically arranged alleys were actually semi-private / public spaces, discouraging passers-by. This facilitated territory based control by the local community (Figure 4.7).

Figure 4.7 Shikumen *lilong*, Shanghai

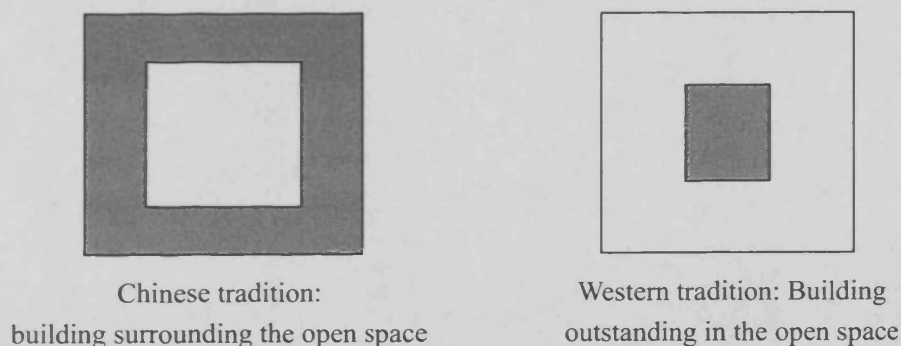
The courtyard element was retained to organise the building units in *lilong* (above). There were gates (often closed at night) controlling the access to this neighbourhood area (above and bottom left), the alleys within which were the intimate social spaces for the residents (bottom right). (Source: compiled from Hua 2006)

This transformation shows that when traditional residential patterns were modified to have more relationship with their surroundings in the increasingly commercialised colonial cities, the introverted housing tradition and territorial control were retained and achieved by an intentionally organized residential form. Although the treaty port cities underwent rapid physical changes, the major inland and interior cities out of the reach of the colonial impact saw little change in urban form and life styles. The housing patterns in these cities continued to follow traditional lines until 1949, when the People's Republic of China was founded, and immediately launched large-scale nation-wide urban development.

4.2.5 Introverted courtyard prototype and walled collective living tradition

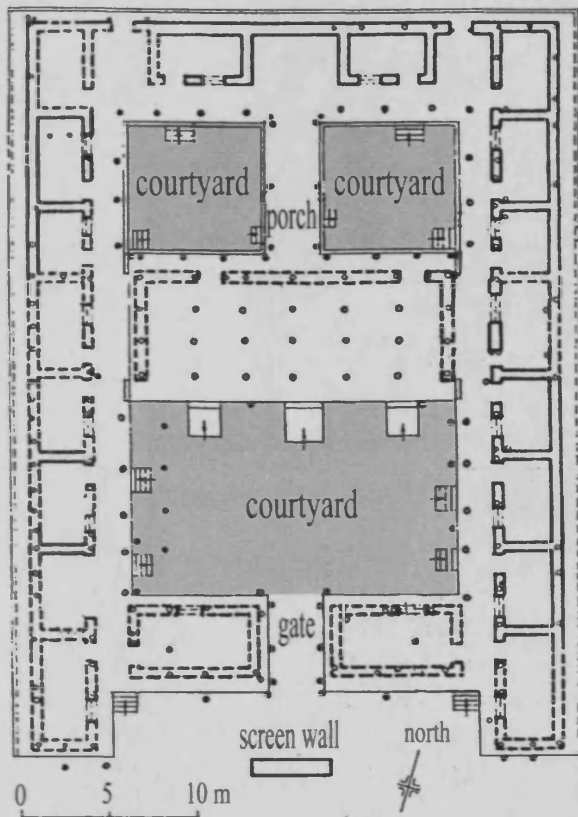
One morphological characteristic is too important to be ignored in the previous review of the traditional urban form and residential pattern. That is *enclosed open space*. This existed ubiquitously in traditional Chinese cities and especially housing compounds, although it varied endlessly in number and size with respect to the vast territory, tremendously diverse climatic conditions, and fifty-five minority nationalities in China apart from the ethnic majority of Han (Wu, 1963; Knapp, 2005). The enclosed open space embodies a distinct difference in the building-space relationship of housing layout between western and Chinese traditions. Compared to the openness and accessibility of a typical western house standing in a yard or garden, the Chinese tradition inclines towards internalising the open space and enclosing it within walls and buildings (Figure 4.8).

Figure 4.8 Comparison of building-space relationship in housing layout between western and Chinese traditions



This inward-looking open space in a housing compound is named *courtyard* or *quadrangular-yard* (*si heyuan*) in northern China, and *sky well* (*tian jing*) in the south. The prototype of introverted spatial organisation by means of the courtyard was found at the very beginning of Chinese written history (Figure 4.9).

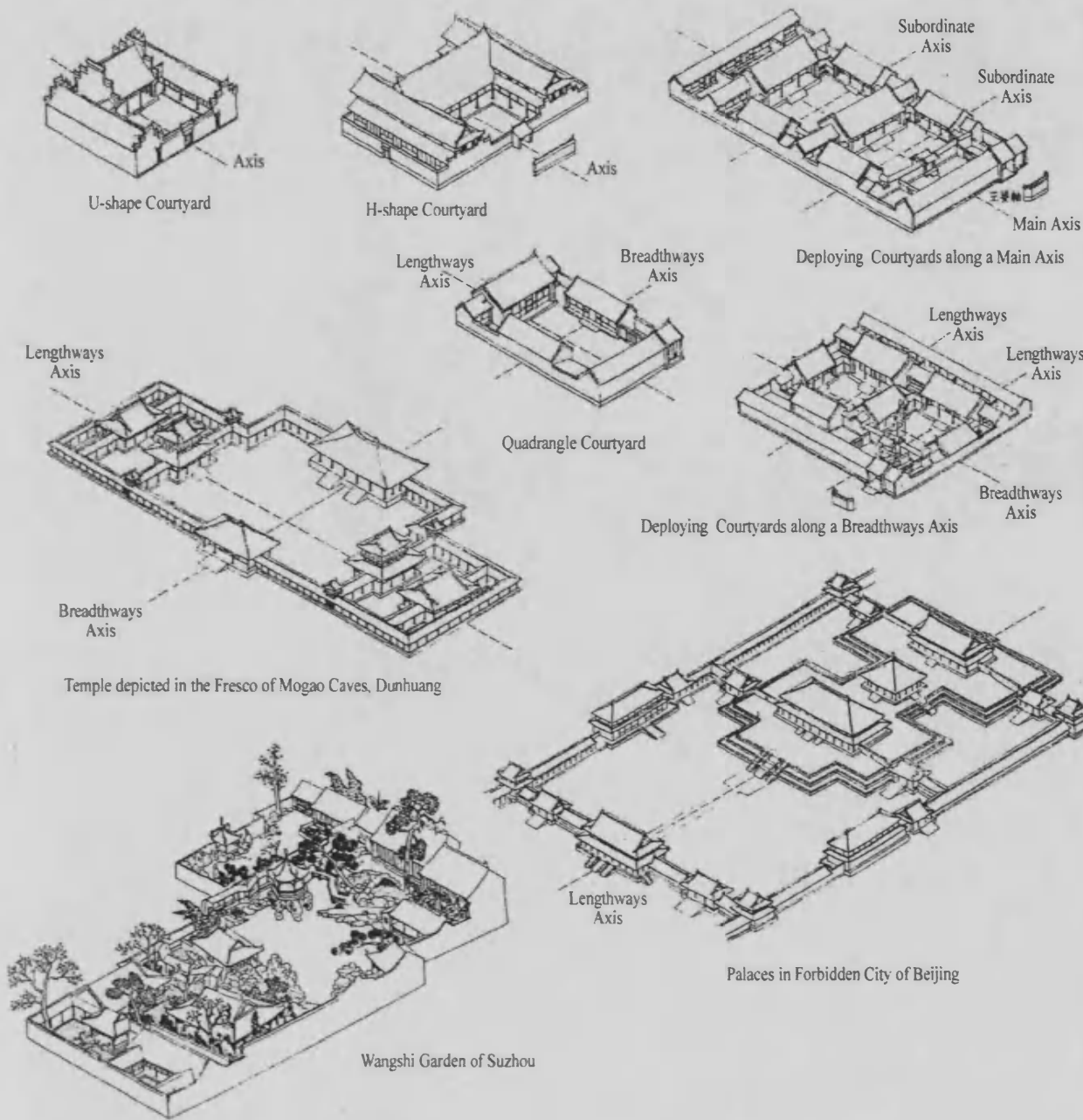
Figure 4.9 Plan of the earliest courtyard house in China



The earliest archeological evidence of courtyard was found in the historic site of Western Zhou (1025 BC ~ 256 BC), Qishan, Shanxi province. (Source: Dong 2004)

It has changed little when compared with the courtyard houses built within the last hundred years. In addition, this courtyard prototype was so ingrained in traditional Chinese architecture that it can be discovered in palaces, temples, gardens and other types of built environment in ancient China (Figure 4.10). As a basic unit of ancient urban form, it conforms to and reflects Daoist nature-human views and Confucian ritual rules, which are recognised as the two main sets of tenets shaping traditional Chinese cities (Gu, 2001; Dong, 2004).

Figure 4.10 Courtyard as the basic element of urban form in ancient China



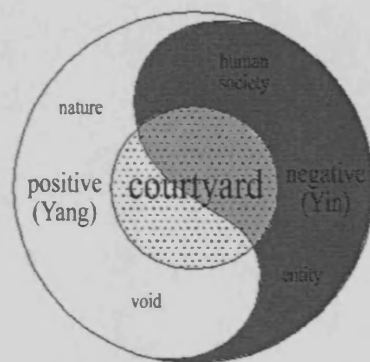
(Source: compiled from Dong 2004)

The courtyard embodies the Daoist views of the void–entity relationship² and geomantic principles for living. In the philosophy of Daoism, everything should be regarded as and resemble the integrated world composed by the positive (*yang*) and negative (*yin*)

2 'We put thirty spokes together and call it a wheel; but it is on the space where there is nothing that the usefulness of the wheel depends. We turn clay to make a vessel; but it is on the space where there is nothing that the usefulness of the vessel depends. We pierce doors and widows to make a house; and it is on these spaces where there is nothing that the usefulness of the house depends.' (The Dao De Jing, a sixth century BC work attributed to Laozi.)

substances. While buildings, the entities and the man-made settings, form the positive structures, it is the enclosed open space, the void and the natural settings, which complements the negative part in composing an integrated house. The courtyard, the open space enclosed by buildings and walls, stands for the void, and is therefore an indispensable component of the house. In practice, the courtyard with the main buildings standing on the north side made full use of sunlight and natural ventilation, which was a natural sustainable way in adjusting the microclimate in the housing compound. Different proportions and layout of the courtyard was applied in accordance with different climates in different regions.³ Therefore, courtyard was regarded as the means to express/realize a harmonious relationship between the human and nature in a housing building (Figure 4.11).

Figure 4.11 Daoist view of the role courtyard in housing building

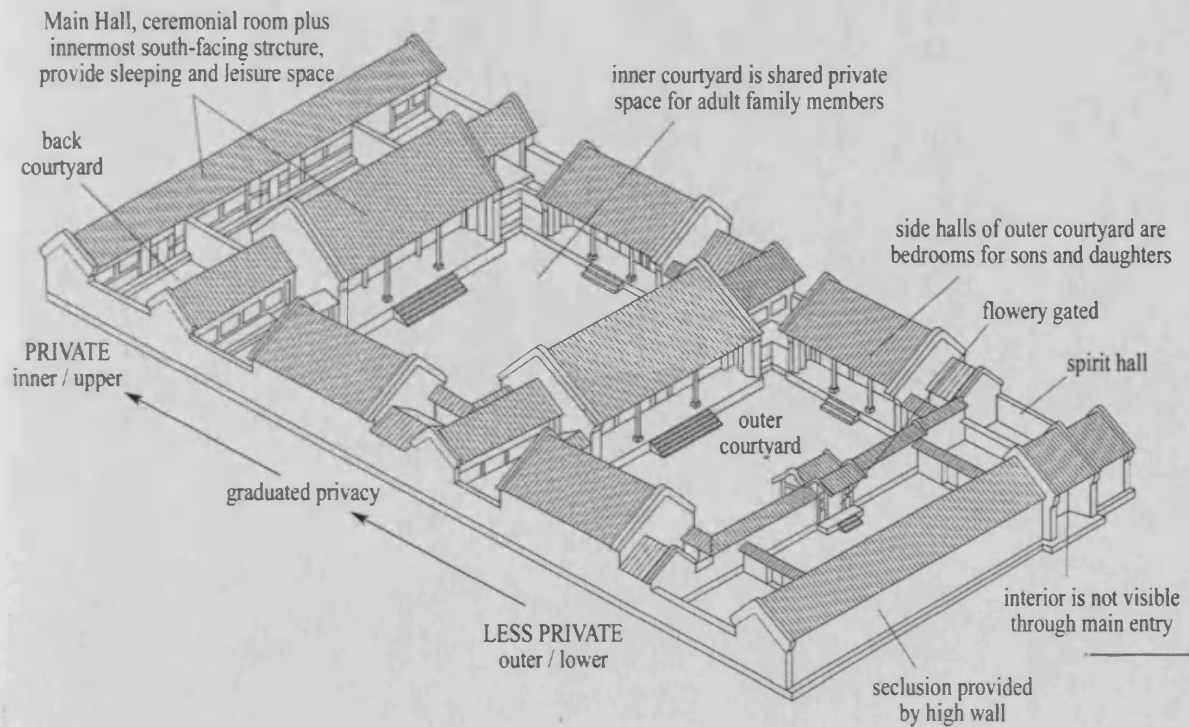


The proverb 'four generations under one roof' describes precisely the collective living tradition of the big Chinese family (Huang, 2006) which is descended from the same ancestor through the patrilineal line. The ingrained Confucian ritual believes that the best spatial organisation of a house should felicitously respect or exhibit not only the kinship relationships between household members, but also the spatial transition between private individual spaces, the communal spaces shared by the whole family, reception spaces for guests, and the outer public world. In this regard, the housing layout with a sequential

³ In the drier and colder areas of north and north-eastern China, courtyards are broader and occupy more generous proportions, increasing the receipt of sunshine and blocking the cold winter winds by virtue of the surrounding buildings and walls. In the south, where winters are mild and summers hot, courtyards shrink greatly in size and generally decrease in proportion, functioning as ventilation of interior spaces while blocking sunlight from penetrating the buildings.

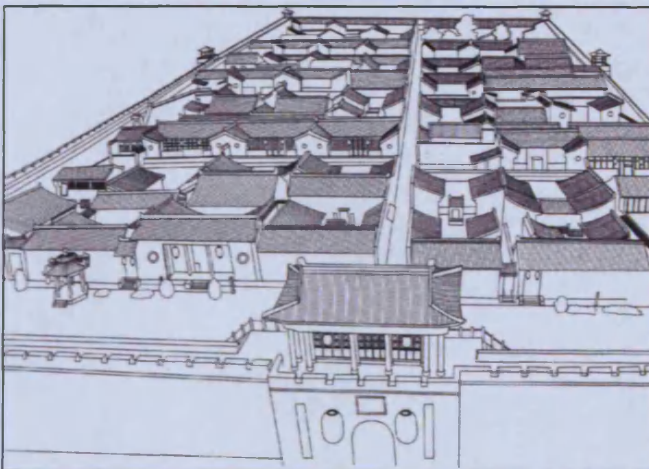
series of courtyards fits in perfectly with the desired spatial hierarchies (Figure 4.12).

Figure 4.12 Perspective of a typical complete courtyard house



The kinship status of the family members was defined by the location in terms of inner/outer, front/back, upper/lower, left/right and the distance from the central/innermost courtyard. And the transition from the public to the private spaces is skillfully achieved by means of the spatial sequence of entries: the main entry, small reception courtyard, forecourt, outer courtyard, and finally the inner courtyard, the heart of the family compound. (Source: Knapp 2005)

Moreover, the courtyard prototype is very adaptable by endless replication to the irregular requirements of an extended family. With three or more generations living together in multiple courtyards, the housing compound for one family is actually like a small walled city (Figure 4.13). Therefore, organised by courtyard, traditional Chinese cities are 'walls with walls and, behind those walls, more walls.' (Dutton, 1998) Some old Chinese paintings depicted this view (Figure 4.14)

Figure 4.13 Housing compound of Wang Family, Shang Xi Province.

This gated residential compound of 4.5 ha. site area consists of 123 courtyards and 1118 rooms. The picture above shows the vista inside the compound. Bottom left is the panoramic sight and bottom right is its ground floor plan. (Source: compiled from Knapp 2005)

Figure 4.14 Part of 'Emperor Qianlong's tour to the South', depicted by Yang Xu, a painter in Qianlong regime of Qing Dynasty



(Source: http://blog.sina.com.cn/s/blog_475e8e0c010007ur.html)

4.3 Renewed walled city of work units in the Socialist Era, 1949 – 1978

4.3.1 Ubiquitous work-units: background and common spatial characters

After the People's Republic of China was founded in 1949, the urbanisation process was dominated by a socialist political framework until 1978, when the new agenda of reform towards a market-oriented economy was set up. After a four-year recovery from severe war damage, the first Five-Year Plan (1953~1957) was deployed for a full-scale industrial modernization. A core component of heavy industrial development in the first Five-Year Plan was 156 key industrial projects which received direct Soviet assistance in technology, equipment and personnel. Meanwhile, as most of the Chinese cities were still in a

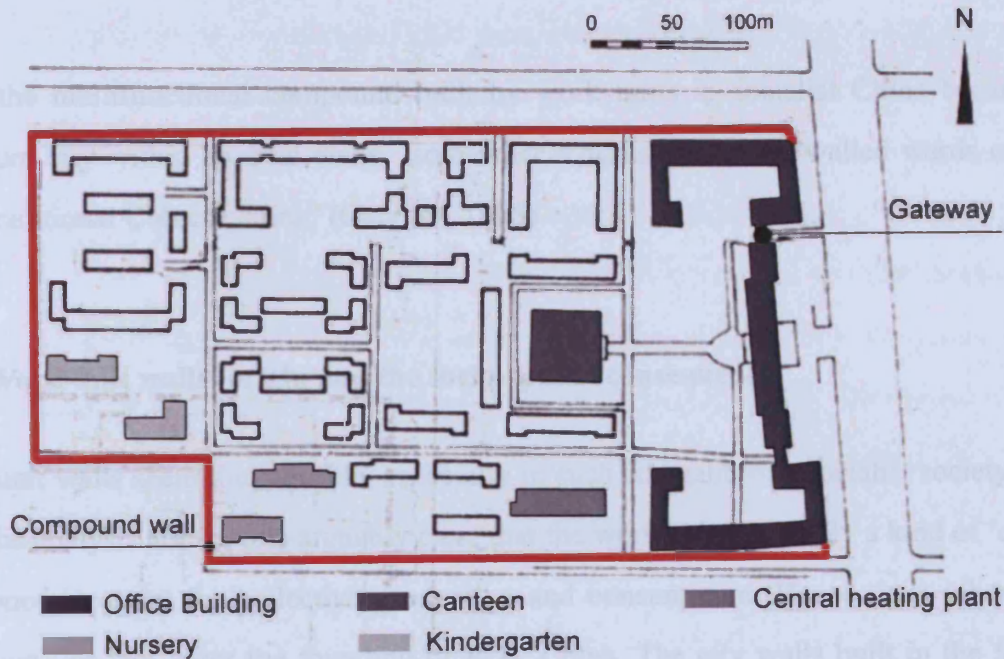
pre-industrial condition and needed to be modernised, the Soviet model of urban planning was quickly taken up in China (Dong, 2004).

Based on socialist ideology, the rationale of Soviet urban planning presumed that industrial production was the major function of cities. Consumption was disdained as associated with waste and the bourgeois lifestyle, so cities should be transformed into engines of production, rather than remaining sites of decadent consumption. The slogan of the time, 'Production first, livelihood second', accurately conveyed this mainstay ideology. The essentials for living would be guaranteed by the urban welfare system. Therefore, to convert 'cities of consumption' into 'cities of production', a series of policies aiming at high industrial accumulation and low consumption were put into effect with low cash wages and significant in-kind welfare supplements like housing. In this process, the work unit (*danwei*), including state-owned enterprises or other service institutions (health care, education, research, or administration), appeared to be the principal entity for both production and distribution in the resource allocation system of a highly centralised planned economy.

However, although Chinese institutional economy and urban planning in the socialist era were heavily influenced by the former Soviet Union, the cities went far beyond Soviet models by means of the work-unit compound, which was actually a distinctive Chinese invention. Rather than adopting the Soviet model in which residential districts were spatially separate from the workplace allowing for up to a forty-minute commute on public transportation (Bater, 1980), the work unit in China attempted to integrate working and living space in close territorial proximity, combining housing, workplace, and the provision of social services. This was largely due to the severe financial shortage which prevented government from running public transport for such commuting. The work-unit-based spatial model soon dominated mass urban development because of the power and privilege of work units in the socialist economic structure. The 'city under Mao was a relatively weak entity characterised by the dominance of the work-unit' (Cartier, 2005). Basically, work-unit compounds shared three common features in social

and spatial outcomes (Figure 4.15):

Figure 4.15 A small-scale walled compound (*danwei*) with one entrance, Beijing



(Source: compiled from Hua 2006)

- A self-contained and high level of social facilities: small work units generally had canteens, social halls, clinics and public bathhouses; medium-sized units may have added nurseries, kindergartens, parks, libraries, sports fields, guesthouses and shops; large work units, especially those in remote suburban or rural areas, were often so self-contained as to resemble a miniature city (Lu, 2006).
- A high level of social mix and close affiliation: working and living closely in a work-unit compound, the diversity of workers and their family members in terms of age and sex fostered a high level of social mix. Furthermore, the dense network of human relationships between members cultivated by joint living and the patriarchal authority exerted by the work unit over its members are reminiscent of the living conditions of a big kinship family in ancient times. In this regard, the work unit can be argued to be 'feudalism in a period of industrialisation.' (Dutton, 1998, 42)
- Walled enclosure: although there was wide variation among work-unit compounds in terms of scale, layout, supplied facilities and social services, etc.,

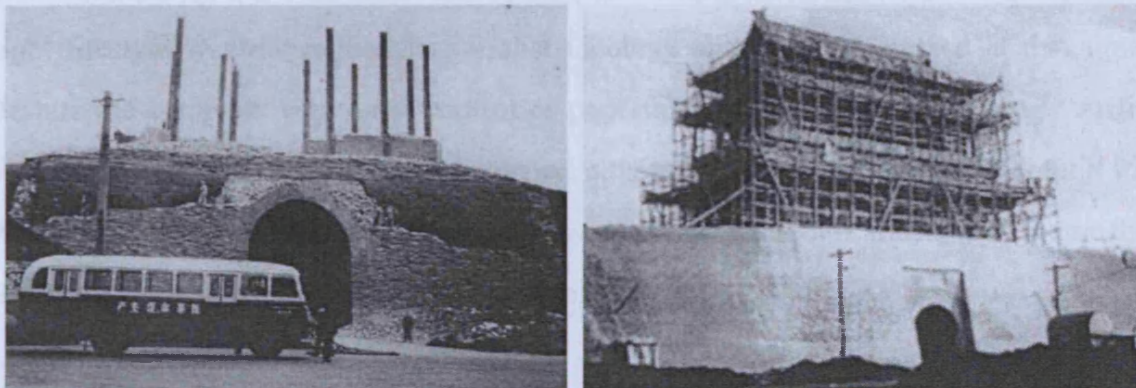
the overwhelmingly ubiquitous presence of walls and guarded gates in most work-unit compounds was the most visible common feature.

Thus, the multifunctional compound built by work units in socialist China became a miniature city within its own walls, 'somewhat reminiscent of the walled wards of the early traditional Chinese cities.' (Gaubatz, 1995)

4.3.2 Work-unit walls: origin and the socio-spatial consequence

Work-unit walls seem inexplicable, especially in such an egalitarian socialist society. But from the analysis above, it is arguably clear that the work unit is actually a kind of 'club', an economic entity for collective production and consumption. Hence, it is inherently exclusive⁴. In fact, after the founding of P. R. China, the city walls built in the feudal period were regarded by some experts and administrators as a physical and symbolic barrier to urban modernization, and therefore should be pulled down (Wang, 2003). Although the proposal to demolish the ancient city walls provoked a drastic debate and vigorously protested by some professionals concerned about heritage conservation, it was approved by the central government and eventually implemented (Figure 4.16) (Liang, 1986; Wang, 2003). Ironically, while the city walls were being torn down, new walls were

Figure 4.16 City gates in demolition: Xizhi Gate (left) and Anding Gate (right)



(Source: Hua 2006)

⁴ Club goods (also known as collective goods) are a type of good in economics, sometimes classified as a subtype of public goods that are excludable but non-rivalrous, at least until reaching a point where congestion occurs. (Buchanan, 1965)

constructed throughout the cities around the compounds of work units.

Most work units constructed in the 1950s were originally built without walls, but many work units started to build permanent walls in the 1960s to protect their land and other resources from encroachment due to uneven development (Lu, 2006) between not only work units and external urban areas, but also between different work units (Gong and Chen, 1994). Unit walls gradually became the norm and were often the first structure to be built when establishing a new work unit. Eventually, almost every work unit was a walled enclosure or a cluster of several walled enclosures (Lu, 1998). The walls, in most cases made of brick, set the work unit physically apart from its surroundings. There were usually several entrances with a small janitor's room at each one.

Generally, pedestrian and vehicle access were treated differently, as the interrogation for the latter was much stricter. As regards pedestrians, the regulation of accessibility varied from unit to unit and often changed according to the social conditions of the time. But basically, the work unit had the right to enquire about or exclude anyone who was not a regular resident in it. The facilities in each unit, bathhouses for example, were generally for the exclusive use of unit members. The extent of the rigid control also varied from unit to unit and from time to time. In some cases, small units with limited resources cooperated to support the joint use of some facilities such as schools and hospitals. The gate was often closed at midnight and opened in the early morning, because the capitalist night lifestyle was discredited in socialist ideology and fully suppressed at that time. Despite the comparatively loose control of pedestrian access in general, through traffic was not allowed at any time. In consequence, although the walls were reportedly built for the purpose of protecting the common possessions of the work unit, it actually became the effective physical instrument for social control.

The site planning of a work unit was initially carried out by the local Urban Planning Bureau. It mostly focused on location and the size of land allocated which was decided by the population and function of the work unit, leaving the detailed layout to the work unit's

own Infrastructure Engineering Department. The walls in this case had a fundamental and irreversible impact on the contemporary Chinese urban landscape with respect to the urban structure. First, because of the walls, many inaccessible super-blocks (around 800 x 800m) came into being. Actually, during the early 1950s, the 'super-block and wide-avenue' concept of street-block pattern was introduced from Soviet planning (Figure 4.17).

Figure 4.17 Modernist concepts for city structure were implemented in Socialist cities of Beijing (left) and Hohhot (right)



(Source: compiled from Hua 2006)

It was quite easy for this pattern to be transplanted to China because, as the previous analysis shows, most of the pre-1949 Chinese cities were still based on the traditional urban structure, which itself is a 'super-block and wide-avenue' pattern (Figure 4.18).

Figure 4.18 Di'anmen Avenue, Beijing, in 1920's



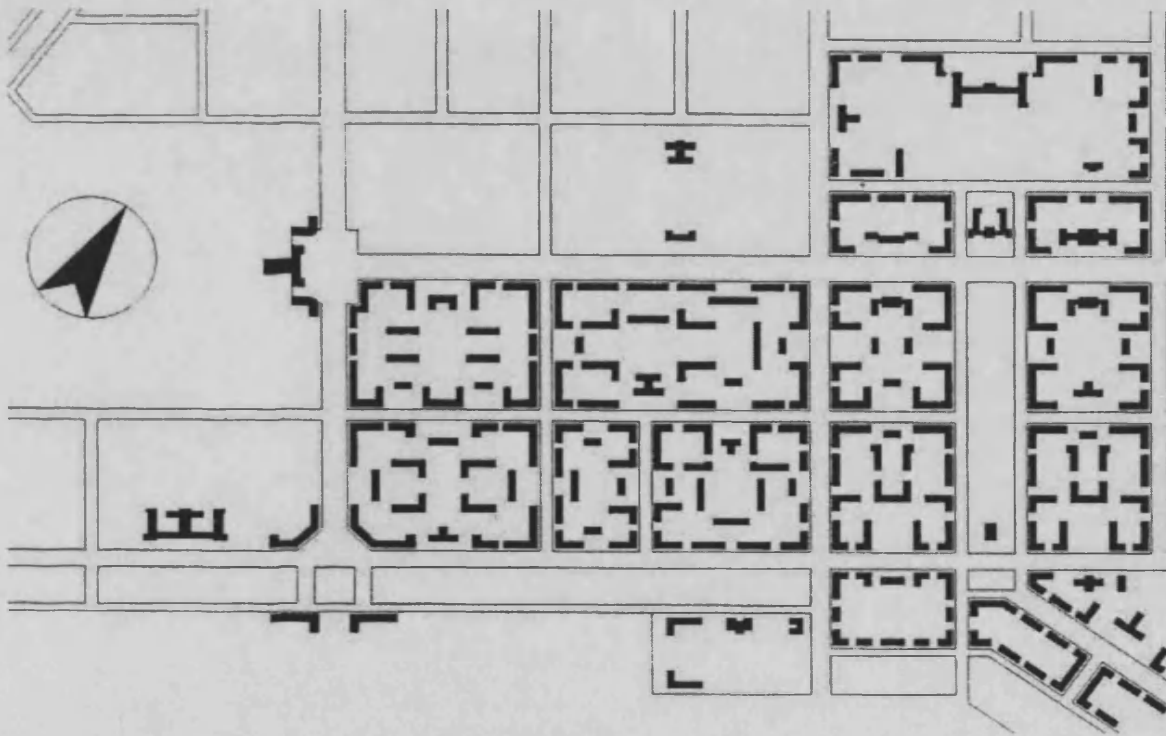
(Source: Hua 2006)

In addition, this traditional urban structure, which continued in the feudal ages when the commercial activities were largely depressed, suited exactly the ideology of the socialist society where consumption was minimized. Secondly, because of the walls, the wide public streets defined by such blank boundaries were dull in image and monotonous in uses as the provisions within the wall fulfilled most of the needs from people who in fact lived a highly homogeneous lifestyle. Therefore, the major function of the public streets beyond the walls in everyday life was to sustain the transport vehicles. This arrangement was congruent with the concept of modernist planning in specialising roads for traffic, and also promulgated throughout other countries by planning experts of the time in the enhancement of vehicle speed and traffic efficiency. However, the economic shortage during the recovery period made even public buses and bicycles sparse, not to mention private cars (see in Figure 4.17). In this regard, the street was devoid of life and the street space was severely neglected by urban design. Lastly, because of the wall, there was little need for the work unit to respect the surrounding context with respect to the spatial structure. Rather than integrating with the outer urban structure, the walled compounds generally formed a system of their own with a flexible pattern to fit geographical and functional needs. As a result, China's socialist cities dominated by walled work units became demarcated by inward-looking and inaccessible large-scale urban blocks with underused streets and other public spaces connecting them.

4.3.3 Failing experiment of perimeter block as the elementary layout of urban structure

Together with the 'super-block and wide-avenue' concept, the perimeter block, which is a key component of many European cities, was also introduced from Soviet planning practice (Figure 4.19). As a perimeter block is built up on all sides of an urban plot surrounding a central space that is semi-private, the buildings face directly to the streets. This is in great contrast to the courtyard house which is the elementary layout in the Chinese tradition (see in the section of 4.2.5).

Figure 4.19 Plan of the perimeter blocks in the residential area of an automobile plant, Changchun



(Source: Lü et al. 2001)

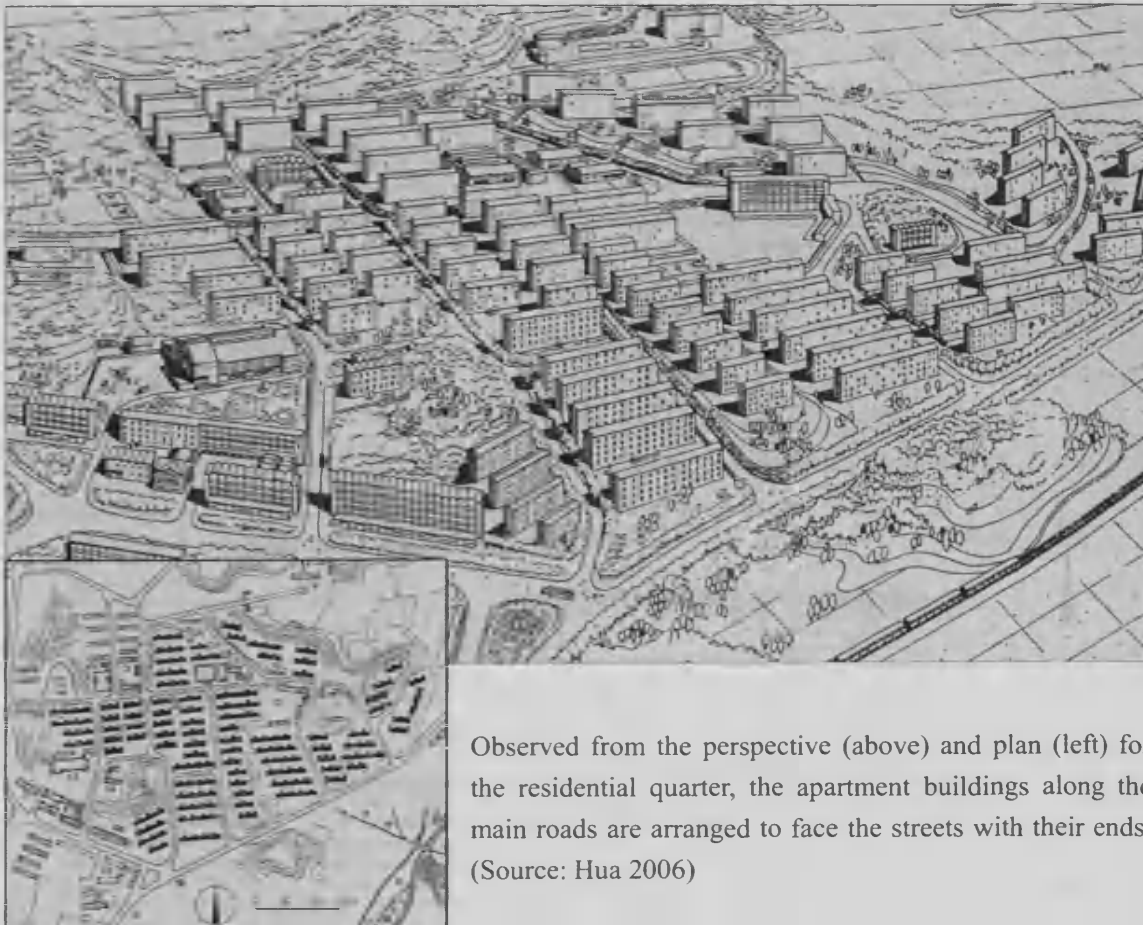
Although the perimeter block layout was conducive to spatial integration and street activities, and promoted by officials for ideological reasons ('Learning from Red Soviet'), its potential conflict with the climate, environmental conditions and living traditions was soon found to be problematic by both users and professionals. The conflict is especially distinct in the urban settlements provided for the employees in many small work-units that cannot have their own enclosures. They were often built by local authorities or jointly built by several small work units. The controversy focused on whether to adopt parallel row-housing⁵ or perimeter block layouts as the elementary form in residential planning (Lü et al., 2001). One of the two criticisms of perimeter block layout was that it generated a large number of houses whose living room and major bedrooms were facing east or west. These buildings could not make full use of southward sunlight and natural ventilation and therefore were not energy efficient. The other factor was that street-facing units suffered inevitably from noise and air pollution of traffic on the streets. The

⁵ The parallel row-housing was the elementary housing form emerging in treaty port cities when multi-storey terraced houses and apartments replacing traditional courtyard houses (see in the section of 4.2.4). They were unexceptionally south-north oriented.

practical need for good living environments, it was argued, should not be sacrificed to formalistic concerns. The supporters of perimeter block layout however, insisted that its efficient use of land and the organic function of each neighbourhood unit expressed exactly the spirit and order of socialist society (Wang, 1956).

The perimeter block practice gradually disappeared when the political imperative to refer to the pattern of 'super-block and wide-avenue' was heavily weakened after the Soviet leader Joseph Stalin, the radical advocator of "Superblock", died in 1953 (Lu, 2006). The perimeter block layout was abandoned while the parallel south-north oriented row-housing layout was revived and sustained to be the dominant unitary form in residential planning thereafter. Even the apartment residential buildings along the main street often chose to face the streets with their ends (Figure 4.20).

Figure 4.20 A residential quarter of a work unit, Nanjing



Observed from the perspective (above) and plan (left) for the residential quarter, the apartment buildings along the main roads are arranged to face the streets with their ends. (Source: Hua 2006)

Therefore, perimeter block as the basic unit of urban form, although responding actively to surrounding streets and functioning well in the western cities, had been tried but hardly

accepted by common citizens.

4.4 Hybrid gated settlements in transitional urban China, 1978 – present

4.4.1 Commodification of urban housing management and the emergence of gated community

Due to the minimum investment strategy in the non-productive sector of housing after the founding of P. R. China, and almost ten years of stagnation in housing construction during the Cultural Revolution, there was an overwhelming housing shortage and poor living conditions in China at the end of the 1970s⁶. The rigid housing welfare system, in which urban housing was offered at nominal rent by work units and municipal housing bureaus, became a heavy fiscal burden and an institutional constraint on governmental capacity to improve housing conditions. Therefore, since 1980 when the economic reforms toward a socialist market economy were officially announced, the Chinese government launched a series of housing reform programmes to tackle this pressing housing deficiency (Fong, 1989; The World Bank, 1992; Wang and Murie, 1996; Yeh and Wu, 1999). A major change in housing reform was that housing benefits would be provided in cash wages rather than in kind. This led to a full-scale national boom in commodity housing markets in the following decades (Chen, 1993; Wu, 1996).

Before reform, a large proportion of the services and maintenance of urban housing was taken over by work units. As for other urban living quarters beyond the work units, the local Department of Housing Bureau would take charge of the maintenance services. This management system imposed huge pressure on local government during the process of market-oriented housing reforms. On the one hand, demand for housing management services soared when the estate management of some of the state-owned work units was

⁶ According to 1978 statistics released by the Ministry of Construction, in 182 cities throughout the country, per capita floor space had declined from 4.5 square metres in 1952 to 3.6 square metres.



transferred to local government during enterprise reform (Wu, 2002), and when numerous commodity housing projects were completed. On the other hand, local government could hardly satisfy this huge demand for management because of the financial shortage. Therefore, an urgent challenge for housing reform was to find a new pattern of urban housing production and management within the existing economic and institutional structure.

In the mid-1980s, the first array of property management companies following the model in Hong Kong were established in Shenzhen (Xie, 2006). They collected service fees directly from residents and provided estate management in return. This service was well accepted by urban residents and was gradually introduced to cities throughout the country. It developed rapidly in the fast growing commodity housing market, especially after the central government legitimated property management services in the 'Measure for the Management of Newly Constructed Residential Areas in Cities' issued in 1994. From the residents' perspective, it is natural for those who pay the maintenance fees to regard the whole area as their private property. Thus, it is rational for the residents of gated communities to be aware of the free-rider problem and the potential harm to their property rights and values due to unpredictable environmental deterioration in an era of fast urban development and, accordingly to take measures to prevent it. From the perspective of property management companies, it is much more convenient for them to demarcate the area to make clear the responsibilities of management. Therefore, enclosed residential developments were soon seen in China after specialized estate management companies took over the maintenance of commodity housing. As a result, these gated residential developments managed by specialized agencies reproduced the exclusive feature of the Chinese work units, and presented arguably the strongest echo of the global phenomenon of the 'gated community'.

The analysis above provides a general review of the process of gated community coming into being. But the role played by the local government and developers in the specific development process of gated community has been rarely studied.

4.4.2 Diversified gated communities in contemporary China and concerns on both sides of boundaries

The gated community has gained such unprecedented popularity that it has become the dominant development pattern in the commodity housing market, as it has been widely adapted to upper-, middle- and lower-market production by means of the variation of service fees. More and more urban residents of very different backgrounds have moved from types of pre-1949 traditional urban block and work-unit settlements to gated community-type settlements. Most gated communities are initially located in newly developing suburban areas, many of which have been rapidly integrated into a local centre due to the fast expansion of urbanisation. Meanwhile, there are still a few gated communities being built in inner urban areas as brown-field redevelopments. When widely adapted within the complicated social, economic and environmental urban contexts throughout the country, gated communities in China present highly diversified social, organisational, and spatial characteristics.

- First, the territorial and social scales of developments have varied project by project, from just a group of two or three apartment buildings in a small plot aiming at specialised end-users, to a large residential district of over 100 hectares (Figure 4.21), comprising high-, mid- and low-rise building types and targeting clients with very different income levels. The enclosed communal amenities, facilities, and services provided therefore vary correspondingly. Large enclosure sizes were more common in the initial stages when the commodity housing developments began, and the previous 'super-block and wide-avenue' urban structure framed in socialist era were mostly intact.

Figure 4.21 Site plan of Qifu Village, Guangzhou



Qifu Village is a large scale gated community in Guangzhou. It has 433.55 ha. enclosed area and 70,000 permanent residents. In addition to supporting and recreational facilities, it provides buses both running inside the community and to other urban districts. (Source: compiled from advertising brochures of the Qifu development)

- Secondly, the boundaries of gated communities are not limited to walls or to natural and built fences. As commercial activities have been encouraged since Reform, many shops were built along streets and street life revived again. Therefore, in some cases, especially in dense urban areas with flourishing urban life, mixed-use buildings with commercial uses at ground floors are built up as boundaries facing streets. Unlike walls and fences, they support diverse uses and activities along streets besides functioning as a means of separation.
- Thirdly, gated communities, especially in the newly built district, are mostly responsible for the infrastructures around them because local government does not have the resources to provide them. The consequence was often that while the gated

communities were fully self-sustaining with complicated provisions within them, the public infrastructure around, although visually good, was functionally minimal, like the public transport linking them to other urban area. This was especially the case in the initial stage when the re-introduced urban planning administration of the time was insufficient to regulate the fast-moving commodity housing development.

- Finally, the extent of control and exclusion also varies greatly across different gated communities and is even changing over time with respect to the surrounding environmental conditions (Figure 4.22).

Figure 4.22 Varied conditions in terms of accessibility



Both local pedestrian and vehicle access to the community are restricted.

Only vehicles are restricted while local pedestrians, including peddlers, can enter into the community.

The two gated communities shown in the left and right photos respectively are sitting opposite each other along a local public street in Chongqing. Although developed with similar density, building type and facilities, they adopt different regulations on accessibility. (Source: photos taken by the author)

There is a common interest for nearly all gated communities (i.e. the quality of the collectively shared internal open space). As medium- or high-rise apartments are the major building type of gated communities in China, there are 120–180 households per

hectare in general (Miao, 2003). Except for a few luxury gated communities of villas, a private garden is generally not available in such a high density form (Figure 4.23). The shared open spaces in gated communities, the landscape and the facilities, are *de facto* valuable green spaces for the residents of the housing development, and the foci in daily outdoor activities. Thus, shared open space is viewed as an indispensable part of housing quality and property value, demanding elaborate design, construction and management.

Figure 4.23 Shared open spaces in dense urban form.



(Source: photo taken by the author)

However, this intensive interest in the internal environment does not, like gated communities in American cities, displace the concerns that residents of gated communities have for the external public environment. High density as the common feature of Chinese cities causes gated communities to juxtapose or even interweave with their surroundings. Moreover, despite soaring private car ownership in China, the majority of residents in gated communities still rely heavily on public transport (Miao, 2003) in the spaces outside their enclosures. As a result, the quality of the environment in the neighbouring public spaces is still a major concern of the residents in gated

communities. However, no empirical study in China so far explains the specifics of this concern, especially when the physical features of gated community vary greatly and therefore have different impact on the spatial character of its neighbouring public spaces.

4.4.3 Persistent work-unit walls and hybrid gated settlements in the post-socialist era

After 20 years of reform, China currently has a dual system of housing sectors: privatised public housing⁷ and commodity housing with different prices, rents, and delivery patterns (Chiu, 2001; Zhang, 2001). Rosen and Ross (2000) argue that the re-sale of privatised public housing is not feasible because the owners of such housing still rely on their work units for maintenance and improvements. Meanwhile, work units are renovating old houses and constructing new ones, so as to provide their employees with up-to-date and improved housing conditions. As a result, owning a large stock of land and housing resources, work units are still regarded as playing a key role in the urban housing sector (Zhu, 2000; Fu et al., 2000; Li, 2000; Li and Siu, 2001; Zhao and Bourassa, 2003; Zhang, 2006). Along with soaring land prices in the market-oriented economy, lands were viewed as important assets of the work unit. In this case, the walls of the work unit have been well preserved rather than demolished, although today work units' control of their employees' everyday lives has been greatly weakened. In urban areas with prosperous businesses, some walls have been replaced by outward-facing buildings, which continue to separate the outside from the inside (Figure 4.24).

⁷ The privatised public housing system is the system that has been in operation in various work units including official departments, universities, institutions, and so on. Residents buy or rent their property at a preferential price, but they do not have full property rights, as the work unit owns the land.

Figure 4.24 Juxtaposition of gated commodity and walled work-unit residence

The picture shows a juxtaposition of gated commodity housing development (left) and walled work-unit residence (right) along a local road of Chongqing. While the boundary for the gated development is developed into two-storey buildings for commercial uses, a small part of the work unit wall is also replaced with rentable buildings facing outside. (Photo taken by the author)

Although the boundary remains, management has become much more flexible in response to the increasingly rich and colourful urban life of the post-socialist era. More gates have been set up in the walls around work units to improve access to the outer world for the sake of residents' convenience. Generally, all the gates are open in the daytime and provide free access for outsiders by foot or bicycle, while some are required to be closed at night by the residents in the work unit for security reasons (Figure 4.25). These walls and gates by and large do not bother local people, who are familiar with all these gates and their opening hours. Nevertheless, they still function as barriers for strangers, preventing them from getting through walled areas, and therefore greatly decrease the accessibility and permeability of the area. For vehicles that do not belong to the work unit or employees and their family members, a through traffic fee would normally be charged. The road system of the work unit is still not integrated into the whole road network of the

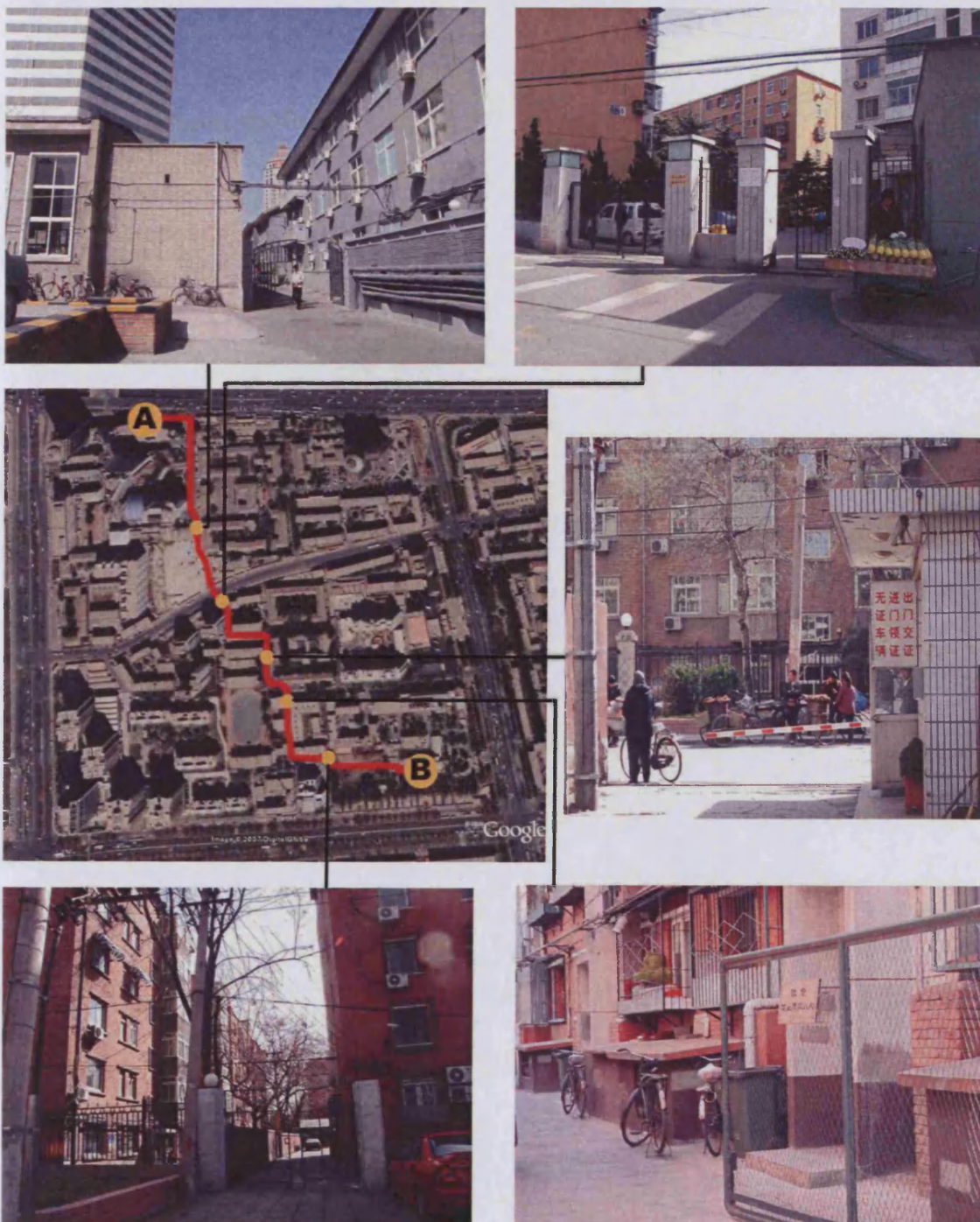
city (Figure 4.26).

Figure 4.25 Notification board at gateway of work-unit



The Notification board states the opening times of this gate: 'the gate for vehicles is only opened during weekdays, from 07:00 to 08:30 in the morning and from 16:30 to 18:00 in the afternoon; the gate for pedestrian is opened every day but closed at midnight'. (Photo taken by the author)

In addition, apart from the gated communities and work units compounds, property management, especially gated and semi-gated management, were introduced into some old city areas in Guangzhou in 2005 for the first time to reduce the crime rate and improve sanitation. Such management was often applied in a cluster where several buildings shared a common access way or around an open space. The positive response from the residents and notable decreases in crime record (mostly to zero) in the trial areas led to this measure being promulgated widely by local government to deal with the deteriorating security and environmental quality in old urban districts. The analysis above shows that the gated or semi-gated enclosure is a universal feature of urban settlements in contemporary Chinese cities and proves to be widely accepted and welcomed in the general Chinese citizens. However, empirical investigation has rarely focused on how the gated residence is perceived and used by common citizens in a specific urban context.

Figure 4.26 Accessibility in an urban area of work units in Beijing

This urban area in Beijing is dominated by several walled work-units. The red line is the shortcut between spot A and sport B. The small yellow spots are the five gates along the lines. Although the work units are now all opened for the public in the daytime, only the local residents know this route and the opening times of these gates. So, this shortcut is hard to find for a stranger, while the only way from A to B is to follow the arterial road at the periphery. (Photos taken by the author)

4.4.4 Residential planning norm based on the neighbourhood unit concept

The neighbourhood unit concept was first introduced to China by the Western planners and Western-trained Chinese specialist in the Republican era. However, none of the planned urban settlements based on the neighbourhood unit concept was implemented because of domestic turmoil. After the founding of the People's Republic of China, it was soon picked up and applied in residential planning (Lü et al., 2001; Lu, 2006). Although advocated by the government and academia as the orthodox theory in residential planning, housing projects based on neighbourhood unit concept and built up between 1950s and 1970s were limited. This was mainly because the work-unit based urbanism that integrated production and residence was widely adopted throughout China (Lu, 2006) and the almost stagnant housing construction in the Cultural Revolution.

Dealing with the severe housing deficiency, the government started new practices of residential planning and construction from the early 1980s. The neighbourhood unit concept was picked up again and widely promulgated as the planning norm and orthodox design theory in the residential planning policies and education in the following two decades of steady urban development. In particular, the Ministry of Construction launched an experimental program from the middle of 1980's to identify suitable patterns for urban residential developments. The cities located respectively in the south, north and middle region of China were selected to deploy pilot residential projects. These projects, resuming the guiding role of the neighbourhood unit concept, played an influential in the planning and design of residential buildings of the time (Liu & Shao, 2001). On the one hand, their exemplary effect made housing projects throughout the country imitate their designs. On the other hand, based on their experience, the 'Code of Urban Residential Areas Planning and Design', the first official guidance on residential planning, was issued by the Ministry of Construction in 1993 (revised in 2002). Therefore, the design principles of the neighbourhood unit concept were for the first time widely implemented in practice and promulgated in education in China. The review in chapter 2 showed that with the common services and open spaces put in the centre, the concept of

neighbourhood unit presents an inward looking neighbourhood form and a self-sustaining supplying pattern. It is appropriate for a suburban housing project which has little urban context to be respected and integrated with. In this regard, the residential developments guided by neighbourhood unit concept largely resembled the inward-looking, self-contained gated community except for the physical enclosures and gates which were often added later when property management was introduced (Figure 4.27). Therefore, the planning norm and principles based on the neighbourhood unit concept should be reviewed and revised in face of the gated community phenomenon in China. However, little research has been done to date.

Figure 4.27 Model of South Garden, Dragon Lake Garden development, Chongqing



South Garden of Dragon Lake development is among the national pilot projects guided by neighbourhood unit concept. It was later turned into a gated community, and is one of the four gated communities for case studies in this research. (Source: advertising brochure of Dragon Lake Garden development)

4.5 Summary

This chapter has explored the long history of enclosed residential form in China, dating back to the walled cities including fortress-like palaces for the gentry and enclosed courtyard housing for ordinary people in ancient times, through to the enclosed work-unit compounds of the socialist era and pervasive gated communities to date. Two features are remarkable for this morphological continuity in the analysis. One is the persistent culture of collective living with a territorial control, illustrated by the courtyard-style family housing complex, its adaptation in colonist time, the work-unit compound and gated community, although the bonding relationships are based on family/kinship, territory-based community, fellowship, and the business contract respectively. The other is the introverted housing compound with buildings and walls deployed around the communal outdoor spaces. This kind of spatial arrangement for housing can be ubiquitously found in Chinese urban settlements of all ages. In addition, the analysis showed that the extroverted housing form of 'perimeter block' that is widely used in European countries was once tried in Socialist China but failed in practice. Apart from persistence, these two features also demonstrate their great adaptability, as they were widely adopted in ancient urban fabrics, westernised cities at treaty ports in colonial times, socialist work-unit compounds, and diverse gated communities today, on greatly varied scales. With a capacity to renew itself, the ingrained tradition of gated residence is malleable enough to enable old ways of living to operate in new contexts in a new era. This, on the one hand, provides a contextual interpretation for the particular popularity of gated community in China; on the other hand, it presents a comprehensive historical and cultural background for understanding the performance of gated communities in China's cities today.

Notwithstanding the obvious continuity of the introverted spatial form, the specific design features have always been changing over time. First, the enclosure size changed. It was very large comprising hundreds of households before the late period of Tang dynasty

when the society was strictly controlled by aristocratic power with depressed commercial activities. Then, it shrank to the size of courtyard buildings for one household unit during Song dynasty when mercantile society arose, and this trend, although slowed and a little reversed sometimes, continued into Republican era before 1949. It was even strengthened in the treaty port cities where modernist commercial society was brought into being by colonist administration. The enclosure size increased in Socialist time when consumption and commercial activities were also depressed by means of strict social control. A work-unit compound can be a large spatial entity encompassing workplace and residence of its thousand workers and most of the supporting facilities. In reviewing the enclosure size related issues, it is noticeable that the wide-road-and-large-block urban structure which was stipulated as the official norm for urban planning had scarcely changed in China in the lengthy feudal empires, and was even further strengthened by the Soviet model of 'super-block and wide-avenue' in socialist era. Therefore, the contemporary Chinese cities and the gated communities are mostly based on a loose grid urban structure. Secondly, the boundaries where private buildings encountering with the public spaces had changed accordingly: monotonous in aristocratic controlled empires, diversified thereafter, and regaining monotony and vitality again in the socialist and post-socialist time respectively. The last but not least changing feature is the condition of the public spaces around each urban settlement and gated community. During aristocratic controlled empires before Song Dynasty and Socialist era, the daily essentials were largely put within the enclosures, i.e. residential wards and work-units respectively, while public spaces outside were largely dilapidated and underused. In contrast, the provisions and activities in these public spaces are generally more diverse and vivid in the societies which enjoy commercial prosperity, such as those in Song Dynasty, treaty-ports cities, and post-socialist era.

As the existing literature shows, gated communities in China today have greatly varied enclosure size, boundaries effect and common facilities. Is there a similar changing trend in these aspects as observed above as the commercial activities revive in the market-oriental reform? If so, what are the forces behind the change? How have the

physical legacies such as the loose grid urban structure and the planning norm or orthodoxy design theories such as the neighbourhood unit influenced the designable features of gated community today? These questions have not been answered yet.

So, more inquiry needs to be made into the physical features of a series of gated community developments built in different stages of Reform and in a specific urban context. Moreover, the review of the previous research on gated community in China shows that the empirical studies about the users' behaviour and response have rarely been done from the perspective of public space and street life. Therefore, empirical studies on these issues in the next three chapters will disclose the *status quo* in practice, the challenges and problems in the design for gated community with respect to the living quality of the neighbouring public spaces and the local urban area as a whole.

Apart from the conventional legacies, this chapter has also reviewed the social and political-economic backgrounds in the evolving process of gated community. It has showed that though deeply ingrained in Chinese housing tradition and the history of urban design, the gated community in China today is economically sensitive and by no means a continuation of its historic predecessors such as the walled low-rise courtyard houses or the enclosed work-unit compounds. The evolving trajectory of the gated community since the market-oriented housing reform kicked off in the 1980s shows that rather than any historical or cultural factor, the public / governmental retreat from housing provision and management is the foremost *de facto* driving force bolstering the contemporary revival of gated residential quarters in post-reform China. This finding from the evolving process of gated community development in China echoes that discovered from the general evolving process of gated community worldwide, which was underpinned by global neoliberal politics, and economies (see in Chapter 2). However, China is a 'strange case' as the outcome has been a particular kind of neo-liberalism interdigitated with authoritarian centralized control (Harvey, 2006). Therefore, there possibly are some unique political-economic factors shaping the design dimension of gated community in China. These will be further explored and tested at length in the

empirical studies of the ten-year development process of four adjacent gated communities that eventually formed an urban neighbourhood.

CHAPTER FIVE

PUBLIC SPACES AROUND GATED COMMUNITIES: PHYSICAL OUTCOMES AND LOCAL PERCEPTION

5.1 Introduction

From this chapter throughout chapter 7, the research focuses on a specific case study¹, namely the four gated communities in the Dragon Lake Garden urban neighbourhood in Chongqing, to examine in detail both the process and outcomes of the design practice and the consequent impacts on the local public spaces around.

There are three main tasks to be executed in this chapter. First of all, the Dragon Lake Garden project as a whole is subjected to a close examination. After a brief introduction of the general development conditions of the urban neighbourhood, the physical outcomes of the four subsumed gated communities are examined in detail, analysing the two-dimensional site plans and 3D-form maps in combination with the on-site photographs. The analysis is organised around the three aspects which are presumed to be determinant in their impact on the neighbouring public spaces: the enclosure size, the boundary effect, and the publicly accessed amenities and facilities. This chapter will define and summarise the physical characteristics of these four gated communities that closely influence the quality of the local public spaces. The major differences between them will be the focus throughout the analysis. What needs to be made clear is that, other than the details which will be the addressed in the next chapter, the analysis in this chapter emphasises on the general design features.

¹ The case study as a research strategy is explained in detail in Chapter 3.

The second task is to investigate the users' opinions of the physical outcomes. Through a secondary analysis survey¹, the perceived quality of the local public spaces in the Dragon Lake Garden urban neighbourhood can then be revealed and explained with respect to the three common concerns manifested: environmental conditions, services and facilities and social activities. On the one hand, the quality of local public spaces as perceived by residents in terms of the merits, problems, and possible reasons, are dissected and presented. On the other hand, the descriptive statistical analysis reveals the varied concerns expressed by the inhabitants of the four gated communities about the quality of local public spaces.

The final task is to explore the underlying relationship between the variation of design features and that of user's opinions. Exploring and testing the validity of the hypotheses from the perspective of users' perception, this chapter attempts to discover the potential impact that gated communities have on the qualities of local public spaces, and the role their physical features play in it. The photos in this chapter are all taken by author unless otherwise stated.

¹ The application of this method is elucidated clearly in Chapter 3.

5.2 Changing physical outcomes: an investigation centring on the impact on local public spaces

5.2.1 The Dragon Lake Garden urban neighbourhood: an urban development led by four physically varied gated communities

As explained in the methodology chapter (Chapter 3), since 1997, Chongqing Longhu Real Estate Development Ltd. (Longhu) has progressively implemented the Dragon Lake Garden project composed of four gated communities, namely, South Garden, West Garden, Fragrant Camphor Wood and Crystal Town. Covering approximately a total site area of 76 hectares, this project is located in New North District, the newly developed urban area 5.5 kilometres to the north of the old city centre of Chongqing (Figure 5.1 & 5.2). Adjacent to one another, these four gated communities, the streets, squares, and green parks around have virtually formed an urban neighbourhood in both a physical and perceptual sense (Table 5.1 and Figure 5.3).

Figure 5.1 Geographical location and administrative boundary of Chongqing



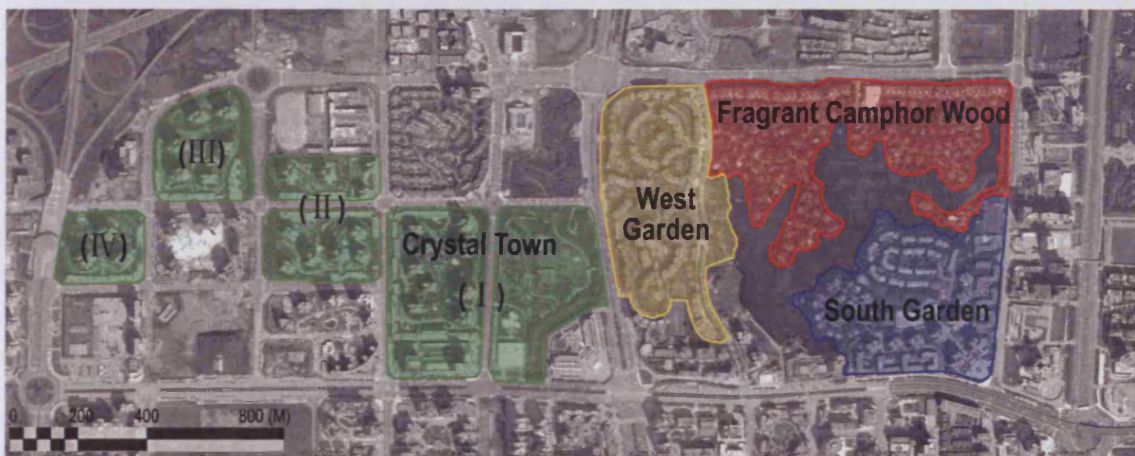
Source: compiles from the atlas on <http://www.geographicguide.net/asia/china.htm>

Figure 5.2 Geographical location of Dragon Lake Garden



Source: compiles from the atlas on <http://www.cqmap.net>

Figure 5.3 Four gated communities forming the Dragon Lake Garden urban neighbourhood: the development scope



(Source: compiled from photo in google-earth)

Table 5.1 Development data of four gated communities of Dragon Lake Garden

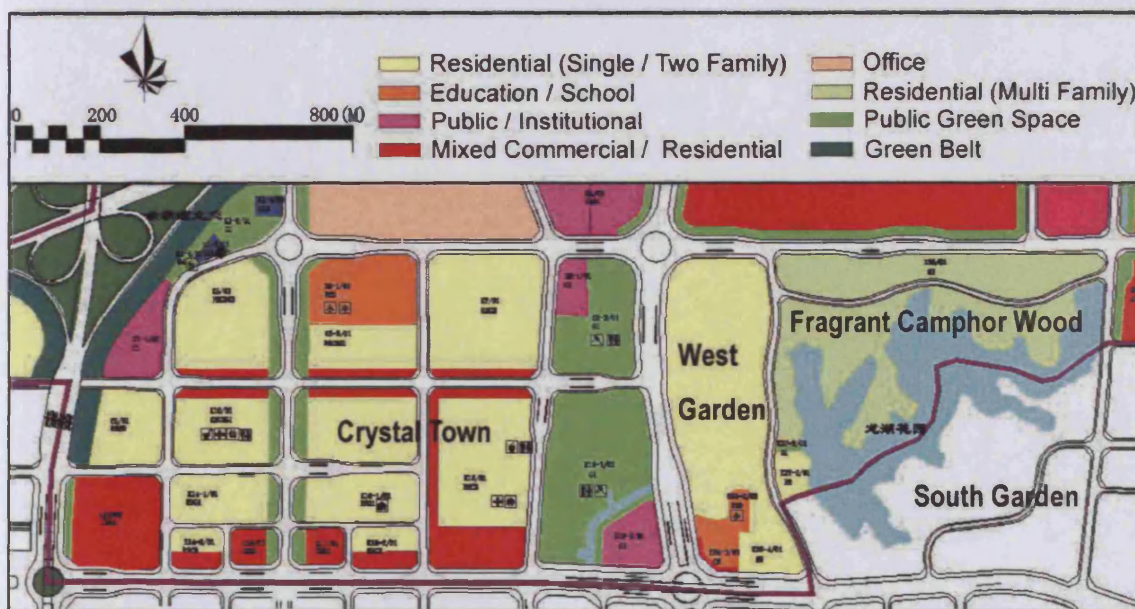
	Time of Earth Breaking	Time of Delivering	Site Area (Ha.)	Floor Space Area (m²)	Dwelling unit	Plot Ratio	Housing Style
South Garden	04 / 1997	1998 ¹	15	280,000	1,667	1.35	Terrace house Semi-detached house 6-storey flat High-rise flat (9- & 22-storey)
West Garden	05 / 2000	09 / 2001 ² 08 / 2002 ³	17	320,000	1,683	2.00	High-rise flat (11-storey)
Fragrant Camphor Wood	09 / 2001	12 / 2002 ² 05 / 2003 ³	17	85,000	250	0.48	Detached villa Terrace house
Crystal Town	05 / 2003	10 / 2006 ⁴	30 ⁵	800,000	3,800	2.10	High-rise mansion (18-storey & 30-storey)

Notes:

1. The last house of South Garden was delivered to the customers in May of 2001.
2. The time for Phase 1.
3. The time for Phase 2.
4. The time for first phase development on Plot 1 is 12/2004.
5. Including the 66,700 m² Sport Park.

Although a prosperous urban area now, the development site was entirely an agriculture land with no urban road access at the beginning of this project. As there was no local Regulatory Plan until 2002, the development control was too vague to guide and control the design of the first three gated communities, i.e. South Garden, West Garden and Fragrant Camphor Wood, whose development applications were all approved before 2001. So, while the local Regulatory Plan (Figure 5.4) is 'just an *ex post facto* law' (Section Chief, Chongqing Urban Planning Bureau) for the first three gated communities, it achieved some proactive controlling effect on the development of Crystal Town which got a planning permit in the first half of 2003. Therefore, it was the Dragon Lake Garden project that initiated and led the development of this urban neighbourhood.

Figure 5.4 Regulatory Plan for the Dragon Lake Garden urban neighbourhood



This Regulatory Plan was set on trial in 2002 and formally implemented in 2004, while the development applications of South Garden, Fragrant Camphor Wood, and West Garden were approved before 2001. So, it achieved some proactive controlling effect on the development of Crystal Town which got a planning permit in the first half of 2003. (Source: compiled from planning document: 'Detailed Regulatory Plan of Renhe Quarter in New North District' by Chongqing Planning and Design Institute, June 2004)

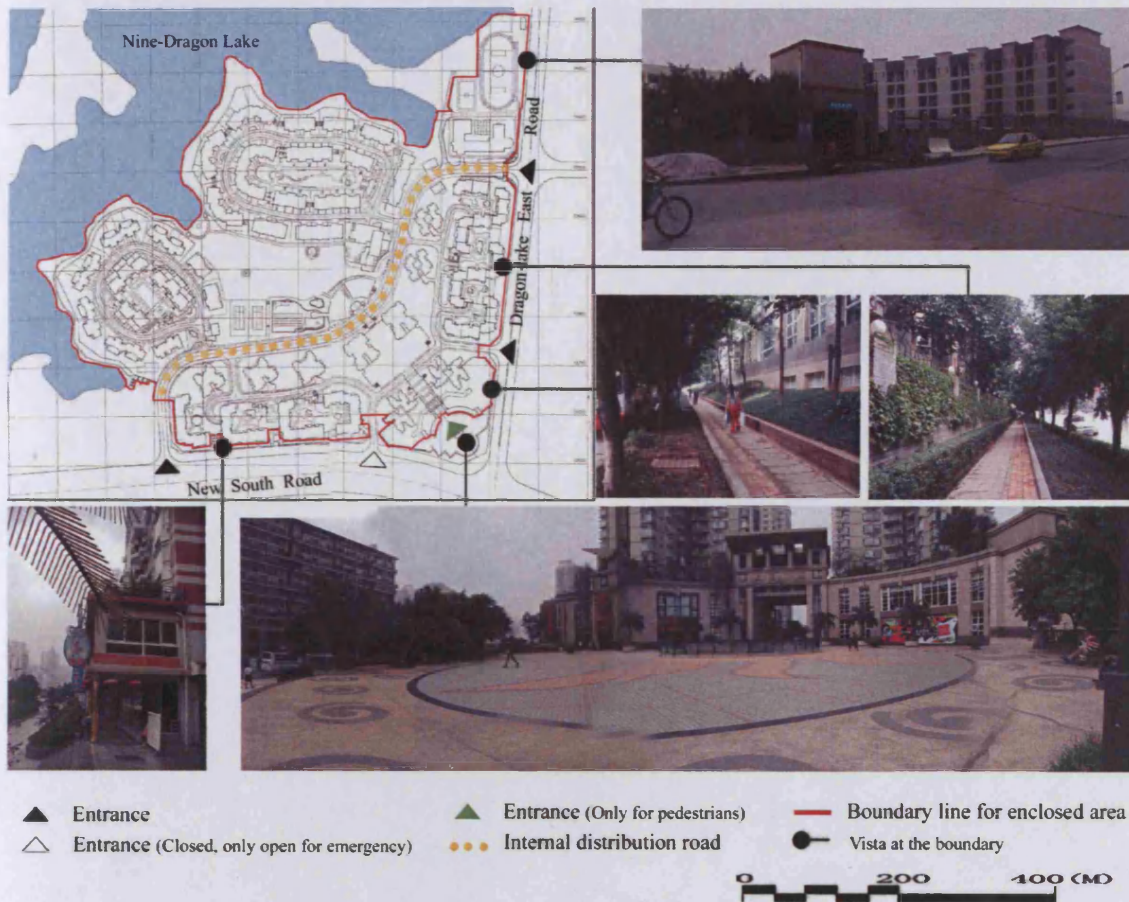
As a well established urban area where the public spaces are defined by the immediate gated communities, the Dragon Lake Garden urban neighbourhood provides a good

opportunity to examine the impact of gated communities on the local public spaces. Developed in different phases across the last decade when Chinese society experienced a dramatic transformation in every aspect - environmental, economic, and institutional, etc. - these four gated communities present strikingly diverse physical features.

5.2.2 South Garden

South Garden, located at the south bank of Nine-Dragon Lake, is the first phase of Dragon Lake Garden development. It was among the earliest examples of commodity housing development in Chongqing after central government officially announced the housing reform in June of 1998 which triggered the boom of commodity housing development in China. Located in an exurban area at that time, South Garden was built as an inward-looking and self-contained residential development of 1,667 dwelling units (Figure 5.5 & Figure 5.6).

Figure 5.5 Enclosure size and boundaries of South Garden



Enclosure size and accessibility

South Garden is located in a 15-hectare enclosed area naturally defined by two urban roads to the south and east, and Nine-Dragon Lake to the north and west. While no public access is allowed into this area, there are five entrances for the member-residents: two from New South Road (one is closed and only for emergency), two from Dragon-lake East Road, and one only for pedestrians on the entrance square at the bottom right corner.

Boundaries

South Garden encounters the local public spaces along Dragon-lake East Road and New South Road. The boundary at Dragon-lake East Road is all rail fences in general, but presents varied features in detail. This will be analysed at length in the next chapter. The five-storey mixed use buildings facing outside act as the boundary along New South Road. While the apartments on the upper floors are accessed only by member-residents from inside, the ground floors are leased for commercial and recreational uses and accessed directly by the local public outside from the pavement. Similarly, there are two tower-on-podium buildings circling the entrance square of South Garden. Towers are for residential apartments and only accessed from inside. The podiums accommodate a wide range of facilities and uses like medical centre, market, restaurants and tearooms, fitness club, etc., which are open for the local public.

Figure 5.6 Land-use arrangement of South Garden: internalised vs. public shared facilities



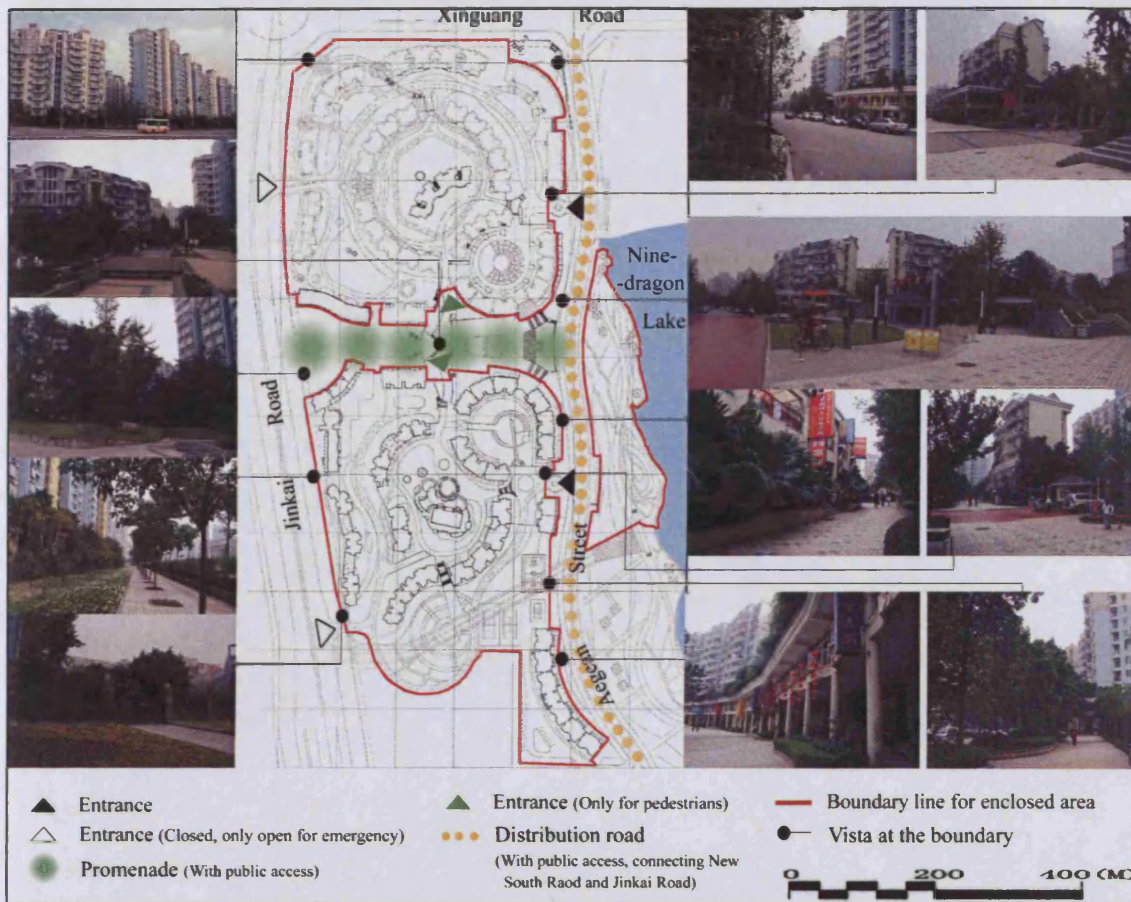
The facilities provided by South Garden include a traditional food market, medical centre, school, kindergarten, community centre, sports facilities, open green spaces and recreational services. While the school, market, medical and recreational facilities are arranged in the mixed use buildings at the boundary and shared with the local public, the other community facilities are all put in the middle of the site and exclusively provided for the residents of Dragon Lake Garden.

5.2.3 West Garden

West Garden was constructed subsequently in 2005 on the adjacent land of 15 hectares to the west of South Garden, including the Lakeside Park¹ on the west bank of Nine-dragon Lake. In contrast to South Garden, the conditions of accessibility and boundaries in West Garden have a remarkable change. Along with the noticeable reduction in the size of enclosure, the internalised facilities of West Garden have been considerably reduced when the community centre of West Garden is moved out of the enclosure and made accessible to the local public (Figure 5.7 & Figure 5.8).

¹ Lakeside Park is provided exclusively for the residents of Dragon Lake Garden.

Figure 5.7 Enclosure size and boundaries of West Garden



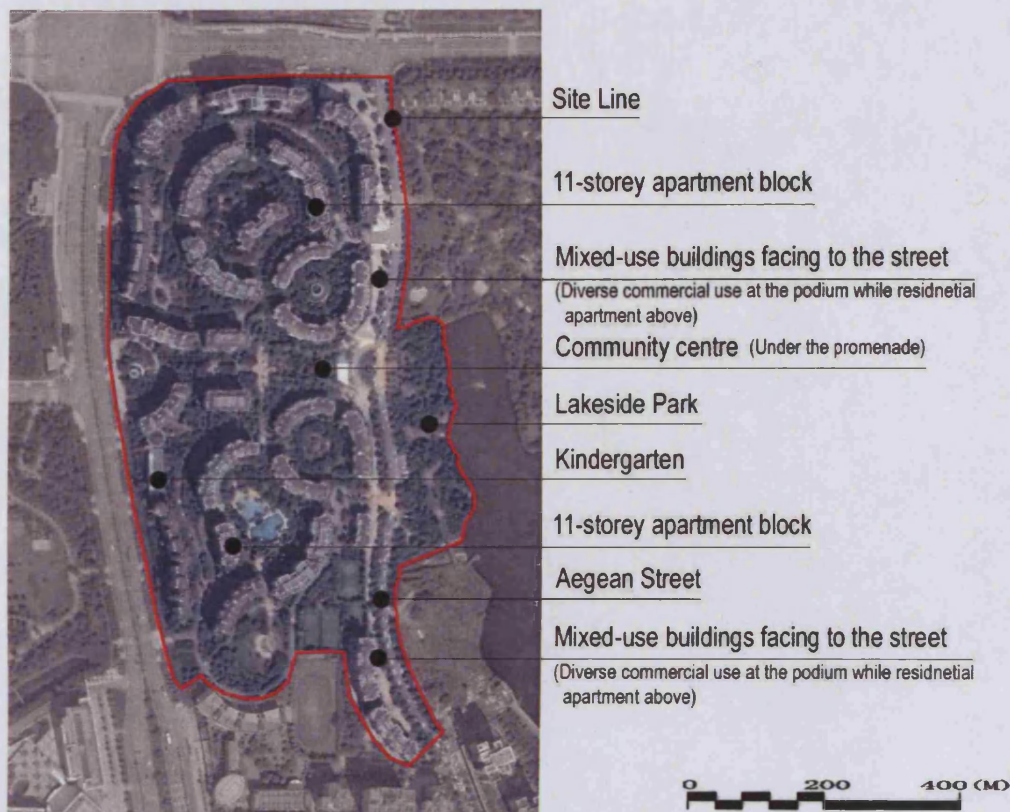
Enclosure size and accessibility

West Garden is located on a long and narrow rectangular plot between Jinkai Road and Aegean Street. The site area is divided into two enclaves by a public accessed landscape promenade which provides a pedestrian short cut between the roads on two sides. Consequently, although the total development area of West Garden is a little bigger than that of South Garden, the enclosed area of West Garden is reduced sharply with around five hectares for each enclosure. Aegean Street along the east side is the major distribution road for West Garden, connecting two arterial roads in this urban area, namely New South Road to the south and Xinguang Road to the north. Built and maintained by Longhu as the community road with a curvilinear design, it is open for local public transport in fact.

Boundaries

The south side of West Garden is next to an elementary school, separated by rail fences with plants. The boundaries along Xinguang Road and Jinkai Road are all fenced by rails with plants. Along the Aegean Street are five- to six-storey mixed use buildings. Like those boundary buildings in South Garden, the ground floors are leased for other uses, restaurant, café, grocery, and other small business, generating diverse activities on the street. The sidewalk along the boundary is spacious with planting and sitting facilities. The boundary between West Garden and the public accessed landscape promenade takes advantage of the height difference in topography in combination with plantings. The details will be presented in the next chapter.

Figure 5.8 Land-use arrangement of West Garden: internalised vs. public shared facilities



The internalised facilities of West Garden have been largely reduced to the small open green spaces between the buildings where some playground and on-site sports facilities are laid out. While most support services for daily need rely on local provision, its recreational facilities and community centre are shared with the local public with no membership required.

5.2.4 Fragrant Camphor Wood

Fragrant Camphor Wood is the third-phase development following the West Garden. It is located at the north bank of Nine-Dragon Lake while on the east side of Aegean Street. Targeting the high-end housing market, Fragrant Camphor Wood was developed as a low-density residential neighbourhood with luxury detached villa and terraced housing with the largest enclosure size and defensive boundaries to the neighbouring public spaces (Figure 5.9).

Figure 5.9 Enclosure size and boundaries of Fragrant Camphor Wood



Enclosure size and accessibility

The whole site area of 17 hectares is entirely enclosed and inaccessible to the public. With high car ownership (in fact every household has at least one car), Fragrant Camphor Wood only has two entrances for the member-residents. One is on the Xinguang Road to the north, and the other one is on Aegean Street to the west.

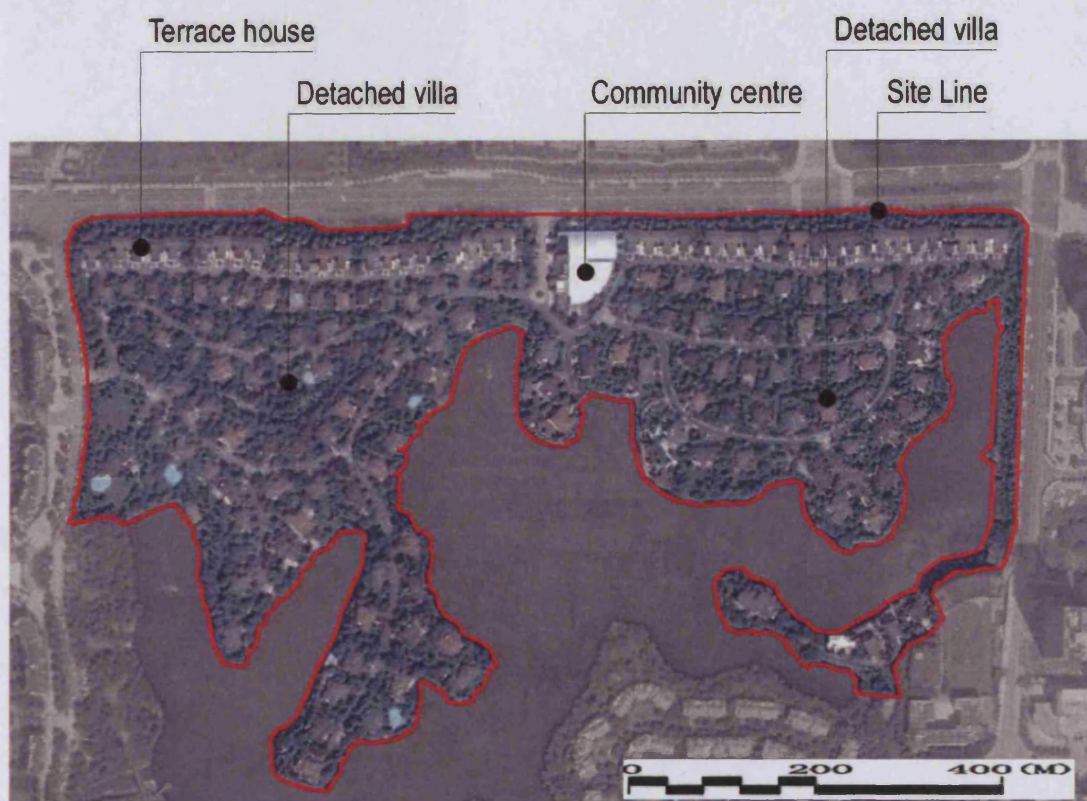
Boundaries

Fences enclose both of the two short sides on Aegean Street and Dragon-Lake East Road. The longest boundary is naturally shaped by the two-storey height difference in topography between Fragrant Camphor Wood and Xinguang Road to the north. Without any specific design, the fortress-like concrete mound is facing directly to the pavement. The sidewalks along the boundaries are all well paved and planted.

Like West Garden, the daily needs of the member-residents are mainly met by the increasingly diversified local provision of facilities and services outside the enclosure, although Fragrant Camphor Wood has its own well-equipped community centre providing

venues for recreational activities and business affairs. Located at the main entrance and open to the public, it actually targets only the more affluent consumers who mostly come along in private cars (Figure 5.10).

Figure 5.10 Land-use arrangement of Fragrant Camphor Wood: internalised vs. public shared facilities



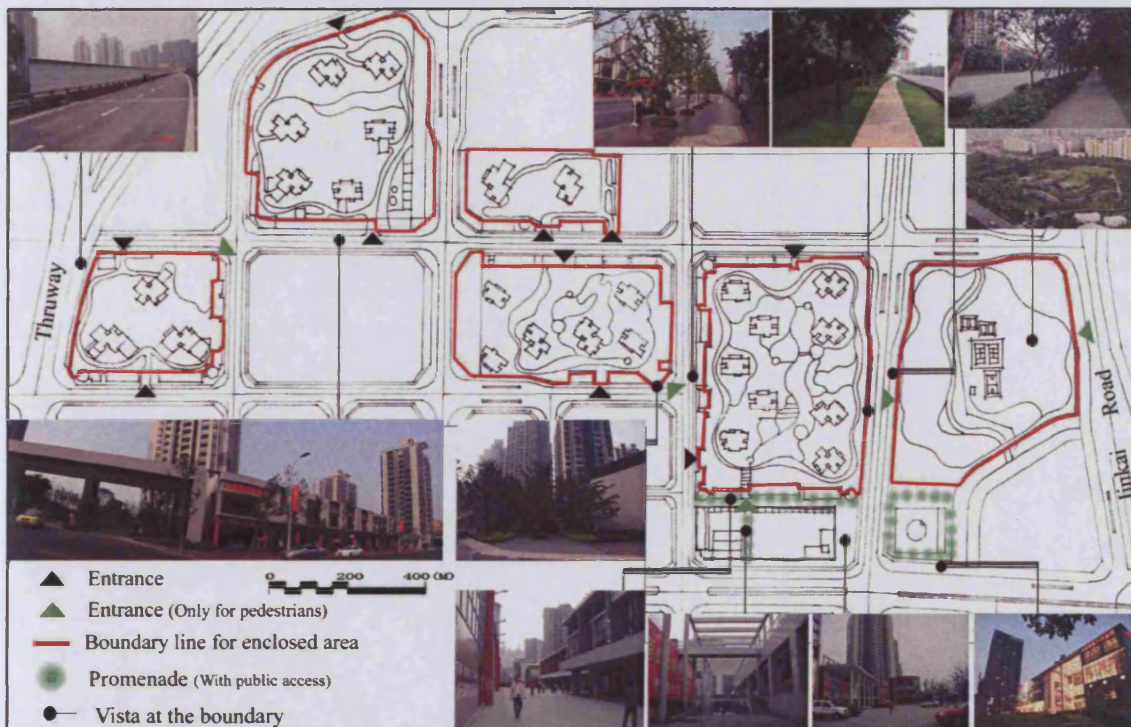
Like West Garden, the daily needs of the member-residents are mainly met by the more or less complete local provision of facilities and services outside the enclosure. Fragrant Camphor Wood also has its own well-equipped community centre providing venues for recreational activities and business affairs. Although open to the public, the community centre of Fragrant Camphor Wood targets the affluent consumers coming by car rather than the local community. It is located within the enclosure and any external user will be interrogated at the entrance.

5.2.5 Crystal Town

Dragon Lake Garden extended westwards with its final-phase development, Crystal Town in 2003. At the same time, a 60,000 m² public green park, the Sport Park, was built up

and managed by Longhu¹ on the neighbouring plot to the east of Crystal Town. Developed over nearly 30 hectares, the whole development is located in five urban plots divided by the municipal roads, and most of the gated areas are smaller than the earlier developments. As Crystal Town is a large-scale mixed-use urban project with residential, commercial, office, hotel, recreational functions, almost all of the supporting facilities are arranged along the street and shared with the local public (Figure 5.11 & 5.12).

Figure 5.11 Enclosure size and boundaries of Crystal Town



Enclosure size and accessibility

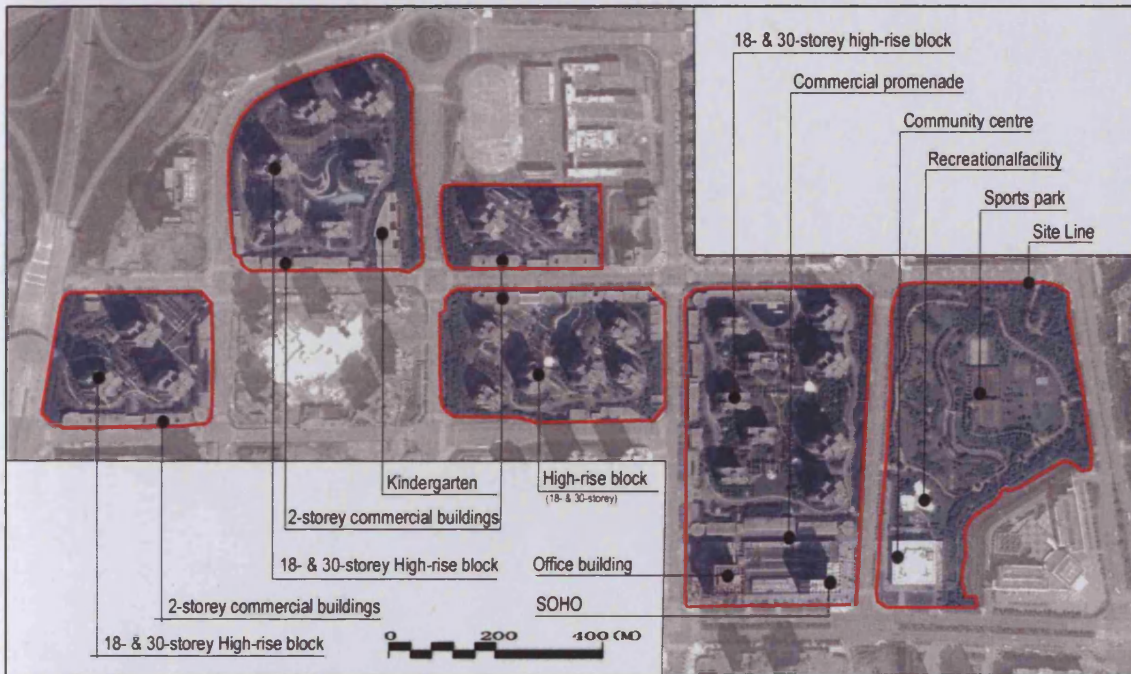
While one enclosure is around 6.5 hectares (215×300m), the other four are all less than 5 hectares (around 150×150m, 200×200m, 150×100m, and 250×150m). The whole site area is well accessed by the urban network. Each enclosure has 2~3 entrances for the member-residents.

Boundaries

It can be observed in the site plan that there is a striking concept for Crystal Town: while the high-rise apartment buildings stand in the middle of each enclave, two-storey mixed use buildings (for retail or recreational uses) face outwards and actively shape the street spaces around, providing multiple service uses for its own residents as well as the local people. But fences are still used in some parts.

¹ At first, the Sport Park is equally open for the public with an entrance fee. But the residents of Dragon Lake Garden have recently got free access after community committee negotiated with Longhu.

Figure 5.12 Land-use arrangement of Crystal Town: internalised vs. public shared facilities

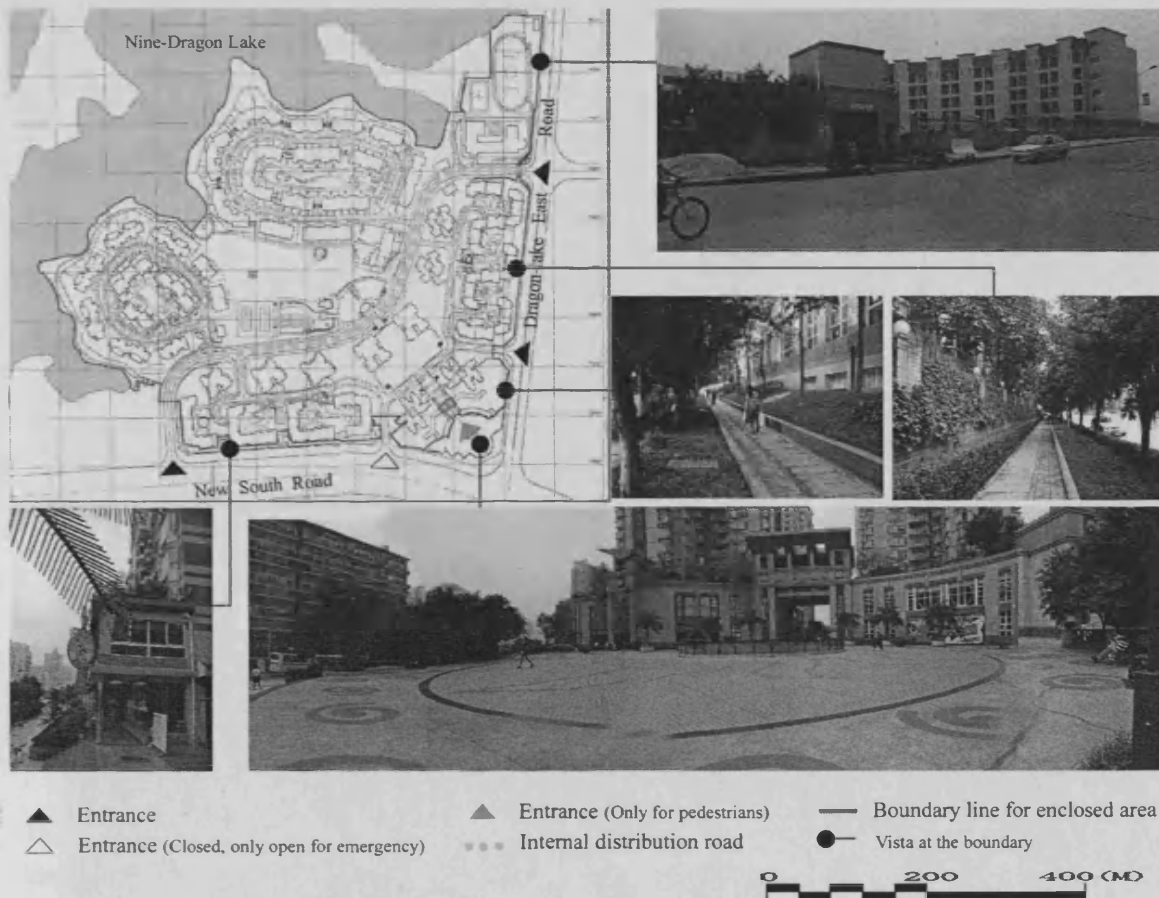


Crystal Town is a large-scale mixed-use urban project with residential (high-rise blocks), commercial, retail, office, hotel, recreational development. Therefore, depending heavily on the provision outside, only the green open spaces between buildings and some limited on-site facilities are provided within the enclosures. The major sports facilities are moved out to the Sports Park. The 4-storey complex near the main entrance of the Sports Park is not only used for community centre, but for many other commercial activities, all open for the local public.

5.2.6 Synthesis: common features and key differences

Two changing trends in the physical features of Dragon Lake Garden can be easily traced from the 'Regulatory Plan' (see Figure 4), with respect to the layout of streets and blocks, and the land-use arrangement. One is that extending from east to west, the Dragon Lake Garden urban neighbourhood becomes finer-grained in the street and block layout with improved accessibility. The other trend is that the successive developments gradually strengthen a mixed-use arrangement for this urban neighbourhood. These changes are subtly embodied in the physical variables of each gated community with the three key

Figure 5.5 Enclosure size and boundaries of South Garden



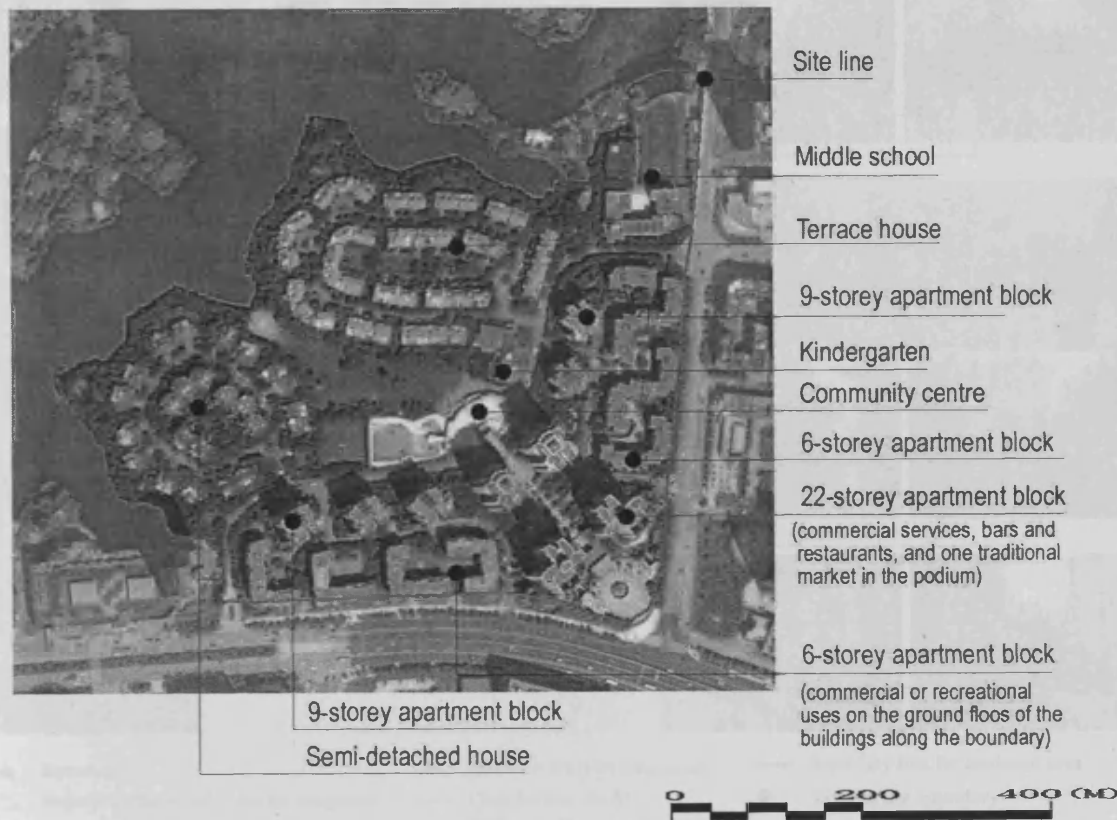
Enclosure size and accessibility

South Garden is located in a 15-hectare enclosed area naturally defined by two urban roads to the south and east, and Nine-Dragon Lake to the north and west. While no public access is allowed into this area, there are five entrances for the member-residents: two from New South Road (one is closed and only for emergency), two from Dragon-lake East Road, and one only for pedestrians on the entrance square at the bottom right corner.

Boundaries

South Garden encounters the local public spaces along Dragon-lake East Road and New South Road. The boundary at Dragon-lake East Road is all rail fences in general, but presents varied features in detail. This will be analysed at length in the next chapter. The five-storey mixed use buildings facing outside act as the boundary along New South Road. While the apartments on the upper floors are accessed only by member-residents from inside, the ground floors are leased for commercial and recreational uses and accessed directly by the local public outside from the pavement. Similarly, there are two tower-on-podium buildings circling the entrance square of South Garden. Towers are for residential apartments and only accessed from inside. The podiums accommodate a wide range of facilities and uses like medical centre, market, restaurants and tearooms, fitness club, etc., which are open for the local public.

Figure 5.6 Land-use arrangement of South Garden: internalised vs. public shared facilities



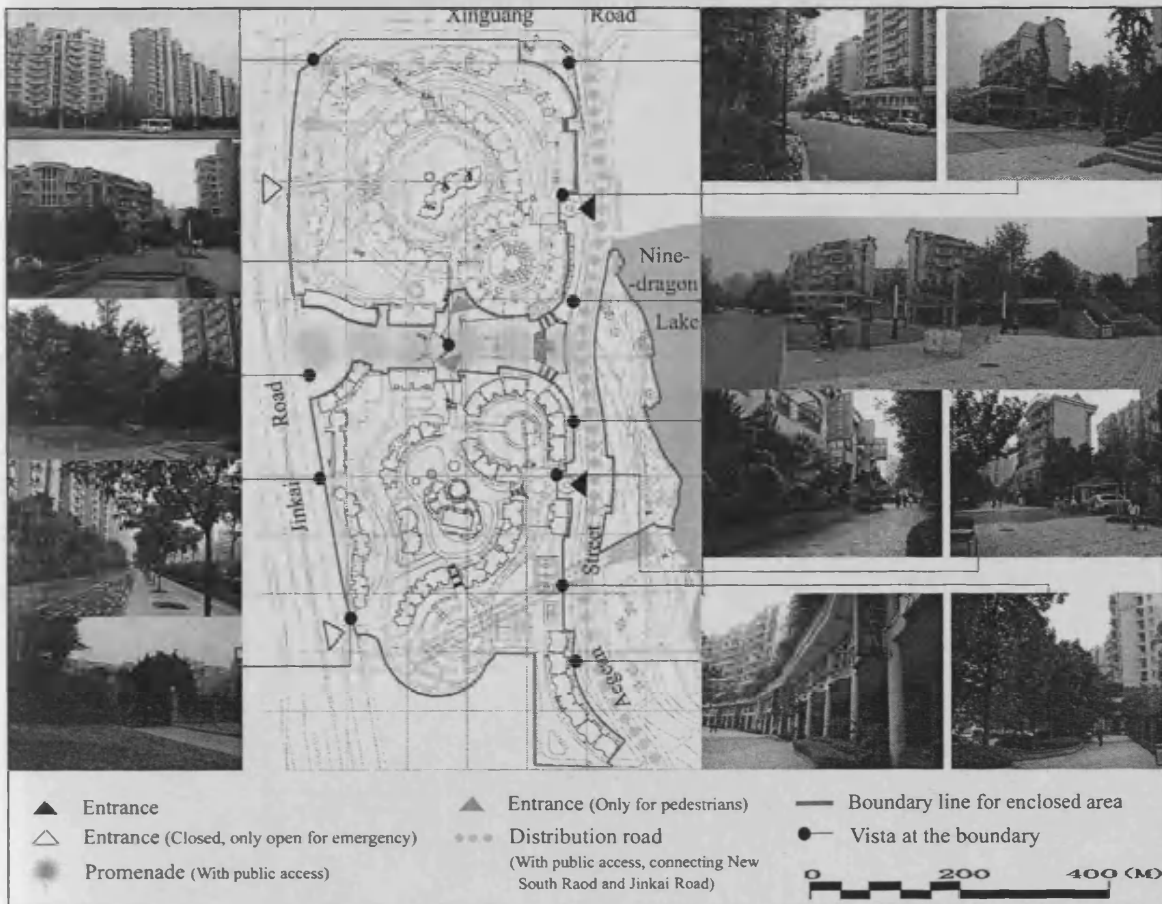
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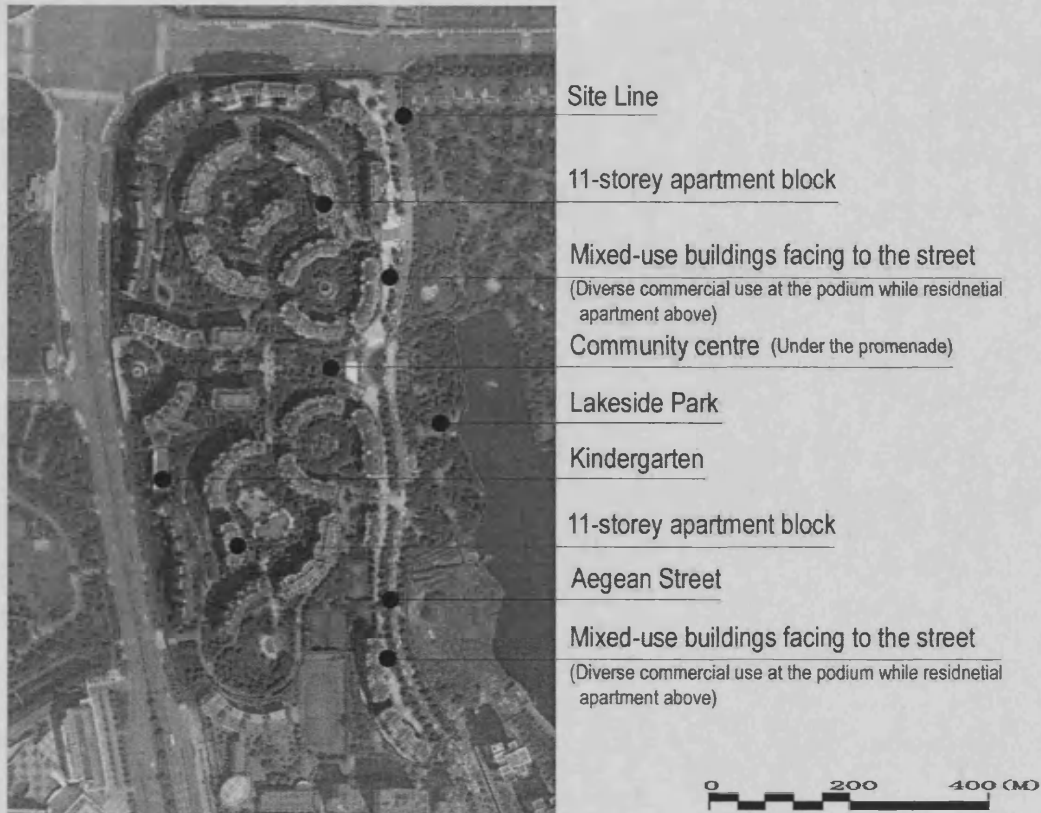
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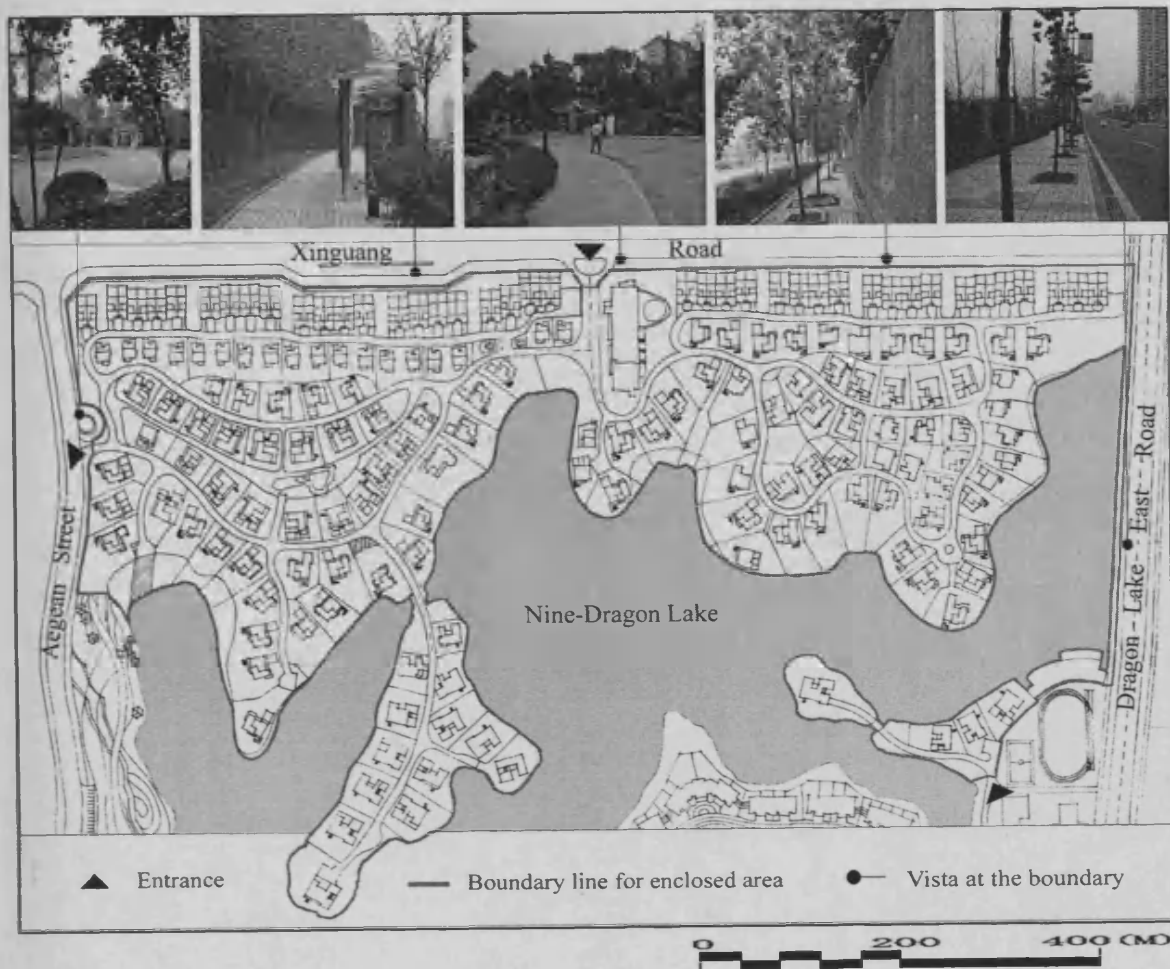


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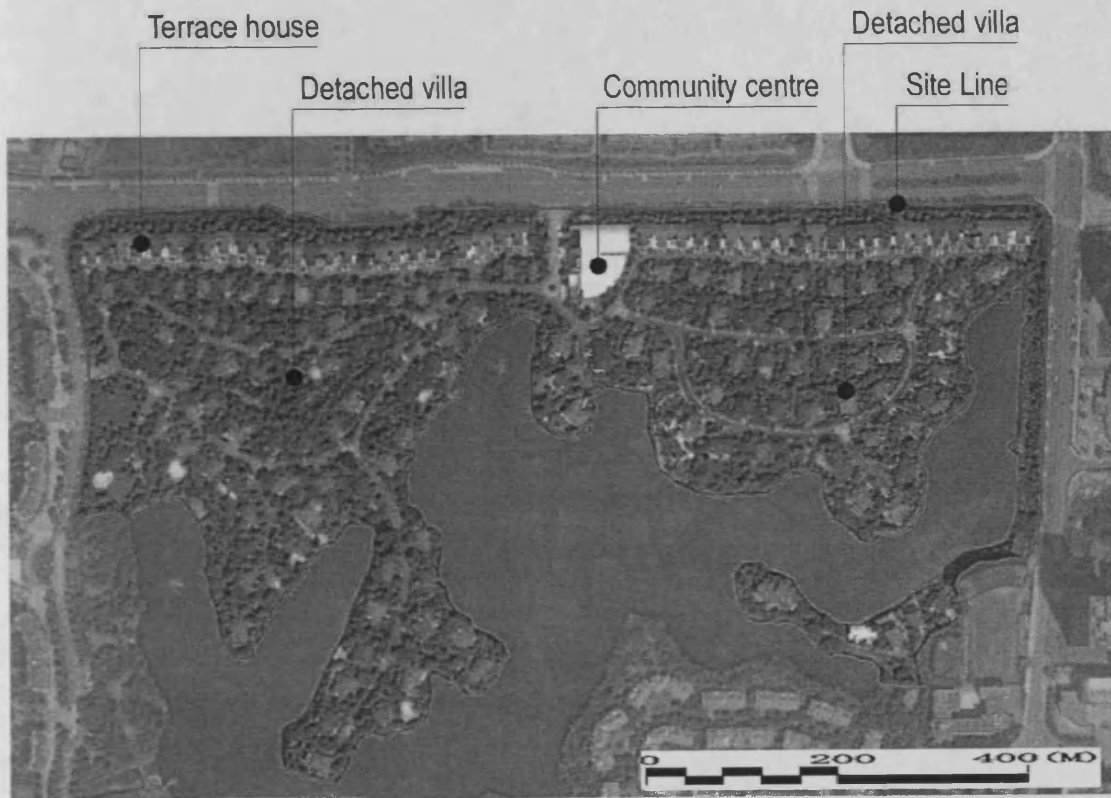
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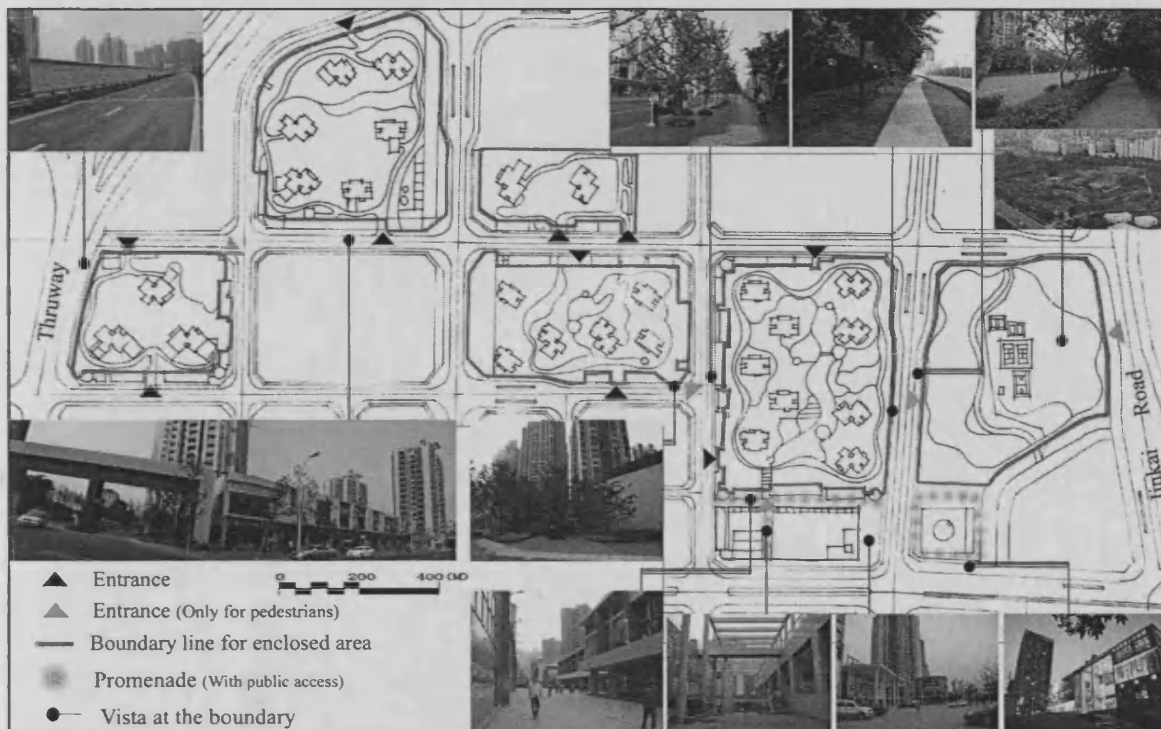
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Figure 5.11 Enclosure size and boundaries of Crystal Town



Enclosure size and accessibility

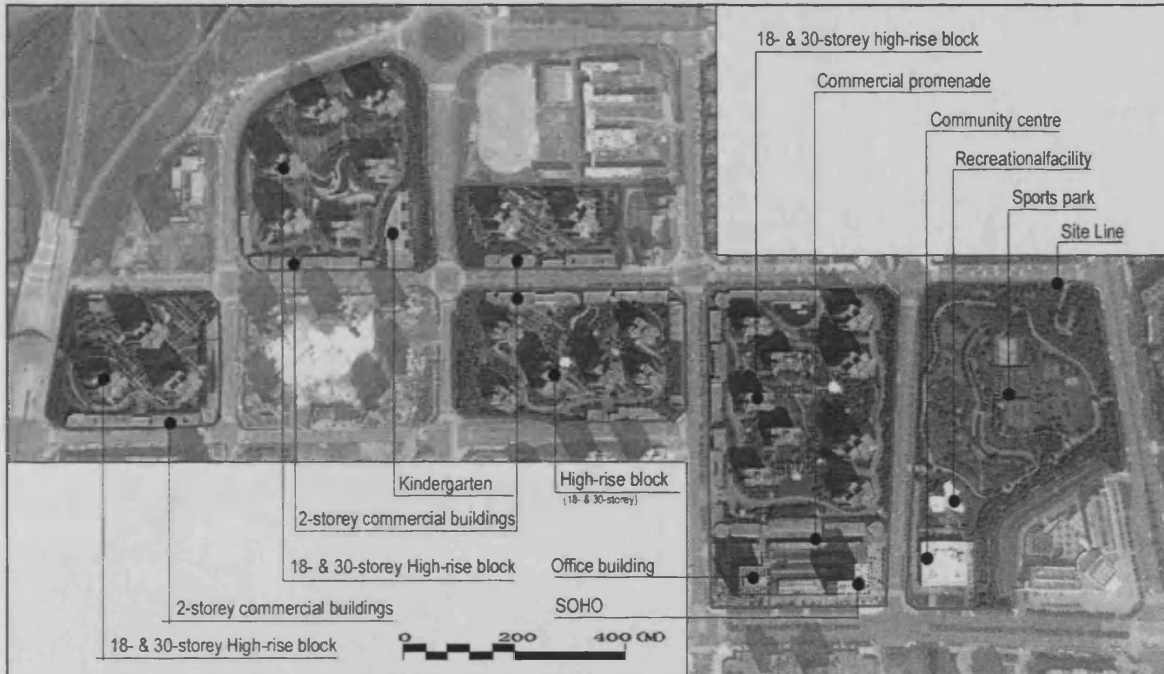
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Figure 5.12 Land-use arrangement of Crystal Town: internalised vs. public shared facilities



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5.2.6 Synthesis: common features and key differences

Two changing trends in the physical features of Dragon Lake Garden can be easily traced from the 'Regulatory Plan' (see Figure 4), with respect to the layout of streets and blocks, and the land-use arrangement. One is that extending from east to west, the Dragon Lake Garden urban neighbourhood becomes finer-grained in the street and block layout with improved accessibility. The other trend is that the successive developments gradually strengthen a mixed-use arrangement for this urban neighbourhood. These changes are subtly embodied in the physical variables of each gated community with the three key

aspects (i.e. the enclosure size, the composition of boundaries), and the shared provisions in the adjoining public spaces.

Enclosure size and accessibility

Among the four Gardens, Fragrant Camphor Wood is the most inaccessible development due to the largest enclosed site area with the least number of entrances. South Garden has better accessibility for the member residents, but little is improved in terms of public access. The Nine-Dragon Lake is entirely enclosed by South Garden and Fragrant Camphor Wood, and therefore turned into a private asset accessible only to the member-residents. Consequently, the whole site area of around 60 hectares cannot be accessed by the local public. However, the permeability of the site areas in the subsequent two developments has been improved considerably. The significant change firstly took place in West Garden with its enclosure size being greatly reduced, while in Crystal Town, most enclosures are further smaller and framed by the municipal roads.

Composition of Boundaries

In both South Garden and West Garden, mixed-use buildings (commercial and recreational uses on ground floors with residential above) have been used to compose nearly half of the boundaries, generating various activities in the immediate public spaces on the boundaries. The other half of the boundaries are mostly fences facing the well maintained sidewalks. Only one segment of sidewalk along Dragon-Lake East Road is poorly provided and managed (see Figure 5.5). The boundary of Fragrant Camphor Wood has the least connection with, and the least positive response to the neighbouring public spaces with respect to both visual and functional factors. In the development of Crystal Town, the strategic use of 2- to 3-storey commercial buildings set as the boundaries of enclosures is remarkable. It cultivates a sense of urbanism with diverse uses including retail, commercial, recreational, office, hotel facilities arranged in the boundaries around the enclaves. Therefore, the borders of Crystal Town are the most responsive to the surrounding streets and supportive for the local communities.

Internalised vs. public shared supporting facilities

While South Garden is the most self-contained development with many provisions internalised for private use only, the provision patterns in the other three Gardens are quite similar, relying heavily on the public supporting facilities outside their enclaves. However, the idea of developing a provision pattern strategically for the whole neighbourhood rather than for a single gated community is only implemented in Crystal Town, although it seems to be inspired by the success and prosperity of Aegean Street in West Garden. In addition, the shared facilities are actually focusing on the profitable commercial or recreational uses.

5.3 Varied perception of local public spaces: a statistical analysis of the resident-opinion survey

This section aims to investigate how the physical outcomes of the Dragon Lake Garden urban neighbourhood, especially those of the public spaces in this area, are perceived by the residents in the Dragon Lake Garden developments.

5.3.1 A resident-opinion survey on the living quality of the Dragon Lake Garden urban neighbourhood

A resident-opinion survey was conducted in 2006 in South Garden, West Garden, Fragrant Camphor Wood, and Crystal Town, to investigate residents' opinions on the quality of their properties (Table 5.2).

Table 5.2 Resident-opinion survey made by Longhu: timetable and sample rate

Action Duration	Target Gardens for Investigation	Quantity of Sample	Dwelling Units	Sample Rate (%)
15 ~ 21, May	South Garden	122	1667	7.3
22 ~ 28, May	West Garden	131	1683	7.8
29 ~ 04, June	Fragrant Camphor Wood	20	250	8
12 ~ 18, June	Crystal Town	56	1047 ¹	5.3 ²

Notes:

- 1 Crystal Town is the latest development of the four gated communities. Only the biggest enclosure, which is the earliest in all developments of Crystal Town, was included in this survey. So, this covers the dwelling units of the biggest enclosure only.
- 2 The lowest sample rate in this investigation is because of the lowest occupancy rate. Although all the properties had been sold, the occupancy rate of Crystal Town was the lowest in the four gated communities as many residents were moving in.

The residents' opinions were expressed by discussing a wide range of conditions they are satisfied or dissatisfied with, and the ways they can be improved. The opinions relating to the local public spaces are extracted to examine the perceived impact of the design characteristics of gated communities. Dealing with the various responses from the survey, a statistical (distribution) analysis is first applied to the two aspects: the extent to which residents of each gated community care about the neighbouring public spaces, and their major concerns about these places. The analysis describes the variation between the four gated communities in each aspect, and is followed by a general speculation about the possible explanation with respect to the perceived merits and problems of local public spaces and, more importantly, their relationship with the physical design characteristics of the four gated communities.

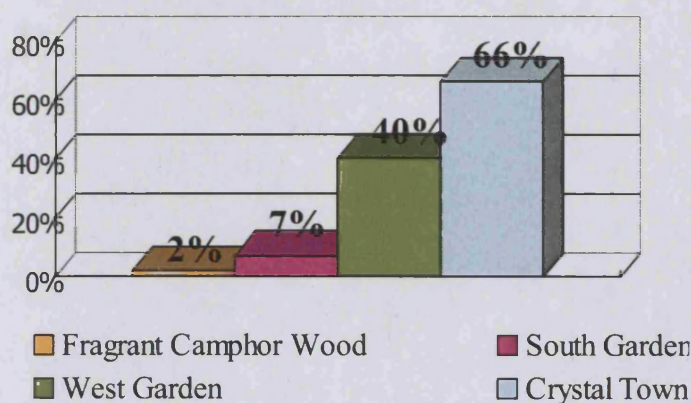
5.3.2 Disparity in the perception for local public spaces

Which gated community cares more about local public spaces?

The proportion of the people who expressed their concerns about the neighbouring public spaces in their response varies greatly among four gated communities (Figure 5.13). Figure 5.13 reveals that the expressed interest for local public spaces is lowest in Fragrant Camphor Wood, slightly higher in South Garden, greatly increased in West Garden and highest in Crystal Town. Meanwhile, the physical features of these four gated communities in the former analysis show a similar increase in their response to the local public spaces, by way of the reducing enclosure size, vitalising boundaries, and improving amenities and facilities in the adjoining public spaces. People care about the

places they are using. Therefore, the evidence above implies therefore that the interaction between the residents in gated communities and the local public spaces is closely related to the design characteristics of gated community, and can be effectively manipulated in the three presumed key aspects: enclosure size, boundary effect and shared amenity and facilities.

Figure 5.13 Proportion of the people who expressed their concerns about the neighbouring public spaces in their response



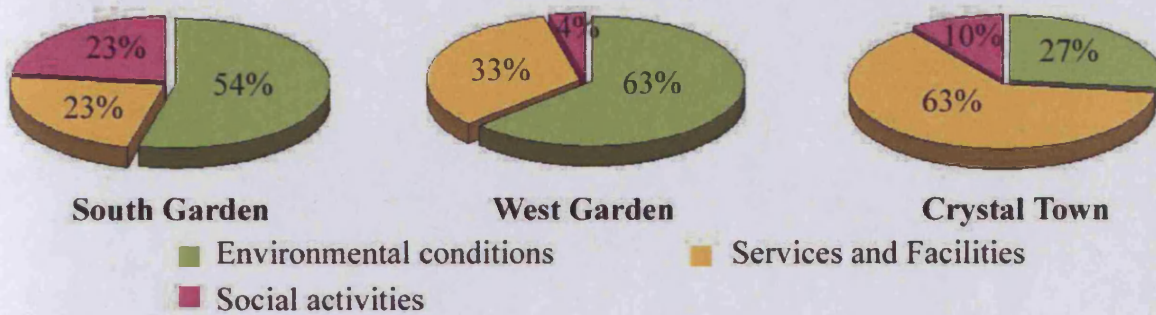
Only 2 per cent of interviewees in Fragrant Camphor Wood mentioned the conditions outside its boundaries, and their opinions were actually made about the Lakeside Park which is still a private asset of Longhu and only open to its member-residents. The rate increases to 16 per cent in the response from South Garden. There is a remarkably higher level of interest on the neighbouring public spaces among the residents of West Garden, with 40 per cent mentioning the immediate public streets, parks and squares in their interview. And the level of concern for the local public spaces reaches highest (66 per cent) among the residents of Crystal Town.

What aspects of the local public spaces are cared about and satisfying / dissatisfying?

The information above shows that among the four gated communities, the Fragrant Camphor Wood residents made no comments on the local public space. This suggests that local public space is perhaps not very important in their everyday life. Developed with luxury villas, Fragrant Camphor Wood is basically a suburban housing development. The residents choosing this style of housing expect mostly high-standard environmental conditions provided within the development rather than the public facilities at the edge of the gated development. Being most affluent and mobile, its residents can access

supporting provisions over a much wider area and therefore are not necessarily reliant on, or care about, those provided in the immediate public spaces. In addition, compared to the other three developments, Fragrant Camphor Wood has the most defensive and inward-looking layout, with the largest enclosed area with finest landscaping. In this case, the conditions of the public spaces outside have little impact on the superb environmental quality. So, analysis of Fragrant Camphor Wood's resident-opinion has been removed from the following detailed analysis about residents' opinions on the public spaces. The various responses from South Garden, West Garden and Crystal Town can be categorised into three aspects, namely environmental conditions, services and facilities, and social activities (Figure 5.14).

Figure 5.14 Dissatisfaction with the public spaces



Environmental conditions

This figure shows that 63 per cent of the respondents in West Garden dissatisfied, against 54 per cent in South Garden and 27 per cent in Crystal Town. Moreover, environmental conditions such as the air and sound pollution or landscaping are the issues of most concern in both South Garden and West Garden.

Social activities

Residents are most satisfied with the social activities in West Garden with only 4 per cent of residents regarding them as needing to be improved. The rate increases a little in Crystal Town at 10 per cent. South Garden reaches the highest at 23 per cent. However, in all of the three Gardens, social activities are the aspect that residents are most satisfied with.

Services and facilities

Compared to South Garden (23 per cent) and West Garden (33 per cent), Crystal Town has the most (63 per cent) residents who want an improvement in the aspect of services and facilities, and this is also the most important dissatisfaction with Crystal Town.

There are three striking phenomena that can be identified in the pie charts. First, the description coming under the heading 'service and facilities' reflects that while West Garden expressed more dissatisfaction with conditions than South Garden, Crystal Town is the most dissatisfied with the rate almost double that in West Garden. This is possibly because South Garden is designed to be a mostly self-contained development, while West Garden and Crystal Town have reduced the internal provisions and are heavily reliant on the local provisions outside. Especially in Crystal Town, the smaller enclosure size, the widely applied arrangement of two-storey commercial boundary buildings, and the least internal provisions reflect the fact that the developer purposefully manipulated the spatial layout and land use to foster a shared provision pattern which serves both Crystal Town and wider urban area. If people rely more on the facilities, they will be more concerned about them.

The other two notable things both emerge from West Garden: it is the community not only where most residents call for improvement in environmental conditions, but also where they are most satisfied with the social activities. The explanation perhaps still rests with the spatial composition. Located in a long and narrow plot framed by two arterial urban roads and one local distributor street, the site area of West Garden is divided into two modest enclosures by a publicly accessed landscape promenade. Moreover, as is stated above, no railings but natural setting are used for the boundary between West Garden and the promenade running through in the middle. Therefore, compared with the inaccessible South Garden with the double size enclosure and Crystal Town where the 2-storey boundary buildings separate clearly the public streets and the private space, West Garden has the most contact with the neighbouring public spaces. Therefore the environmental conditions in the public spaces would be most easily perceived by West Garden. In this regard, it is not surprising that its residents require most strongly for a good management. However, it is perhaps also the close spatial integration with the neighbouring public spaces that facilitates various encounters and satisfying social activities for the residents of West Garden.

In sum, the analysis above suggests the close relationship between physical features of gated communities and the perceived quality of local public spaces. It also suggests that a modest enclosure size, a well-designed boundary and a publicly shared provision of amenity and facilities can effectively enable the gated community to be better integrated and interact more closely with the local public spaces in both social and environmental terms.

5.4 Underlying relationship between physical features of gated communities and perceived quality of local public spaces: an in-depth analysis of the resident-opinion survey

The analysis above presents an overall view of the varied local perceptions of the public spaces in the Dragon Lake Garden urban neighbourhood, regarding their significance in terms of environmental conditions, services and facilities, and social activities. The result suggests close relationship between the perceptions of residents and the physical characters of gated communities. It also affirms the hypothesis about three key design characteristics in general: the gated community tends to be more interactive and more integrated with the surrounding public spaces if it has a smaller-size enclosure, more dynamic boundaries and less internalised facilities. But how do the detailed opinions for the public spaces vary with the specific physical features of gated communities? Is the hypothesis still affirmed by the residents' opinions on the specific settings? The three major aspects include a number of sub-items (such as air, greenery and natural landscape for environmental conditions, post office, public transport and community hospital for services and facilities, and venues, involved groups and organizers for social activities). What specifically are the residents' greatest satisfactions / dissatisfactions in regard to the quality of neighbouring public spaces? Therefore, the detailed opinions within the survey need an in-depth analysis to answer the questions above.

5.4.1 Environmental conditions of the local public spaces

South Garden

Figure 5.15 shows that most of the opinions from South Garden are focusing on two points: the pollution in Nine-Dragon Lake, and the disturbance perceived by the residents in the mixed-use boundary buildings along New South Road. Figure 5.16 illustrates their locations.

Figure 5.15 Detailed concerns from South Garden for the environmental conditions

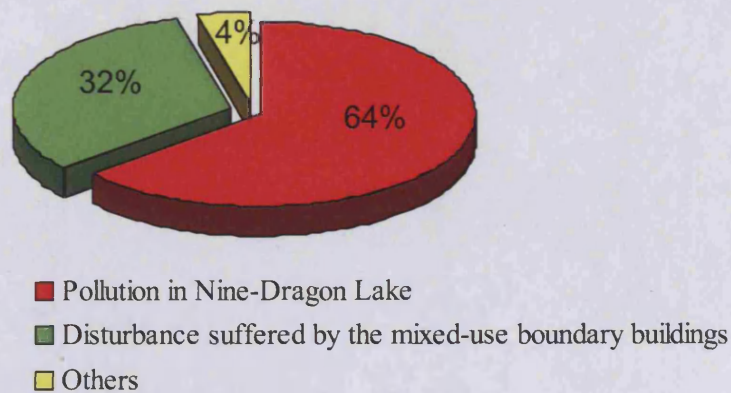
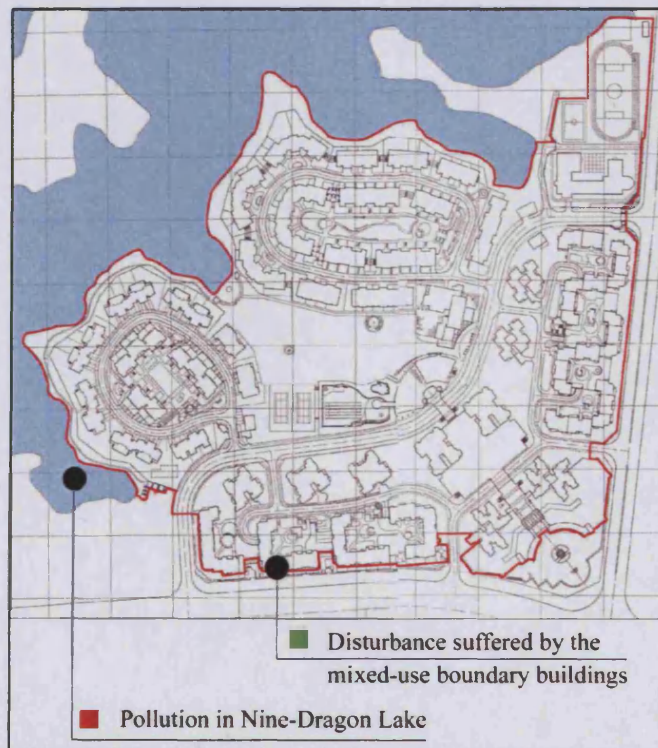


Figure 5.16 Major issues in response regarding the environmental quality in the surroundings of South Garden



As regards the pollution in Nine-Dragon Lake, although the development sites of South Garden and Fragrant Camphor Wood occupy most of the lakeshore area of Nine-Dragon Lake, some commercial developments located at the south-west corner of the lake have become the source of pollution (see Figure 5.16). Although maintained by Longhu, this lake remains a public asset and therefore Longhu has no means of interfering with the behaviour of a few other landowners sitting at the lakeside. The noise and air pollution that causes complaints from the residents living in the mixed-use boundary buildings (also see Figure 5.5 & 5.6) mainly comes from the restaurant consumers who park their cars on the sidewalk under the waiters' guidance when the one-lane diagonal parking on the roadway along the curb line is insufficient. The condition is worst during peak times at weekends when the sidewalk is completely parked with cars.

West Garden

While Figure 5.17 shows the detailed issues as regards environmental conditions which residents would like to see improved, Figure 5.18 illustrates their locations. Three meaningful findings might be concluded from the analysis.

Figure 5.17 Detailed concerns from West Garden for the environmental conditions

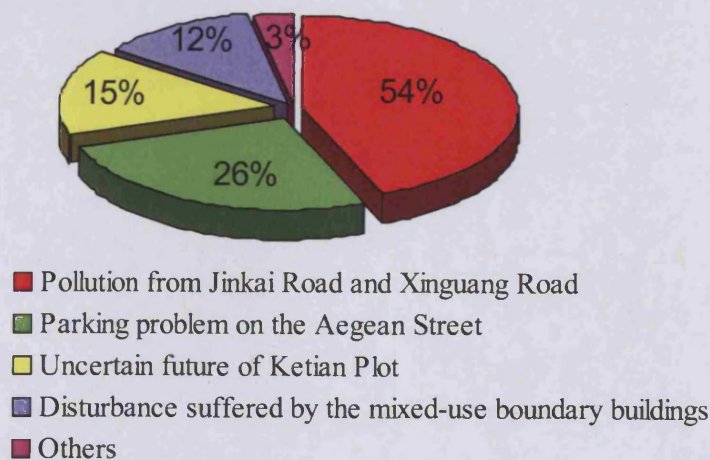


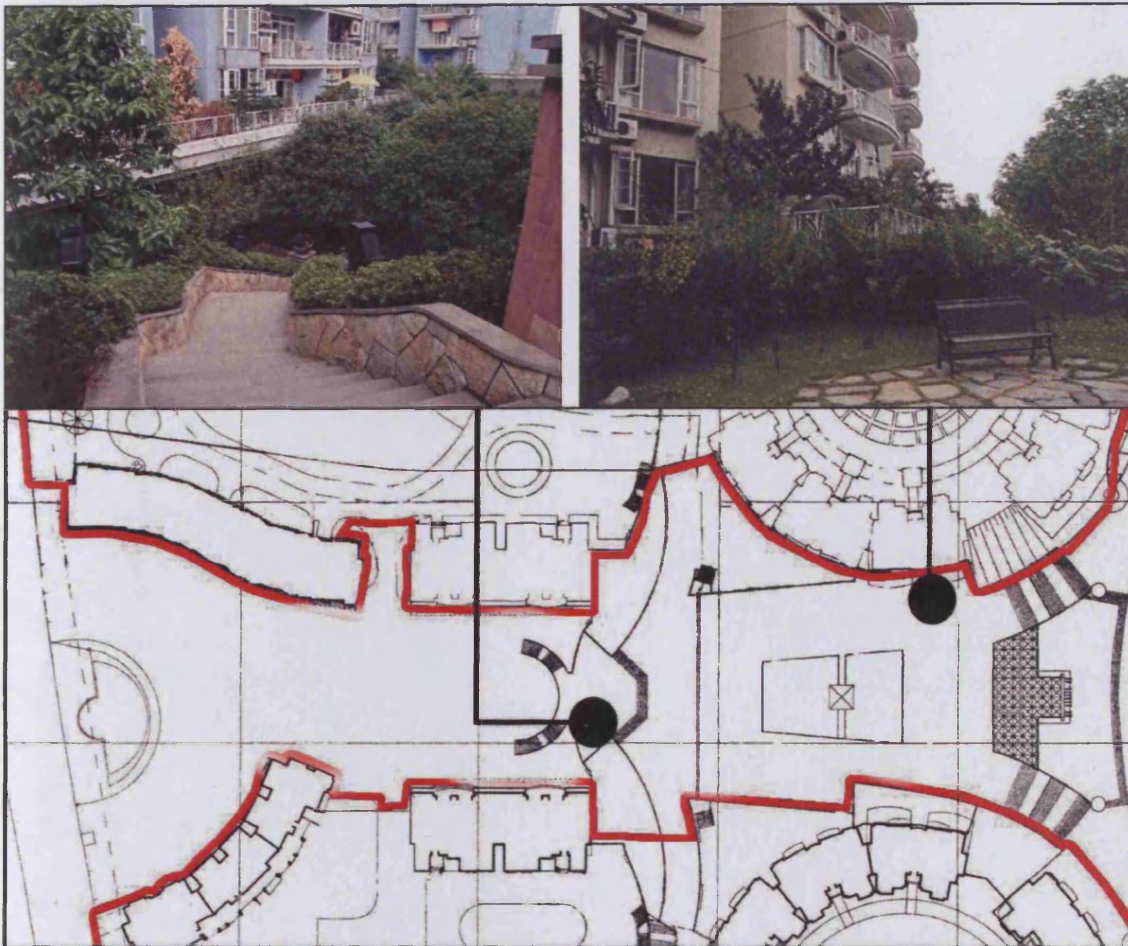
Figure 5.18 Major issues in response regarding the environmental quality in the surroundings of West Garden



Firstly, quality public space is a prerequisite of cultivating an intimate spatial relationship between gated communities and the adjoining public spaces. As no dissatisfaction is mentioned, it appears that the publicly accessed landscape promenade does not disturb the residents at all, although it cuts through the middle of the site area of West Garden, and is practically segregated from the enclosures on both sides only by the inconspicuous ‘soft’ boundaries, the natural hedge and height difference in topography (Figure 5.19). The greatest dissatisfaction (54 per cent) of environmental conditions is in fact about the sound and air pollution along the two arterial roads (i.e. Xinguang Road and Jinkai Road), along which the conspicuous ‘hard’ boundaries of railings are erected. The boundaries

simply separate the gated community from the neighbouring public spaces, but do not effectively prevent the residents in the enclosure from being affected by the outside environmental conditions. In this case, more defensive landscaping at the boundaries would be demanded to buffer the noise and air pollution.

Figure 5.19 Naturally shaped boundaries between two enclosures and the public accessed promenade in the middle in West Garden



The open space with stairs (left above) and a chair (left right) are public. High quality nature landscape subtly divides the public and private spaces while providing pleasant views in and out, and good public spaces.

Secondly, although the services and facilities provided by the ground floors of the mixed-use boundary buildings contribute significantly to the vitality of Aegean Street (see Figure 5.7 & 5.8), the dust and noise created by the vehicles of the consumers coming from other urban districts at peak time is a noticeable problem, with 15 per cent respondents complaining about it. In addition, 26 per cent respondents especially

emphasized the parking problem during that time. This shows that when the gated communities are designed to be responsive to the neighbouring public spaces on the boundaries, care needs to be taken to avoid traffic noise, congestion and parking problems in the environmental conditions.

The last issue worthy of attention is that 15 per cent respondents express their worries about the possible deterioration caused by future development on the Ketian plot, which is just opposite to West Garden (see Figure 5.18). Their concerns are focused mainly on the prospect of losing good views of Nine-Dragon Lake and possible disharmony with the environmental quality of Aegean Street. The problem, in fact, lies in the local regulatory plan, in which no fixed vision about the development of this plot is set down. One respondent even suggested that Longhu should buy out that plot 'at any cost' in order to make that its development integrates well into the Dragon Lake Garden urban neighbourhood. It demonstrates the lack of a coherent plan guiding and regulating the developments and their created environmental conditions in this area.

Crystal Town

The residents' dissatisfaction with environmental conditions expressed in Crystal Town are all about the public roads around the enclosures, such as the air pollution caused by the through traffic or new construction activities of housing projects on the opposite side of the roads. The residents of all four Gardens are generally satisfied with the security of the surrounding public spaces.

Synthesis

It can be concluded from the findings above that more contact between gated communities and neighbouring public spaces generated by smaller *enclosure size* (West Garden) and less segregating *boundaries* (between West Garden and landscape promenade) does not necessarily result in a perception of worse environmental conditions. However, a certain subtlety of design is required, which is evidenced by the complaints about the disturbance perceived by the residents living in the mix-use boundary buildings in both South Garden and West Garden. In current urban environmental conditions, the spatial arrangement adopted in Crystal Town (Figure 5.20) - not integrating residential use into the mixed-use boundary buildings - is possibly better, as no such problems are reported by its residents. As many complaints are made about the public spaces, such as the pollution on the arterial roads and in the Nine-Dragon Lake, it exposes an apparent lack of governmental effort in maintaining the environmental qualities of public spaces, such as the sophisticated controls on the noise and air pollution from roads and vacant sites under construction.

Figure 5.20 Mixed-use boundary buildings without disturbance for residential use



Towers for residential use are separated from the 2-storey mixed-use buildings: views from inside (left) and outside (right). It is an effective way to reduce some inevitable disturbance due to the close spatial confrontation in such a high density.

5.4.2 Services and facilities in public spaces

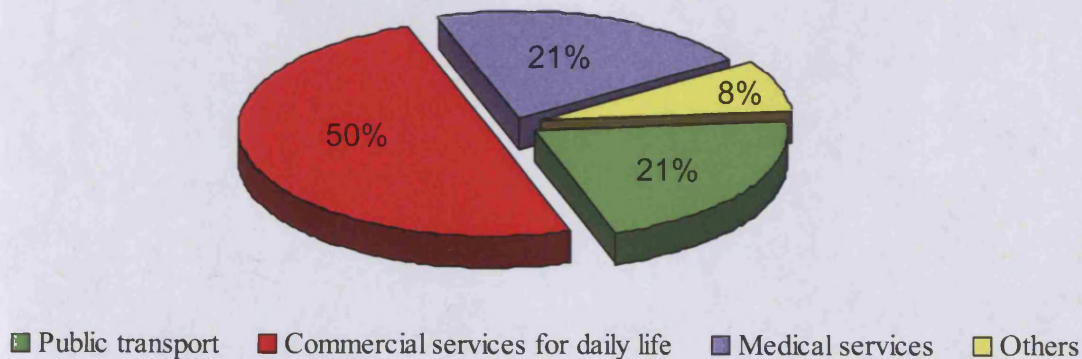
South Garden

Relying mostly on the internal provisions, South Garden residents are generally satisfied with the current conditions although several complaints were made about the limited medical services especially for the elderly, and the limited recreational provision. While the former is by and large a governmental responsibility, the latter is attributed mainly to the self-contained and inward-looking development approach which did not build enough publicly accessible facilities to accommodate the wide range of services to fulfil the local needs.

West Garden

It can be observed from Figure 5.21 that the commercial services for daily life make up the biggest proportion of the dissatisfaction from West Garden residents. The proportion of residents dissatisfied with public transport slightly reduces to 21 per cent, and the same with that of the request for improving the medical services. Other requests, like that for a local branch of the post office, make up 8 per cent. Two findings can be teased from the analysis.

Figure 5.21 Detailed concerns from West Garden for the services and facilities

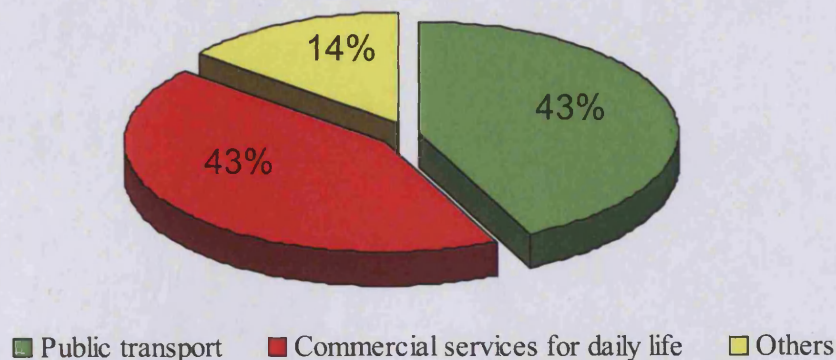


One is the insufficient governmental effort to deliver public transport, medical and other services necessary for an urban neighbourhood, even five years after this project was completed. Compared to South Garden, public provision is more urgently needed in West Garden to support its heavier dependence on the local provision outside the gated development due to the reduced internal facilities. The reasons behind the insufficiency of the public provision in this urban area will be explored in chapter 7.

The other finding is that although the ground floors of the boundary buildings along the prosperous Aegean Street accommodate various retail and recreational uses, commercial services for daily life are still the most dissatisfied provisions in the neighbouring public spaces. There are two possible explanations for this. One is that residents are not satisfied with the supermarket which provides the major daily necessities for West Garden. In fact, they expect to have a traditional market like the one beside South Garden, from which more choice and lower prices are available. The other is that the high rent makes it difficult for the small or low-cost businesses and services to operate. These factors limit the goods and services accommodated in the boundary buildings.

Crystal Town

Reflected in Figure 5.14, Crystal Town residents are the ones who most seek an improvement in the services and facilities in the surrounding streets. The detailed analysis (Figure 5.22) shows that their opinions focus equally on public transport and commercial services for daily life. Other demands including a diverse provision of business and even a stock exchange account for the rest proportion (14 percent). Three sets of findings can be made.

Figure 5.22 Detailed concerns from Crystal Town for the services and facilities

First, as regards the public transport, the requests from the residents vary widely from increasing the number of bus stops and routes, extending operation time, and improving the quality of facilities such as providing an all-weather shelter pavilion at the bus stop. These opinions demonstrate that provision of public transport is quite inadequate although the development site of Crystal Town in local Regulatory Plan is traversed by four urban roads (see Figure 5.11). Its residents certainly care about and have an greater demand for a well established public transport system.

Secondly, concerning the response on commercial services for daily life, when only the landscaping open space and some on-site facilities are internalised into the small enclosures of Crystal Town, most provisions for this *de facto* urban-scale mixed-use development are accommodated in the boundary buildings around the enclosures, the commercial street and the building complex in front of the main entrance of Plot (I) (see Figure 5.3), the Sport Parks and a community centre at the entrance (Figure 5.12). Therefore, residents in the enclosures certainly pay much greater attention to the conditions of these buildings, streets, and parks outside their enclosures. The dissatisfaction reflected is all about the current vacancies of the mixed-use commercial buildings and insufficient provision. This is because, unlike West Garden which is a mature real estate with 100 per cent occupancy rate, many residents as well as various business and facilities were still moving into the development of Crystal Town at the time of survey. The complaints actually demonstrate the disadvantage of this type of urban

form and the accompanied provision model in the short term. Although the infrastructure such as the mixed-use boundary buildings and commercial streets can be built up in a very short time, the qualities of businesses and their activities in them have to be developed gradually over time. However, although needing much more time, the businesses and activities built up in this way can be more robust, socially benign, and economically sustainable than those provided by the developer at the very start but enclosed in gated communities. This way is actually the one to develop a society-based provision and the traditional sense of urban neighbourhood.

Third, compared to South Garden and West Garden, there is a strikingly new request in Crystal Town for the trading facilities like stock market. It implies that aiming at a large-scale urban settlement where people live and work, the developer of Crystal Town needs to consider the possible uses and requirement for a more comprehensive provision. In this regard, plans which outline the development vision of the located urban district as a whole are needed at the very beginning of such a large-scale project, planning a spatial layout which can accommodate increasingly varied functional requirements.

Synthesis

The findings in this section show clearly that living in a community with a smaller enclosure size and less internalised services and facilities, residents would rely more on, and give more regard to the social services and facilities in the surrounding public spaces. The boundary buildings along streets in this regard are important to accommodate these utilities while facilitating various activities. Well defined and animated by the boundary buildings, the streets adjoining the gated communities do not lose the basic qualities and functions of the traditional streets.

However, it can also be observed that apart from the efforts made by the gated community developer, service provision needs greater support from the public sector. Generally, two

kinds of governmental effort are shown to be essential. One is that the necessary public provisions such as public transport, post-office or medical services should be fully considered in the pre-development plan and constructed simultaneously with the housing projects. The other one is that either direct investment or regulating policies should be implemented in the development process to deter the monopoly rent of the facilities provided by the gated community developments, and accordingly prevent gentrification or homogenization of local provisions. For example, planning policies should be made to encourage the low rent storefront for small businesses and traditional markets in a development plan. A diverse local provision which can meet the needs of different income groups is of great significance in cultivating a socially and spatially mixed urban neighbourhood.

5.4.3 Social activities in the local public life

Although South Garden residents show the greatest concern for improving social activities in Figure 5.14, the detailed examination of the feedback, including those in West Garden and Crystal Town, reveals that with little negative opinion expressed overall, almost all respondents are basically satisfied with the current conditions, and their opinions are, in fact, all about how to make it better. So the results from the three Gardens do not show a noticeable difference with respect to the relationship between physical disparities and the perceived condition of social activities.

However, the similar extent of satisfaction in the three Gardens about the social activities and communications in the open space outside of their enclosures indicates that it is possible for gated community to share the open space for social and recreational activities with local communities. It can be observed that the open spaces for community-scale social activities in South Garden are located in the centre of the enclosure and can only be accessed by its members (see Figure 5.6). In West Garden, those spaces are allocated to two areas, with one traversing the development site as a public promenade, and the other

located as a gated lakeshore area separated from the main site by a local street (see Figure 5.8). As regards Crystal Town, it makes full use of the open spaces in a public sports park nearby (see Figure 5.12) to organise various community activities. With no negative opinions being expressed about this sharing, this change seems to be well accepted by the member-residents. It demonstrates that from the residents' perspective, the large enclosed open space is not a necessary market requirement for a gated community. Moreover, although most of the respondents are concerned about the communication between the member-residents of Dragon Lake Garden, a few young householders show an interest in interacting with other local communities by means of various community activities such as sports. From this survey therefore, it is discovered that the public spaces for social activities could and should be shared by different communities, whether gated or not, to help cultivate a well integrated urban neighbourhood. In this regard, controlling the enclosure size can effectively prevent the large open spaces being enclosed in gated communities.

5.5 Summary

This chapter explored firstly the different physical features of the four gated communities in the Dragon Lake Garden urban neighbourhood with respect to their impact on the local public spaces; then dissects the disparity of the perceived quality of these public spaces shown from a survey; and finally analyses the underlying relationship in between. In sum, three sets of conclusions can be made concerning the efficiency, feasibility and prerequisite of manipulating the designable characteristics of gated community in terms of the well-being of the neighbouring public spaces.

Capability of the physical manipulation

The analysis demonstrates that the interaction between the gated community and the surrounding public spaces can be greatly increased by its reduced enclosure size, responsive boundaries, and limited internalised facilities. While small enclosure size has

proved a means of effectively controlling the gated community with respect to the negative impact on the accessibility of local urban area, it also implies a limitation in terms of the internalised facilities of gated community which would in turn generate more boundaries (encounters) between gated community and local public spaces. So, enclosure size is the most important element in physical manipulation without which, the other two are meaningless. The services and facilities accommodated in the mixed-use boundaries help to facilitate a sufficient presence of users and prosperous activities in the immediate local public spaces. The analysis in this chapter shows that the gated communities are in fact being oriented to an increasingly reliance on the provision of the local public services and spaces, and that inevitably, residents have strong concerns over the public spaces around their enclosures as a result.

Feasibility of the physical manipulation

The analysis in this chapter shows that the reduced enclosure size, actively responsive boundaries, and limited internalised facilities, which are all oriented in the interest of the neighbouring public spaces, would not necessarily impair the living qualities of gated community in the perception of the member-residents. So, these physical manipulations are not contradictory to the market requirement, and therefore largely feasible in practice.

Prerequisite of the physical manipulation

Feasible though these changes are, they need subtle urban design and property management, in order to make gated communities more interactive with the surrounding public spaces and free of disturbance. But without a sufficient supervision and support from government, such positive change will hardly be achieved by the management of the gated communities, as they are restricted by their own interest and profit orientation, their inability to negotiate with other landowners nearby, and their limited information about the long term development vision for the urban district. Moreover, the physical manipulations of gated communities in enclosure size, boundaries and shared facilities are aimed essentially at enabling them to closely interact with the neighbouring public spaces. The analysis of the residents' opinions shows that the performance is greatly influenced

by how well this private initiative is echoed / supported by the government with established provision and maintenance in these public spaces. And their major concerns about the governmental insufficiency in the Dragon Lake Garden urban neighbourhood are centring on the environmental conditions, services and facilities such as public transport, commercial facilities for diverse daily needs like locksmith, medical services, and so on. Generally, the requisite governmental support involves not only the direct planning and construction of the infrastructure and services, but also better development control guiding and regulating the design characteristics of gated communities in the enclosure size, boundary effect, and the publicly shared facilities.

CHAPTER SIX

PUBLIC LIFE BETWEEN GATED COMMUNITIES: PHYSICAL OUTCOMES AND USAGE CONDITIONS

6.1 Introduction

By investigating the user's opinions about the public spaces around the four gated communities in Dragon Lake Garden urban neighbourhood, the previous chapter showed that sufficient governmental support and control are a prerequisite for a careful design of gated communities in terms of creating an integrated urban neighbourhood. Focusing on the user's behaviour in those spaces, this chapter will explore further, what governmental support has been and should be made for gated community development in terms of the design dimensions.

The method of direct observation¹ is applied to the public spaces, which are categorised as streets, squares and green parks. The investigation looks at both settings (how the private and public spaces meet and are separated, what conditions and characteristics have resulted from such transitions with respect to the space, furnishings, and the uses provided for the public spaces), and behaviours (what usage condition and social activities within these public spaces have resulted). In each category, the topic-by-topic review is followed by a synthesis at the end, referring to the universally acknowledged criteria or principles in the urban design literature. The analysis centres on the socio-spatial interaction between private and public spaces on the one hand. On the other

¹ The details are explained in Chapter 4.

hand, the concern is about how this interaction has been influenced by the design features of the neighbouring gated communities.

Integrating all three elements in the conclusions, this chapter presents a holistic evaluation of the real nature of the interrelationship between the gated communities and the neighbouring public spaces within the Dragon Lake Garden urban neighbourhood, and the specific role of the key design features, namely, enclosure size, boundary effect, and shared facilities. Moreover, the problems for both the private and public sectors in dealing with the design issues of gated community are discovered during this evaluation.

6.2 Public streets around gated communities

Eight publicly accessed streets in the Dragon Lake Garden urban neighbourhood were studied (Figure 6.1). Their location, hierarchical position in the urban traffic network, and width (roadway and sidewalk respectively) are listed in the table above the picture. Apart from Crystal Commercial Street which is restricted to pedestrian use only, the other seven are all used by both vehicles and pedestrians. As this research aims to investigate the impact of the gated community, the observation for the streets that are not located between the four gated communities of Dragon Lake Garden will focus only on the sidewalks adjoining the gated communities. In the following sections, I will analyse the detailed physical features and the use condition of each street.

Figure 6.1 Eight public accessed streets in the Dragon Lake Garden urban neighbourhood

No.	Name	Location	Hierarchical Type	Width (m)	
				Roadway	Sideway (each)
1	New South Road	on the south of South Garden	Arterial corridor	34	10
2	Dragon-lake East Road	on the east of South Garden and Fragrant Camphor Wood	Local distributor	26	5
3	Xin'guang Road	on the north side of Fragrant Camphor Wood	Local distributor	16	8
4	Aegean Street	between West Garden and Fragrant Camphor Wood	Neighbourhood Street	12	5
5	Jinkai Road	between West Garden and Sports Park	Arterial corridor	48	13.5
6	Sports-park Road	between Sports Park and Crystal Town Group I	Local distributor	16	8
7	Jincheng Road	between enclosures of Crystal Town Group II	Local distributor	16	5
8	Crystal Commercial Street	between Crystal Town Group I and Commercial Complex	Pedestrian Street	16	



6.2.1 Sidewalk of New South Road along South Garden

New South Road is an arterial corridor to the south side of South Garden which has two entrances¹ giving access to it. The sidewalk space between the two entries is accordingly the transitional sphere between public realm of New South Road and private domain of South Garden (see Figure 5.5). Figure 6.2 and 6.3 show the physical arrangement of the spatial transition between public sidewalk and private South Garden.

Figure 6.2 Mixed-use buildings facing to the sidewalk along New South Road



The settings in this picture have lots of positive design features:

Landscape verge to buffer sound and noise on the road;

Wide and well-landscaped sidewalk;

Raised and set back apartments to ensure privacy not being disturbed by the activities on the sidewalks;

Active frontages with colonnade to facilitate diverse uses;

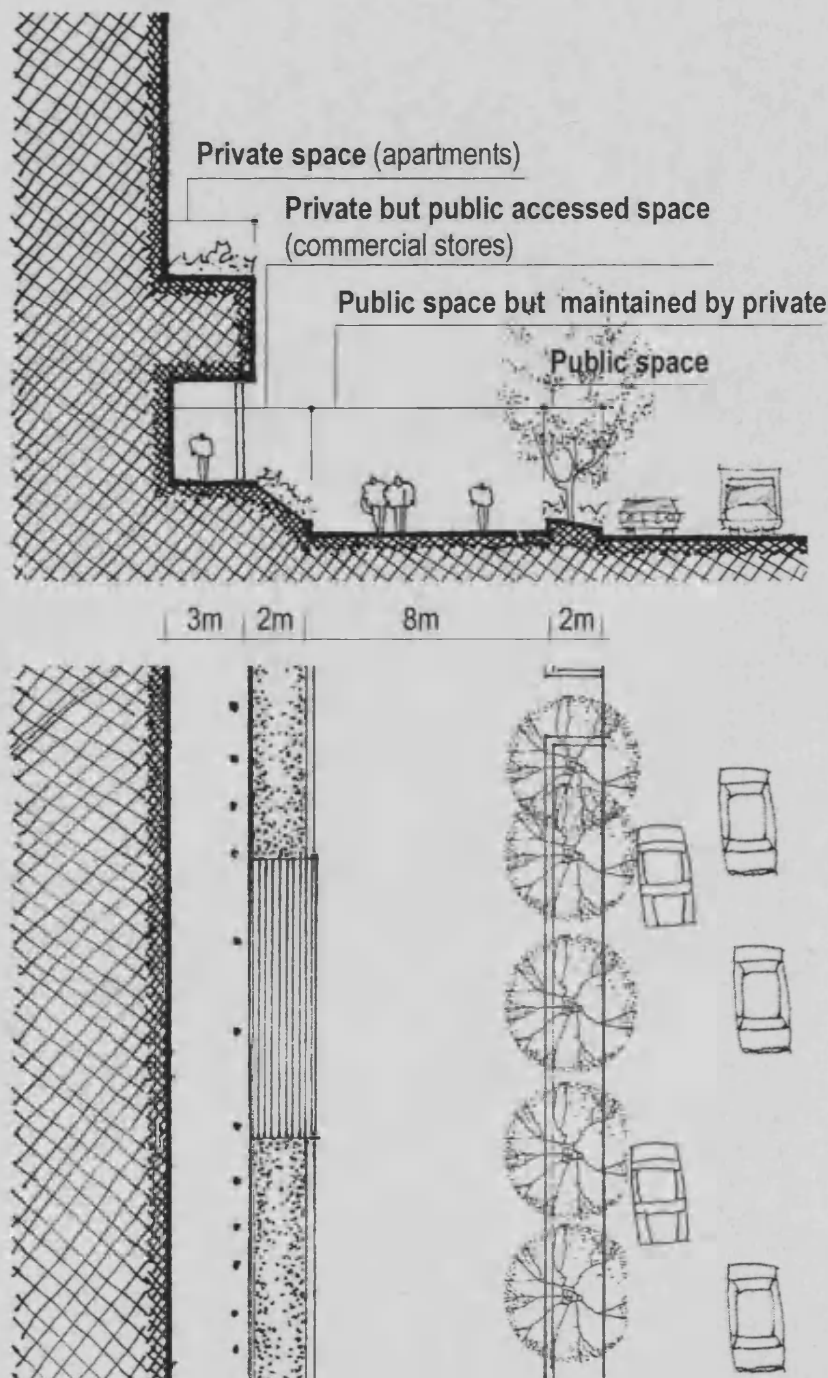
Good surveillance.

While the planting beds of trees and shrubs along the curb line demarcate as well as shelter the roadway from the sidewalk, the 6-storey mixed use buildings define the other side of this sidewalk space and effectively separate it from the internal part of South Garden. The transition between South Garden and the sidewalk here is shown to be smooth and subtly managed by Longhu, by virtue of the sloping landscaped parterre in front of the boundary building, and the building itself. The ground floors for commercial uses are accessed directly from the sidewalk, creating a sense of openness through the

¹ Only one is regularly opened while the other is closed and just for emergency use.

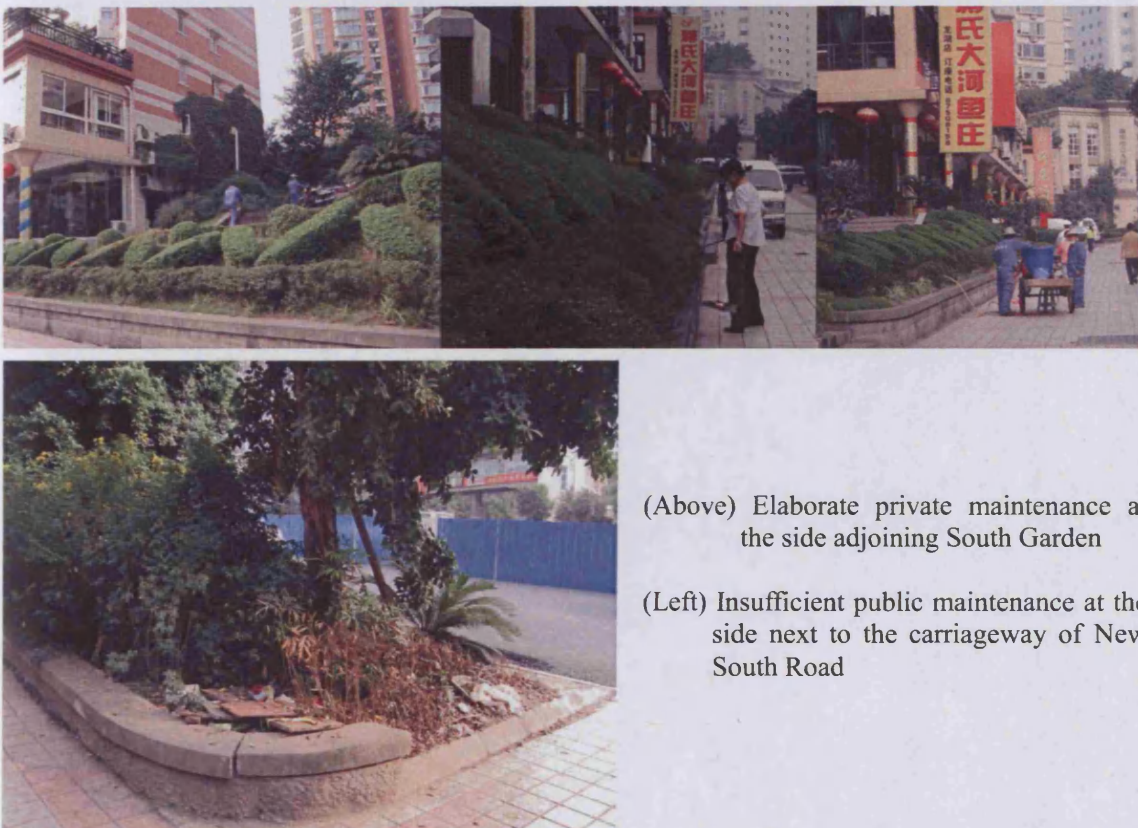
portico frontage. But the shops are not allowed to open doors at the walls next to the gated community. The stairs to the apartments above are put at the internal side of the buildings and can only be accessed from within South Garden. In this way, the public-private division can be maintained. Figure 6.3 illustrates the transition in management at the boundary space that is generally applied to all the sidewalks of the following streets.

Figure 6.3 Sidewalk of New South Road along South Garden



The sidewalk is normally perceived as an integrated public space although the parterre and the boundary buildings are actually private assets and maintained by Longhu. However, the difference between public-private management in this space can still be traced by close observation. Compared with the parterre and the attached steps and sitting places which are well-tended regularly by the gardeners and cleaners dressed in Longhu's uniform, the planting beds which should be maintained by local authority obviously have not been maintained for some time and contain some litter (Figure 6.4). The maintenance of the paving, which is a governmental responsibility in principle, is also done by the cleaners of Longhu.

Figure 6.4 Juxtaposed and contrasted private and public maintenance



(Above) Elaborate private maintenance at the side adjoining South Garden

(Left) Insufficient public maintenance at the side next to the carriageway of New South Road

Basically, this sidewalk and its immediate frontage function actively through day and night. First, the trees and shrubs in the planting bed largely keep out the noise and air pollution from the chaotic New South Road, and the sidewalk provides an environmentally good niche for the passersby (Figure 6.5).

Figure 6.5 Well-defined and pleasing sidewalks for passers-by

Second, various street vendors set up their business on the sidewalk, especially near the entrance (Figure 6.6). On the one hand, these mobile business activities compromise the environmental quality due to their encroachment on the walking space and the soot generated by some pie wagons (Figure 6.7).

Figure 6.6 Various peddlers on the sidewalks**Figure 6.7 Disturbance to the walking space**

So they are officially prohibited by local authority in principle. On the other hand, they provide some convenient and cheap services for local people including those living inside South Garden. The security guards or maintenance workers of South Garden, who have a duty to keep an eye on the wellbeing of the sidewalks adjoining South Garden, usually do not drive these businesses away or report them to the local authorities as long as the pedestrians are not impeded.

Last but not the least, various restaurants are accommodated on the ground floors of the boundary buildings and they attract crowds of consumers to this sidewalk at lunch and dinner time, either going direct to restaurants or strolling at first to make their choice. These consumers, many of whom come from other urban districts rather than the local neighbourhood, make this sidewalk a place of the hustle and bustle from lunch time at noon till very late into the evening. There is a parking problem during the peak time around 7pm everyday, especially at weekends, which is a major disturbance to the walking environment. When the one-lane diagonal parking space on the roadway along the curb line is fully parked, the consumers' cars will pull onto the sidewalk under the waiters' guidance. In the worst case, the sidewalk is occupied completely by the parked cars (Figure 6.8). Because the buildings are set back on the parterre, the residents in the flats above are mostly not affected by the activities on the sidewalk. Nevertheless, the noise and air pollution caused by the cars parking on the sidewalk is an annoyance for them (see the analysis of opinion survey in Chapter 5).

Figure 6.8 Sidewalk deteriorates into a parking space at the busiest time.



6.2.2 Sidewalks of Dragon-lake East Road along South Garden and Fragrant Camphor Wood

As a local distributor, Dragon-Lake East Road defines the site area of both South Garden and Fragrant Camphor Wood on the east (see Figure 5.5). While South Garden has two entrances, namely, East Wicket and East Gate, Fragrant Camphor Wood has no gateway open onto this road. Generally, this two-way road with four-lane carriageway is much quieter than New South Road with a lower pedestrian and vehicle traffic flow. Although its sidewalk at one side is continuously defined by Dragon Lake Garden development, it is divided into three segments for observation and analysis: the 200-metre long South Garden Segment, the 300-metre long Boarding School Segment, and the 300-metre long Fragrant Camphor Wood Segment, each with a different physical setting.

The South Garden segment

Figure 6.9 Location of South Garden segment

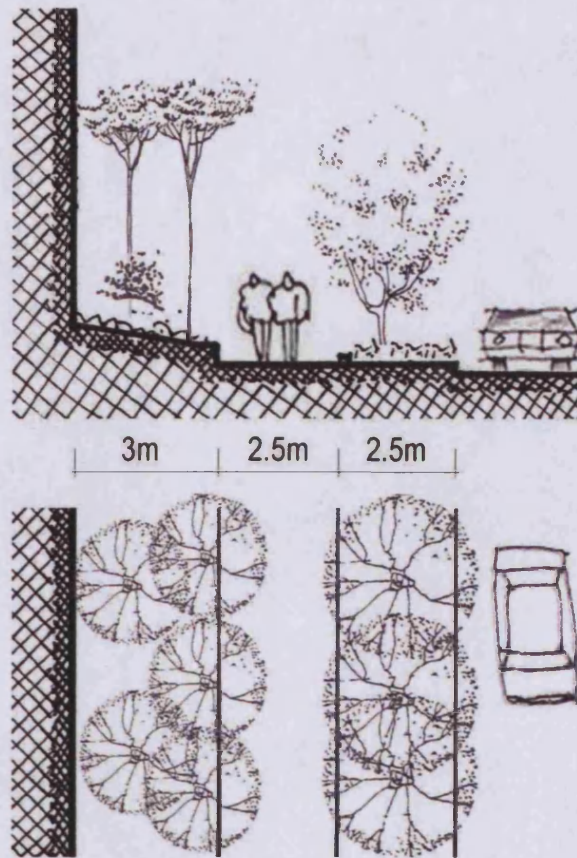


(Source: compiled from google earth photo)

Although this segment (Figure 6.9) has a coherent landscape arrangement on the sidewalk in general, different functions and physical features of the boundary buildings along the two sections divided by East Wicket in the middle (see Figure 5.5) deliver a slightly different experience perceived from the sidewalk. For one section, the podium of the high-rise apartment building, which accommodates a traditional market on the ground floor, directly

confronts the sidewalk with a granite wall and opaque windows. But such confrontation is softened by the planting slope between the wall and sidewalk (Figure 6.10).

Figure 6.10 Sidewalk of Dragon-Lake East Road before the traditional market along the South Garden segment



Other than from the sidewalk, the market is accessed at the bevelled corner facing East Wicket. Like the sidewalk along New South Road, there is a tree line within a planting bed set along the curb line, sheltering this sidewalk from the dust and noise of the carriageway (Figure 6.11).

Figure 6.11 Vista along the South Garden segment of Dragon East Road



The sidewalk has good views and is sheltered from the traffic due to the tree lines and planting beds at both sides.

Serving all the local communities nearby, this market and the small square in front of the gateway is very busy from early morning till nightfall. Various vehicles of the farmers are parked in front of the entrance or on the roadway along the curb line. Because the market does not open directly to the narrow sidewalk, the possible encroachment of parked vehicles on the sidewalk by parking vehicles is effectively prevented by the planting bed. So, the environmental quality of this sidewalk has been well maintained for pedestrians (Figure 6.12).

Figure 6.12 Secure quality of the sidewalk beside busy market



Because the market is not open directly to the narrow sidewalk, and the possible encroachment on the sidewalk by parking vehicles is effectively prevented by the planting bed, the environmental quality of this sidewalk has been kept maintained well for pedestrians.

The orderly condition is also attributable to the supervision and maintenance executed by the security staff at East Wicket, most of who come from rural areas. They appear to be mixing very well with the farmers and dealers, greeting and chatting with them (Figure 6.13).

Figure 6.13 Security guards at East Wicket maintain order.

Notwithstanding the generally good order and environmental quality, the narrow linear space of this sidewalk is not functionally supportive of social activities due to the lack of sitting space. For many Chinese people, especially the elderly, a shopping trip to the market in the morning is an all-purpose routine: taking exercise first, then shopping for the daily needs, and meeting and chatting with friends all along the way. Therefore, the space around the market is actually an important socialising place for them, and some comfortable seating facilities are required to accommodate a prolonged stay. This need is strikingly evident when observing the entry plaza of a supermarket near the main gate of South Garden on the New South Road where some sheltered seats are provided (Figure 6.14).

Figure 6.14 Need of sitting space in front of local market

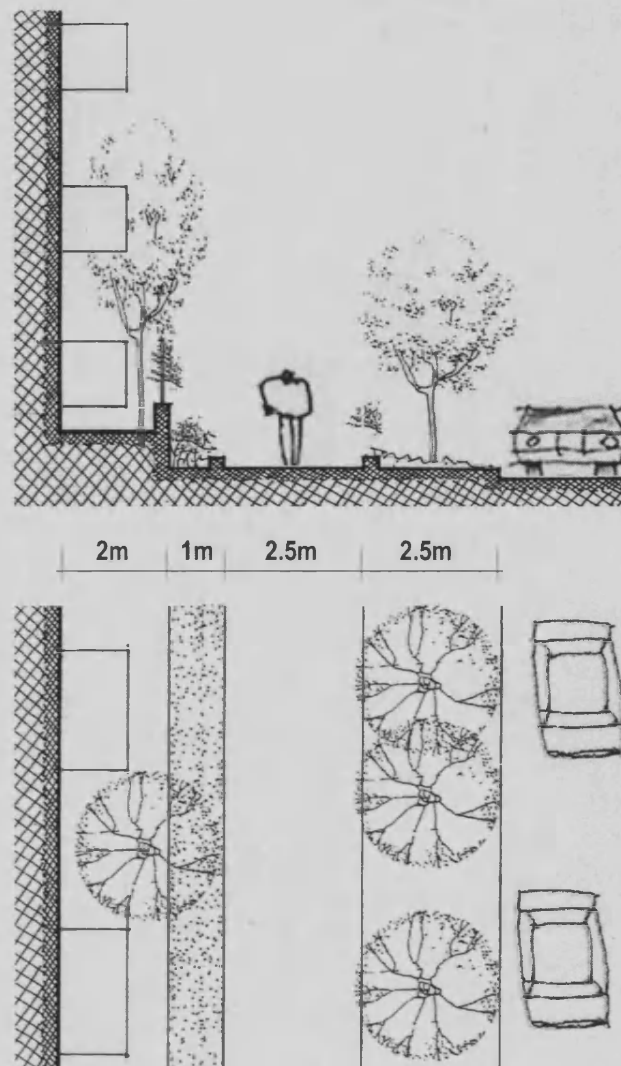


(Top) Lack of sitting space before the market beside East Wicket

(Bottom) Popular sheltered stairs before a supermarket on New South Road

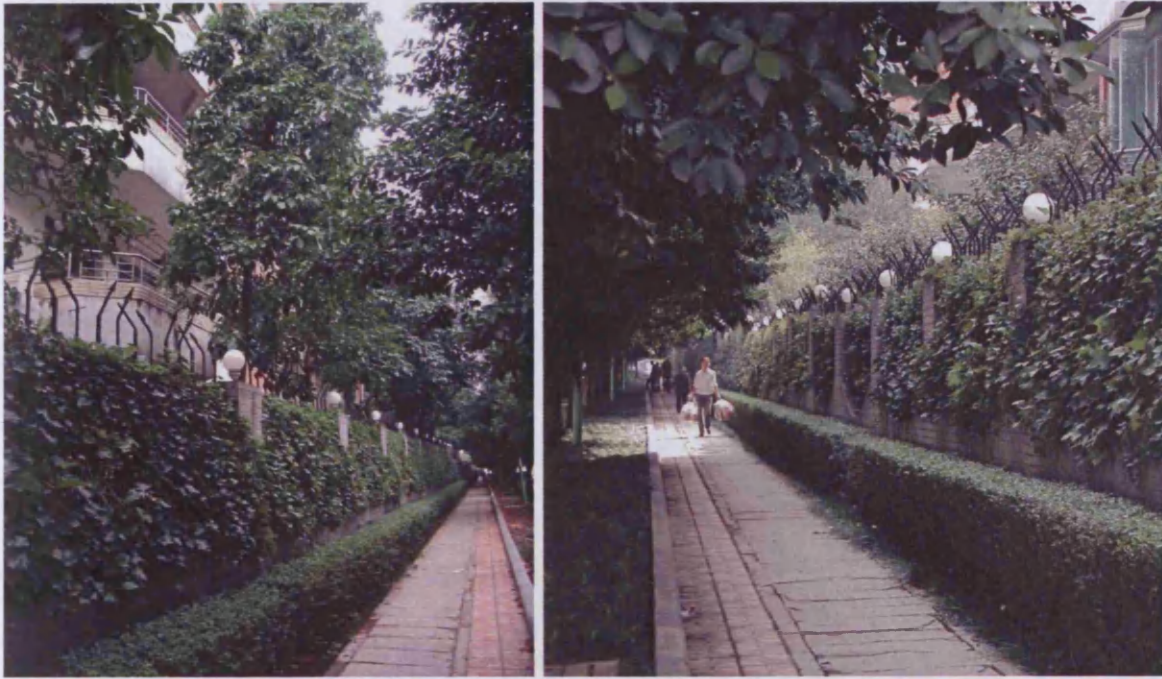
As regards the other section between East Wicket and East Gate, the sidewalk is fenced off by iron railings combined with hedges. Although separated by the iron railings in combination planted verges and dwarf walls, the public sidewalk and the private 6-storey residential buildings at the external and internal sides are closely situated (Figure 6.15).

Figure 6.15 Sidewalk of Dragon-Lake East Road before the fenced residential building along the South Garden segment



Nevertheless, both the observations and the opinions investigated in the last chapter show that this juxtaposition has not caused any disturbance for the residents in the buildings along the sidewalk. The planted railings play a significant role in this case as it contributes positively to both sides. It provides security for the residents inside and a friendly walking space for the local people outside as well. As regards the latter, the fence combined with landscaping plants helps to deliver a pleasant environment. Moreover, the appropriate height ensures 'eye-on-street' surveillance from the residential buildings while the streetlights along the fence increase the sense of safety at night (Figure 6.16).

Figure 6.16 The sidewalk is positively defined by the fence.



It is observed that many people, especially the elderly, prefer this sidewalk for leisure activities like strolling or walking dogs. However, the sidewalk in this section is still narrow with no sitting space available. The pedestrian flow and social activities are largely limited in consequence. The observation on both sections of this segment shows that Longhu manipulates and manages the physical settings to achieve a high-quality environment on the sidewalk along South Garden.

Figure 6.17 Location of Boarding School segment

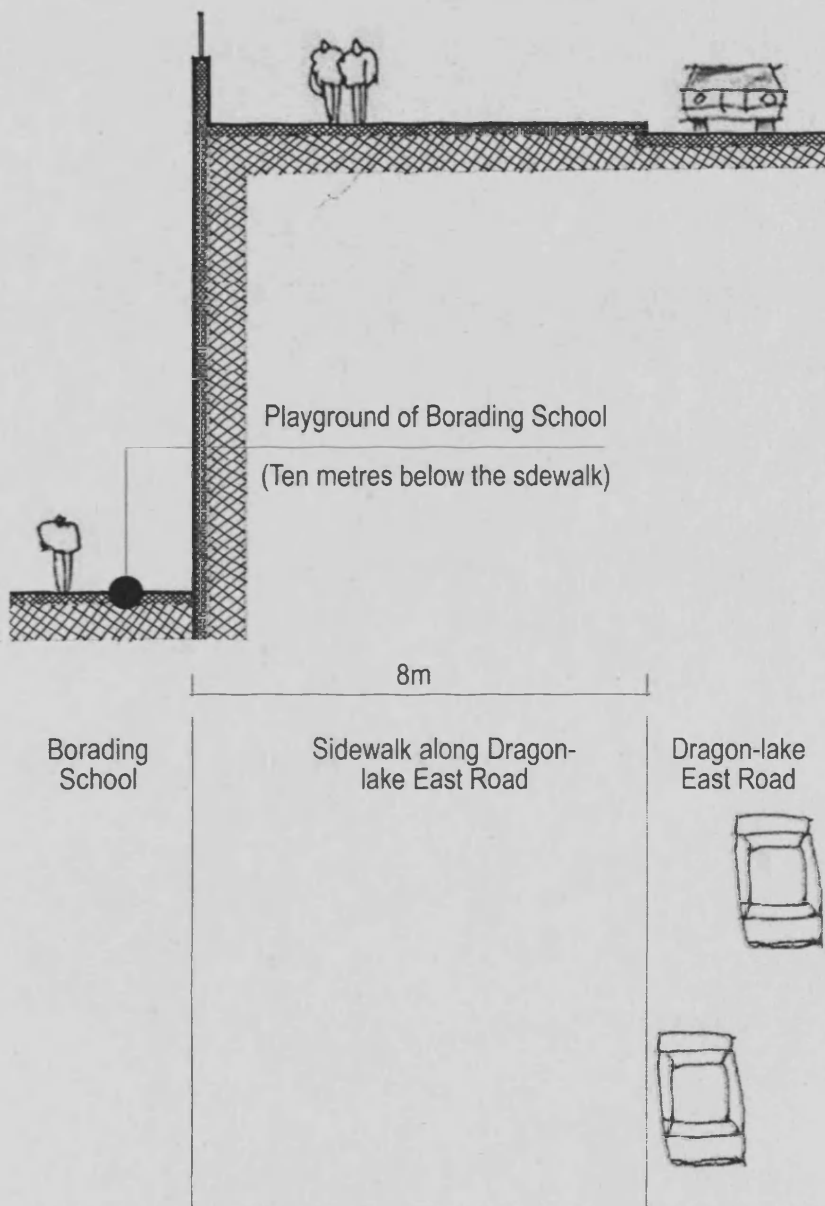


(Source: compiled from google earth photo)

The Boarding School segment

Figure 6.17 shows the location of the Boarding School segment of sidewalk. The boarding school, built and maintained by Longhu, is not open directly to the Dragon-lake East Road, and can only be accessed from within the enclave of South Garden. The sidewalk of this segment is sitting next to and ten metres above the playground of the school (Figure 6.18).

Figure 6.18 Sidewalk of Dragon-Lake East Road along the Boarding School segment



The fence erected at the sidewalk edge is simply made of iron rails on dwarf walls with no planting or special landscape disposal. The minimal effort from Longhu drastically decreases the environmental quality of this sidewalk: little greenery, ill-maintained flag stones, and the vandalised signpost at the bus stop (Figure 6.19).

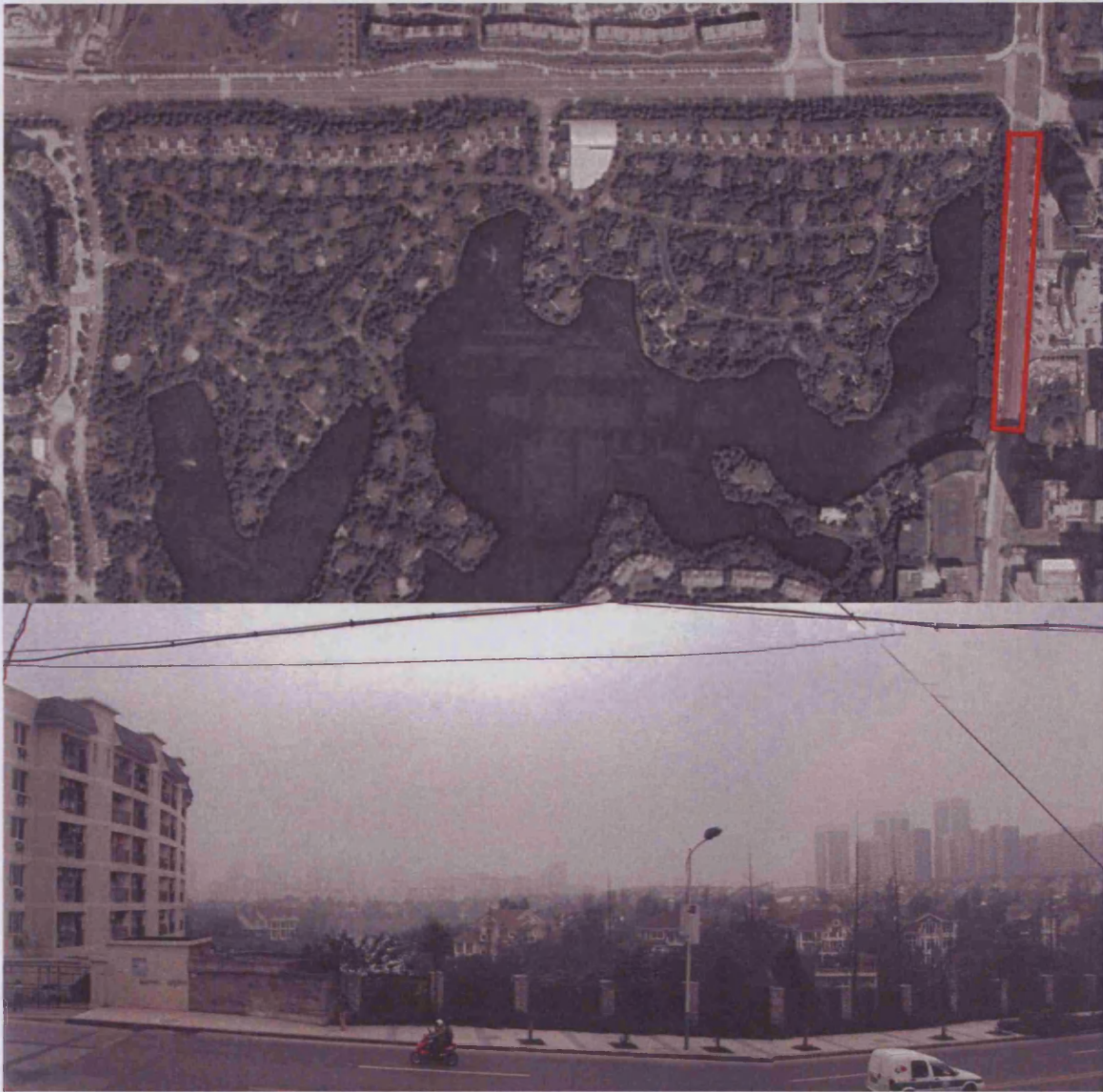
Figure 6.19 Decreased environmental quality at the sidewalk



It is observed that this segment is not the regular access for either the residents getting in and out of South Garden, or the students and teachers in and out of the boarding school. This perhaps largely accounts for the minimal effort of Longhu. As for the local public who inevitably pass through this segment of the sidewalk on their itinerary, they walk at an apparently faster pace compared to the other sections along South Garden. Few people take a leisurely walk on this sidewalk although it overlooks the playground below, and the students' leisure-time activities and sports can be an interesting view worth a stop. In consequence, the human presence during this segment decreases sharply on this segment, compared to the others.

The Fragrant Camphor Wood segment

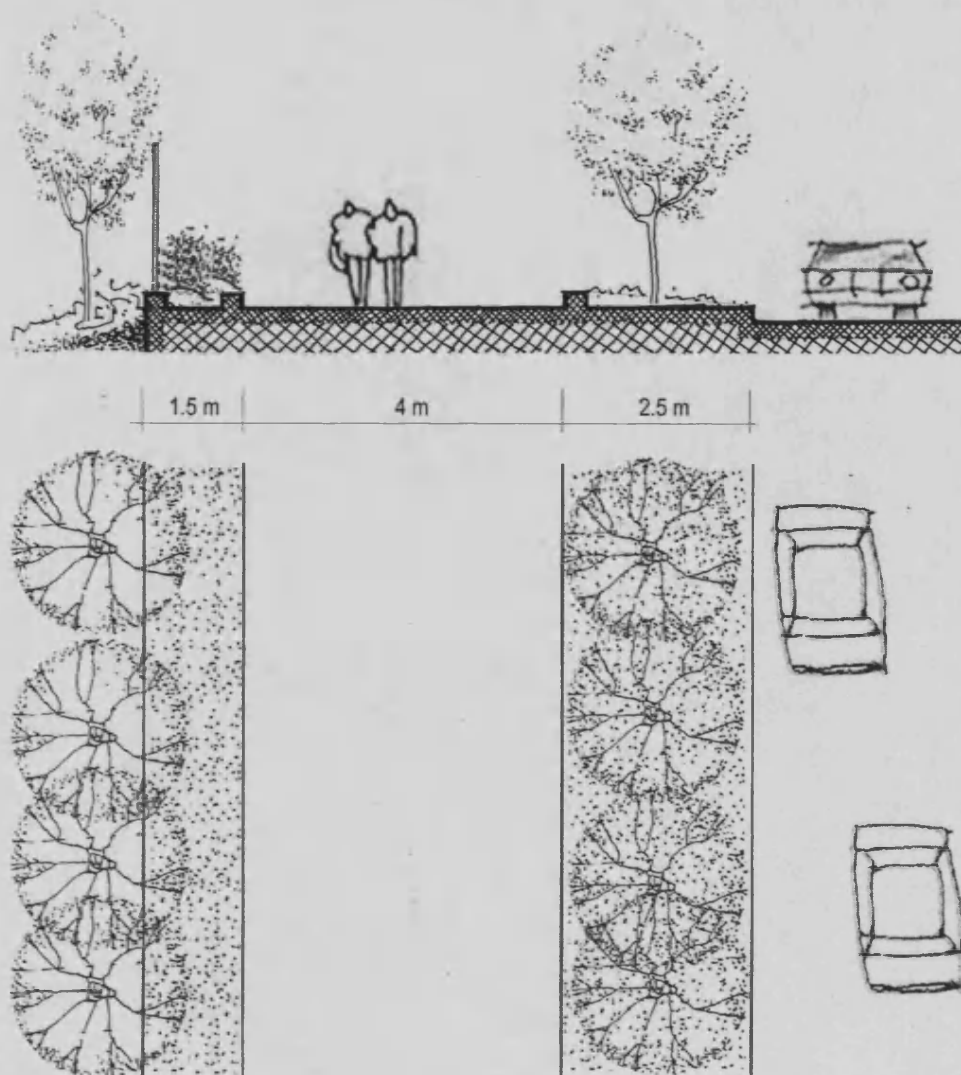
When it comes to the Fragrant Camphor Wood segment (Figure 6.20), the environmental quality of the sidewalk along Dragon-lake East Road is remarkably improved and well maintained again.

Figure 6.20 Location of Fragrant Camphor Wood segment

(Source of the top picture: compiled from google earth photo)

Figure 6.21 illustrates the subtly managed settings: the planting bed along the curb line, the generous areas for pedestrians meeting, chatting or strolling about, the hedges and railings fencing off but still offering views of the planting slopes extending to the Nine-Dragon Lake below.

Figure 6.21 Sidewalk of Dragon-Lake East Road along the Fragrant Camphor Wood segment



Walkers here often slow their pace and appreciate the scenery within Fragrant Camphor Wood (Figure 6.22) through the fence, especially the view of the lake that used to be publicly accessible. One old man complained that he could no longer go fishing at the lakeside since the lake was enclosed in Fragrant Camphor Wood. But he did not know this lake was still a public asset despite enclosed in the private precinct of Longhu. This is a typical case of the privatisation of public space when the public interest is severely impaired. Why and how this privatisation happened in the development process is complex and will be discussed in chapter 7.

Figure 6.24 Vista and location of Xin'guang Road along Fragrant Camphor Wood

(Source of the bottom picture : compiled from google earth photo)

Illustrated in the profile study (Figure 6.25), there is a two-storey difference of height between the site area of Fragrant Camphor Wood and the adjoining sidewalk. Without any design mechanism to smooth this topographical change, a simple blank concrete wall directly confronts the sidewalk (Figure 6.26).

Figure 6.25 Sidewalk of Xin'guang Road along Fragrant Camphor Wood

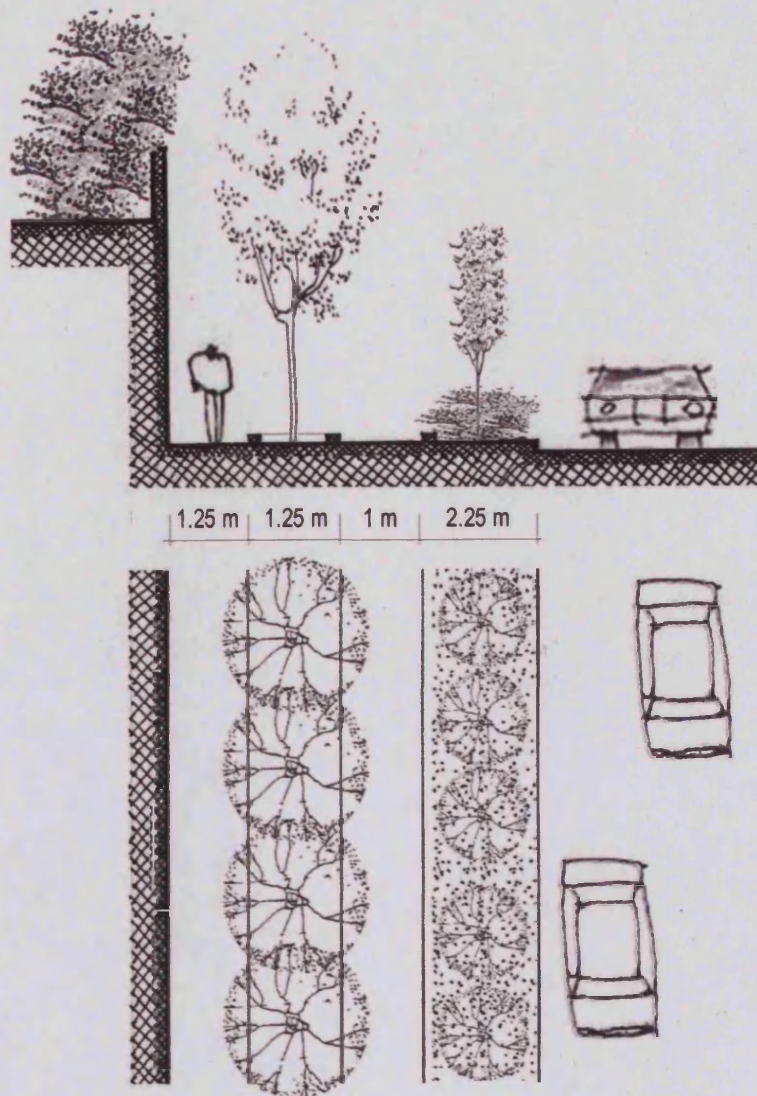


Figure 6.26 The blank concrete wall is used to fence off the sidewalk.



Figure 6.27 Security staff on patrol**Figure 6.28 Women with bamboo baskets**

With CCTV security cameras fixed at the top, the steep mound wall creates an oppressive sidewalk in front, which is made especially narrow with a tree line placed in the middle. Therefore, the physical settings actually deliver an uneasy sense of the uncared-for backstreet although the pavement is well planted and maintained. However, the constant presence of the patrolling security staff of Longhu, at least every 15 minutes, reduces the sense of insecurity (Figure 6.27). Nevertheless, local residents around Fragrant Camphor Wood are observed to be reluctant to use this sidewalk in their daily life except some elderly people who take it as part of their route for walking exercise. The passers-by are mostly the workers in the building sites nearby and the women with their bamboo baskets (Figure 6.28).

Although the main entrance to Fragrant Camphor Wood is located in the middle of this section (see Figure 5.9) with a well furnished bus stop nearby, few if any residents pass in and out of the gate on foot or use the bus stop (Figure 6.29). This reveals that the residents in Fragrant Camphor Wood regard this entrance mainly for car rather than for pedestrian access.

Figure 6.29 Underused gateway and bus stop

6.2.4 Aegean Street between West Garden and Fragrant Camphor Wood

Figure 6.30 Location of Aegean Street

Source: compiled from google earth photo

Aegean Street is located between West Garden and Fragrant Camphor Wood (Figure 6.30 and see Figure 5.7 & 5.8). Unlike the previous roads that are public by law, this street is in fact the private property of Longhu though it is voluntarily made accessible to public use. So, the settings and facilities are all built and maintained by Longhu. The observations show that Longhu has carefully manipulated the physical characteristics from the very beginning to create a prosperous street.

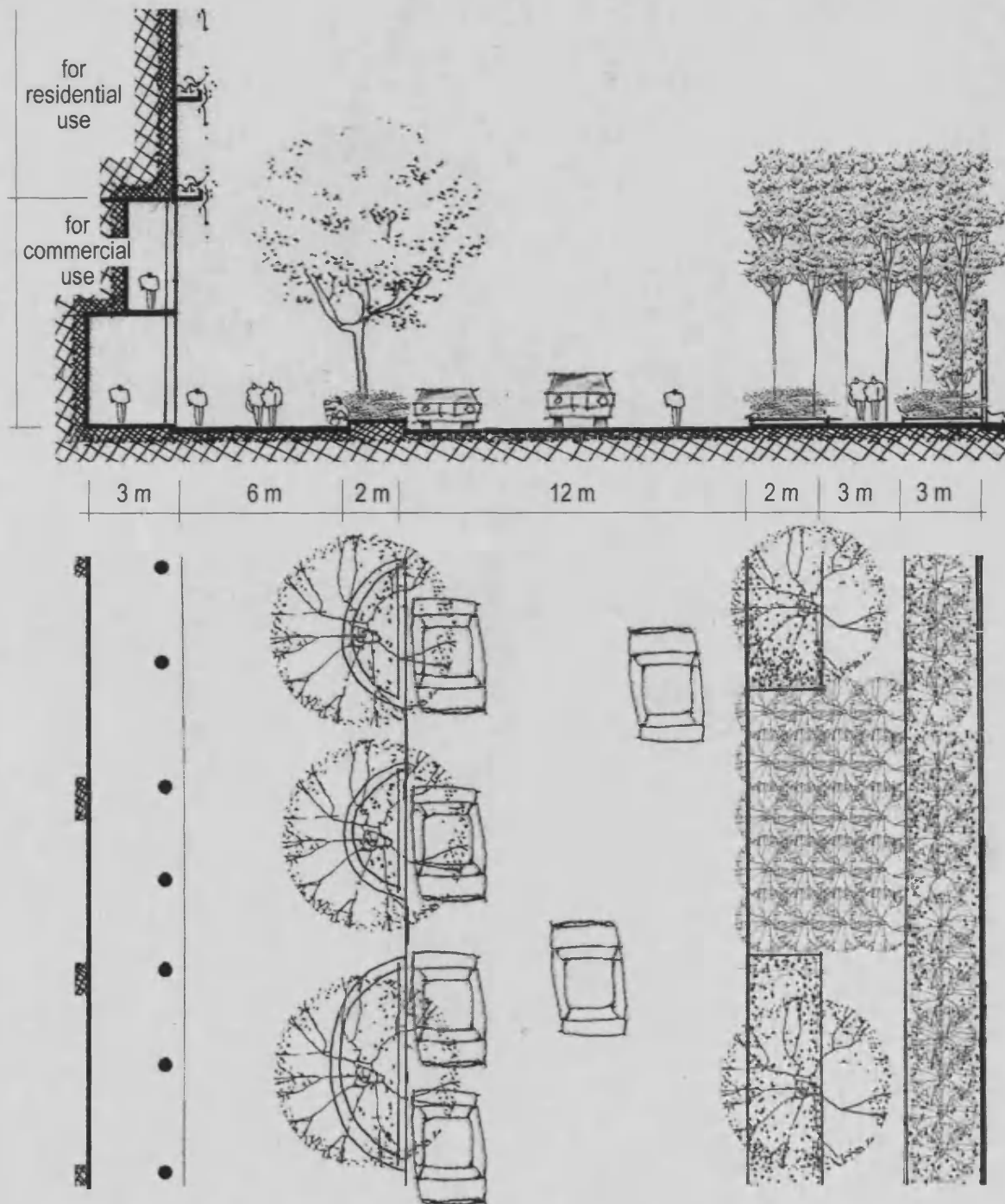
Firstly, there are five entrances along this 800-metre-long street, two to West Garden, one to Fragrant Camphor Wood, one to a local primary school sitting next to West Garden, and one to Lakeside Park which is generally open for the member-residents of Longhu only (see Figure 5.8). Moreover, Aegean

Street also connects the local distributors at two ends and a promenade via a square in the middle leading to an arterial road, Jinkai Road (see Figure 5.7). Therefore, Aegean Street is heavily used as it provides easy access to the surrounding urban plots and road network.

Secondly, the ground floors of the boundary building along West Garden accommodate a wide range of services: various, banks, pharmacy stores, barber's shop, laundries, groceries and bakeries, etc. (supporting the daily living); restaurants, cafes, beauty parlour, bicycle shop, musical instrument shop plus providing training services, etc. (for recreational uses); and even some small business offices such as housing property agencies or solicitor's. These provisions attract not only the local residents but also the consumers from other urban districts, and this generates much activity as a consequence.

Lastly, to prevent and minimise the possible disturbance caused by the through traffic and commercial uses for the residents living immediately along this all-purpose street, the settings, of the roadway and sidewalks at both sides, are carefully designed and managed. Figure 6.31 illustrates the physical arrangement of a typical segment.

Figure 6.31 Aegean Road between West Garden (left) and Fragrant Camphor Wood (right)



The roadway

The roadway of Aegean Street is the narrowest of the studied streets except for Crystal Commercial Street that is kept for pedestrians only. This makes the both sides of Aegean Street not only better integrated visually, but also practically connected as pedestrians are constantly crossing and even strolling about on it. The latter is made possible due to the

traffic calming measures such as the curvilinear route and road hump for speed-control, creating a harmonious environment for cars, cyclists with pedestrians coexisting more safely. Embodying the concept of “shared space” which is common to the continent European countries, especially the Netherlands, these measures appear to work effectively. All vehicles entering this street slow down perceptibly, while the pedestrians are not confined to the domain of the sidewalks but strolling about sometimes on the carriageway especially during off-peak times. Accordingly, a harmonious relationship between people and cars can be observed most of the time when Aegean Street is heavily used by pedestrians and cyclists who are mostly children¹ (Figure 6.32).

Figure 6.32 Harmonious relationship between people and cars on Aegean Street



However, two lanes of parallel parking at both sides of the roadway is sometimes not enough during the busiest dinner times and therefore brings chaos to the tranquil environment. As is also reflected in the opinion investigations in the last chapter, the noise around that time is a great disturbance for the residents in the apartments above the mixed-use buildings of West Garden. The parking space for capacity uses arranged along

¹ Chongqing is located in mountains and therefore the roads are not suitable for bicycle as a public transport means in city wide. Unlike many other Chinese cities, there is no bicycle lane in the urban transport system in Chongqing. But the flat and safe street conditions in certain areas will promote bicycling activities among children and the adult bicycle lovers.

this street is not adequately planned.

The sidewalk along West Garden

The sidewalk along West Garden is positively defined by the mixed-use boundary buildings combined with railing fences in some parts. The width of the sidewalk is significantly enlarged, providing a generous space for various activities (Figure 6.33).

Figure 6.33 A generous sidewalk space for various activities



Sitting areas are also provided under a line of closely planted trees for people to spend time in this place, seeing, being seen, communicating, or just relaxing themselves (Figure 6.34).

Figure 6.34 Sitting space along the sidewalk



It is observed that the people with bamboo baskets or other containers of goods for sale are prohibited to sit there though exceptions are made due to the lax control (Figure 6.35). The staff in the property management sector of Longhu explained that:

'...only mobile peddlery but not fixed booths are allowed by local civil authority in this street. The business conducted by the people with bamboo baskets or other goods for sale is likely to encroach upon the sitting space and would inevitably disturb the normal use.'

Figure 6.35 Peddlers relax on the marble bench around flower-beds



However, he admitted that it was difficult sometimes to tell the difference between the people who, although having with them bamboo baskets, just want to have a rest, and those who try to set up a business. 'For example, the women wandering all day around the neighbourhood to reclaim reusable waste are an intractable issue. They will gather here with their baskets in groups all day, occupying much of the sitting space if not regulated at all.' So the management is very flexible, mostly using their discretion in response to the situation of the time.

At one end of this sidewalk, there are several shoe-cleaners. They are all rural migrants (Figure 6.36). Talking with them reveals that they also do part-time house-keeping work for residents nearby including those in West Garden and Fragrant Camphor Wood, and are very often such jobs are introduced by their friends working in Longhu, or recommended by clients.

Figure 6.36 Shoe-cleaners on the sidewalk at one end of Aegean Street



The picture above shows a common presence of rural migration in urban space. The men playing cards at the front are working as porters. They often stroll around to find the job opportunity. Some of their wives are shoe-cleaners (left). More of them, gathering in the lawn in the distance (above) are housewives. They said they preferred the flexible part-time job such as home service or collecting recyclable waste, or even no job at all, to the available full-time jobs which are nearly all low wage and labour intensive.

The sidewalk along the Fragrant Camphor Wood

The sidewalk along the Fragrant Camphor Wood is edged by planted fences with properly trimmed hedges. Being a pleasant alley shadowed by two rows of closely planted trees on both sides. It appeals particularly to those who want to take a relaxing walk (Figure 6.37).

Figure 6.37 Pleasant walking space

Various activities taking place on Aegean Street makes the street life an attraction to the local residents around. This is reflected by the words of an old woman sitting on the round tiled bench:

'...I am not the resident of Longhu, but live in another housing development nearby...I just moved to Chongqing with my husband from Beijing last month. So I have few friends here. But I often come and stroll along this street in the sunny afternoon to enjoy the busy atmosphere, watching people and sometimes talking to them.'

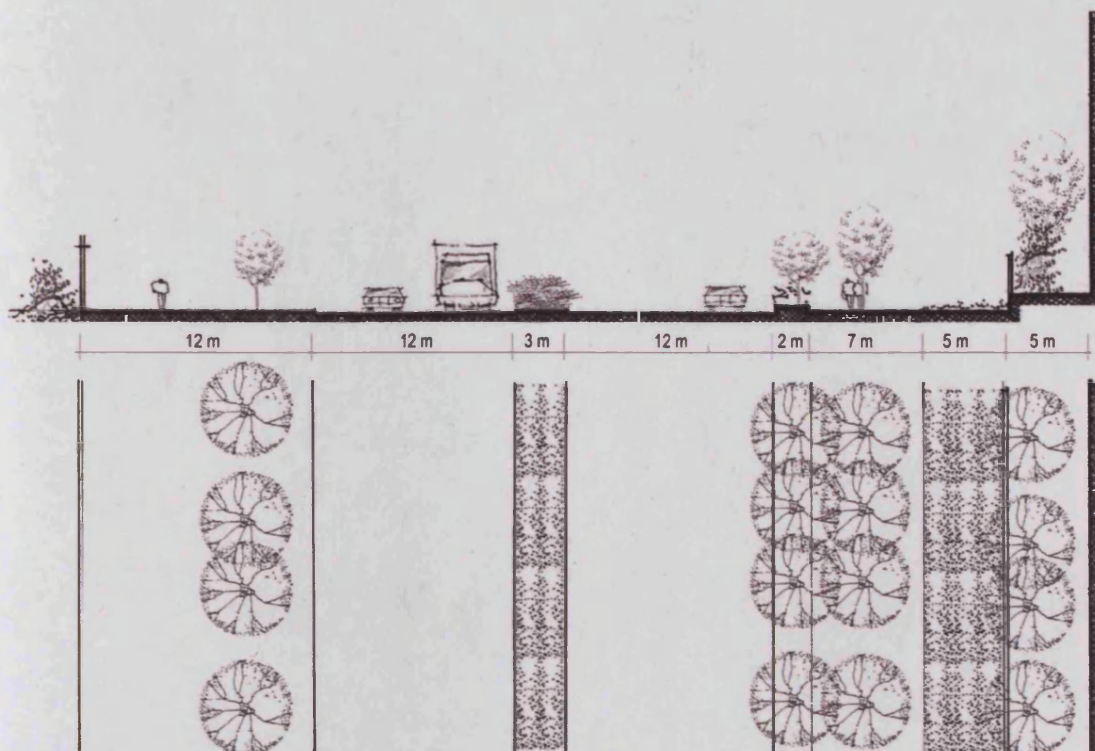
6.2.5 Sidewalk of Jinkai Road along West Garden

As is shown in Figure 6.1, parallel to Aegean Street, Jinkai Road is an arterial corridor running between West Garden and Sport Park of Crystal Town. There is no crosswalk, tunnel or crossing-bridge for pedestrians to traverse the 6-lane carriageway, even at the intersection where Jinkai Road, a local distributor leading to Crystal Town Garden and a promenade connecting West Garden (Figure 6.38). The wide median holding a continuous row of shrubs discourages jaywalking across the central roadway (Figure 6.39 and Figure 6.40).

Figure 6.38 No crosswalk is available at the intersection.**Figure 6.39 Untraversable Jinkai Road**

Moreover, the gateways of both West Garden and Sports Park which provide direct access to this road are always closed and only opened for emergency use. From the pedestrian perspective therefore, both the member-residents of West Garden and all the passers-by, the urban neighbourhood of Dragon Lake Garden is virtually divided here by Jinkai road into two parts: South Garden, Fragrant Camphor Wood and West Garden on the one side; Crystal Town Garden including Sports Park on the other.

Figure 6.40 Jinkai Road between Sports Park (left) and West Garden (right)



The railings and wide planting beds with well-tended shrubs and flowering plants are deployed between West Garden and the neighbouring sidewalk, which has a row of trees standing in the middle and is edged by high hedges along the curb line curtaining off the noise and air pollution on Jinkai road (Figure 6.40). So, this sidewalk has ostensibly a good environmental condition and natural surveillance from the immediate high-rise apartments of West Garden, and should be liked by the pedestrians in theory. But on the contrary, observation reveals that this sidewalk is extraordinarily underused with far less pedestrian activities compared to other segments (Figure 6.41).

Figure 6.41 Environmentally good but underused sidewalk



In addition, the security conditions here are the worst of all the investigated streets. According to the official record of crime offences in local police, in August of 2005, the two reported cases of robbery in Dragon Lake Development urban neighbourhood both took place in this segment. In August of 2006, the reported cases increased to five, all of them robbery, and all happened in exactly the same segment.

6.2.6 Sidewalks of Sports-park Road between Sports Park and Crystal Town Group I

Figure 6.42 Location of Sports-park Road



Source: compiled from google earth photo

Sports-park Road is a local distributor between Sports Park and Enclosure I of Crystal Town (Figure 6.42 and also see Figure 5.11). Two rows of closely planted trees are arranged along the sidewalk on each side that is both fenced off by planted rails. With good environmental conditions and one bus stop in this segment, the pedestrian behaviour is observed well balanced between purposeful and leisurely uses (Figure 6.43).

Figure 6.43 A good using condition at sidewalks of Sports-park Road which are both well maintained and sheltered (bottom)



From the sidewalk on the side of Enclosure I side, Crystal Commercial Street and the main gate to Crystal Town (pedestrian accessible only) can be accessed via a small square. Opposite this square on the other side, the Sports Park has the main entrance open directly to the sidewalk (see Figure 5.11). Therefore, constant street crossing takes place all day at this point. Although the carriageway of Sport-park Road is only 4-metre wider than that of Aegean Street, the vehicles pass through this road at a much higher speed due to the straight road and good visibility. In this case, without any crosswalk, traffic light, underpass or over-bridge provided, it is dangerous indeed for the pedestrians to traverse

the road (Figure 6.44).

Figure 6.44 Straight road with high-speed vehicles and without crosswalks or traffic light



6.2.7 Sidewalks of Jincheng Road between enclosures of Crystal Town Group II

The observed section of Jincheng Road is located between the two enclosures of Crystal Town which both have an entryway open to it (Figure 6.45 and also see Figure 5.11).

Figure 6.45 Location of Jincheng Road between enclosures of Crystal Town



(Source: compiled from google earth photo)

Illustrated in Figure 6.46, two-storey commercial buildings accommodating various stores are set up at the boundaries of the enclosures, defining the sidewalks while separating the public street space from the private residence behind (Figure 6.47).

Figure 6.46 Jincheng Road between enclosures of Crystal Town

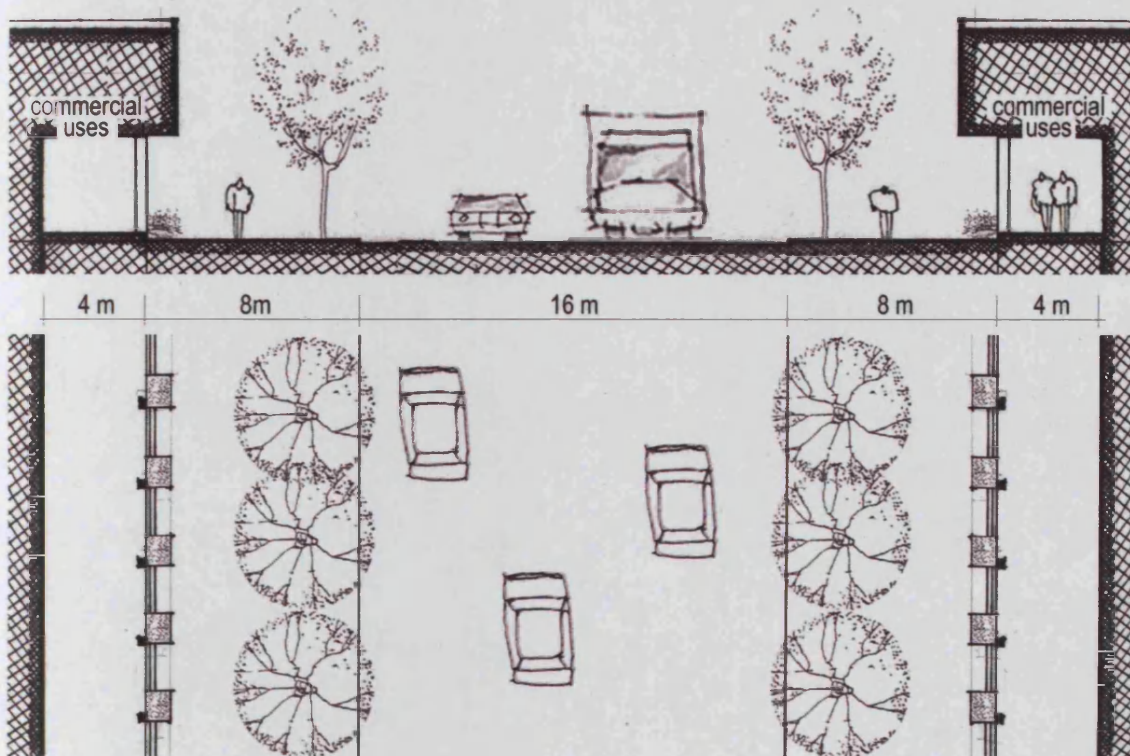
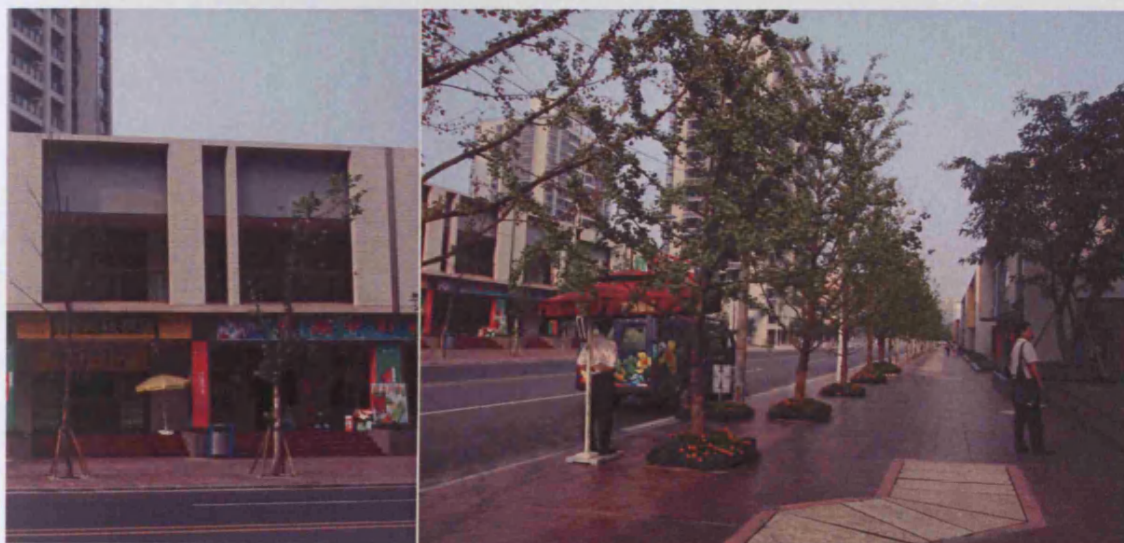


Figure 6.47 Boundary buildings and sidewalk space along Jincheng Road



Although completely detached from the high-rise apartments in the enclosure blocks, they look highly integrated with them because of the similar architectural characteristics in terms of colours, materials and proportions (Figure 6.48).

Figure 6.48 Boundary buildings separating public and private spaces



So, this segment of public urban road actually seems to be part of Crystal Town development. It conveys that the local streets around Crystal Town were fully taken into consideration by Longhu from the very beginning of the development. Designed with continuous porch and parterres at the ground floor, the shop fronts provide sheltered spaces and some sitting areas around flowerbeds for the walkers, which would potentially accommodate more activities than just shopping (Figure 6.49). As explained before, Crystal Town is the latest development of Dragon Lake Garden project with residents still moving in gradually during the time of the fieldwork. So, a limited traffic flow and pedestrian activities were observed. Nevertheless, this segment of sidewalks, resembling many features in Aegean Street, can be predicted to achieve a critical mass of pedestrian use in time.

Figure 6.49 Carefully designed porch space before stores

6.2.8 Crystal Commercial Street between Crystal Town Group I and Commercial Complex

Crystal Commercial Street, built and managed by Longhu, is located between Enclosure I of Crystal Town and the commercial complex in front (Figure 6.50). It connects with the local distributors at its two ends (also see Figure 6.1). This 300-metre long and 5-metre wide pedestrian only street is physically defined by the typical 2-storey commercial boundary buildings of Crystal Town on the one side and the podium of two high-rise buildings on the other. The main entrance for Enclosure I of Crystal Town is located in the middle of this street, opposite to an atrium that divides the podium into two parts and provides a shortcut to the sidewalk of New South Road (Figure 6.51).

Figure 6.50 Location of Crystal Commercial Street

(Source: compiled from google earth photo)

Figure 6.51 The atrium at the middle of Crystal Commercial Street

It provides a shortcut between Crystal Commercial Street and the sidewalk of New South Road. The left picture was taken from Crystal Commercial Street while the right was taken from the sidewalk of New South Road.

Like the commercial boundary buildings along Jincheng Road, those along this street and the Commercial Complex are still under development. At the time of observation, some stores and a supermarket were in operation. Good accessibility and the supporting facilities make this street heavily used by not only the residents of Crystal Town but also the local public around. In this regard, it is a regular place for human encounter and

facilitates further social activities. However, observation shows that the physical setting of this street does not support this social need as no pleasant greenery or sitting space is provided. This insufficiency can be easily observed when many people, especially the elderly, often stop at the entrance of Enclosure I where sitting space is available during their daily shopping. Some of them stay here for quite a long time, relaxing, looking around, greeting acquaintances, or chatting with friends (Figure 6.52).

Figure 6.52 Lack of sitting and sociable space on Crystal Commercial Street



The lack of sitting and sociable space along the street (top) can be easily observed when many old people in their way of daily shopping often stop at the entrance of Enclosure I where sitting space is available (bottom).

6.2.9 Gated communities and their neighbouring public street spaces: relationship and determinants

While the preceding sections make a street-by-street analysis, this section will compare and synthesise the evidence above, and exploring the relationship between gated communities and their adjoining public streets in the Dragon Lake Garden urban neighbourhood, and the key physical features. A critical criterion for the 'Great Streets'

(1995) is that they are places inviting leisurely and safe walking (Jacob, 1995). This is because public socializing and community enjoyment in daily life can most easily occur when people meet others in the streets on foot, seeing and experiencing directly others' faces and statures. This criterion is acknowledged to be especially fundamental here in assessing the public streets and their sidewalks next to the gated communities. The 'public socializing and community enjoyment in daily life' involving all the people both inside and outside the enclosures are extraordinarily important in fostering an integrated urban neighbourhood of which the gated communities are a part. According to this criterion, therefore, the observation in Dragon Lake Garden urban neighbourhood shows that the gated communities have a significant impact on the quality of their neighbouring public streets by manipulating the 'boundary effect'. The boundary here includes not only the border dividing the gated communities and their neighbouring streets or sidewalks, but also the connected sidewalks and even the whole street if both sides are defined by Dragon Lake Garden like Aegean Street and Crystal Commercial Street. The designs made by Longhu effectively shape the overall spatial and social character. Although the detailed features vary greatly, as is clearly reflected in all of the profile studies, the boundaries that contribute positively to the walkability along the immediate sidewalks have two major attributes, namely, the 'shareness' they promote and the activities they facilitate.

- Promoting 'shareness'

'Shareness' here includes both the practically shared use, and the sense of sharing between the gated communities and the local public. Therefore, promoting 'shareness' means, on the one hand, increasing and improving the publicly accessed spaces and facilities that serve the people living both inside and outside the gated communities; on the other hand, designing these spaces and facilities so that the people using or living around them will feel welcome, and emotionally attached to them. In all of the segments of streets or sidewalks favoured by walkers, the design features of the boundaries unexceptionally deliver such 'shareness', when the transition between public and private realm at the boundaries is subtly managed in a more covert way. While the mixed use boundary buildings facilitate various activities on the adjoining sidewalks, the carefully designed fences in terms of position, height, and materials actually do not 'fence off' the residents', but rather provide good surveillance of the street spaces located immediately outside the boundaries. For

example, the 'eyes on the street' (Jacob, 1962) tactics are evident in the South Garden segment of the sidewalk along Dragon-lake East Road. By contrast, the boundaries discouraging the public-private shared uses like those around Fragrant Camphor Wood proved to be much less attractive for walkers although the environmental quality and safety are secured by special management measures.

- Facilitating activities

The physical environment of the settings at the boundaries which generate or foster diverse uses is found to be the other important factor that determines whether the neighbouring streets and sidewalks are popular for pedestrians or not. Their performance can be differentiated according to the three levels of activities distinguished by Gehl (1996), namely necessary/functional, optional/recreational, and social activities, which may occur according to different spatial qualities. On the one hand, it is apparent that different kinds of boundaries themselves can generate varied uses. Take the South Garden segment of Dragon-lake East Road for example. While the sidewalk confronted by the blank wall of the market is mostly used by the people who go to the market, while that confronted by planted fences in front of the residential buildings is also favoured by those who like to take a leisurely walk in the morning or after dinner at night. On the other hand, different details in the design, even of the same kind of boundaries, encourage different behaviour patterns. It is evident when comparing the sidewalk of Aegean Street and that of New South Road, which are both defined by boundary buildings with similar functional arrangement. However, the generous and well-sheltered sidewalk of Aegean Street with comfortable sitting area is more attractive and generates more uses and social activities that of New South Road.

However, observation also shows that the walkable environment can be undermined by the poor accessibility condition of the streets or sidewalks along the boundaries. This mainly results from three physical arrangements. Firstly, it can be observed from the four studied GCs that when the enclosure size is bigger, the boundaries are longer and intersecting streets are fewer. This inevitably reduces the accessibility of the adjacent streets for not only the passers-by around the enclaves, but also the residents inside the enclosure. The worst case of the four gated developments in this regard is Fragrant Camphor Wood Garden, with a 17-hectare enclosed site area. By contrast, the reduced

enclosure size stipulated by the local Regulatory Plan, with the smallest one around 2.5-hectare, makes it possible for Crystal Town to have the most boundaries accessible directly from the local street. Secondly, the numbers of gateways that opened at the boundaries decide how easy it is for the residents to gain access to the streets outside the boundaries. The comparison between the boundary along the west side of West Garden and that along the east side clearly shows that the more gateways open at the boundary, the more residents would come in and out via the street, and consequently the more activities would be generated. Last but not least, one startling finding from the observation is that the urban neighbourhood as a whole is more severely divided by the municipal roads, Jinkai Road being the worst example, than by the boundaries of the gated communities. The broad width of these roads and poor connection between their sidewalks are shown to be totally car-oriented, paying little attention to the safety and convenience of pedestrians, to the spatial integrity and to the accessibility of the local neighbourhood. On the contrary, it is Aegean Street, privately constructed and managed by Longhu, which expresses the most attention for the safety and comfort of pedestrians and for the spatial integrity.

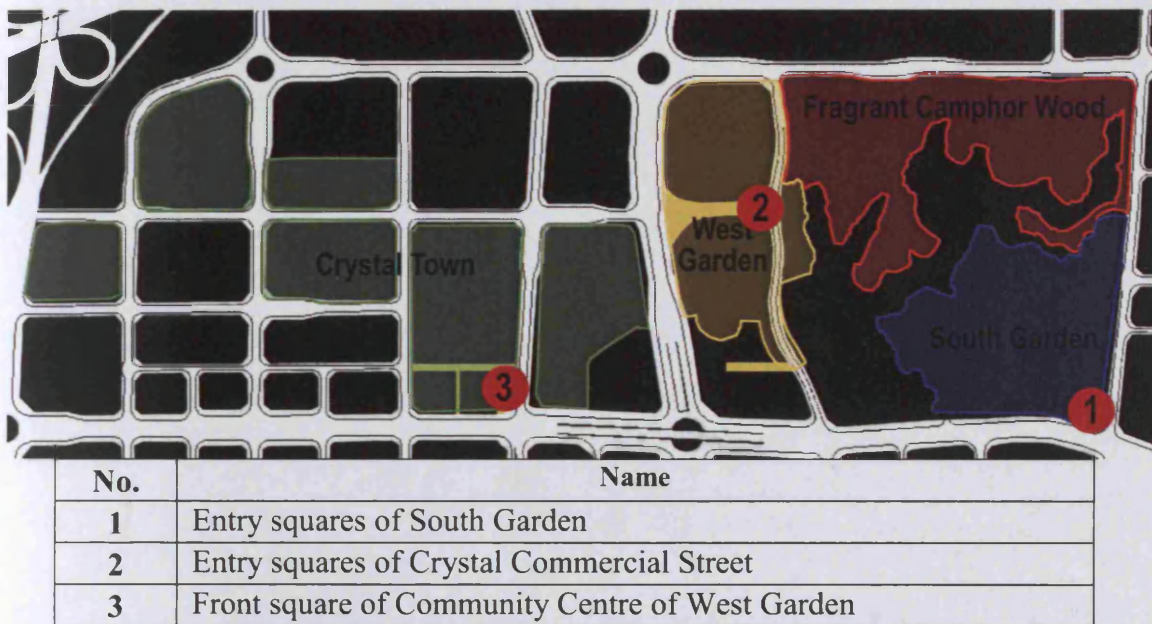
The last issue actually comes down to the different attitudes and approaches adopted by the developer, Longhu, and the government respectively in managing the physical outcomes of the street spaces around Dragon Lake Garden. As regards the developer, Longhu is observed to be aware of the capability of physical features to shape activities and consciously manipulates them to control the public-private transition and the quality of adjacent street space. In this regard, Longhu frequently delivers well designed 'public' streets and sidewalks. However, although their efforts benefit the local urban space for residents and the public, they are basically made for their own economic interest and for the benefit of member-residents. Therefore, the needs of the local public, such as the sociable spaces before the market, are often not considered and fulfilled. The provision from Longhu for the street space can be reduced to an absolute minimum extent when Longhu has little interest there, for example, the sidewalk of the Boarding School segment of Dragon-lake East Road. The effort from government in this case is also absent as a mandatory environmental standard can not be perceived. Building and maintaining the street spaces adjacent to gated communities are seen to be devolved to the hand of Longhu in an obvious *laissez-faire* operation of local government, especially in the first three developments of Dragon Lake Garden. This is also reflected in the privatisation of

Nine-dragon Lake. Local government seems not to be aware of the potential threat of the gated community to the quality of neighbouring street space.

6.3 Public squares in front of gated communities

There are three publicly accessed squares in Dragon Lake Garden, all of which are built and managed by Longhu. Two of them are located along the urban corridor, New South Road. They are the entry squares of South Garden and Crystal Commercial Street where the main pedestrian gateway of Crystal Town Garden (Group I) is located. Another square is the plaza in front of the Community Centre of West Garden (Figure 6.53). No public square is arranged around Fragrant Camphor Wood.

Figure 6.53 Three public accessed squares in the Dragon Lake Garden urban neighbourhood



6.3.1 Entry square of South Garden

As is illustrated by Figure 5.5, the entry square of South Garden is located at the street corner where New South Road and Dragon-lake East Road meet. But an elevation of 1.3-metre above the curb level of the adjoining sidewalks, together with the steps and some landscape arrangement like planting beds spatially distinguishes it at the street side.

Some chairs are put at the edge near the plantings. The other side of this oval hard-paving square is defined by the two symmetrical high-rise buildings connected by the giant gate to South Garden. While some sculptures are scattered in the plaza, a fountain is put in the central point, which is fenced by glass rails (Figure 6.54).

Figure 6.54 The entry squares of South Garden: more symbolic than practical



The observation shows that this square mostly function to deliver a prestigious image of South Garden, and is remarkably underused. Three physical features can possibly explain it. Firstly, the elevated ground makes this square detached from the neighbouring sidewalks, which effectively discourages passing-by behaviour. Secondly, as the businesses at the ground floors of the podiums are quite limited (only two up-scale restaurants) and not successful (half of the floor space is vacant), they cannot attract many and diverse people to this plaza. The customers of the restaurants come and leave directly without staying in the plaza. The chairs are mostly vacant during the day. Lastly, the gateway to South Garden at this square is severely underused by the member-residents.

However, this square has a busy moment at 5 pm every day when many people, including member- or non-member- residents of South Garden, pick up their children sent here by school buses. The poor provision for public comfort in this square is extremely evident at this time (Figure 6.55). So, without a sufficient presence of users, this square is more symbolic than practical in its functional uses.

Figure 6.55 Using conditions of the entry square of South Garden around 5pm



This square has a busy moment at 5 pm every day when many people, including member- or non-member- residents of South Garden, pick up their children sent here by school buses. Before the buses arrive, there is a short social time as many of them greet their acquaintances, talking to one another. With no shelters in rainy days, no sufficient sitting space, no kiosk for drink or other services, the ill provision of this square is extremely distinct at this time (top left). While people stand there with a little uneasy and embarrassment, they often leave this square immediately after they join with their children (top right). The square soon returns back into silence which remains unchanged for the rest of the day (bottom).

6.3.2 Front square of Community Centre of West Garden

Figure 6.56 shows the physical settings of the front square of Community Centre of West Garden. This square connects Aegean Street, the Community Centre, and the promenade above which gives access to the two enclosures of West Garden and Jinkai Road respectively. So, it is in fact a transit hub of the local pedestrian flows, passing along Aegean Street, in and out of the Community Centre, and to and from the promenade. In this regard, this square is fully integrated with its surrounding spaces. Therefore, unlike Entry Square of South Garden which is defined and detached in at an elevated ground, it has a good presence of users all the day.

Figure 6.56 The front square of Community Centre of West Garden



However, because no sitting space or recreational service such as an open air cafe is available, it is rare for people to have a long stay, except during two periods before and after dinner. One period lasts from around 5pm to 7pm when people coming home pass through this square. For the adult individuals, they greet their acquaintances encountered around the square and sometimes have a short talk. For the schoolchildren, this square serves as the playground on their way home (Figure 6.57).

Figure 6.57 The playground for the children on their way home from school

The other normally begins around 8pm and possibly extends very late into night in summer. As the Community Centre is the popular destination in the leisure time after dinner for the local residents, especially for older people, children of school age, and parents with babies, this square becomes the outdoor space for gathering together and socializing. At this moment, the lack of comfortable sitting space is conspicuous. Parents have to stand aside when their children are playing around in the square (Figure 6.58). In addition, the square is sometimes used for large-scale community activities of West Garden such as watching the live television broadcast of a football match (Figure 6.59).

Figure 6.58 No sitting space available for the adults coming with their children

Figure 6.59 Watching live television broadcast of a football match on the square

6.3.3 Entry square of Crystal Commercial Street

This quadrangular corner square is defined by the three-storey podium of commercial complex and the two- to three-storey mixed-use boundary buildings of Crystal Town Group I. It seems a little too early to assess the usage condition of this square as most of the commercial spaces or storefronts had not yet been occupied at the time of this investigation. However, the physical arrangement of this square actually implies that it can hardly become a vital square with diverse people and activities in the future if no change is made. This is because although all the buildings are open directly to the square at the ground floor, the square has no landscape settings like pool, seating, parterre, or statue which are the basic elements for a delightful square. As a consequence, it is currently turned into a big car parking (Figure 6.60).

Figure 6.60 The entry square of Crystal Commercial Street

6.3.4 Gated communities and their neighbouring squares: relationship and determinants

In all the classical studies of public square such as William Whyte's observations and film analyses of plazas in New York City (Whyte, 1980), or Clare Cooper Marcus's extensive survey of urban open spaces (Marcus et al., 1998), the capacity of inviting people to walk through and stay is the most significant criterion for a successful square. The observation shows that the two squares along the arterial urban road (i.e. New South Road) are severely underused while the one along the community road, Aegean Street, is more popular but still leaves much to be desired. Three issues in design are revealed to be determinant. The first two have already been mentioned in the analysis for streets: the boundary effect and condition of accessibility. The previous findings in observing the streets about the two key aspects in vitalising the boundary effect, namely, promoting public-private 'shareness' and vitalising activities, are echoed by the analysis of squares.

- Promoting 'shareness'

The comparison between Entry Square of South Garden and Front Square of the Community Centre of West Garden clearly shows the significant role played by the

physical features which can determine the extent of the 'shareness' these squares deliver, both the practically shared uses and a sense of sharing which is the psychological cognition of shared uses. Although both squares are spatially encircled and overlooked by the residential buildings nearby, the boundary buildings standing by the entry square of South Garden are much more detached and indifferent to the square. While the people in the apartments above the five-storey podium of the omni-directional high-rise towers have far less visual and psychological connection with those on the square, the inward-looking podium discourages any visual and practical communication with the square. Moreover, the giant gateway in the middle, which is only for the member-residents, imposes a sense of exclusion on this square. In contrast, the encircling boundary buildings and the public accessed community centre make the users at the Front Square of Community centre of West Garden feel welcomed.

- Vitalising activities

The functional arrangement of the buildings around the public square which are capable of supporting diverse services and activities is widely regarded as the key element deciding the vitality of the square (Whyte, 1980; Gehl, 1987; Marcus et al., 1998). One recommendation based on William's Whyte's research and incorporated into 'Open-Space Zoning' made by New York City in 1975 is that, at least 50 percent of the total frontage of building walls of the development fronting on an urban open space should be allocated for occupation by retail or service establishments, but not banks, loan offices, travel agencies, or airline offices. In this regard, the insufficient provision of supportive uses at the boundaries of the gated communities for the three squares is a major reason that few optional/recreational activities were observed.

Accessibility is another significant aspect deciding the presence condition of the square, which is demonstrated clearly by the contrast between the entry square of South Garden and the front square of Community Centre of West Garden. The entry square of South Garden is located at a 1.3-metre elevation above the curb level of the adjoining sidewalk, which puts it way back from the continuous walking space, and only those with a special reason would step on to it. So, the 'passing-by' behaviour and casual visiting are discouraged in this square. On the contrary, the front square of Community Centre of West Garden, looking like an extension area of Aegean Street, is completely integrated

with the adjoining pedestrian routes and therefore constantly used by local people. Moreover, the easy accessibility can also be viewed as contributing to the public-private 'shareness' of the square.

In the case of square, the provided amenities and facilities on it are more important than the boundary effect in deciding how well the activities can be supported and diversified, and therefore they need special design attention. However, the observation shows that the common facilities necessary for a public square to attract people to stay, especially a proper proportion of comfortable sitting space, which is regarded by Whyte (1980) as the most important element for a square, are conspicuously absent from all the three of the studied squares. The entry square of South Garden has a small seating space while the other two have no sitting spaces at all. Without sitting space, the front square of the Community Centre of West Garden is used more as a transit foyer than a place to stay and socialise. The provision for the entry square of Crystal Commercial Street is extremely poor and was recently turned into a car park for the commercial complex nearby.

The analysis above reflects that the effort made by Longhu is remarkable but still oriented only by its own interest to achieve a prestigious entrance to South Garden, a transit foyer for West Garden, or just a car park for Crystal Commercial Street. However, the potential uses that could generate economic benefit as well as various activities have apparently not been properly considered by the developer. In fact, all the squares are visually good and could be easily improved in terms of the practical uses. However, Longhu has not put more attention and effort into their design, and the residents have not expressed the desire for such improvements in the survey. This is probably because both the developer and the residents are by and large focusing on the squares inside their enclosures where most leisure and community activities take place. But if looking at the designs of the public squares nation wide, we can find that these squares, like the three squares in this study, are mostly emphasising the quality of visual appearance rather than the practical / functional uses and activities. Therefore, the major reason for the design failure is perhaps that in China, for both design professionals and the laypeople, there is a lack of understanding of what makes a successful urban square, where the practical / functional uses and activities rather than the visual appearance should take priority. Local government is absent again from this discourse, as no policies are definitely stated as to such quality and design requirement.

6.4 Public green parks between gated communities

There are two publicly accessed green parks in the Dragon Lake Garden urban neighbourhood. One is West Garden Community Park located between the enclosures of West Garden, and the other is Sports Park beside Crystal Town Garden (Figure 6.61). They are both built and managed by Longhu as an integral part of West Garden and Crystal Town respectively. By contrast, no public shared green park is provided by the development of South Garden and Fragrant Camphor Wood Garden.

Figure 6.61 Three public accessed squares in the Dragon Lake Garden urban neighbourhood



No.	Name	Site Area (ha.)	Opening Time
	West Garden Community Park	1.9	24-hour
2	Sports Park	6.7	6:00 ~ 23:00 (Summer) 7:00 ~ 22:00 (Winter)

6.4.1 West Garden Community Park

Integrating the Community Centre and the landscape promenade, West Garden Community Park is a multi-functional place not only for the member-residents, but also for the local public as well. On the one hand, the services in the Community Centre have attracted diverse groups of people. For instance, the playrooms are used by children while the tea rooms are favoured by the adults. On the other hand, apart from being a convenient shortcut connecting Aegean Street and Jinkai Road, the pleasant environment is used for strolling, sunbathing, walking the dog, sitting and chatting with friends.

However, no playground or sports facilities for young people are provided in this tranquil garden-style park. Therefore, the noisy recreational activities and big social gathering that would be a disturbance to the residents living closely beside this narrow park are practically prevented. This arrangement facilitates a benign relationship in this close spatial juxtaposition of private-public space with only a low rail combined with short hedges and matches a subtle and gentle spatial transition (see Figure 5.19). The whole green park has a good natural surveillance from the 11-storey residential buildings encircling it. Local people keep coming and staying in this park till very late in the evening, especially in the summer. Despite the park being 24-hour open for public, observation shows that the tranquillity of this green park is well maintained without crowded or overused conditions (Figure 6.62).

Figure 6.62 The high quality spaces of West Garden Community Park



6.4.2 Sports Park

Located in a basin area between West Garden and Crystal Town (Figure 6.61 & 6.63),

Sports Park is spatially separated from them by the inhumane municipal roads which provide few crosswalks. Moreover, unlike the West Garden Community Park which is not gated at all, Sports Park is fenced and only one gateway is regularly open for this 6.7-hectare public green park. So the accessibility of this park is quite poor.

Figure 6.63 Sports Park



Six times larger than West Garden Community Park, Sports Park accommodates various sports grounds and facilities for diverse activities such as walking, jogging, tennis and basket ball games, etc, plus some quiet areas like the canopied sitting spaces for other recreational or social activities (Figure 6.64).

Figure 6.64 Various people and activities in Sports Park



So, Sports Park is widely used by all local people with a broad range of ages. Although Sports Park is stipulated as a public green park in the statutory plan and owned by the public, Longhu is authorised by the local government to construct and manage it. At first, an entrance fee was charged¹ and resulted in a severely underused condition. But under pressure of protest from the member-residents of Dragon Lake Garden, free access was granted not only to the member residents, but also to their relatives and friends when coming together. As a result, many people in this urban neighbourhood or even from other districts gain a ticket-free entry into the park. Furthermore, the observation shows that there is now no admission control at all at the gateway. In fact, the Sports Park is currently free for the whole of local public, only charging the rental of the facilities such as the court for tennis games. Nevertheless, the overall control of this park is still visibly strong because this 6.7-hectare area is entirely fenced off with one entry, opening from 6:00 to 23:00 in summer time and from 7:00 to 22:00 during winter.

Sports Park is generally an active and busy place all day long except on rainy days. Although open to the public, the observation shows that the residents of Dragon Lake Garden are still the major users of this park for convenience. Moreover, this park is often used as the venue for many large-scale community events of Dragon Lake Garden organised by Longhu or the residents themselves. In those cases, the Sport Park becomes a grand centre for community gathering with a mixture of residents from all four gated communities (Figure 6.65). While the local public are generally welcomed, at some

Figure 6.65 Various community activities in Sports Park



¹ Three kinds of tickets are available: 'pay as you go', monthly, and annual.

events such as a live music show only the member-residents of Dragon Lake Garden are admitted for free.

6.4.3 Gated communities and their neighbouring green parks: relationship and determinants

Clare Cooper Marcus (1998) argues that the public park of an urban neighbourhood has two basic functions. One is to fulfil the aspiration of local people for the beauty and leisure of a natural landscape that is easily accessible. The other function is to provide a broad enough open space where various kinds of social activities can be accommodated. The latter is especially relevant considering the role of the green park in promoting social interaction in Dragon Lake Garden urban neighbourhood. Both of the studied green parks are generally functioning well, for which the three determinant elements in design are still applicable to their performance.

The first design determinant is the enclosure size of the gated community. With reduced enclosure size, the green park cannot be internalised into the gated community. This can be proved by contrasting West Garden and Crystal Town to South Garden and Fragrant Camphor Wood. For West Garden, Longhu took a voluntary action to reduce the enclosure size and move West Garden Community Park out of the gated community enclave so it could be shared with local people. As regards Crystal Town, the limited enclosure size had already been stipulated by the local Regulatory Plan with a large public green park space allocated outside all the enclosures.

Secondly, the significance of the boundary effect and its two basic functions, namely promoting public-private 'shareness' and facilitating activities, is confirmed once again in the observation of green parks. The 'soft' boundary for instance the low rails and hedges framing West Garden Community Park illustrates the positive effect of promoting 'shareness'. As regards the latter, various facilities make both West Garden Community Park and Sports Park a magnet of local people and public activities.

The third design determinant is the shared facilities and amenities that would essentially determine the diversity and vitality of the activities taking place. Those in both West

Garden Community Park and Sports Park are generally well-provided and well-used, and make these two green parks attractive places for local public, and a focus of wide community life.

The high level of provision is due mostly to the effort made by Longhu. No matter whether it is physically defined by its gated developments (West Garden Community Park), or spatially separated (Sports Park), these two green parks have become the integral part of the Dragon Lake Garden development. However, this private-initiative to provide quality natural surroundings for member-residents cannot properly consider the broad public needs. Such provision therefore should be appropriately guided and regulated. At least, for a publicly owned park, its accessibility should be planned and secured as part of the local pedestrian network rather than put at Longhu's administrative discretion. The insufficiency of public intervention is again evident in this case. It is also proved by the bottom-up approach in the case of abrogating the entrance fee.

In addition, the studies of the two parks disclose the lack of an integrated green park system. Whether the green park is provided or not by the gated communities nearby, local government should develop proactive plans and guidelines for the benefit of the overall urban neighbourhood. On the one hand, these planning policies will ensure the functional integrity of the parks in cases when one public green park, West Garden Community Park for example, fails to accommodate some kinds of facilities and activities, they can be available in another. On the other hand, these planning policies will ensure the spatial integrity, both visually and physically, to prevent the poor connection between green parks, for example, between West Garden Community Park and Sports Park.

6.5 Summary

This chapter has investigated the physical settings and usage conditions of the public spaces, i.e. streets, squares and green parks, around the four gated communities in Dragon Lake Garden urban neighbourhood. The analysis indicates that between the gated communities and the neighbouring public spaces exists an interdependent and interacting relationship, both spatially and socially. Providing commercial and recreational services needed in daily lives, these public spaces are in fact a key amenity for residents living in

the gated communities, especially West Garden and Crystal Town. In this regard, these public spaces are also the important social venues for the residents living in and around gated communities. Aegean Street is a case in point. Moreover, the physical settings and usage conditions of these public spaces are heavily influenced by the adjoining gated communities. This is not only because of the spatial juxtaposition, but more fundamentally, because of the fact that all squares and green parks and most of the sidewalks of streets are built and managed by the developer of the gated communities. Such influences, either actively/wittingly or passively/unwittingly exerted, and either positive or negative in terms of the local public, is in large part a product of the design features which by and large determine the *boundary effect*, *enclosure size*, and *public shared amenities and facilities* of gated community.

- Boundary Effect

The direct observations made on the public accessed streets, squares and green parks in the Dragon Lake Garden urban neighbourhood have all shown that the boundaries of gated communities played an extraordinarily active role in shaping their relationship with the adjoining public spaces. It is the boundaries that directly confront the neighbouring public spaces and materialise the public-private transition. The effect of the boundary varies widely, according to its diverse physical characteristics, from outward facing mixed-use buildings, railings, hedges to the blank wall of concrete mound. But basically, the boundaries can be grouped into three categories according to their composing structures, and further into nine kinds as regards the disparity in details (Table 6.1 and Figure 6.66).

Table 6.1 Typological analysis of the boundaries: design features and the outcomes



(See the enlarged plan in Figure 6.66)

Composing structure		Location	Detailed design features	Outcomes
Building	Mixed-use (residential & commercial)	1		Subtle transition but perceived noise by the apartments sometime; Recreational activities; Safe and wakable
		2		Subtle transition but perceived noise by the apartments sometime; Various recreational and social activities; Safe and wakable
	Mixed-use (no residential which is arranged in the separated buildings inside)	3		Active frontage; Recreational activities; Safe and wakable
		4		Blank wall, but 'softened' by plantings; Passing-by; Wakable during daytime but avoided at night

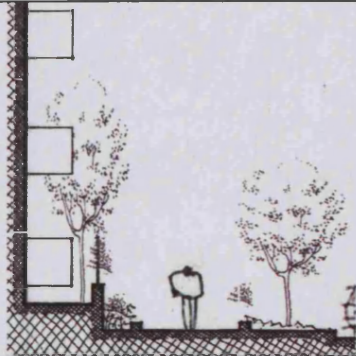
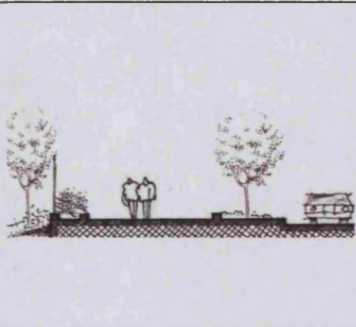
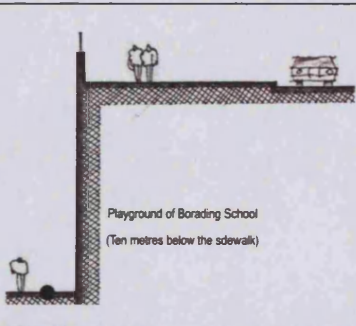

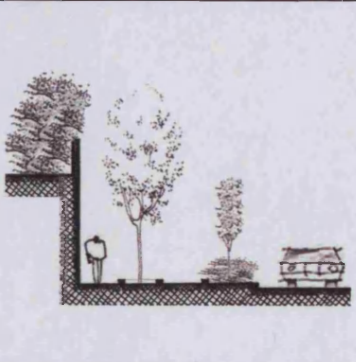
<p>Fence</p>	<p>Railing with planted verge on brick wall, with private residential buildings sitting closely</p>	<p>5</p>		<p>Subtle transition; Visually connected; Privacy is well protected by the proper height of brick wall and verges; Passing-by and leisurely walking; Safe and walkable</p>
	<p>Railing with planted verge on brick wall</p>	<p>6</p>		<p>Overtly indicated public - private division but still affording views due to low brick wall; Mostly passing-by and some leisurely walking; Safe and walkable</p>
	<p>Railing on brick wall</p>	<p>7</p>		<p>Overtly indicated public - private division; Partly deterred views due to the one-metre high brick wall; Passing-by Unfriendly for walking</p>
<p>Land-scaping</p>	<p>Landscape and fences</p>	<p>8</p>		<p>Subtle transition; Visually connected; Passing-by and leisurely walking; Safe and walkable</p>
	<p>Mound</p>	<p>9</p>		<p>Simple demarcation and minimal design; 'softened' by plantings and walkable; Mostly passing-by and a few leisurely walking; Unsafe space needing special security patrol</p>

Figure 6.66 The nine kinds of boundaries around four gated communities of Dragon Lake Garden developments



No matter what the boundary effect is the adjoining public space can only be regarded as successful if it is favoured and intensively used by the local public. In this regard, the analysis above reveals that the positive boundary effect generally has two common features in terms of the adjoining public space. One is the ability to facilitate activities. The functional provisions of the boundaries and their comfort they provide are of great significance in generating the necessary/functional, optional/recreational or social activities. The other feature is the ability to increase shared use, which makes everyone nearby, both inside and outside of the boundary, feel attached to, and responsible for, the adjoining public space. Such shared use is closely related with the visual and practical proximity/accessibility between the public and private spaces divided by the boundaries in between. In this case, the physical characteristics at the boundary, such as position, height, transparency, uses, and so forth, really matter and therefore demand careful design.

- Enclosure size

Unlike the boundary effect the impact of which is relatively easy to perceive, the impact of the enclosure size of gated community for the adjoining public spaces is more subtle although perhaps more fundamental. Reduced enclosure size would largely improve the accessibility and permeability of an urban neighbourhood. Moreover, with reduced enclosure size, gated communities would inevitably have more interfaces with the public spaces around them, and therefore pay more attention and extend more design effort towards them. Aegean Street, located between West Garden and Fragrant Camphor Wood, is a typical case. Specifically, the observation from the Dragon Lake Garden urban neighbourhood shows that, the enclosure size of gated community is better not larger than five hectares (200m × 250m).

- Publicly shared amenities and facilities

The third key aspect determining whether the public spaces around gated community are attractive and prosperous in recreational and social activities is the publicly shared amenities and facilities within them, ranging widely from public transport, retail, health services, cultural and leisure facilities, to trees, chairs, streetlights, kiosks, sheds, and so forth. It is these amenities and facilities that make the public spaces really attractive for everyone, living both inside and around gate communities. No matter whether they are provided by public or private sector, the quality should be guaranteed in terms of not only

the provision, but also the management measures applied to them. While the former implies the possible activities, the latter decides what kinds of activities would eventually take place.

Far from turning its back to the adjoining public spaces, Longhu is observed to have gradually perceived the utilities of the public spaces and consciously managed them in the Dragon Lake Garden development. Such manipulation, revealed in this observation, is not necessarily negative but can be beneficial to the local public. An interdependent relationship can be developed between gated communities and the adjoining public spaces if well designed and managed. However, the negative evidences illustrate that although contributing greatly to the local public spaces, Longhu is generally oriented by its own profit interests and the requirements of its member-residents. In this case, the local needs and the public interest are sometimes ignored and sacrificed. Moreover, maintaining these public spaces, Longhu is seen as very sensitive to the possible damage or wear and tear, especially when there is an observable threat to the well-being of its estate environment from the presence of jobless rural migrants and unregulated vendors, and therefore often takes measures in management to reduce the accessibility. In consequence, the quality of the public space is at stake if no public regulation and supervision is instituted.

Unfortunately, evidence shows that the governmental effort as regards public space provision has been largely absent so far, with little proactive regulatory plans or guidelines being made for the holistic and integrated development of the public spaces in the Dragon Lake Garden urban neighbourhood, especially with regard to the aspect of practical uses and potential activities within them. In fact, the municipal roads, the principal publicly built and managed facilities in this urban neighbourhood, are all car-oriented, straight, wide, with little crosswalks provided to connect the activities on both sides. Consequently, they are the most segregating barriers to divide the space and pedestrian flow themselves. Compared to Longhu who wittingly develops and utilises the public spaces around its gated developments for the wider benefit of the community, local government is far less aware of the significance of public space and the spatial integration in people's daily living quality, and accordingly, its responsibilities.

CHAPTER SEVEN

PUBLIC SPACE BEYOND GATED COMMUNITIES: FORCES IN THE DECISION-MAKING AND A DESIGN-LED DEVELOPMENT CONTROL

7.1 Introduction

The former two chapters disclose the different attitudes and efforts the developer (Longhu) and the local government put into the design of the gated communities, either in the positive / active (the former) or negative / passive way (the latter). Meanwhile, the designers, planners and other experts inserted their own professional values and expertise when working on the planning and design of the projects. In this regard, a major question emerging from the preceding chapters, and the theme of this chapter, is why such a design effort was, or was not, made to create the public spaces in the gated community development. To answer this question is to interrogate the fundamental economic, social and institutional forces driving the design process of Dragon Lake Garden, and to assess the different role played by the major decision-makers. As is explained in detail in the methodology chapter (Chapter 3), this part of the investigation is based on the views, opinions, and experiences of the key players including politicians, planning officers, designers, developers, and property managers. The data mainly comes from 21 semi-structured interviews (see Appendix 3 & 4), while some official documents are used as second-hand data to supplement the investigation.

This chapter starts by enquiring into the decision-makers' general perceptions of gated

communities, especially on the two controversial issues of social segregation and privatisation of public spaces, and their visions of a 'good' gated community. It also describes the general background of decision-making in design and planning for a gated community. Then it proceeds to investigate the detailed reasons behind the changing physical features on the aspects of enclosure size, boundary effect, and shared facility supply. The final part discusses the possibility of a design-led approach to the gated community development in the current planning regime of China, in terms of securing the quality of the adjoining public spaces and creating socio-spatial integrity of urban space as a whole. It analyses the problems of the existing residential planning orthodoxy in relation to the design of gated communities, especially those codified into official standards and norms, and then explores the possibility that these problems could be solved at the policy level in the current planning regime.

7.2 Perceptions and visions for gated community development at design and policy level

7.2.1 Perception of segregation and integration

In China, rather than being criticised as a socially hostile housing development pattern producing spatial fragmentation, the gated community is mostly credited with its social contribution to community development. At the annual governmental conference for planning in 2006, the mayor of Chongqing strongly endorsed gated communities for the first time, for the reason that they 'can facilitate social harmony and stability' in the current urban condition. His comments were widely echoed by the professionals engaged in city-making mainly because of two characteristics of gated community. The first is the secured quality of the communal spaces, outdoor or indoor, enclosed in gated community.

'The common space in the gated community provides the member-residents with a comfortable and safe place for social gathering or other activities. In this way,

a real community can be fostered by these interactions. This (the enclosed communal space) is also in accordance with the Chinese living habit and culture.' (Section Chief A, Chongqing Urban Planning Bureau, CUPB hereafter)

'Undeniably, the open spaces in gated communities are safer and more comfortable than those crowded streets outside for the moment. It is common that the residents living in the same building do not know or even speak to each other, because they do not have an appropriate sociable open space under such conditions. And this reality would not change soon. In this regard, a certain degree of enclosure will certainly encourage the people to go out of their home to the communal open spaces which they feel really and truly attached to. So, to some extent, the gated community helps to reinforce rather than disturb interaction.' (Professor, member of Planning Committee of Experts)

'It is not necessarily good for a Chinese metropolis currently if there is no enclosure at all. The security and environmental condition has been greatly challenged by soaring population in the on-going process of urbanisation. By means of it (gated community), the basic environmental quality of open spaces in a housing neighbourhood can be secured, for the member-residents and their children especially to have outdoor activities and possibly some social interaction as a consequence.' (Section Chief B, CUPB)

The second unique feature of the gated community is the new model of community governance replacing that of welfare housing in the Socialist era. Each gated community is maintained by a property management company and often has its own Homeowner Association. Community activities are generally organised by these two groups. *'In this way, more interaction between residents will take place which can foster a strong social connection with the community'* (Section Chief C, CUPB). Moreover, he reckoned that *'it is a good opportunity to develop community-based self-governance, a new and democratic model of a social mechanism in the grass roots when the previous one has*

been weakened or even destroyed in the reform towards the market economy.'

When asked of their opinions on gated communities, almost all the officers, planners, architects and experts focused on the benefit for the member-residents. As regards the public perspective, and the local people outside gated communities, the social exclusiveness of gated community was acknowledged, but mainly perceived as a minor issue or even not a problem at all.

'Neighbourhood interaction based on close encounters normally take place within a small territory scale. This interaction would be sharply reduced when the territory expands. So, I think that a carefully designed scale of enclosure will in fact have little impact on the social interaction in this regard.' (Section Chief D, CUPB)

Many interviewees pointed out that there is normally a highly mixed and compact living condition in Chinese cities and that socio-spatial segregation cannot be achieved by a gated community in relation to such close daily encounters. So, a planning officer believed that *'there is basically no real social or spatial segregation caused by gated community for now, and therefore it is unnecessary for a governmental intervention in this aspect'*. (Section Chief B, CUPB)

It is very interesting that while advocating social equality, many planning officers actually considered that a certain spatial concentration and segregation of the rich and poor is a better urban residential pattern under current urban conditions.

'I am personally against a mixed housing project which, for example, develops both luxury villas and affordable apartments in one enclosure deliberately. This will bring up many social problems by juxtaposing the rich and poor. The distinct comparison would emphasize the wealth gap inconsiderately and possibly exacerbate the Hate-the-Rich mentality in our transitional society, which is not good for a social harmony.' (Section Chief C, CUPB)

When commenting on the poor sharing the beneficial externalities produced by the rich in the same neighbourhood, Section Chief C referred to the aftermath of egalitarianism in socialist era when everyone was *'Eating from the Same Big Pot'*.

'Reaping without sowing is not reasonable and will only encourage indolence'.

(Section Chief C, CUPB)

He thought that social equity should be achieved by a complex welfare system rather than the physical juxtaposition. His views interpreted the widely held idea in local planning authorities that a certain spatial concentration and segregation of the rich and poor is seen as appropriate under current urban conditions. This concept has already been written into some planning policies, such as the 'Housing Plan for Metropolitan area of Chongqing, 2006~2010', which states that *'the housing developments with different prices should be arranged carefully with a smooth spatial transition rather than juxtaposition, so as to prevent the social problem possibly caused by comparison'*. The *'smooth spatial transition rather than juxtaposition'* to avoid confrontation is possibly one of the major reasons that the pattern of gated community is officially approved. And the evidence in the preceding chapters shows that gated communities actually help to mix the different income groups, not in the same enclosure but in the same urban area, especially if good edges conditions and public spaces are provided around the enclosures.

7.2.2 Perception of privatisation of public spaces

With urban resources being enclosed for private use only, privatisation of public space is the other critical issue of gated community. Although this negative impact is widely recognised by the interviewees, they regard it as a necessary response in the face of resource shortages resulting from the huge rural migration entering into cities.

'It (massive urbanisation and rural migration) is the most significant reality which cannot be overlooked. The privatised space probably constrains some users, but its quality and usage condition can be kept at least at an acceptable

level, which will attract more uses and investment in return. But if an open space is congested with a large population of unemployed rural migrants, the normal uses by local residents would be greatly disturbed. As a result, the local people will retreat from this space because of the deteriorating environmental quality, which will make things worse. This vicious circle will eventually reduce this space to a to-be-demolished area. We prefer the former approach on this account.' (Section Chief C, CUPB)

The limited management resources and the worries about the deteriorating environmental quality cited above are *de facto* the reason that the Lakeside Park¹ along Aegean Street, once opened to the public, is now gated:

'With the increasing population in this area, especially the rural migration, the environmental quality of this park would become very hard to maintain without gated management.' (General Manager, Longhu)

As opposed to those permanently privatised as private property, some enclosed areas in gated communities like Nine-Dragon Lake, are still public assets and just 'temporarily' privatised and managed by the private sector. Rather than regarded as an encroachment of public goods, it is generally approved as a win-win practice in the development of gated community.

'Due to the lack of resources, our local government could not provide good maintenance for some public landscapes, especially at the beginning of the Reform period. Therefore one measure adopted was to put them into private use/management by a 50- or 70-year lease, and claim them back for the public use again, in a well-managed condition. So, in the long run, it will be good for the public and our city. In your case study for example, the Nine-dragon Lake is temporarily lent to Longhu and we can see that the body of water has been well managed.' (former Head, CUPB)

¹ As the Lakeside Park is not open to the public, it is not included in the investigation of the public green parks in the Dragon Lake Garden urban neighbourhood.

But observations in last chapter show that there are some problems with such an approach. Longhu, authorised to manage the Nine-Dragon Lake, can hardly prosecute other landowners along the lakeside who pollute the water. Another problem with this private-public cooperation is that the whole process is not transparent and has no public participation. The public does not even know that the controlled areas, Nine-Dragon Lake for instance, are still public assets which they have right to express their opinions about the design at present, and could reclaim their uses in the future. In this case, the enclosed areas could possibly be permanently privatised and no one would know.

The comments mentioned above demonstrate that the gated community has gained legitimacy in the eyes of professionals involved in city-making. It is largely endorsed and advocated as a good pattern for the commodity housing development by policy-makers. Accordingly, there is basically a pro-gated-community attitude in the local planning department. Nevertheless, although a policy vacuum for the gated community is widely acknowledged among the interviewees, *'some requirements for the final spatial outcomes are still applied in the development approval process'* (Section Chief D, CUPB).

7.2.3 The development-led policy context for gated community design

The development control exercised on gated communities, which should be adopted in both the local regulatory plan and approval process, has been very weak in practice. There are two main reasons for this emerging from the interviews and documentary research.

One is that without detailed regulation or guidelines dealing especially with the gated form and other associated features, the development control placed on gated communities is not different from other non-gated housing developments. For the planners, the regulatory plan is mainly about stipulating plot ratio and land use for residential development. As regards the special requirements for a gated community, *'they have not yet been considered in the regulatory plan, but left for the planning administration.'* (Planner, Chongqing Urban Planning Institute) He agreed that *'there should be a special*

urban design guideline in this respect. But who pays for it? This is the point.' But in fact, the planning officers or regulators in development control process seldom impose any special requirement for the application of gated community developments. Any consideration or requirement in this regard is dependent on planners' personal knowledge and initiative. Adding any such requirements, as a few interviewees complained, lacks the support from official policy and is therefore vulnerable in negotiations with developers.

The other reason is the pervasive market-oriented mentality in local planning departments. 'Respecting the market choice' was the most often heard response in the interview.

'With a competition mechanism in the housing market, many developers have to make a thorough market investigation about the preferable features of gated community. And for the same reason, they would make an effort to provide a good environment, including that surrounding their developments. So, we should not intervene too much in the design as long as it is in accordance with the local Regulatory Plan.' (Section Chief B, CUPB)

This trust among planning officers in the ability of the market / private sector to deliver good quality to the public infrastructures is mainly based on the obviously improved quality of urban amenities since private development and commodity housing were introduced, and this is especially impressive when compared with the housing conditions before the Reform. The efficiency and ability of market provision has been applauded by local government: *'the developer's provision, especially as regards those for daily living, is in fact ahead of our planning requirements'* (Section Chief C, CUPB). In fact, in today's housing market in China, there is an imperative for developers to create good urban spaces adjoining their developments to attract buyers:

'We also invest in improving the environmental quality of the public space around the gated enclosures. Why? (because) It is normally part of the overall property value of our development in the eyes of buyers.' (Project manager of Crystal Town Garden, Longhu)

However, some planning officers did recognise that there were some public

infrastructures and services that were underdeveloped as a result of this market-oriented development control. But they confessed that a strict development control for the gated community can hardly be adopted in the planning department for the moment when there is currently an overall market-oriented administration in local government focusing on economic growth.

‘On the one hand, problems resulting from the preferential policy for gated community are not acceptable; on the other hand, a strict control could possibly become a stumbling block to the local economy, which is also a big mistake.’

(former Head, CUPB)

In general, there is a development-led policy context for the design of the gated community. Little pro-active planning regulations or guidelines were developed for gated communities, and a highly flexible development control has been the common practice.

7.3 The forces behind the changing design strategies of Dragon Lake

Garden

This section will closely look at the development process of Dragon Lake Garden, trying to reveal the approaches taken by the housing developers and the decision-makers in the local government as regards design. But before proceeding into detailed discussion, the changing development context will be quickly reviewed from the developer’s perspective, in order to exhibit the context behind all the design decision-making for Dragon Lake Garden developments.

7.3.1 Changing development context behind the design of Dragon Lake Garden

Urban environment and policy condition for design

Chinese cities have been experiencing an unprecedented fast growth in the last decade. The constantly and rapidly changing urban landscape which has often been far ahead of urban planning was the general urban context for the development of Dragon Lake Garden.

'The change is so fast that you can hardly have a precise prediction for the development even in the very near future. So our plan needs to be modified constantly according to the new conditions and requirements. The modifications were not purely made out of a professional consideration, but sometimes required by the local government in order to provide preferential policies for potential real estate investment.' (Planner, Chongqing Urban Planning Institute).

Besides, the gated community as a brand-new urban phenomenon is another important factor which cannot be ignored. In the case of Dragon Lake Garden, it was 1997 when South Garden, the first phase development of Dragon Lake Garden, broke ground. The site was located in a suburban area with poor infrastructure provision, few and unconnected roads. By means of the South Garden development and some additional work on the roads around, Longhu initiated and dominated the development of that area within a very general planning framework. But this privately funded and property-led urban development model experienced a gradually strengthening governmental intervention during the subsequent phases of Dragon Lake Garden.

On the one hand, the proactive role of development control had been emphasised since the 'Guideline for Detailed Regulatory Plan in Chongqing' was applied in 2002. It required that all urban areas should have a local Detailed Regulatory Plan. Meanwhile, relevant planning policies such as the regulations for urban amenities administration and guidelines for urban landscape design were also put in force.

On the other hand, local government began to be aware of, and take the leading role in urban development.

‘Once the urban network was finished, the development in this area speeded up suddenly with booming housing developments. Local government recognised this fact and would normally provide the basic infrastructure in advance today for the sake of facilitating urban development.’ (General Manager, Longhu)

Market requirement and developer’s intervention in design

The real estate industry in China has only recently emerged and has grown up since the housing reform launched in the 1980’s. Therefore, for the first set of developers and the market of the time, the gated community was an entirely new thing. Longhu, set up in 1997, is one of these developers. Lacking both experience in this industry and sufficient information about the market, the developer depended largely on his designers at the beginning. But this changed soon after South Garden was finished.

‘South Garden was our first project. Like many developers at that time, we had little idea about this industry and professional knowledge of residential planning as well. As for design, we relied more on the architects and landscape designers. Therefore, the whole design, including the housing type and the visual aspect, was mainly based on their opinions. Based on the experience from this project and detailed market research afterwards, we had a more explicit development strategy for design in subsequent developments. In 2002, we set up our own design team composed of professionals to deal explicitly with the design issues in our development.’ (General Manager, Longhu)

7.3.2 Changing features of Dragon Lake Garden and the forces behind them

This section intends to examine the changing features in the design of Dragon Lake Garden, in terms of enclosure size, boundary form, and facility provision; and seek to

explain the forces which determine every change in design. These forces are mainly exerted by governmental intervention through urban planning, and / or the market requirement represented by Longhu.

Shrinking enclosure size

The evidence in the previous chapters shows that the enclosure size of the developments of Dragon Lake Garden had been shrinking in general (see Figure 5.3), with 15 ha. for South Garden, 17 ha. for Fragrant Camphor Wood¹, 5 ha. for each enclosure of West Garden, and 6.5 ha. for one cluster and less than 5 ha. for the other four enclosures of Crystal Town. The smallest one in Crystal Town is around 3 ha.

The first distinct reduction of enclosure size took place in West Garden. It was realised by the arrangement of Aegean Street and the landscape promenade above West Garden Community Centre, both of which are publicly accessible. While the former detaches West Garden from South Garden and Fragrant Camphor Wood, the latter divides West Garden into two enclosures (see Figure 5.7). This layout makes the site area of West Garden much more accessible than that of the two earlier developments. Designed before 2000 when the local Detailed Regulatory Plan was far from completed, this reduction in size was apparently driven by market requirements. Both Aegean Street and the landscape promenade were originally internal roads of Dragon Lake Garden in the local plan. Therefore they are Longhu's 'voluntary' contribution to the urban neighbourhood at large. But this change and '*contribution to the neighbouring public is actually unconscious*' (Project Manager, Longhu). Aegean Street was a spontaneous and intuitive choice as '*there should be a public access road between West Garden and Fragrant Camphor Wood, because they are two separate developments with different housing prices.*' (General Manager, Longhu) The General Manager of Longhu confessed that '*though*

¹ Although South Garden was the first project in the line, the enclosure size of Fragrant Camphor Wood was actually decided before that of South Garden. 'Fragrant Camphor Wood would be the first project in our original plan. But considering the poor road network at that time, we changed our plan and chose to develop South Garden by the arterial road first.' (General Manager, Longhu)

opened to the public, it (Aegean Road) was carefully designed and managed for our interest. The commercial uses along it attract much public consumption, but public traffic is well controlled by the deliberately designed curvilinear form.' As regards the landscape promenade dividing the development site into two smaller enclosures, it mainly emanated from considerations of property management.

'Our management service is an enclosure-based provision. We found that it is hard to manage if there are too many residents in one enclosure. Therefore, we decided to divide West Garden into two enclosures by means of a promenade which is just located in the middle of this site.' (Head of Property Management Section, Longhu)

The optimal scale is reckoned to be *'an enclosure with 500~600 households'* (around 3-hectare) (Head of Property Management Section, Longhu), which was in fact applied in four clusters of Crystal Town, the last development phase of the Dragon Lake Garden project.

The experience of West Garden illustrates that a reduction of residents in one enclosure does not necessarily mean a reduction of the client groups and consequently the social mix of the housing development.

'South Garden targeted the higher income clients because a car was necessary for such a suburban development at that time. But when this area was transformed to an urban area accessed by public transport, we hoped that more people could be our potential clients of West Garden. So, we wittingly reduced the floor area per housing unit so as to reduce the total prices compared to South Garden. In this way, more people with less income can also become our clients.' (General Manager, Longhu)

The shrinking enclosure size in West Garden continued in Crystal Town, the last phase of development of Dragon Lake Garden (see Figure 5.11). But rather than being a developer's initiative this time, it was mainly a result of an increasingly strengthened

development control through proactive urban planning. The Detailed Regulatory Plan with fine-grained (150~250m × 150~250m) urban blocks and road network had been completed before the development of Crystal Town, which was located on five blocks framed by urban roads and conformed to the prescribed block size. As *'the gated form was in fact not discussed when appraising this application'* (Professor, Planning Committee of Experts), the reduction of enclosure size in Crystal Town is actually the result of the application of Detailed Regulatory Plan which pro-actively prescribed the major urban roads, and urban plots before selling them to developers. This ensures that the developer cannot claim a large piece of land without public roads running through it, and inherently put limits to the enclosure size.

However, the first phase of Crystal Town development is an exception as the enclosure size is bigger than that in West Garden, with one urban road in the Detailed Regulatory Plan removed by the negotiations during approval process. Although it is Longhu that sought to remove the road for the reason that *'the design concept for this high-rise development needs a spacious landscape within the enclosure'* (Project Manager, Longhu), many experts in Planning Committee reckoned it was a good suggestion:

'Some facilities of a residential development like a nursery are not very convenient for use if they are located in different plots separated by urban roads. Therefore, we often propose merging plots for housing development with the urban road being sunk or elevated to allow residents to move easily and safely within the enlarged block.' (Professor, Planning Committee of Experts)

His view reflects the fact that the modernist planning concept, which advocates the large urban blocks connected by freeways and the separation of vehicular and pedestrian traffic, is still prevalent in China today. Urban roads are usually designed for the convenience of vehicles only and become virtually the major factor producing large blocks which are inaccessible and not permeable on foot, leading to fragmented urban spaces as a consequence. This can be shown by the observation of the public roads around Dragon Lake Garden (See Chapter 6).

Private-led commercialisation of the boundary effect

South Garden was recognised by the Ministry of Science and Technology Division as one of the earliest commodity housing development models after housing reform, and published in the 'Collection of The Demonstration Housing Projects in China' (1997). No gated features were shown in this book, including South Garden. The physical boundaries and gates were added afterwards when gated property management was introduced. Therefore, the potential effects of the walls, fences or any other forms of boundary on the neighbouring spaces had not been recognised by Longhu at first, but the evidence is that they have gradually been given more consideration in subsequent developments. The potential financial benefit from the commercially developed boundaries was soon perceived and made full use of in the later phases of development. This was demonstrated by the commercial use arranged at the boundaries along Aegean Street in West Garden, Commercial Street before Group I and the 2~3-storey commercial buildings along most of the boundaries in Crystal Town.

The interview with the General Manager shows that the design of Aegean Street and Commercial Street was based on lessons learned from South Garden.

'The designers arranged commercial buildings of South Garden along New South Road. But we found in practice that New South Road is too wide to be traversed, which reduces the accessibility of our commercial facilities. Dragon-lake East Road would have been more suitable in this case. So, we carefully designed the commercial environment of Aegean Street in West Garden by means of, as you can see, the human-oriented landscape and sitting spaces, delightful greenery, and the curvilinear street. As regards the Commercial Street before Group I of Crystal Town, it was originally an urban road accessed by vehicles in local Detailed Regulatory Plan. To create a safe shopping space, we applied to turn it into a pedestrian-only street and our proposal was approved.'

(General Manager, Longhu)

For many architects interviewed, the boundary was not paid any attention in their work. Nor did the planners and planning officers perceive this as a planning issue. Obviously, Longhu was more sensitive and responsive to the practical use of the boundaries adjoining the public urban space outside. However, the design efforts made by Longhu were basically driven by its own pecuniary interest, and therefore were drastically reduced or even non-existent where Longhu had little interest. There should have been some planning intervention in this regard. The boundaries at South Garden, Boarding School and Fragrant Camphor Wood segments along Dragon-lake East Road are the representative cases (see in Chapter 6). The lack of development control is actually because of the poor awareness in the planning regime of the boundary effect on the quality of the public space. This was even reflected by the carelessly public planned, built and managed urban roads around Dragon Lake Garden. The accessibility of the boundaries is largely reduced as the car-oriented roads without crosswalks basically cut off the pedestrian flow across these roads. The officers interviewed ascribed this failure to the fast pace of urban development and the limited resources in government, while some expected that the developers like Longhu would shoulder this part of infrastructure construction, just as other efforts it put into the public spaces adjoining its housing developments. But Longhu responded that *'we can do nothing in this case. They are municipal roads and therefore the responsibility of local government.'* (General Manager, Longhu)

From gated/private community supply to social supply

By and large, the design strategy as regards commercial services in Dragon Lake Garden was transformed from 'community supply', mostly depending on internal provision and consumed only by member-residents (South Garden and Fragrant Camphor Wood), to 'social supply', depending largely on the external provision and shared with the local public (West Garden and Crystal Town). While the former pattern means that most of amenities and facilities related to daily living are arranged in the enclosure, and exclusively for the member-residents, the latter developments share them with the local

communities around Dragon Lake Garden, including both supporting facilities and some leisure spaces. West Garden initiated this fundamental change. Unlike South Garden and Fragrant Camphor Wood, the community centre of West Garden was moved out of the enclosures and integrated with the publicly accessed landscape promenade. Moreover, all the retail facilities for daily necessities were not arranged in the enclosure, but along the Aegean Street. There were two main reasons for this change from the perspective of Longhu. One is the maturing urban environment for West Garden.

'South Garden was generally developed as a self-contained project, because little supporting facilities were available in this suburban area at that time. But as you can see, this area is a prosperous urban area now and this change became visible just after South Garden was finished. So we increased commercial facilities in the development of West Garden. They were arranged to serve not only our residents, but also the local people outside which actually brings us more financial benefit.' (General Manager, Longhu)

The other reason is that the internalised facilities in South Garden proved to be not economically sustainable in practice¹.

'Rather than making any profit, we have to subsidize these supporting facilities due to the limited number of consumers in our enclosures. It is not a sustainable approach for property management in the long run. So in West Garden, we put these facilities including the community centre in the publicly accessed area, so as to attract as many consumers as possible.' (General Manager, Longhu)

Based on the 'successful experience' of West Garden, the 'social supply' concept was identified, replicated and strengthened in the development of Crystal Town. *'We wanted to create a large urban neighbourhood with diverse functions rather than a mono-functional residential project.'* (Project Manager, Longhu) Apart from the noticeable commercial complex and boundary buildings, the 6-hectare Sports Park is the

¹ Being a luxury villa project targeting high-end market, Fragrant Camphor Wood follows a development strategy which is completely different from those of other three Dragon Lake Garden developments. Therefore, its special demand for high provision standard, not economically sustainable though, is not taken into comparison in this case.

highlight of Crystal Town. Unlike the Nine-Dragon Lake which is enclosed completely by South Garden and Fragrant Camphor Wood, the Sports Park, constructed and managed by Longhu though, is open to the public.

'This is a win-win decision: from the perspective of local government, the financial problem of maintaining this park was solved with immediately improved and well-managed quality in the future; from the perspective of Longhu, this investment gained a desirable selling point for Crystal Town, as well as a bonus-plot where its community centre is located.' (Planner, Chongqing Urban Planning Institute)

In West Garden, this transformation toward 'social supply' was mainly propelled by the fast maturing urban context and Longhu's initiative with respect to the economic feasibility of property management. In Crystal Town, however, the fine-grained urban network limiting the enclosure size was recognized as another crucial element for this change.

'Crystal Town was located on five unattached plots. It is impossible to put the supporting services including the community centre in any enclosure.' (Project Manager, Longhu)

Although urban planning is shown as being gradually strengthened, it did not yet provide enough guidance for creating '*a large urban neighbourhood*'. This was particularly reflected in the limitation of the commercial facilities in the area around Dragon Lake Garden. The Resident-Satisfaction Survey shows that the high rent of the boundary buildings deters the development of the small businesses and low-cost local services, which consequently limits residents' choice and increases their cost of living (see Chapter 5). Essentially, this limitation on daily provision has resulted from the lack of governmental strategic planning for the provision of shops and business spaces to accommodate local services. Not only the local residents, but Longhu also suffered from the lack of vision for urban development.

'Targeting mainly the neighbourhood of Dragon Lake Garden, we did not

properly predict the serving radius of our commercial facilities in Crystal Town development when making the master plan. We realised this mistake when, for example, some large restaurants, targeting clients from the whole city rather than those in this urban district, expressed their interest in moving into our facilities. But unfortunately, because there was not enough car park space for them, they gave up. Obviously, the physical layout limited our possibility of accommodating 'urban-scale' facilities. This is a great loss for Longhu of course, but also for this urban neighbourhood.' (General Manager, Longhu)

Moreover, public transport, medical and other services from the public sector are also insufficient (see in Chapter 5 and 6). It again shows that the development of the urban neighbourhood of Dragon Lake Garden had been essentially based on the developer's initiative. There was not a clear vision in the local plan for the development of the whole urban neighbourhood around Dragon Lake Garden and public provision in consequence.

7.3.3 Synthesis: the necessity for a pro-active development control to improve gated community design

The analysis above shows that Longhu was the first to be aware of the key characteristics of the gated community, and then it initiated, directed and propelled the changes in spatial arrangement during the various phases of the Dragon Lake Garden development, according to the market requirements and development context of the time. Although endeavouring to integrate with, rather than differentiate or segregate from, the urban neighbourhood around, Longhu is both incapable and unwilling to shoulder the responsibility for all the public spaces around its housing developments. Its provisions in the adjoining public spaces are always made in its own interest as they are either the member-residents' preference or profitable, although most of them were proved to be also of benefit to the local public and the integration between gated enclaves and neighbouring urban spaces in general. As regards the designers retained by the developers, they played

a very minor role in the decision-making for this transformation, although '*the gated form was always challenged by the foreign designers we invited to do these projects*' (Director, Architectural Design Sector, Longhu). In fact, the interview with a few Chinese experts and architects in practice shows that they are generally focusing only on the area in the enclosure, having little awareness of the gated elements and their consequences. In this regard, there should be a powerful intervention from public sector to make sure that developers take responsibility for the design of public spaces around gated communities, and the planners should provide guidelines for physical design.

However, little guidance and control was applied during the development of Dragon Lake Garden, especially in the first three developments. This is because of the prevailing property-led development ideology of the local government, and insufficient urban planning and development control in the face of fast economic development and urban expansion. In fact, the gated forms and their potential negative impacts on the public had not been fully appreciated by policy-makers, including planning officers and relevant experts, while the traffic dominated road system was prone to separate the urban neighbourhood into several disconnected plots.

All in all, there is a pressing need for re-thinking the design and development control of gated community in Chinese planning regime today. The evidence from Dragon Lake Garden development suggests that the physical manipulation of enclosure size, boundary effect and shared amenities and facilities around gated community could effectively make gated communities better connected and integrated with the located urban neighbourhood as a whole, in both physical and social terms. But how can these elements be properly guided and regulated in design terms? Is this design-informed development control applicable in the contemporary planning regime in China? What are the problems in the existing guidelines, criteria, codes, and prevailing administration rules? The answers will be explored in the next section.

7.4 A design-led solution to gated community in existing planning regime: applicability and barriers

7.4.1 Enclosure size

As is summarised in the last chapter, an enclosure size less than 5 hectares (around 200m × 250m) is the prerequisite for a gated community to be integrated with its neighbouring urban spaces. And the evidence above shows this scale is also preferred at the moment by property management agencies. But with weak development control, especially during the early years, the enclosure size was mostly decided by the developers who were capable of claiming a large piece of land. A large enclosure for a gated community can hardly be reduced by planning administration afterwards. Qifu Village in Guangdong province is a case in point. Developed in the 1990's - the 'Great Leap Forward' period for real estate - and in the most economically active province of the time, it has an enclosure size of over 400 hectares, with around 100,000 residents, various facilities, and even its own commuter bus service operating in this big enclave (see Figure 4.21). More than ten years later, a municipal road running through Qifu Village, actually a small city, was planned in the local Detail Regulatory Plan in 2005, in order to improve the connection with that area. But it was strongly protested by the residents of Qifu Village for the sake of their property rights, and so this road was eventually given up. Therefore, a pro-active development control system is particularly important to prevent such cases.

However, there is currently no relevant regulation or guidelines in official planning documents, although all of the planning officers in the interview agreed that the enclosure size of the gated community should be controlled. In general, the plan of urban road network is the only base for them to make decisions in this case. The land area subdivided by the municipal roads is therefore regarded as the maximum enclosure size allowed for a gated community. However, the municipal road which should be kept public is not clearly and properly defined in any planning policies or guidance, especially in the 'Code of

Urban Residential Planning & Design’, a key official document for residential planning, design and development control.

The ‘Code of Urban Residential Planning & Design’ prescribes that a residential neighbourhood will be planned by three basic structural hierarchies: district, quarter and cluster. (Table 1)

Table 7.1 Three basic structural hierarchies in residential planning in China

	District	Quarter	Cluster
Households	10,000 ~ 15,000	2,000 ~ 4,000	300 ~ 700
Population	30,000 ~ 50,000	7,000 ~ 15,000	1,000 ~ 3,000

(Source: extracted from ‘Code of Urban Residential Planning & Design’, 2003)

As a consequence, the road network in the residential neighbourhood would be categorised as district road, quarter road and cluster road respectively. Item 8.0.1.4 prescribes that through traffic is discouraged at the level of quarter road and below, for which a symbolic rather than an active gate form is suggested to discourage through traffic in the attached elucidatory text. But in practice, ‘neither quarter road nor cluster road is considered as a municipal road. They are basically treated as the internal roads and not counted in the public urban road network in regulatory planning. Therefore, in the case of the gated community development, *‘these roads can be gated from the outside municipal road system in principle.’* (Senior planner, China Academy of Urban Planning and Design Institution; Member of Review Committee of ‘Code of urban Residential Planning & Design’)

According to the prescription of population (7,000 ~ 15,000), the land area for a quarter would normally be 10.5~22.5 hectares¹. In fact, as is analysed in chapter 4, a 300 / 500m × 300 / 500m grid is widely used in contemporary Chinese cities. In this regard, the maximum enclosure size of gate community entitled to secure a planning permission in

¹ Assuming 30 m² floor space per capita and the plot ratio as 2, the formula is ‘Population×30÷2’.

China can be 25 hectares. But a 25-hectare enclosure is really a huge size for the gated community based on the findings in this research. So, the 'Code of Urban Residential Planning & Design' has not played a supportive role in regulating and reducing the enclosure size of gated community, and should be amended or revised. The quarter roads should be considered as municipal road, so that the urban road network can be based on a 150 / 250m × 150 / 250m grid, which basically ensures the enclosure size of gated community is not larger than 6.25 hectares at most.

7.4.2 Boundary development

Although very important for the quality of neighbouring public urban spaces, the boundary treatment of a gated community has proved to be a most discretionary issue in development control process among the three key elements for physical manipulation. Where does it need control? How can it be controlled? What effect should be expected? And so forth. Without supporting policies in this respect, these questions are subject to the personal judgement of planning officers. In fact, mandatory prescription is practically inapplicable because there are so many choices available for boundary design which also has to take into account the varied conditions in each project. However, evidence from the Dragon Lake Garden urban neighbourhood, especially from the underused public squares, shows that discretionary development control in this aspect should be improved to reduce the potential negative impact of the boundaries built by developers for their own interest.

In fact, a set of relevant guidelines have already been introduced into local planning administration. The items listed in Table 2 for example are extracted from such a guidance manual provisionally applied in 2004 in the urban district where Dragon Lake Garden is located.

Table 7.2 Exemplary guidelines for the street views

Item	Content
3.12	Rolling shutter is not allowed for the frontage of ground floor.
3.13	The facilities such as boiler, chimney, garbage can, condenser, etc. which would potentially threaten the environmental quality should not be arranged in the boundary buildings.
3.16	Provisional balcony, awning, and security mesh ¹ are not allowed for the facade facing the street. The clapboard for air-condition should be designed as an integrated part of the building and well shuttered.
8.53	Blank wall is not allowed for the boundary, which should be mainly replaced by greenery fences. The boundary composed by railings should be transparent, lower than 2-meter, and well-designed from aesthetic perspective.

(Source: extracted from 'Guideline for Landscape Control in New North District of Chongqing', Provisional, 2004)

These guidelines set up a positive standard for the boundary development which effectively helps to improve the quality of urban spaces around each gated community. But they focus mostly on the aesthetic perspective, rather than the usage condition. Activities in these spaces are generally not well considered. Functional uses of the boundaries as regards the actual needs of local people are seldom mentioned in the guidance. This ignorance is evidently observed in the clean, beautiful but pedestrian-inaccessible roads like Jinkai Road observed in the Dragon Lake Garden urban neighbourhood. The profound reason behind this is that the design control is quite obsessed with the visual aspects in current Chinese planning regime. The interviews with planning officers and experts have disclosed that the increasing concerns about environmental quality and urban image of Chinese cities in the past several years are mostly for the sake of 'city marketing', targeting the tourists or foreign investors or showing off the governmental achievements. In this regard, the vernacular perspective on

¹ The pervasive provisional security mesh on the facade of residential buildings around the city is regarded as an anti-aesthetic image, and actually becomes another reason for planning officers' approval for gated community development. The ban for security mesh can be implemented in the gated community because that the assured security condition make the residents feel it unnecessary. But it is hard to persuade the residents who do not live in the gated community not to use security mesh.

everyday life, and securing the local public good, has not yet been paid enough attention in policy making which often overwhelmingly focuses on the visual appearance, such as beautification of streetscape, skyline control, and so on.

However, it is in fact the uses located on and generated by the boundaries that make the gated community interact and integrate with the local urban neighbourhood. This real-life connection is more concrete and substantial than the visual harmony and integrity which is often vague and superficial. In this regard, design and development control of the boundary of gated community should pay equal attention to the role of the boundary in defining the street space visually and stimulating the street life functionally. To generate as various street activities as possible, the physical arrangement of boundaries, as is proved in the preceding chapter, should promote 'shareness', i.e. a sense of sharing and the practically shared uses. A sense of sharing, often achieved by keeping the boundaries transparent and the private and public spaces intimately located, would reduce the visual and psychological distance between the people inside and outside of the boundaries; the practically shared uses, realised by arranging diverse facilities and services in the adjoining public spaces along the boundaries rather than within the enclosures, would effectively enhance the actual contacts / encounters between the people who use them in their everyday life, and cultivate social activities and integration.

7.4.3 Publicly shared spaces and facilities

The evidence from the previous research shows that not only the uses generated by boundaries but also those shared amenities and facilities in the public spaces around gated communities are all decisive in fostering an urban neighbourhood genuinely shared by local people from both inside and outside of gated communities. Though significant, shared facilities and public spaces around gated communities have been insufficiently provided by the local government. Compared to the other two elements above, the lack of support from development control in this aspect has already been acknowledged by some

planning officers and experts. In their opinions, two approaches in previous planning administration have been challenged on this issue.

One is that the construction of public facilities in residential districts was normally devolved to developers by means of planning permissions which stipulate what public facilities should be provided in their housing projects. This approach had been widely adopted in the 1980's and the early years of the 1990's, when local governments in China were experiencing a serious financial shortage at the beginning of the Reform period. Local Government actually regarded it as the better, if not the only, choice at that time in response to the rapid commodity housing development and urban expansion. It is acknowledged that the provision of public facilities should follow the normal procedure that local government raises money from the land sales and tax revenue in the first place, and then allocates it to the responsible department to build the necessary public facilities in the newly built urban areas. But *'with severe financial deficiency at that time, we had no money at all to build these facilities. Nor could we wait to build them until we earned enough money back from the market, in face of the fast economic development tempo. Moreover, at the beginning of the Reform when the relevant administrative system was far from being well-established, the possible corruption in the longer process would be another problem.'* (Senior planner, China Academy of Urban Planning and Design Institution; Member of Review Committee of 'Code of urban Residential Planning & Design')

This approach did successfully solve the financial problem and greatly facilitated local housing development. But the problem as to when and how to build the public facilities was most often resolved by the developers who were inevitably oriented to their own economic interests. The requirements for the public facilities were often too vaguely specified in practice to guarantee them being properly implemented. When and where exactly should these facilities be built and what should be their design qualities? As regards the gated community in particular, some public facilities had been internalised into the private enclosure. Being aware of this problem, some local governments, who

have enough resources now to shoulder the construction of the public infrastructure and supporting facilities in the urban development process, have recently re-examined and prepared to adjust this approach. Those public facilities like markets and schools will not be built by developers anymore, but rather, by local authorities and therefore completely controlled. In this way, the market uncertainty and the negative impact can be largely avoided in the provision of public facilities. And *'this is a trend in urban planning administration in China. More and more local planning departments will take this new approach.'* (Senior planner, China Academy of Urban Planning and Design Institution; Member of Review Committee of 'Code of urban Residential Areas Planning & Design')

The other issue is that the governmental plans of public facilities were themselves deficient in guiding the provision. Without a clear and holistic vision about the arrangement of public spaces and facilities across the whole urban neighbourhood (see in Chapter 6 about the facility arrangement of Crystal Town), the property-led urban development would result in the plans for public facilities being worked out in isolation according to the population of every residential development. Then, the problem is:

'Every housing project has only its basic supporting facilities. But what about the larger-scale facilities for an urban neighbourhood composed by several housing projects, such as local cultural centre, cinema, library, etc.?' (Section Chief D, CUPB)

In fact, this officer identifies two negative consequences of this planning approach for the gated community. One is that this approach actually prescribes a self-contained package of supporting facilities for every gated community. The gated facilities were often not made the best use of in practice, which leads, on the one hand, to economic unsustainability for each gated community, and on the other hand, to a great waste of resources for the whole society when every gated community has to provide the similar set of self-sustaining facilities. We have seen that Longhu had noticed this problem in the development of South Garden, and gradually adjusted the supply strategy in the subsequent developments of Dragon Lake Garden, sharing the supporting facilities with

the local communities around and about. Therefore, the supporting facilities necessary for every housing development, no matter whether provided by private or public sectors, should be planned holistically within the public spaces with a quality standard applied and shared by the surrounding gated communities. In this way, the gated communities can design their provisions properly. While the provisions shared with the local public can mutually complement and foster an integrated urban neighbourhood, those gated in the enclosures, mostly for optional/recreational activities, could fulfil some special needs of the member-residents who can nevertheless retain a certain control over their living environment and its quality.

The other negative consequence, as Section Chief D clearly expressed, is the lack of larger-scale facilities serving the wider urban district. It is estimated for example, that there are nearly 30 housing developments, mostly gated and with a total population of about 60,000 around the Dragon Lake Garden development in this so called 'Dragon Lake neighbourhood' urban district. But currently there is little large-scale public space and facilities attractive enough for the residents of gated communities to step out of their enclosures. And the local planning department can do nothing to change this condition as all land in this area is occupied. In this case, a certain amount of land should be put aside for the public spaces and facilities of a large urban neighbourhood in the local plan, according to the development plan of the whole urban district. Otherwise, 'project by project, gated community after gated community, no room is left for these facilities at all' (Section Chief D, CUPB). The planning administration afterwards can hardly ever solve the problem, as is also shown in the case of Qifu Village above.

7.5 Summary

Through studying the development and design process of different phases of Dragon Lake Garden, the different forces involved in decision-making for the design of gated

community have been fully explored in this chapter: their general attitude and approaches, aspirations, as well as the capability and limitation in practice. Their views show that the gated community in China has been widely regarded as a suitable pattern for commodity housing development in face of the increasingly contested urban resources. The controlled access and cost-recovering charge are believed necessary to secure the quality of the living environments at the moment. Neither social segregation nor spatial fragmentation - the two most criticised features of the gated community - has been perceived as a major issue so far. In fact, the improved environmental quality, the enclosed open space for community interaction and the self-governance in gated community are mostly acclaimed as the factors contributing to social harmony and democracy at the grass roots level while the old socialist mechanisms were being gradually weakened and replaced.

With a serious shortage of financial resources at the beginning of Reform, local government adopted a privately-funded and property-led approach, incorporating 'neoliberal elements' (Harvey, 2005, pp.120), to urban development. Development control guided by this 'neoliberal' ideology had de facto little guidance or regulation on gated community development. It was a market requirements instead that practically propelled and directed the evolution of design for gated community in terms of the arrangement for both spatial layout and facility supply. Examining the three key elements, namely the enclosure size, the boundary effect and the public shared amenities and facilities, the changes in design initiated by the developer generally did make the gated community more integrated and interactive with the neighbouring urban spaces in both spatial and social terms. This might be another reason that the gated community in China has won wide approval at the design and policy level.

However, the analysis also shows that the physical arrangements of the gated community worked out by developers are basically based on the member-residents' interests or their own economic interests, rather than the well-being of neighbouring public spaces. Gated communities are both incapable and unwilling to shoulder the responsibility for the whole

public spaces around their housing developments. The designers as employees have, in fact, little say in the design process, while they themselves proved to be largely ignorant of the key social and functional issues, focusing only on the part inside the enclosures. More importantly, the local public had not been involved in the decision-making process of the design. Therefore, a more pro-active and transparent planning administration should be applied to the gated community development. The evidence from Dragon Lake Garden demonstrates that the suggested requirements for the three key aspects are practically feasible for both gated communities, which will truly benefit from the prosperous urban spaces and activities around, and for the local government which already has enough resources today to take a leading role in the urban development.

But up to now, the existing and potential harm caused by gated community has not been paid enough attention in the current planning regime in China, although planning intervention has indeed been greatly strengthened in the last several years. Some plans, guidelines, and principles embodying modernist planning concepts are themselves segregating urban spaces and functions into fragmented zones, ignoring the importance and significance of streets where both people and public space are encountered and connected in real-life. In this regard, the gated community is basically in accordance with such modernist planning orthodoxy. So, existing planning policies are generally not supportive as regards mitigating the negative impacts of gated communities. One example is the 'Code of Urban Residential Planning & Design', the key reference for residential planning in China. As the problems appearing in gated community development had not been considered, the items in the Code are vaguely worded, irrelevant to and not supportive in guiding gated community development in practice. The Code, and many other policies in operation in current Chinese planning regime, should be re-examined and adjusted to exercise an effective proactive rather than reactive control on the ubiquitous gated communities in China. So, what is to be learned from this research? How should the planning control be improved? The existing problems in Chinese planning regime and the possible solutions will be synthesized in the next chapter, 'Conclusions, Policy recommendations and future works'.

CHAPTER EIGHT

CONCLUSIONS, POLICY RECOMMENDATIONS AND FUTURE WORKS

Aiming to understand the design dimension of gated community development in contemporary China, this study has traced the legacies of enclosed urban forms and relevant design tradition in Chinese history, explored the political-economic factors underpinning the development process of gated community, and examined the socio-spatial consequences in the located urban neighbourhood, especially the adjoining public spaces. Rather than targeting the internal part of gated community, this research focuses on its external impact on the well-being of the neighbouring public spaces including all publicly accessed streets, squares and green parks, and their integration into the local urban neighbourhood. Arguing the significance of context in the discourse of urban design, which is defined as the 'symbolic attempt to express an accepted urban meaning in certain urban form' (Castells, 1983, pp.304), this research has been grounded upon an in-depth case study in Chongqing following a general documentary inquiry in the first place. As the conclusion, this chapter firstly discusses the research work done in the previous chapters, drawing conclusions respectively on the three major research questions put forward at the outset. Based on these findings, detailed planning measures are proposed at a policy level to guide gated community development effectively in today's Chinese planning regime, for the sake of a spatially and socially integrated urban space. Finally, the limitations of this research are summarised with suggestions for future research.

8.1 Discussions and conclusions

8.1.1 Hybrid background underpinning gated community development in China

‘What are the socio-cultural and political-economic factors behind the making of gated communities in China? And how have they shaped design in the development process and the final materialised outcomes?’ These are the first major questions for this research. The answer is that behind the prevalence of gated community development in contemporary China’s cities, there is a complex background composed of socio-cultural, environmental, and political-economic factors that shape every aspect of design and development.

Socio-cultural convention for enclosed residential settlement

Although the gated community is a newly emerging global phenomenon, such an urban settlement is far from new to Chinese urbanites, both in its enclosed morphology and in its internal facility provision pattern. The enclosed morphology may trace back to the walled cities and the enclosed courtyard as a unitary archetype in ancient times which embodied the Confucian and Taoist principle of spatial arrangement. As regards the self-contained provision pattern, it resembles the all-inclusive work-unit (*danwei*) (often walled) in socialist era. In fact, the gated community in China continues the conventional culture of collectivism (i.e. collectively sharing and controlling the open space and facilities around home buildings). The historical review (Chapter 4) shows two features of the gated community that have persisted in all of its analogues. One is the culture of collective living bonded with a controlled territory, although the bonding force is based on family/kinship, worker-fellowship, or the business contract relationship within a territory in the form of courtyard housing, work-unit compound, and gated community. The other is the ubiquitous existence of communal open space, functioning as the recreational and social space for member-residents, and more importantly, the defensive /exclusive buffering space between public streets and private homes. Therefore, the gated community in contemporary China embodies, or re-interprets, the traditional values,

habitat culture, and morphologies that are deeply embedded in Chinese urban history. Therefore, the conventional roots of gated community development help account for its prevalence in China, in an era of rapid urbanisation, rural-to-urban mass migration, widening gap and confrontation between the rich and poor, and *de facto* neo-liberal governance. While the first three factors impose environmental constraints on today's urban living, the last one facilitates a *laissez-faire* attitude towards gated community development in local authorities.

Environmental constraints in compact urban living

The evidence from the resident survey (Chapter 5), on-site observation (Chapter 6), and in-depth interviews with key players in the development process (Chapter 7) shows that, environmental conditions are of great significance for gated community development, because the morphological urban forms are inevitably shaped by the environmental constraints. This was proved by the experience of the perimeter block pattern, which was once rigorously implemented by government but failed in practice. Overall, the major environmental conditions in contemporary Chinese cities are the compact urban form and increasingly contested urban resources caused by the mass rural migration surging into cities in a very rapid pace of urbanisation. In such a densely inhabited environment that features scarcity of land and crowded urban conditions, collectively shared open space rather than the individual private garden is more affordable for the majority of the ordinary families. Perceiving the increasing competition for insufficient urban resource, people become more sensitive to the free-riding problems and incline to adopting a tighter space control to protect their private properties. Such perceptions and defensive reaction have been further strengthened by the evident gap between the well-off city dwellers and poor peasant-workers, formerly spatially separated in rural and urban areas but now co-existing and closely confronting each other in cities. Therefore, these environmental constraints have certainly exerted a subtle and powerful influence on the evolving process and accordingly on the physical outcomes of the gated community in China.

The laissez-faire state propelling gated community development

The discussion of the existing literature (Chapter 2) has revealed that the neo-liberal political-economic transformation toward privatization, which aims at the 'load shedding' of government responsibilities in the provision of public services, is inter alia the most fundamental force endorsing and propelling the development of gated community worldwide. This argument has been strengthened by the findings of the research on the gated community in China, both in the historical review of the generally evolving process of urbanisation (Chapter 4) and in the empirical case study on specific development (Chapter 5, 6 &7). It was the public/ governmental retreat from welfare housing provision and management and the reform towards commodity housing system that decisively gave birth to China's gated community as a market response to the challenge of mass housing production.

The interviews with the officers in local authorities show that commodity housing developments, gated or non-gated, were believed to be successful as they immediately improved the quality of life for many householders and greatly facilitated the urban development and infrastructure provision. Meanwhile, because of the socio-cultural conventions and environmental realities stated above, the enclosed form was mostly regarded as a laudable approach to the improvement of environmental quality, social interaction, territorial control and urban security. The potential problems, rarely mentioned by the interviewees of their own accord, were believed to be limited especially when compared to the merits. In sum, the investigation in this research shows that the gated community is regarded as a spontaneous residential form that fits in with the current urban environment and living culture, and delivers significant benefits.

The laissez-faire attitude in local authorities has created a favourable context for gated community development in China, with little or insufficient control to regulate the

booming urban development, especially in the earlier period of Reform when planning administration was yet to be re-started. In this case, the specific physical features of the gated communities in China have been decided largely by the developers who emphasize their own economic interests and the economic and social needs of their member-residents. However, this private-oriented approach does not necessarily result in a negative relationship between gated community and the neighbouring public spaces. The empirical investigation (Chapter 5 & 6) shows that both spatial-morphological and socio-behavioural outcomes vary greatly according to different physical arrangements, and could be either positive or negative. In fact, the conventional view that the gated community is entirely inward looking and ignores the public realm on its perimeter in terms of urban design or facility provision proves to be far from true in China.

8.1.2 The relationship between the gated community and the neighbouring public spaces and the key elements in design

‘What is the impact of gated community in China on the neighbouring public space in people’s perception and real-life use? And how is this impact related to the physical features of gated community and the neighbouring public space?’ This second group of research questions is explored by means of the secondary survey of users’ opinions (Chapter 5), the on-site observation (Chapter 6), and the interviews with the decision-makers in the development process (Chapter 7) of the Dragon Lake Garden urban neighbourhood in Chongqing. The findings are summarised as follows.

Varied but generally close relationship between gated community and the neighbouring public spaces

Four gated communities in the studied Dragon Lake Garden urban neighbourhood have different housing prices and development strategies targeting different clients from mass market to high-end market, and accordingly delivering varied physical arrangement.

Rather than turning their back on the adjoining public spaces, most of them present a close and positive socio-spatial relationship with their surroundings. In fact, public space is an unavoidable experience for most Chinese urbanites, even those living inside a gated community. In such a compact urban form, most move about on foot or by means of public transport rather than by private car. Two facts can illustrate and interpret this close relationship.

One is that except for the most luxurious and exclusive Fragrant Camphor Wood, the other three investigated gated communities are complementary to, and interdependent on, their adjoining public spaces in both spatial and functional terms. Apart from the close spatial juxtaposition, the local services, which fulfil both necessary and optional needs, are indispensable to the gated communities. In fact, some publicly accessed spaces and facilities are voluntarily provided by these gated communities. Therefore, in using the local public spaces, the member-residents of the gated communities have a constant social interaction with the wider public, including the rural migrants who offer their services to these gated communities in varied ways although they do exert some pressure on the maintenance of the environmental quality of the public spaces.

The other manifestation of the close relationship is that both the developer (Longhu) and the member-residents of the Dragon Lake Garden gated communities are very sensitive to the adjoining public spaces, with respect to both their environmental qualities and their functional provisions. As for the developer, they have recognised the significance of these public spaces in creating commercial development opportunities and purposefully manipulated them. For the member-residents, as the primary users of the local public spaces around Dragon Lake Garden developments, they regard the quality of these public spaces as an integral part of their property value and their quality life, and therefore show serious concerns about them. The high density of population in Chinese cities, although the major source of pressure on urban resources, actually help to foster such a close relationship between gated communities and their adjoining public spaces. So, although the neighbouring public spaces cannot all be active commercial foci and activity centres,

they can virtually all be kept in a good condition for use (i.e. walkable, well-surveilled, traffic sheltered, having views and sitting spaces).

Although this close interaction is generally positive and reciprocal, negative consequences such as the privatisation of public space and the sacrifice of public goods has nevertheless been evident. The detailed socio-spatial relationship between the gated communities and the neighbouring public spaces has often varied widely, even at different parts of the same gated community, depending on the different physical features in terms of their treatment of boundaries and their relationship with the adjacent public realm. In this regard, the design features have often played an effective role in manipulating such relationship, and there are three key elements for the design of gated community as part of an integrated urban neighbourhood.

Key elements in design for a benign relationship between gated communities and local public space

The key elements determining the relationship between gated communities and their adjoining public spaces are 1) the enclosure size, 2) the boundary effect, and 3) the amenities and facilities shared with the local public. Limiting the *enclosure size* is necessary to secure a fine grain of urban grid and consequently the good permeability which is regarded as an important characteristic of an integrated and accessible urban form. Moreover, with a reduced enclosure size, the gated community would inevitably have more interfaces with the local public spaces and therefore potentially more interaction. As regards the *boundary effect*, it is evident that activities in the adjoining public spaces can be facilitated by providing supportive facilities and promoting the sense of sharing. A well-considered arrangement of active edges and boundaries is certainly conducive to the win-win solutions for gated community development as regards public-private goods. *Shared amenities and facilities* in the public spaces around gated communities, supplied either by public or private sector, largely determine whether these

spaces are attractive and prosperous. While the diversity of the provision may imply the possible activities, the quality decides what activities will eventually take place.

These three elements were put forward in the general theoretical discussion (Chapter 2), and then explored and tested in a specific context, the gated community development in China, with the evidences from both historical inquiry (Chapter 4) and empirical research in a major city, Chongqing (Chapter 5, 6 & 7). By limiting the enclosure size, diversifying the boundary effect visually and functionally, and maximising the shared amenities and facilities, a spatially and socially integrated urban neighbourhood can be fostered on the basis of a reciprocal and interdependent relationship between the gated community and the adjoining public spaces. The feasibility of the physical manipulation of these three aspects in the development process has also been proved by examining the changing strategies of the physical arrangement in the four gated communities of Dragon Lake Garden and the decision-making process behind the changes. The investigation shows that such physical manipulation and changes, although oriented to the public good, were not contradictory to the private interest of gated communities by nature, but welcomed and often initiated by the developer, who already tried to adjust the enclosure size, boundary effect, and shared facilities to create better forms of development. The private effort in this case should be encouraged and supported, but it should also be supervised and guided by the public sector, because such effort is virtually motivated by self-interest and profit, constrained by inability to negotiate with other landowners, and limited by lack of information about the long-term development vision of the overall urban district. Therefore, sufficient supervision/support from government is the prerequisite of the successful physical manipulation and the final performance of the gated community development at large. However, the case study of this research shows that local government failed to take a leading role in this regard. Very often it was the failings or inactions on the part of the current planning regime rather than the gated community itself that resulted in the fragmented urban space which amplified the negative impacts of gated communities.

8.1.3 Problems in China's planning regime in relation with the design of gated community

'How could the gated community be guided and controlled in Chinese planning regime today for better integration with the located urban neighbourhood in both social and spatial terms?' As regards the last question of this research, this section will discuss and summarise the major problems that prevent a better design practice in the first place, with the specific measures being outlined in the next section of 'policy recommendations'.

Lack of commitment to an vitalised and integrated public space

The most noticeable problem is the serious lack of commitment to the provision of public spaces at the design and policy level with respect to the vitality and integrity. During the period of the market-oriented Reform, neo-liberal thoughts and practice were pervasive in local authorities. By means of this *laissez faire* approach, the government succeeded in overcoming the serious shortage of finance for housing provision and urban development in the beginning stage of Reform. However, problems emerged concerning the large-scale unprofitable public facilities such as the local public transport, healthcare facilities, cultural and sports venues and so forth. They resulted largely from the fact that the construction of many public infrastructures was devolved to the private sector while the necessary public guidance and control over their design was absent. These infrastructures were not well considered and planned at the beginning of the urban development process due to the pressure for rapid decision-making at the discretion of the under-resourced and under-skilled planning authority of the time. The outcomes therefore depended, in large measure, on developer's abilities and voluntary action. Actually, the survey shows that in the user's opinion, almost all of the unsatisfactory aspects as regards local provisions in the public spaces are the results of an insufficient commitment of the government rather than of the developer.

To sum up, there are three major problems in current planning system with respect to the

lack of commitment to public spaces and public goods.

- 1) The first problem is the lack of a holistic vision for public space and facilities in the proactive planning policies such as the regulatory plan or guidelines. This leads to an absence of a legitimate policy base to regulate the design of the gated community for the public interest.
- 2) The second problem is that the enclosed form, which differentiates gated communities from other commodity housing developments and its potential harm to the public space, have been not yet caught due attention in current planning regime in China. Therefore, it is not surprising that the official guidelines, for example the 'Code of Urban Residential Planning & Design', are not supportive in guiding and controlling gated community development. On the contrary, they sometimes exacerbate the negative influence of gated community when the underpinning planning orthodoxy actually depicts a fragmented urban space. This lack of commitment to the provision of public spaces and public goods, either for lack of a holistic vision or in ignorance of the potential negative impacts of gated community development, reduces the planning administration to a primarily reactive and opportunity-driven activity.
- 3) The third problem is the absence of public participation in the procedure of planning decision-making. As the opinions of the local public cannot be incorporated directly into the design process, their needs and interest can hardly be well considered and ensured. And the result of this opaque process is that the win-win solution will lose its base on the public-private cooperation in this case, corruption may arise and, worst of all, the lack of transparency in this process may cover up a likely conspiracy to encroach upon the public goods.

Segregation imposed by existing planning orthodox and administration

Some guiding orthodoxies and operational administration in current China's planning regime impose a fragmented urban form that would amplify the segregation caused by gated community and should be revised. First and foremost, the modernist planning

concept, which views streets mostly as the car-oriented carriageways connected with separated functional zones, is still the dominating theoretical orthodoxy prevailing in China's planning regime. Fitting into the long-lasting 'super-block and wide-avenue' urban structure in China, the modernist planning concept essentially depicts the fragmented urban spaces enclosed by 'wide avenue', and has actually encouraged the self-contained gated community development with large enclosures. In fact, instead of the gates or railings of gated communities, the inhuman municipal roads which are straight, wide, car-oriented, and sparsely provided with crosswalks, are the most segregating barriers that divide the space and interrupt the pedestrian flow in the Dragon Lake Garden urban neighbourhood.

Moreover, the existing official guidelines and codes for the urban public space mostly emphasize the visual aspects or 'the image', overlooking the socio-functional dimension, or the people in essence. As a result, the possible impact of the boundary effect of the gated community on the activities in the adjoining public spaces has been neglected in the planning interventions. The visual aspect is of importance and the aesthetic concern is certainly necessary, but the aspects in relation to the use of public spaces such as permeability of urban space, continuity of pedestrian routes, and provisions of commercial and non-commercial public facilities are of greater importance and therefore should be paid more attention.

Finally, the governmental plans for public space and facilities are themselves deficient in guiding the provision. The public space and facilities required in an urban neighbourhood can be divided into four categories for: 1) civil and recreational services such as health care, school, post office or green parks; 2) commercial services; 3) social and cultural services; and 4) public transport services which can be otherwise regarded as part of the public services, but identified as an individual category due to its particularly important role to facilitate use of public space. There are various detailed needs in each category listed above. So, without a coherent and holistic vision based on the overall urban neighbourhood, the provision of the publicly shared amenities and facilities would be

inevitably isolated and insufficient, especially considering the larger-scale facilities serving a wider urban district beyond any single gated community.

8.2 Policy recommendations

Based on the discussion and findings above, this section will propose improvements on the existing administrative system and policy framework of China's planning regime, aiming to secure the vitality of public space and an integrated urban form in the face of gated community development. It will firstly appeal for a common political commitment to public space at a design and policy level, and then elaborate the detailed measures for an effective development control on gated community that should be adopted in the existing planning system. The suggestions on the latter will centre on the three key aspects revealed in this research, namely, enclosure size, boundary effect, and publicly shared amenities and facilities.

8.2.1 To establish a long-term commitment to public space in the planning regime

To establish a long-term commitment to public space in the planning regime in contemporary China, the division between public and private spaces should be clearly clarified and understood in the first place. In the pre-Reform socialist era, there was basically no concept of private urban space, although most of the work-units used the boundary walls to demarcate their spatial scope. The concept of private space, abandoned for nearly three decades, re-emerged following the economic reform. Its implications for the planning administration, the development control for gated community for instance, have not been fully understood. The inexplicitly-defined responsibilities for public space, especially on the border of public and private spaces, can only result in an ill-provided public space where public and private effort are both absent. So, clarifying the public-private division and the governmental responsibilities is the prerequisite for planning administration to make any reliable commitment to the provision of public space around gated communities. In detail, holistic plans and guidelines for public spaces and

facilities should be based on the three key aspects (i.e. enclosure size, boundary effect, and shared amenities and facilities), explicitly stating the desired vision and mandatory standards for every component ranging from large-scale public transport facilities to accessories such as the streetlights and trees.

Secondly, the long-term commitment for the public spaces around gated communities should be made according to a comprehensive understanding of their visual and functional dimensions, including their significant role in improving environmental quality, local economy, and social communication in the located urban neighbourhood. While the potential harm of the gated community should be paid full attention to and minimised, the positive role of market forces and local participation in the design procedures should be recognised and encouraged. Targeting a mixed-use urban neighbourhood, this long-term commitment should consider not only the people living inside and around the gated communities, but also those serving and working there. Otherwise, the real need of local people may be overlooked, and such public space can be left severely underused even if it is visually pleasant.

Last but not least, the significance of physical manipulation and the way to deliver it in design policy should be well understood when establishing the long-term commitment to the provision of public space around gated communities. Only in this way can the commitment be based on a feasible and pragmatic approach, and further developed into a set of coherent and practical policies for the design of gated community that will effectively minimising its negative impacts on the neighbouring public spaces. Suggestions for the practical policies will be made in the following section.

8.2.2 To establish a policy framework for the design control of gated community

The responsibility that rests with the planning authorities is to exercise a proactive design control on gated community throughout the whole development process. The available

administrative tools within the existing system include both the pre-application statutory local plan and the guiding policies and the design review procedures before a planning permission is given. While the former can generally stipulate the desired or mandatory planning conditions for gated community development, the latter provides a chance to engage the professionals and interest groups who are concerned with the provision of the public goods in a specific development case. However, with no planning policies specified for gated community development so far, these administrative tools have been left unutilised in this case. The suggestions in this section therefore are aimed at establishing a coherent policy framework for a better design control on gated community to develop an integrated urban space. They are grouped into three parts, according to the three key design features in shaping the relationship between gated community and the adjoining public space.

To restrain the enclosure size

This research has shown that if the enclosure size is less than 5-hectares, the gated community can be more easily integrated with the local urban neighbourhood. To achieve this, fine-grained urban structure should be ensured in the regulatory plan in order to restrain the maximum enclosure size of the gated community located within the urban grid. Although the criteria for the fine-grained mesh tend to vary, depending on different countries, cities, even urban districts, there are two generally applied principles. One is that they should fit into the existing or adjacent urban road network. The other is that all the daily services needed by local residents should offer an easy, on-foot access.

As regards the context of Chinese cities, the urban grid, revealed in this research, is better restricted in an area of 150m ~250m x 150m ~250m. However, this grid cannot always be achieved considering the complicated development conditions. In this case, the requirement on the enclosure size should be clearly prescribed in the planning condition, and secured by the design review procedure. Although the 5-hectares limit for enclosure

is insisted upon, this detailed physical arrangement can be more flexible and responsive to the environmental conditions and market requirements. For example, the enclosure size can be increased with respect to the accessibility of vehicles, as long as pedestrian access is secured.

To vitalise the boundary effect

Mandatory prescription for the boundary effect is inapplicable, because there are so many variables (materials, height and forms for example) for consideration in design that responds the specific conditions in each project. (The major types are summarised at the end of the Chapter 6, Table 6.1). In this case, the guiding policies and discretionary design review are more feasible. Generally, there are two principles in design applicable to promoting 'shareness', ensuring that the consequent boundary effect contributes positively to the vitality of the adjoining public spaces.

One is that the physical features should promote the sense of sharing between the private and public realms close to the boundary. This is the prerequisite for a well-supervised public space where people feel safe and comfortable. It comes from either perceptual intimacy expressed by transparent and outward-looking boundaries, or physical intimacy derived from such as the private apartments above the commercial ground floors or private buildings encircling and overlooking the public space.

The other principle is to make the most of boundary to facilitate activities in the adjoining public space. The requirement for the physical features in this regard is, on the one hand, to increase the psychological comfort of the adjoining public spaces, avoiding monotonous facades or providing all-weather shelters or pleasant planting; on the other hand, to diversify the facilities and services available at the boundaries. And the provisions, either supporting facilities necessary for everyday life or optional ones for recreational uses, should be based on the local needs and conform to the existing land use

plan. It should be recognised that the boundaries cannot all be animated, active and mixed use, but they can help to keep the adjoining public spaces in good condition if they are well landscaped and surveilled. In addition, the provision at the boundaries, especially the accompanying facilities such as parking spaces, should be regarded as an integral part of the gated community development and taken into account at the very beginning of design.

While the former principle reduces the visual and physical distance between the people both inside and outside the boundaries, the latter one increases the variety and quality of the services available at the boundaries which should eventually attract both the member-residents of gated community and the local people to the adjoining public spaces. These two principles actually demand that the design control on boundary should pay attention equally to the visual and functional aspects of the boundaries and the adjoining public spaces.

In particular, there are some detailed advices with respect to the three major types of boundaries according to the composing structures: building, fence and landscaping (see Table 6.1).

- 1) As regards the boundary buildings, they should have active frontages facing their adjoining public spaces, supporting the uses in them. The design of commercial buildings should also consider the need of various recreational and social activities. The buildings with residential uses should be designed carefully to secure the tranquillity and privacy of the residents above.
- 2) The design of fences at the edge should ensure the visual connection between the inside and the outside and achieve integration with the landscape design of the adjoining public space. The former can be achieved by using transparent materials such as iron railings or glass and restrict the height of dwarf walls. In addition, the buildings can be arranged to stand next to the boundaries, so that the adjoining public space can be better surveilled. The latter design suggestion for design aims to 'soften' the

defensive sense of the fence and achieve a more subtle transition and provide a good environmental quality in the neighbouring public space. In this case, a well-trimmed planted verge can be used in combination with the railings at the edge.

3) The third type of boundary is the naturally formed barriers between gated communities and their adjoining public space, such as height difference or a large lake. The natural landscape should be designed carefully not only to preserve the existing natural means of transition at the edge, but also positively contribute to the qualities of the adjoining public space.

To maximise the shared amenities and facilities

Maximising the shared amenities and facilities in the local public spaces around gated community can be achieved by increasing the governmental provisions on the one hand; and on the other hand, encouraging and guiding gated communities to integrate their private provisions into the local supply system as much as possible. The governmental provisions should be especially concerned to deliver those large-scale, unprofitable but necessary spaces and facilities for a liveable urban neighbourhood. As stated above, these public spaces and facilities required in an urban neighbourhood include: 1) civil and recreational services such as health care, school, post office or green parks; 2) commercial services; 3) social and cultural services; and 4) public transport services. There should be detailed criteria and guidelines made for each aspect above. Most importantly, all the provisions, either made by the public, the private or the public-private cooperation, should be guided by a coherent plan made from the perspective of the overall urban neighbourhood or even the wider urban district. Apart from referring to the universally acknowledged principles and successful practices in the urban design domain, such a plan should pay particular attention to three aspects.

First, all of the local needs should be included and secured, including those of the rural

migration working and living around the gated communities. The plan will firstly decide what and how much public amenities and facilities are needed in a given urban neighbourhood, and then make the spatial arrangement for them, ensuring that enough land resources are set aside for the immediate and long-term development of public spaces and facilities. The creation of sociable space between gated communities, *inter alia*, should be paid special attention.

Second, all the amenities and facilities, no matter whether they are provided by public or private sectors, should be planned as a whole, complementing one another functionally and being well-connected spatially. As regards spatial integration, pedestrian and cyclist access routes should also be paid special attention.

Last but not least, while both mandatory requirements and desired standards for the general qualities of the amenities and facilities should be stipulated explicitly, diversity in details should be encouraged at the same time.

8.3 Limitations and future works

Due to the available resources and restricted time, this PhD research has inherently two limitations, which actually suggest future research activities. One is that this research focuses only on the strictly controlled gated communities in China, while some gated communities with loose and flexible supervision may present some unique physical features and socio-spatial consequences. If so, what is the difference between the strictly gated and semi-gated communities in terms of design manipulation? Can the design approach proposed in this research apply to the development of semi-gated communities? Future works following this line could deepen the understanding of the complicated *status quo* of gated community in China, and help to establish a more comprehensive policy framework that will function effective in varied development contexts.

The other limitation is that although the studied gated communities in this research were among the first array of gated communities in China, the 10-year span is still too short to see clearly the ultimate socio-spatial consequences for the wider urban landscape, especially when the area to the north of the located urban neighbourhood is still in construction. In addition, the investigation in this research has revealed that gated community in China is actually a bottom-up social movement of self-organisation when the top-down welfare housing system in the pre-Reform socialist era has been phased out gradually. As this movement continues in the deepening Reform, it is too early to capture clearly the 'urban meaning' (the socio-spatial consequences) of such an 'urban form' (the gated community) in contemporary Chinese cities. Therefore, this research is just a pilot study on gated communities in China with follow-up work to be done in the future.

Moreover, this study argues the importance of the holistic context behind the physical features of gated community, and this context embraces the entire development conditions composed of environmental, socio-cultural, political-economic factors of the time. As the context is constantly shifting, the findings in this research should be reviewed accordingly, especially when the influential factors change significantly. For example, this research argues the fundamental momentum for the gated community phenomenon worldwide is the governmental retreat from the public affairs, and China is not exceptional as it has also headed in a neo-liberal direction. However, this research also detects that the Chinese government has begun to be aware of the negative effect of the laissez faire approach in the early stage of the Reform, and planned to take up more responsibilities for civic services, including those for public spaces and facilities. This strengthening governmental intervention in China is once again not an isolated case when major developed countries are witnessing a return to the State intervention in response to the financial crisis. Does this return of the State mean a neo-liberal crunch? Many governments have already targeted social housing and public infrastructure as the urban avenues through which to provide the necessary Keynesian injection to restore and maintain macroeconomic stability. In this case, will the increased public investment and strengthened governmental intervention effectively stop and reverse the previous

expansion of gated community worldwide? Or, will impoverished governments be unable to afford more investment in public infrastructure and public goods leading to more such gated communities? Further research needs to be done under a new development context to testify/explore the validity of the findings in this research.

Based on a single-embedded case study in the city of Chongqing, this research is essentially a theoretical exploration, about the urban design approach for gated community development. Therefore, its validity needs to be verified by further empirical studies not only in other Chinese cities but also in those around the world in a different development context. Moreover, at the theoretical level, the urban design approach suggested for gated community in this research could be further developed into a more general one for the analogous urban spaces where private and public domains confront each other with visible or potential conflicts. Such urban spaces exist universally in nowadays cities and present complicated features. The long-standing tension between the public and private space has evolved in the new urban context, and always posed itself as an intractable issue in the urban design domain. Therefore, future researches following this line are not only significant and necessary but also intriguing and meaningful.

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Appendix 1

Open-ended Questionnaire of Residents-Opinion Survey

Chongqing Longhu Real Estate Development Ltd.

Household No.:

Name of Interviewee:

Contact phone No.:

1. What did you expect for your living conditions in Dragon Lake Garden before you moved in?
2. Which aspect lives up to your expectation? Which aspect is beyond your expectation?
And which aspect fails your expectation?
3. What do you think can be improved in terms of community sense and culture?
4. Which way do you think is more efficient for the communication and interaction between residents and Longhu, Property Management Section especially?
5. What is the most satisfied aspect of your living in Dragon Lake Garden? And what is the most dissatisfied one?
6. What we can do to secure and increase your property value?
7. Do you have other suggestions for Dragon Lake Garden and our services?

Appendix 2 Arrangement for direct observation

There are 8 streets, 3 squares and 2 green parks composing the public spaces in the studied Dragon Lake Garden urban neighbourhood. They were divided into eight groups for observation according to their location:

1. New South Road + Entry squares of South Garden
2. Dragon-lake East Road
3. Xin'guang Road
4. Aegean Street + Front square of Community Centre of West Garden
5. Jinkai Road + West Garden Community Park
6. Sports-park Road + Sports Park
7. Jincheng Road
8. Crystal Commercial Street + Entry squares of Crystal Commercial Street

One-day observation was carried out for the place (s) in each group on clear weekday, from 7 am at dawn to 9 pm in the evening and at about two-hour time-intervals. For the three squares and two green parks, there are additional observations on weekends. Therefore, this intensive/formal observation cost eight weekdays and five weekends in total. However, there were many informal visits during the during the three-month field research from September to November of 2006.

Annotated diagrams/maps, drawings, and photographs are normally used in combination with text to record and analyse the qualitative data acquired in environmental and behavioural aspects. As regards recording the data, there were two stages suggested by Earl Babbie (2001) in terms of comprehensiveness and accuracy. In the first stage, on-the-spot sketchy notes were made to 'keep abreast of what's happening' (Babbie, 2001, pp.296). Then notes in more detail were made soon after the observation, sometimes in the interval period but normally after the daylong observation.

Appendix 3 Interviewee list for the semi-structured interview

Categories	Position
Planning Officers (8)	Former Director, Chongqing Urban Planning Bureau (CUPB) Member, Planning Committee of Experts
	Deputy Director General, CUPB
	Chief, Comprehensive Plan Section, CUPB
	Chief, Detail Plan and Urban Design Section, CUPB
	Former Director, Chongqing Academy of Urban Planning and Design
	Chief, Traffic Plan and Research Section, CUPB
	Chief, Land Use Plan Section, CUPB
	Chief, Yubei Branch Bureau, CUPB
	Deputy Chief General, Chongqing Planning Exhibition Gallery
	Deputy Chief General, Chongqing Planning Exhibition Gallery
Planners (2)	Planner, Chongqing Urban Planning Institute <ul style="list-style-type: none"> in charge of the Regulatory Plan for the urban district covering the Dragon Lake Garden urban neighbourhood
	Planner, Chongqing Urban Planning Institute
Experts (3)	Professor, Faculty of Architecture and Urban Planning, Chongqing University <ul style="list-style-type: none"> Member of Planning Committee of Experts Member of Architecture Committee of Experts, Regularly participating in the design review for development application, including the Dragon Lake Garden development
	Professor, Faculty of Architecture and Urban Planning, Chongqing University, <ul style="list-style-type: none"> Member of Architecture Committee of Experts, Regularly participating in the design review for development application
	Senior planner, China Academy of Urban Planning and Design Institution, <ul style="list-style-type: none"> Working on the national design policies of residential development, Member of the Review Committee of national 'Code of urban Residential Areas Planning & Design'
Architects (3)	Director, Chongqing Design Institute
	Chief Manager, Chongqing Bojian Architectural Design Co.
	Former Chief, Branch architecture, Chongqing Design Institute
Project Manager (3)	General Manager, Chengdu Branch, Chongqing Longhu Real Estate Development Inc. (CQ Longhu) Former Deputy Manager, CQ Longhu
	Director, Architectural Design Sector, CQ Longhu
	Project manger, Chongqing Guanghua Real Estate Development Inc. Former Director, Architectural Design Sector, CQ Longhu
Property Manager (1)	Chief, Chongqing Longhu Property Management Company, CQ Longhu
Developer (1)	Board Chairman, CQ Longhu

Appendix 4 Questions for semi-structured interview

Notes:

1. These questions were used as an interview guide organised around key research interests. The researcher made ongoing adjustments to these questions in response to the way interviews were progressing, such as changing the order in which the questions were asked, extending/reducing the amount of time given to different topics, adding/omitting questions according to their relevance to particular interviewees, etc.
2. The interviewees were required to give their answers both generally on the gated community phenomenon, and specifically on the case of the Dragon-lake Garden if applicable.
3. The researcher's interest and concerns for the civil good and public space surrounding gated community were stated at the beginning of the interview.
4. When discussing the spatial arrangement and physical features of gated community, the assumed three key elements, i.e. enclosure size, boundary effect, and publicly shared amenities and facilities, were channelled into the talk with questions relevant to the interviewee's background and knowledge. In addition, the specific physical features of the four gated communities were referred to if applicable.

General questions for all interviewees

How do you think of the gated community? It includes:

1. Are you aware of the gated community phenomenon and how?
2. What is the driving element for its birth and growth in China?
3. Please make comments on it, regarding its advantages and disadvantages.
4. Do you think it is a problem? Please state your opinions on social-spatial segregation and privatisation of public space which are believed the negative consequences of gated community development.
5. Does it have negative impacts, from your point of view, on the adjoining public space and activities in-between?
6. What is the appropriate socio-spatial relationship, from your point of view, between gated community and the surrounding public space?

Specific questions for different group of interviewees

For planning officers and experts participating in the design review process

Is there development control on gated community development currently?

1. If no, why? Do you think if the control is necessary?
2. If yes, what are the central concerns in the planning administration and what are the mechanisms to deliver it? What is the effect? What are the lessons?
3. How do you negotiate with the developers if there are conflicts between private interest and public good, which are caused by the gated elements?

4. How can the development control for gated community be improved in current planning system?

For planners

1. How do you deal with the gated community in your work, especially considering its relationship with the public realm?
2. Is there difference between a plan with and without gated community development?
3. What is the role of regulatory plan playing in the spatial arrangement of gated community? What are the problems, and how to improve them?

For developer and project managers

1. Why do you adopt the gated form and what are your key concerns?
2. How do you value the role of neighbourhood public spaces and manage them in your development plan, and what are the special requirements in design accordingly?
3. Please explain the development process and especially the reasons behind the different spatial arrangement of the four gated communities in Dragon Lake Garden.
4. Please summarise your achievement and failure in dealing with the relationship between your developments and the surroundings, and the reasons.

For property manager

1. What are your main concerns in managing the public spaces around the gated communities? Any difficult issues in your work?
2. What kind of spatial arrangements are preferred with respect to good property management?
3. How do you control the access to the gated communities? Is it flexible?
4. How is the connection between the four gated communities? What is the role you are playing in dealing with this issue?

For architects

1. How do you deal with the gated form in your design? Is there any difference in your work between gated and non-gated community? If yes, what are your key concerns?
2. What are the prototypes/orthodoxy principles in your design?
3. How do you think the spatial arrangement is able to facilitate the interaction between a gated community and its surrounding communities, and vitality of the adjoining public spaces?
4. Do you pay particular attention to the enclosure size, boundaries, and the shared amenities and facilities in the adjoining public spaces? If yes, what are the main design approaches you have adopted?