Exploring Village Self-Urbanization Process in P.R.CHINA

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by

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Abstract

Urbanization process in P. R. China is taking place mainly in two forms. First one is a form that a city expands under the government control by absorbing the surrounding villages, and the second one is that the villages themselves turn into urban characteristics under the influence of a nearby large urban city without the official approval. This research focuses on the latter form, which is called “Village Self-urbanization Process” in this thesis.

The main objective of this research is to explore the situation of the villages in term of stages in the spatial changes associated with land rights, land use and socio-economic aspects under the influence of a nearby large urban area as a catalyst of urbanization. In order to achieve this, the research consists of critical studies of the available scientific literature, carrying out field work with interviews of the villagers, analysis of these field data together with changes in the spatial pattern of villages. Four villages were selected near the built-up area in the city of Xi’an. The changes of the spatial pattern of these villages are detected and analysed using IKONOS images and other images.

This research identifies the drivers that transform the villages. Such drivers are the economic development, housing demand, job opportunities, and distance to the city, etc. The transformation stages can be distinguished. In the last stage the village is totally within the urban environment, but still different from its surroundings. In the last stage the “village” tends to become a slum. The persistence of the collective land tenure throughout the transformation seems to be an important factor in the understanding of the transformation.

Key words: urbanization; urbanizing village; land tenure
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1. Introduction

1.1. Background

Urbanization is the shift from a rural to an urban society, and involves an increase in the density of people. Nowadays, urbanization is not simply regarded as a city expansion process, but is looked as an outcome of social, economic and political developments, that lead to land use changes, and transformation from rural to a metropolitan pattern of organization and governance (Gyabaah 2003).

Urbanization process in P. R. China is taking place mainly in two forms.
- The first one is a form of a city expanding under the government control, absorbing the surrounding villages.
- The second one is that the villages themselves develop urban characteristics under the influence of a nearby large urban city.

This research focuses on the latter form, which is called “Village Self-urbanization Process” in the literature and in this thesis.

The following Figure can illustrate these two forms of process.

![Illustration of urbanization](image.png)

**Figure 1-1 Illustration of urbanization**

Especially in recent years, cities start to boom, and need more land. So, government prefers to acquire agriculture land for the development of new constructions, as the agriculture land is cheaper than the village settlement land. When the villagers lose their land, they need to earn income in other ways. China has also the *hukou system*. The function of this system was to prevent farmers to move to city easily and to protect food security of the nation. Therefore, for villagers, it is difficult to look for a permanent job and enjoying public welfare (public schooling, health caring, etc.) in urban areas. Meanwhile, many people from other faraway villages come to the city looking for job opportunities,
but they cannot afford the high housing price in urban areas. Therefore, people living in villages near the business center can earn their living by renting their house to migrants. To attract more migrants, original villagers reconstruct their houses, build more floors, and improve the infrastructure. Due to original villagers’ activities, more and more migrants choose to live in this kind of village, and the village becomes more crowded. The land in this kind of villages mostly belongs to the collective. Physical and economic features of the village become urban. The behaviour of original villagers changes from rural to urban life style. Normally, this transformation happens in villages which are located near the road leading to an expanding city.

In another words, urbanization is not simply a process in which farmers move to cities, or only depend on government planning. Rather, it is a complex social-economic process (Geyer 2002; Little 2004). Economic development brings the social progress, and social changes lead to the people’s behavior changes (Figure 1-2).

One of the most important elements in urbanization is economic development. Nevertheless, urbanization is not only a consequence of economic development; it is also an effective means to increase the living standards of the population. In addition, urbanization is often the catalyst of structural change of a social-economy. For example, the number of industrial companies and service jobs is increased with improving of urbanization process. Meanwhile, original villagers change their job, and the farmer turns to be the industrial worker. Given the importance of urbanization, it is intention to study the process of urbanization for the villages in China.

By interpreting the spatial changes in the image (Figure 1-3, from Google Earth), we can see that some areas have higher density than surrounding areas. Also the land use of the surrounding areas of these places is different. The high density places are villages in the city or in urban fringe areas. The image shows that some villages have no agriculture land. They are surrounded by well planned constructions. There are also some villages which have a little bit farmland. Other villages are surrounded by lots of farmland. Therefore, if rural villages can be regarded as the start phase in an urbanization process and the city can be regarded as the final phase of the urbanization process. There might be some intermediate stages in the urbanization process which can be identified.
1.2. Research problem

The village self-urbanization process is influenced by history, policy, economic development and space. In the process of village self-urbanization, different stages can be found, with the factors that transform the villages from one stage to another. This research aims to understand what happens in the villages while changing their nature into urban character.

1.3. Research objectives

The main objective of this research is to explore the situation of the villages in terms of stages in the spatial changes, associated with land rights, land use and socio-economic characteristics under the influence of a nearby large urban area as catalyst of urbanization.

The sub-objectives are:
Sub-Objective 1: To classify the different intermediate stages in village self-urbanization process.
Sub-Objective 2: To identify drivers in village self-urbanization process.

1.4. Research questions

In order to achieve research objective, the following questions need to be addressed.

Sub-Objective 1: To classify the different intermediate stages of urbanization process.
Q1: What is the urbanization?
Q2: How does the village self-urbanization start?
Q3: what is the policy about urbanization?
Q4: What are the stages in urbanization?

Sub-Objective 2: To identify drivers in village self-urbanization process
Q5: Who are the stakeholders in village self-urbanization process?
Q6: What are roles of different stakeholders?
Q7: What are activities of different stakeholders?
Q8: What are characteristics in each stage?
Q9: What are drivers behind the villagers’ behaviour change?

1.5. Research methodologies

The research is done in five phases: proposal development phase, literature review, fieldwork phase (including collect primary data, interview), analysis work, and writing thesis. Figure 1-4 shows the research map of this study.
**Phase 1: proposal development phase**

In the first phase, the research problem and objective based on literature review were developed. Questions which should be answered to achieve the research objectives were identified. Methodologies for this research were selected. This phase was aimed to give the main direction and research scope of the study.

**Phase 2: literature review**

Literature review was carried out from journals, books, papers on Internet or library, to find out why and how rural areas change into urban area; find the information on the stakeholders in village self-urbanization; what are theories which are related to urbanization; what is the specific analysis of urbanization in china; what are earlier researches of village urbanization; what are the general drivers in urbanization process; What are policies which are carried out in urbanization process, land and housing marketing.

In this phase, a part of the research questions one, two, three, five, six, seven, eight and nine were answered.

**Phase 3: fieldwork phase**

**Collect data**

Before going to fieldwork, some data were collected, such as the image of case study area. From the Google-earth image, intermediate stages of urbanization process (by visual classification) were identified. The study areas were selected. These maps were used for interviews and analysis work.

**Interview and questionnaires**

Discussion with the stakeholders was held. Questionnaires were used to collect the data from three different groups: authority group, developer group, and resident group.

In this phase, answers of question four, five, six, seven, eight and nine were obtained.

**Phase 4: analysis work**

Indicators for the analysis of the urbanization process were developed. Data on land use, land tenure, and socio economic acquired from various sources were analyzed, applying relevant techniques and computer software (ArcGIS). Based on the analysis, the characteristics of urbanizing village and classification of stages were obtained.

In this phase, the research questions four, eight and nine were answered.

**Phase 5: writing thesis**

In this phase, the discussion and conclusion was elaborated.
1.6. Thesis structure

Chapter I: Introduction
This chapter provides an overview of the research. It presents a general background of research problem. It further outlines the research objectives, the research questions, the research approach and the methodology used to answer the research questions. Finally, it gives an overview of the structure of the thesis.

Chapter II: Theoretical Background
This chapter discusses the theoretical background related to the study by reviewing relevant literature. It helps to define the concepts used in the research.

Chapter III: Policy and Urbanization in China
This chapter highlights the situation of urbanization in China. It includes the relevant policy part and the social impact. And this section also gives the general characteristics of Chinese urbanization.

Chapter IV: Situation Analysis of Village Self-urbanization Process in Xi’an
This chapter explains the research methodology which includes data collection and data processing. The urbanizing villages in Xi’an will be analyzed using quantitative methods. The study areas are compared combining spatial pattern features, social-economic features, and land use features, to understand the village self-urbanization process. Finally, the intermediate stages will be classified.

Chapter V: Impacts of Land Tenure on Village Self-urbanization Process
This chapter aims to study the drivers which lead to the current situation about urbanizing villages, especially the impact of the land tenure system. It gives a discussion about the impacts of land tenure.

Chapter VI: Conclusion and Recommendation
This chapter concludes the outcomes of the research. It highlights the key factors which influence the village self-urbanization process. Moreover, some recommendations are provided.
2. Theoretical Background

2.1. Introduction

Urbanization in China is a very complex process. The urbanization can be seen as a result of containing human behaviour, society progress, and economic development. To understand this process and what stages through which villages tend to go under the “Village Self-urbanisation Process”, some definitions should be clear, such as village and urban area. Moreover, the earlier research related to village urbanization process and the studies of the Chinese urbanization process are reviewed.

This chapter presents a literature review of background theories. Following the general theories, the unique elements in China – land tenure system and urbanizing village are mentioned. In addition, the different forms of Chinese urbanization process are introduced. Based on these theories, we conclude which and how many aspects should be focused on in this research.

2.2. Definition

2.2.1. Definition of village

“A place of residence can be described purely geographically, as a dispersed or a nucleated settlement. But the singular which identifies it as “a settlement” comes first. It has been identified as a place to be described. Indeed its identification as a place usually entails a name and a history. They combine with the geographical features of the description to make it a place. They make it a bounded place, an “inside” within which there is a sense of co-residence, however subdivided by kinship and neighbourhood it is. Such an “inside” will itself be included in a greater bounded space. It is a hierarchy of orders of inclusion. A settlement is, in short, a place, which is a territorial definition of belonging. ”(Eduard 1998).

Of course, there is not only one definition of villages. In different research fields, or different periods, the definition is different. Moreover, for different purposes, or according different institutions, residents consider different boundaries which define the place they live in.

In this research focusing on China, the definition of village is just the settlement, which belongs to a collective. The residents in this area have the same culture, same lifestyle, and same houkou book (houkou book will be explained further). As long as the land tenure of this area is collective-owned, it is called “village”.

Eduard, Vermeer and Chong (1998) said in their book, that there are three aspects of village administration. The first reflects the tax-collecting and other duties assigned by higher government and Party. The second reflects the career prospects and personal interests of its cadres, in which economic performance is the main indicator of success. The third reflects public service and
leadership appreciated by fellow villagers. The last one has been redefined in terms of the traditional villages.

**2.2.2. Definition of urban**

The term “urban” is relative to “village” in this thesis. Similar with village, the residents of urban area have the same lifestyle and same culture which might be different from village residents.

The urban definition used in this study is administrative and means cities and towns designated by the central government. The land tenure of urban area should be state-owned. Therefore, even if some areas are located in the city fringe areas/suburbs, such as airport, wastewater disposal etc., and these places also are defined as urban in this study.

Generally speaking, urban land can be broadly divided into functional (land use/planning) and physical (land cover) definitions (Ning 2006). "Urban" in functional terms relates to activities such as industrial, residential, agricultural, etc. Nevertheless, there are often problems determining which activities should be adopted in urban. Similarly, "urban" can be defined in physical terms, relating either to population density or to land cover, where any developed land is considered urban regardless of its function. Furthermore, to a city with different administrative status such as main city, county, district, and town, the urban area probably consists of city proper, county town, district town and the relevant townships (Yun 2004).

**2.2.3. Definition of urbanization**

From different perspectives, urbanization can be given different meanings.

Urban geographers tend to observe the spatial structure as the key feature of the process of urbanization. Cities are regarded as centers of administration, arbitrators of trade, nodes of transport and intermediaries in the diffusion of technology, information, and ideas. Literally, urbanization refers to the process of “becoming urban”. Hence, it combines connotation of sociological, economic, and spatial structure(Somani 1973; van der Woude 1990).

Indeed “become urban” results in interrelated changes of people. Urbanization is the process of transformation that affects geographic regions when they become urban, during the urbanization process, a growing share of a region’s land and people become included in cities, suburbs, and towns. Esbah (Esbah 2005) said that urbanization also refers to a process of cultural and sociological change caused by the transformation of rural life styles into urban. Hence, urbanization causes a profound change in the way man uses his environment. It is an extension of the market economy and trade which are driving forces in the diffusion process and urbanization starts and proceeds in many different ways according to the geographical, economic and geopolitical position of the region (Timar 1992). The wide variety of geographical conditions, both natural and cultural, therefore creates a great variety of landscapes and cities.

From analyzing the spatial pattern change, urbanization has three different processes. T1, T2, T3 indicate time series of land development. The grey level means the order of land development: the darker the later. The same spatial pattern results from three (in reality, more) distinct spatial processes, which reflect the spatial and temporal interactions between road-influenced and center-
influenced. The arrows indicate the trend of temporal development, from which we can define them as three different processes (convergence, sequence and divergence) (Cheng 2003).

![Urbanization process diagram](image)

**Figure 2-1 Urbanization process**

### 2.2.4. Spatial pattern

The Oxford English Reference Dictionary defines pattern as “a regular or logic form, order, or arrangement of parts such as behaviour pattern”. Two key components are stressed in the definition: elements and the logical ordering among the elements.

In Cheng’s PhD dissertation (Cheng 2003), various types of “pattern” studies have been shown, such as residential or settlement pattern, land use development pattern, population and employment pattern, development pattern of informal settlement, land development patterns, land use change patterns, and transport/land use interaction patterns.

In this research, spatial pattern is used for analyzing dynamic change of objects (such as road pattern).

### 2.3. Theory of urbanization

#### 2.3.1. Location theory

This theory said urbanization has relationship with distance from the village to the nearest busy center. Moreover, the other important factor can lead to urbanization is the transportation conditions. Therefore, the information about distance and transportation conditions about the villages is important, and should be collected.

There are four classical traditions in Location Theory. The objective of each theory is shown on the following table (http://faculty.washington.edu/krumme/450/table.html):

<table>
<thead>
<tr>
<th>Objective</th>
</tr>
</thead>
</table>
| **Land Use** | Thunen: Optimal agricultural land uses based on transport costs to market  
Alonso: Optimal distances of residential and commercial land uses from CBD |
| **Industrial** | Weber: Transport-cost minimizing location |
EXPLORING VILLAGE SELF-URBANIZATION PROCESS IN P.R.CHINA

<table>
<thead>
<tr>
<th>Location Production Orientation</th>
<th>Smith: Profit maximization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Moses: Optimal combination of inputs &amp; optimal level of production at optimal location (allowing for scale (dis-)economies and substitutability at any one level of production)</td>
</tr>
<tr>
<td>Central Places Market Areas</td>
<td>Optimal market areas</td>
</tr>
<tr>
<td>Spatial Competition</td>
<td>Optimal Response in the Face of Locational Competition</td>
</tr>
</tbody>
</table>

(Source: http://faculty.washington.edu/krumme/450/table.html)

2.3.2. Structural theory

This theory said the population structure change could lead to the village turning to urban. Because, population structure change might give rise to change in employment, living ways and consumption methods. It also said the difference between villages and urban might cause the urbanization, such as the gap of income and opportunity of getting job (Xiaojian 1999).

2.3.3. Urban-rural interaction theory

Unwin (1989) said the urban-rural interaction should be focused on in the future research. And in this book, he mentions that there are five main categories of urban-rural interaction. They are movement of people, movement of goods, movement of capital, social transactions, and administrative and service provision (Unwin 1989).

Urban and rural changes therefore need to be seen as parts of an overall social formation, and they can impact each other. That is why rural residents change their habits under the influence of urban residents. And urban residents also might change their usual practise affected by activities of rural residents.

2.3.4. Industry promotional theory

Industry structure has been classified according to the historical sequence of development. Primary industry refers to extraction of natural resources; secondary industry involves processing of primary products; and tertiary industry provides services of various kinds for production and consumption. The above classification is universal although it varies to some extent form country to country.

The industrial structure can reflect the level of urbanization. It said that at beginning, development of secondary industry could promote urbanization. When secondary industry development reaches saturation point the tertiary industry plays a critical role in urbanization process (Xiaojian 1999).

2.4. Land tenure system

There are two main types of land ownership in China, state-owned and collective-owned. State-owned means the land belongs to state; it is not allowed to transfer the land ownership of this kind of land. Collective-owned means the land belongs to rural community, and all members of rural communities are entitled to an equal share of the collectively owned land. In other words, all land in China is either owned by the state or by collectives.
After the opening policy in 1978, China has transformed its planned economy system into a socialist market economy system, and adopted land use rights tenure. Under China’s Land Administration Law, which was firstly drafted in 1986 and amended in 1998, the State owns all urban land, while farmer collectives own all rural land. As the land tenure system was introduced in China only after 1986, land before this time is all treated as allocated, the user may continue to use them on paying annual land use tax, or transfer the land use right (LUR) into “granted ” by paying the land grant premium. The land ownership and land-use rights (LURs) are separated, and the state remains the land owner and local government may transfer the LURs by laws on behalf of the state.

Land users may use the land and own the buildings and improvements on it, but the sovereignty of the land remains in the hands of the State or farmer collectives. As far as compulsory land acquisition is concerned, the acquiring authority actually acquires the LURs only.

2.5. Urbanizing village

In China, there is a special form between urban area and rural area. Mostly, they are located in the urban area, especially in urban fringe. With Chinese cities expanding beyond their administrative districts, many rural territories are surrounded and absorbed by urban development. And many villages transformed into villages in cities. At the same time, massive rural migration has created enormous demand for inexpensive and accessible housing units in urban areas. This influx of population has created a unique urban form—villages in cities, also referred to as “urbanizing villages” or ChengZhongCun in Chinese (Duda 2008).

As mentioned in the previous section, there is a dual land rights system in China. This dual system of rural land ownership leads to the formation of villages in cities in several ways. First, city governments tend to avoid acquiring the land designated for housing, so they do not have to make the larger compensation payments required to relocate or provide new housing to the native villagers. Instead, governments acquire and purchase the land designated for farming. Since the farmers retain their property rights on their remaining rural housing land, they can use it as long as they keep their rural hukou. The hukou system will be discussed in following chapter 3.3.2. The governments generally pay a large lump sum in compensation when acquiring a farmland from the villagers, who then have the capital necessary to build new housing projects on their land to address the demand for inexpensive housing by rural migrants. Second, real estate developers who do not own urban land must pay a significant amount to city governments to obtain user rights. In comparison, native villagers who hold collective land ownership do not have to pay a fee to develop housing projects. Further, development projects in these former rural villages are not generally scrutinized by urban management regulations. Villagers are thus able to develop housing projects at much lower costs than the urban real estate developers are, and even to develop substandard housing units free of regulation (Song 2007).

Therefore, the emergence and prevalence of urbanizing villages is an outcome of China’s rapid urbanization, the dichotomy between rural and urban policies, and China’s urban land policies. These polices will be described in the following chapter. Moreover, there are many drivers and interesting changes, which are concerned by researchers, in these urbanizing villages.
2.5.1. General characteristics of urbanizing village

2.5.1.1. Physical characteristics

Flat structure: in order to cater for the demand of the floating population, the type of flats in buildings in urbanizing village are a particular characteristic. One room flat or two rooms flat are very common in most urbanizing villages. In order to save limited land and space, however, designation of theses flats usually cannot consider the orientation and ventilation. In the villages of poor housing conditions, some rooms cannot enjoy any sunshine during the whole year. Nevertheless, several households have to share one lavatory or washroom (Qi 2006).

Building environment: commonly, the distance between two opposite windows is only one or two meter. In most cases the distance between two buildings is not enough for a fire engine crossing which generates considerable hazards. Nevertheless, majority of the land is utilized to build houses. Green lands, public amenities and infrastructure equipments are lacking. So, the building environment is not only terrible but also causes danger e.g. to the health conditions of the dwellers in these urbanizing villages (Xie 2005).

2.5.1.2. Socioeconomic characteristics

Demographic: residents in urbanizing villages are comprised of two groups of population. One is indigenous people (original villager); the other group is temporary population (people from outside of the village). In typical and mature urbanizing village, the percentage of temporary population to the original population is rather high. Generally, the number of temporary population is 5-8 times more than original population. Approximately 80% of the original population does not have formal occupations. Nevertheless, the rent incomes are enough for them to have sufficient income. And most of the temporary population is employed in the tertiary industry. But, majority of them is low-income or medium-income. Their occupations include technician, taxi driver, sales staff, decorator, construction worker, carrier, and waiter and so on (Shou 2007).

Economy: the significant characteristic of internal economy in urbanizing village is the existence of massive informal economy, which also is called as black economy or invisible economy (Xie 2005). Most of tenements do not possess the property right, so they are unqualified to apply the license for formal business. So majority of shops, barber shops and pubs are illegal. Usually, they do not pay any tax to the local government. In other words, these urbanizing villages do not create direct economic value to the society. The indigenous daily income comes from renting and the bonus of village enterprise.

Culture: the life style of original farmers in urbanizing village is very relaxed. The landlords earn enough money from renting to maintain their good quality life without doing any work, just feeding their birds, playing cards, chatting, and enjoying the sceneries everyday. They are the typical exploiting class. Because of this special lifestyle, urbanizing villages are like lonely islands for them. They do not have many opportunities to connect with the outside world. Although they are living in the downtown, their social relationship is still limited to within a small circle. They do not have an evident transformation from native villages (Shou 2007).
From the lessees in urbanizing village, almost 60 percentages stay at the bottom of society. They have to work hard everyday to maintain the basic life requirements. Nevertheless, they always have to suffer discrimination from the original residents. Intense injustice and the deep gap of richer and poorer created an unstable and insecure social environment in urbanizing village (Hui 2006). Due to the fact that urbanizing villages stay in vacuum state which is apart from formal administration, residing in urbanizing village is the first choice for most illegal organizations and criminal gangs. Concentration of massive illegal gangs and the dual-polarization between the original residents and the temporary populations, lead urbanizing villages to be the seedbeds of social problems and crimes (Shou 2007).

2.5.2. Actors in the process of urbanizing village

Urbanizing village development refers normally to three players, namely the local government, farmer, and developer. The three players represent three interest groups respectively. A successful balance of the benefit relationship of these three agents guarantees successful urbanizing village development (Lu 2006). Figure 2-2 shows the relationship of three groups, which can help us to understand their relationships the process. There is a special patch where the three circles overlap in Figure below.

**Figure 2-2 Actors in the process of urbanizing village**

**Government:** government plays a crucial role in urbanizing village process. They always play several roles, not only as the decision maker but also as advocator. In general, in order to impel and encouraging urbanizing village development, local governments always instituted some preferential policies to developers, and provided welfare compensation to farmers. Governments’ policies impact the other players’ activity.

**Developer:** the cost for redevelopment is rather high. Depending on government financial supplement, it is difficulty to accomplish redevelopment projects. Thus, under most circumstances, the government has to in virtue of developers’ forces. In general, compensation fees or payments for farmers’ lost are afforded by developers. Nevertheless, developers possess the right to chose joining to these projects or not.
**Farmer:** whether the compensation and welfare are reasonable or not, the farmers’ interest more or less would be damaged. Urbanizing village redevelopment refers to private properties which is including houses, lands and etc. In addition, the farmers’ future livelihood and social security is another issue which is associated with the feasibility and rationality of urbanizing village redevelopment. Thus, farmers’ attribute should be taken into more considerations. And government and developers try to compensate the farmers’ losses by social welfare and compensation fees, meanwhile, they try to persuade the farmers to agree and support the redevelopment project by these compensations.

### 2.5.3. Categorized urbanizing villages in terms of the ratio of land use

Some academicians (Wu 2005) categorized urbanizing villages in terms of the ratio of land use already, which are also the most apparent characteristics of urbanizing villages.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Basic features</th>
<th>Redevelopment necessity</th>
<th>Attitudes of indigenous peoples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical urbanizing village</td>
<td>[1] almost be abounded by build-up area, without any agriculture production; [2] renting is the main livelihood, occupied more than 80 percentage of total incomes; [3] Temporary population is 4 to 10 times than original residents.</td>
<td>[1] should be redeveloped urgently; [2] there are obstacles and illnesses of urban development which impact the cities’ societal, economic and environmental improvement; [3] Expenditure for redevelopment is rather high. Both local government and rural enterprise afford the loss.</td>
<td>Passive/ (in voluntary)</td>
</tr>
<tr>
<td>(construction land area larger than 70% of total area)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformed urbanizing village</td>
<td>[1] renting is increasing, occupied 40-80 percentage of total incomes; [2] Temporary population is 2 to 4 times than original residents.</td>
<td>[1] should be redeveloped, the earlier the better; [2] Redevelopment expenditure is not so high.</td>
<td>Active/ (voluntary)</td>
</tr>
<tr>
<td>(construction land occupied 40%-70% of total area)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban-fringe urbanizing village</td>
<td>[1] maintain some agriculture activities; [2] the income from renting is less than 50 percentage; [3] The number of temporary population less</td>
<td>[1] should be controlled and managed by strictly planning; [2] Prevent to be transformed to the other two kinds.</td>
<td>waiting</td>
</tr>
<tr>
<td>(construction land area less than 30% of total area)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
EXPLORING VILLAGE SELF-URBANIZATION PROCESS IN P.R.CHINA

<table>
<thead>
<tr>
<th>than original residents.</th>
</tr>
</thead>
</table>

Source: (Wu 2005)

### 2.6. Multiple forms of Chinese urbanization

First, let us take a quick glance at the macro-economic picture of China as a whole at the beginning of the 1990s. Basic reforms in the rural sector began with the de-collectivization of agriculture and the start-up of the so called household responsibility system in 1983. The abolition of the communes released a flood tide of human inventiveness and energy, and marked the beginning of a frenetic process of rural industrialization. A mere ten years later, it was apparent that a veritable (and peaceful) revolution had occurred that lifted as many as 200 million peasant farmers out of poverty.

Here the five dimensions of the multi-dimensional construct of China are proposed (Friedmann 2005):

1. **Administrative urbanization:** in China, as elsewhere, towns and cities are defined administratively, and the criteria that would, for example, turn a village into a town, or a town into a city, are varied and may change over time. A peculiarity in China is that urban residents are identified as such by a *hukou*, or residence permit, that confers on them certain entitlements, such as subsidized food and housing. The central government has tried very hard to limit the number of urban *hukou* but has been only partially successful. About a fifth of the increase in urban (resident) population has come from a reclassification of non-urban places to urban status.

2. **Economic urbanization:** urbanization brings change in the relative proportions of primary (agricultural, extractive), secondary (manufacturing industry, construction), and tertiary (trades and services) sectors in the form of a decline in primary employment and a proportional increase in secondary and tertiary activities. This structural change toward urban-type work is usually also reflected in higher productivity per worker across all sectors. In addition, there may be a growing segment of the population that is receiving a portion of their income from rents, which in China may derive either from collective (“shareholding”) or from private (household) property. Finally, economic urbanization is often accompanied by an expanding radius of transactions, extending from local accompanied by an expanding radius of transactions, extending from local to regional, to national and global.

3. **Physical urbanization:** village and township acquire an “urban look” as streets are paved, public spaces are beautified, and housing increasingly takes the form of multi-story apartment buildings (with modern plumbing and indoor bathrooms). There are also factory buildings, new shopping complexes, recreation facilities, hotels, medical clinics, new and improved schools. Finally, excessive damage to the environment, from belching smokestacks to dwindling ground water supplies and rivers that have turned into malodorous sewers, has become prominent in many parts of China.
4. Social-cultural urbanization: everyday life is transformed. Large numbers of newcomers work in local factories, construction, and whatever remains of increasingly specialized farming operations. Because they are outsiders to local communities with different customs and languages, their presence may give rise to new forms of social tension. Furthermore, the relatively simple social stratification of peasant life (especially as it existed under revolutionary communism) is giving place to new, more complex forms. Finally, there are new forms of individual and household consumption and uses of leisure. The technologies of computer and cell phone—the information revolution—are among the visible instruments shaping the unbounded city.

5. Political urbanization: even in a party-state such as China, political change is associated with urbanization. The government has been forced to decentralize decision-making power to local authorities. Even though they are not elected, they must act in the name of local populations and in their interests. New structures of power emerge, with strong linkages between local officials and business elites. Qi(1999) refers to this model of governance as local corporatism. But with the power of new business elites in the ascendant, the power monopoly of the local party-state is waning. Power must now be shared.

2.7. Conclusion

In many Chinese cities, a complex interplay of government and private, local, national, and increasingly transnational forces have influenced urban growth. Responding to changes in local, national, and international economic drivers, each city is redefining its economic roles and functions, with direct consequences for the city’s physical form (Schneider, Seto and Webster, 2003).

In urbanization process, the population migration is one of the drivers to push the urbanization progress. Urbanization is more than the growth in urban population, it is also the reorganization of the urban system, which can be seen and measured by the different forms the urban system takes. There are also other factors that can influence the urbanization process. Especially in village self-urbanization process, there are other drivers, which induce the changes in villages. This is not a simple phenomenon. It contains land use change, land rights transformation, and social-economic improvement and so on.
3. **Policy and Urbanization in China**

3.1. **Introduction**

This chapter contributes to understand Chinese urbanization by presenting policies and processes and key features of the urban system in modern China. The first section provides a brief history on the institutional arrangements on Chinese urbanization and land policy. Then, we discuss the household registration (*Hukou*) system as a key feature in Chinese urbanization process. Finally, impacts on urbanization from housing and land markets are introduced briefly.

3.2. **Policies in China**

3.2.1. **Chinese urbanization policies**

Since the New Chinese government was established in 1949, the development of Chinese cities has been guided by a number of deliberately designed policies and strategies.

3.2.1.1. **Chinese urbanization policies from 1949-1978**

It is necessary to describe the urban policy changes in China generally, as they form the official reference frame for urban development throughout the country. China has a unique experience of urbanization called the “Chinese Model”. This is known for its relatively slow pace of urban population growth and rural outlook of the urban morphology, and it was indeed a product of specific policies directed at regulating population movement from rural to urban areas and urban growth (Whyte and Parish 1984). The fluctuations in the level of urbanization resulted from the changes of such urban policies (Ran 1989). The current economic reform program that was responsible for reorienting Chinese development policies inspired the search for a new model of Chinese urbanization (Kwork 1990).

Chinese urbanization policies have formed an important part of the strategies in the rural and urban sectors, and provided a regional dimension (Yujian 2003). They were blamed for causing fluctuations in Chinese economic growth as well as creating chaos in the national development during the Cultural Revolution (Cheng 1990). Faced with the present economic transition from a centrally planned system to a liberalized, market-oriented system, both the Chinese government and the planners must understand its existing policies and simultaneously formulate new ones.

3.2.1.2. **Chinese urbanization policies 1978-present**

- Policies of rural-urban migration controlling from 1978-1989

In the process of the systemic economic reform and opening up, the Chinese economy is increasingly bound to outside market systems. State intervention with regard to urbanization during the transitional period of economic system remains significant in various ways. Though State regulations are now less intrusive and less effective in preventing rural people from moving to the cities, formally the state reserves its power to grant full urban citizenship and to limit the destinations of the peasants on the move (Yujian 2003). The large number of “floating” people reflects the state’s failure to control the
rural-urban migration, however, restrictions on the employment rights of rural labour in cities is a sign reflecting that the state’s continued attempts to exert controls over rural-urban migration.

- **Policies of rural-urban migration controlling from 1989-present**

China has been undergoing a period of rapid urbanization and industrialization, particularly since 1989. With the country’s fast development, the proportion of the agricultural population will show a tendency of dropping down and the old *Hukou* system of urban residence permits established in 1958 is becoming a great obstacle in the process Chinese development.

In July 1998 the State Council issued a document intending to solve the problem of *Hukou* management. Although the central government wanted to change the dual-track system of *Hukou*, it had little effect in practice.

In March 2001 the State Council issued another document that going was to make some reform tests of the *Hukou system* in the small cities and towns.

This reform’s main purpose is not to eliminate the *Hukou system* in China, but give all the people the same social-economic status. It allows the people to migrate freely. On the one hand this reform can provide more cheap labour to the cities; on the other hand it gives a way to the vast superfluous labour in the rural area.

### 3.2.2. Land policy in China

After 1949, land reform was launched in a effort to reduce social inequality by confiscating the rich and then redistributing it to the poor. By 1958, all land was either state-or collectively owned. Urban land was state-owned whereas farmland was collectively owned with a few exceptions (Zhang 1998). This type of land ownership structure remains to the present day and continues to play an important role in urban development of the proreform period.

Land policy has gradually changes from 1978. Changes included the adoption of the land leasehold system-land-use rights, land-taxation and use fees, farmland protection, land administration, and regulations on land markets (Liu 1990). These changes will be discussed in the following section.

- **Land-use rights**

In the early 1980s, China established Special Economic Development Zones (SEDZs) in the coastal regions. The ‘Land-use rights system’ as well as the tax exemption were the privileges given to these districts. It allowed foreign investors to access land by leasing land for an extended period of time.

Investors paid up-front land-use rights fees and rents. This was a fundamental change in land policy. Land Administration Law passed in 1986 was a most significant change to land policy. It legalized private organizations and individuals to access the state-owned land in an attempt to develop the land market in China. The State Council announced “The Provisional Regulation on the Granting and Transferring of the Land Rights over State-Owned Land in Cities and Towns” in 1991 provides a concrete legal guidance to the Land Administration Law. Now land users were allowed to let, transfer, rent, and mortgage land-use rights (Yujian 2003). Since then, similar land-use rights have spread throughout the country.
Farmland protection
Rapid urban expansion caused the depletion of farmland at an unprecedented rate, particularly on the urban fringes where the most productive land was located. Between 1986 and 1995, more than 1973,000 ha of farmland were formally recorded as lost to non-agricultural construction (China Statistic Bureau, 1990-1996).

The State Council responded to the fast depletion of farmland by passing the “Basic Farmland Protection Regulations” in 1994. These regulations prohibited basic farmland conversion to non-agricultural activities, mandated counties and townships to designate the basic farmland protection districts in accordance with provincial farmland preservation plans.

Land management law
The real legal framework shaping the urban land-use rights reform was the 1998 Land Management Law. Its impacts are associated with two major articles. One is the mandated no net loss of cultivated land and the other requires that developers must either exploit or reclaim an amount of farmland that is equivalent to farmland lost due to development, or pay the full development of farmland exploitation (Ding 2003).

Land-use taxation
Land-use fees were first introduced in 1979. China started to impose land-use fees on foreign enterprises and joint ventures. The state passed the “provisional Act of Land-Use Taxation on State-Owned Urban Land”. According to the law, all work units (Dan Wei) and individuals were obliged to pay land-use taxes if they used land in cities, towns, and industrial and mining districts.

3.3. Key features of the urban system in modern China

3.3.1. Administrative hierarchy
The first one is the administrative hierarchy. At the top are cities with the administrative powers of a province (Zhi Xia Shi): Beijing, Shanghai, Tianjin and Chongqing, -- followed by prefecture level cities (Di Ji Shi) of which there are about 225. Provincial and prefecture level cities administer large land areas, comprised of urban districts forming the city proper and huge extra-urban areas, or rural counties. Below prefecture level cities are county-level cities (Xian Ji Shi) -- either traditional county cities or townships that have evolved into cities. These county-level cities can also administer large rural areas, but there is generally no breakdown between the urban and rural portions, making it difficult to count urban populations (Henderson 2002). Due to this, the statistic data of a top hierarchy city such as Beijing should be more credible than that of a province because of less lower level cities under its administration. On administrative hierarchy, the administrative scope of one higher-level city usually contains several lower-level cities, districts and towns.

3.3.2. Hukou System.
In China, the geographic-urban dispersion of population is maintained by strong migration restrictions, under the Hukou system. Migration restrictions play such a strong role in the society and economy that it is critical to describe them. The Hukou system in China is similar to an internal
passport system (Chan 1994). And we have two different kinds of hukou book, one is urban hukou, the other is rural hukou. A person's local "citizenship" and residence is initially defined for a child as a birth right, traditionally by the father's place of legal residence. Normally, people living in rural area are holding rural hukou. The entitlements and details of the system differ for urban and rural residents. Legal residence in a city entitles one to local access to permanent jobs, regular housing, public schooling, and public health care (where almost all health care is public) in that city.

Legal residence in a village or rural township entitles residents to land for farming, township housing, and job opportunities in rural industrial enterprises, and access to local health and schooling facilities in their town. Residents also have some degree of "ownership" in local enterprises; although distributed profits all go to the local public budget, which may be used to finance township housing and infrastructure.

How does a person change its local citizenship? There are several common mechanisms. First is education. A smart rural youth may persist through the competitive county system to get a place in a college. Upon college graduation, the rural youth will be hired into an urban job, with an urban Hukou. Second, the state at times can open the gates, permitting factories to hire permanent workers from rural areas, permitting family reunification, or permitting legal migration from rural areas to nearby small cities. Nevertheless, the official changes in residence or Hukou status average about 18 million (less than 1.3% of the total population) a year over the last 20 years with little annual variation (Yun 2004).

People can migrate to an area without local Hukou, or an official change of residence/"citizenship", either illegally ("unregistered") or legally as a temporary worker or as a "permanent resident" on a long-term permit. For example, a rural person may be hired as a "contract worker" in industry or services, for a term of three years. Or a rural person may get permission to work temporarily in another local rural area in construction, food services, domestic services and the like. People may move illegally, without registering in the new location, and work in the informal sector for low pay, under poor conditions, with risk of deportation. Despite these possibilities and despite some recent relaxations of restrictions in particular provinces, the restrictions in migration remain tight.

Today, this system is collided by the farmers’ frenzied hunt for work in cities. Some provinces and cities such as Ningbo have abolished the restriction of Hukou conditionally and more provinces and cities are preparing to break this system. Maybe the free migration in China will be possible in the near future. In the Xi’an area the hukou system is still maintained.

3.4. Housing and land markets in China

3.4.1. Establishment of housing market

Housing reform was launched after 1982. Because of the difficulty in the change from administrative to market mechanism, the progress of housing reform is slow. The new policy under the title of “commercialization of housing” is to reduce government subsidy on housing, to encourage individuals to buy houses, to increase the source of income for construction of more houses and to solve nationwide housing shortage. Various programs have been tested and the Special Economic Zones the
pioneers in housing reform (Yun 2004). The programs attempt to increase individuals’ incentive to buy housing and to avoid decrease in living standard because of the reduction of subsidies. Individuals could only pay one third of the price, while the enterprises they belong to and the municipality pay one third of the housing payment respectively. The incentive for buying housing was raised.

Old houses were also sold to individuals at discount prices. Nevertheless, it was soon realized that the government and enterprises could not afford to continue to subsidize the commercialization programs. Thus, a comprehensive policy had to be devised (Yun 2004). With the rapid development of Chinese economy, more and more private owners emerged and the housing market became bigger and bigger. Today, housing construction is the most active element of urban development. This means that urban planning is facing multiple actors- the residents, developers (both foreign and domestic real estate companies) and work units.

3.4.2. Establishment of land market

Land reform lagged behind housing reform due to the difficulty in justification of land privatization. Both housing and land reform can be viewed as the effort to privatize property. In the beginning, land reform was not intended to set up a land market in China. In 1982, the Constitution was amended, which declared that all urban land belonged to the state and transactions of land ownership were illegal. Before the amendment of the Constitution, land under the private housing was still owned privately in name. Since the ownership did not bring any benefits to the owner, the abolishment of private ownership did not meet any objections. The purpose of land reform at the beginning was to encourage more efficient use of urban land through economic incentives and to protect cultivated land, which was randomly occupied by urban constructions because of the free land use. Since China faced a more serious shortage of cultivated agricultural land, this was an urgent task for the reformatory government at that time. So, in some cities like Shenzhen, a land use fee was levied. In 1988, the State Council promulgates the “Regulation on Land Use Tax Collection in Cities and Towns” which enabled the city government to collect land use taxes. The era of free use of urban land ended (Yun 2004).

In early 1990s, the legalization of land leasing was completed after several pieces of legislation were enacted and promulgated. Since Deng Xiaoping’s southern tour in 1992, the pace of land leasing has been quickened. Now, land leasing does not only involve land parcels in the city proper, but also large tracts of undeveloped land in the Economic and Technological Development Zones (ETDZs).

The establishment of land markets lead to a boom of real estate companies. Since 1992, the building industries have undergone accelerating commercialization. More companies emerged. At the time, speculation increased. The huge differences in land price between administrative allocation and land leasing through negotiation, tender and auction lead to speculation. Some real estate companies are engaged in the transaction of land without genuine development. To control rampant speculation, the City Real Estate Management Act was enacted in 1994. At the same time, the State Council asked local government to tighten up company registration. Development zones without proper approval were shut down. Transaction tax was levied on the transfer of land use right without substantial development. Developers also had to turn in value-add tax if they obtain windfall income from the land (Yun 2004).
3.4.3. Impacts on urbanization

Localized urban management makes the municipality more powerful than before to regulate and intervene in urban development. No matter what kind of land users that development control deals with, the urban planning system now has the right to require all developments to conform to urban plans. Housing reform has freed the work units from direct provision of housing. Thus, the housing estate can be developed at an economic scale and the municipality can prepare a comprehensive plan of housing construction and service facilities. With the reduction in the power of sectoral departments, service facilities begin to be provided by the municipal government rather than individual work units. The former pattern of self-contained development based on individual work units has been broken and has been gradually replaced by overall planning and management by the city government. Land reform has stimulated the development of property markets. Land leasing also brings about land revenue and planning gain to city government (Yun 2004). So, the infrastructure can be funded and urban environment improved. Because of the re-emergence of land prices, high demanding of renting house, and relaxed housing market, not only government but also residents themselves, will improve the facilitate or restructure land use. Residents redevelop their land and house for attracting more tenants. Their actions can push the village urbanizing.

3.5. Conclusion

Since the New China government was established in 1949, a number of deliberately designed policies and strategies have guided the development of Chinese cities.

As an outcome of China’s rapid urbanization also, urbanizing villages became a frequent phenomenon in China. The dichotomy between rural and urban policies, and land tenure and China’s urban land policies lead to the emergence and prevalence of urbanizing villages.

Hukou system is a unique feature in Chinese policy systems. Many researches about urbanizing village are considering the hukou system. Hukou system is regarded as a key factor which drives the urbanizing villages during the urbanization.
4. Situation Analysis of Village Self-Urbanization Process in Xi’an

4.1. Introduction

For a comprehensive evaluation of village self-urbanization process, an analytical perspective has to be chosen. Methodology used in this research is described in this chapter, including three parts: fieldwork and data collection, methodology for analysis work, and the processing of the data and images. This chapter also analyses the temporal change of study areas, with respect to land use and spatial pattern. Quantitative methods are used to perform the evaluation.

4.2. Fieldwork and data collection

4.2.1. Fieldwork purpose

The aim of fieldwork is to collect data which are related to village self-urbanization process, by means of interviews of the stakeholders, to look what happened in the villages.

4.2.2. Fieldwork preparation

Before fieldwork, questionnaires are prepared, and the study areas are chosen.

4.2.2.1. Design questionnaires

The questionnaires are designed for different groups: the authority group (including the village leader and different government departments), the residents and householder group, and developer group. (see Appendix 3--8). In addition, all the questions are designed based on the theories and policies considering urbanization process.

4.2.2.2. Fieldwork site

During last 5 years, three areas in Xi’an city have changed so much—QuJiang development zone in YanTa District, GuoDu town in YanTa District, and ChanBa economic development zone in BaQiao District. By considering the data resources, and development speed, the four villages located in YanTa District have been chosen as case study. And another important reason is that we have good relationship with the Land Management Bureau of this District. They can give the support when interviewing authorities and village leaders.

The Figure 4-1 shows the study area, and every village is given a number for easy identification. Village 1 named Houcun, village 2 named Wayaobao, village 3 named Yuejiazhai, and village 4 named Chunlincun. These four villages are well connected to the city center by infrastructure.
4.2.2.3. Organizations

During the fieldwork of five weeks, the Shaanxi Land Resource Bureau, the Xi’an City Planning Bureau, the Xi’an City Construction Bureau, the Xi’an Institute of Surveying Mapping & Geotechnical Investigation, the Xi’an Land Bureau, Xi’an Statistic Bureau, and the Shaanxi provincial library were visited. (The detail information is shown as Appendix1–2.)

4.2.2.4. Methods

Fieldwork methods include on-site inspection, semi-structured interviews, and questionnaires. The questionnaires were formulated for different groups, and were Close-ended Questions and Open-ended Questions to get the information. Four assistants were used for interviewing the residents in different villages. The village interviews took more than one week. Finally, a total of 204 responses were obtained. After checking the quality, 190 responses for these four villages are used in the analysis.
4.2.3. **Data collection**

The most significant spatial data in this research is the IKONOS image and the image from other sources, like Google Earth, the land use data, land rights situation, and social-economic background. The obtaining of this data had followed a scientific and systematic method in both fieldwork and image processing. It was contributed by the long-term hard working of members in Xi’an Land Bureau and planners in Xi’an City Planning Bureau. Authorized by Xi’an Urban Planning and Land Administration Bureau, the results and some related data could be used in this research.

Besides the results of survey, there were several spatial and non-spatial data collected in this research (Table 4-1). The most important of them will be described.

- **Land Use Plans of Xi’an**
  Land Use Plans of Xi’an, which were granted by the provincial Land Resource Administration Bureau. In the history of Xi’an, there were two editions of Land Use Plans published in 1997 and 2004.

- **Recent land use map**
  The recent land use maps refer to the nine district recent land use maps and four county recent land use maps. They were detailed in land parcel level, and were the plans, which guide the development in practice. In this research, use only one recent district land use map.

- **The eleventh ‘five year’ plan of Xi’an**
  Land Use Plans of Xi’an, which were granted by the central government, were the legal document guiding the development of the city in aspects of spatial structure, economic and social development, environment protection, energy utilization, etc. They give the basic principles, which have to be respected by the sub-level plans and regulations.

- **Spot5 Image, IKONOS-2 Image and image from Google-earth**
  Images were used as reference in doing the field survey and as used to identify the boundaries of villages, road pattern, and the land use of surrounding areas, etc.

- **Social and Economic data**
  Social and economic data such as population, GDP, etc. were the important factors of analyzing the distribution patterns or efficiency of land use. The sources of these social and economic data were statistics yearbook, official reports and literatures, including: Xi’an Statistics Yearbook 2005(SSB 2006), Economic and Social Development Report of Xi’an City 2005-2006 (SSB 2006), etc.

- **Interviews**
  Interview, in this research, is one of the main tools to understand the motivations, mechanisms, and characteristics of the urbanizing village’s development. Interviews were not only taken in government offices, but also in urbanizing villages. The interviewed include urban planners, officials, property developers, and residents living in villages, etc. The detailed interviewer list is attached as appendix 2 of this thesis.
Table 4-1 Data collection

<table>
<thead>
<tr>
<th>Data</th>
<th>Year</th>
<th>Format</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xi'an land use plan map,</td>
<td>1997-2010</td>
<td>JPG</td>
<td>Xi'an Land Bureau</td>
</tr>
<tr>
<td>Xi'an present land-use map</td>
<td>2005,2006</td>
<td>JPG</td>
<td>Xi'an Land Bureau</td>
</tr>
<tr>
<td>Land use structure data</td>
<td>1997-2004</td>
<td>EXCEL</td>
<td>Xi'an Land Bureau</td>
</tr>
<tr>
<td>Population, population density and population development in</td>
<td>1997--2005</td>
<td>Shape file</td>
<td>Xi'an Statistic Bureau</td>
</tr>
<tr>
<td>representative,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Domestic Product,</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Xi'an Statistic Bureau</td>
</tr>
<tr>
<td>Per Capita Gross Domestic Product,</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Xi'an Statistic Bureau</td>
</tr>
<tr>
<td>The Consumption Structure of Urban People and Rural People,</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Xi'an Statistic Bureau</td>
</tr>
<tr>
<td>Per Capita Annual Disposable Income of Urban Households and Rural</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Xi'an Statistic Bureau</td>
</tr>
<tr>
<td>Residents,</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Shaanxi provincial library</td>
</tr>
<tr>
<td>Development of urban and rural labour resources,</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Shaanxi provincial library</td>
</tr>
<tr>
<td>Source of funds for investment in real estate development,</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Shaanxi provincial library</td>
</tr>
<tr>
<td>Running of real estate development,</td>
<td>2000--2005</td>
<td>Shape file</td>
<td>Shaanxi provincial library</td>
</tr>
<tr>
<td>private buildings construction in rural area</td>
<td>1991--2005</td>
<td>Shape file</td>
<td>Xi'an City Planning Bureau, Xi'an City</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Construction Bureau</td>
</tr>
<tr>
<td>Spot5 Image</td>
<td>2005</td>
<td>Digital</td>
<td>Xi'an Institute of Surveying Mapping &amp;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Geotechnical Investigation,</td>
</tr>
<tr>
<td>IKONOS-2 Image</td>
<td>2000</td>
<td>Digital</td>
<td>ITC</td>
</tr>
<tr>
<td>Image</td>
<td>2007</td>
<td>Digital</td>
<td>Google earth</td>
</tr>
<tr>
<td>Interviews</td>
<td>2007</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.2.4. Deficiency of fieldwork

Thanks to helping from supervisors and staff in different departments, much useful information were obtained. Nevertheless, there are also some deficiencies in fieldwork. Because of these deficiencies, some constrains cannot be avoided in the research.

- Firstly, there is no transparency in payment for acquiring land, but this kind information only can be obtained from residents and householders. The officer cannot tell the exact situation. In addition, the village leaders do not want to answer this kind of questions. Hence, the information about compensation and equity is not enough.

- Secondly, not every villager could be interviewed. Interviewing is time-consuming.

- Thirdly, the quality of data depends upon the quality of the interviewer. In an interview situation, the quality of the data generated is affected by the experience, skills, and commitment of the interviewer.

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total questionnaires</td>
<td>Useful questionnaires</td>
</tr>
<tr>
<td>Residents and householders</td>
<td>Chunlin cun 4</td>
</tr>
<tr>
<td></td>
<td>Wayao Bao 3</td>
</tr>
<tr>
<td></td>
<td>Yuejia zhai 2</td>
</tr>
<tr>
<td></td>
<td>Hou cun 1</td>
</tr>
<tr>
<td>Total sample</td>
<td>204</td>
</tr>
</tbody>
</table>

4.3. Methodology for analysis work

Urban growth involves complex physical, social, and economic processes. As a consequence, the interpretation and evaluation of urban growth based solely on qualitative knowledge is difficult. The physical process leads to changes in landscapes, and the socio-economic processes to changes in land uses. Therefore, analyzing urban growth should take both physical and functional changes into account.

The spatial indicators used in this study quantify the structural and functional complexity inherent in urban growth systems. Structure is the physical arrangement of physical and social components, and function refers to the way the components interact (Zipperer 2000). Structural and functional complexity is indicated in the aspects of urban form, morphology and land use.

- Data classification

Firstly, the data must be classified in order to highlight the study area and objects. The selection of a land use classification scheme depends on various factors such as the collected data, the local
planning system and the purpose of the application. From the urban definition (shown in the Chapter 2.2.2), the data can be classified according to three groups: land cover, land tenure, and land use.

For each group, urban and rural have the different meaning. Suitable classification can further the interpretation and analysis, to find what is happening in village self-urbanization process.

- **Visual interpretation in light of theory**
  While aerial photographs for land use mapping have been used for many decades, there is also ample experience in the use of satellite images with low and medium resolution for land cover mapping. Many researchers have developed automatic solutions for land use classification based on digital imagery, but there are many aspects which remain unsolved, such as image understanding and pattern recognition. For urban areas, where urban land use systems involve complex social and economic activities, visual interpretation is still the most reliable method for classification (Cheng 2003).

  As the interpretation of an image or photograph is to some extent subjective, a time series of urban growth mapping should be carried out by one person (in this case the author) to guarantee comparability. Manual interpretation provides a comparable interpretation of sequential images when consistent interpretation criteria are applied throughout the research by the same analyst. Before digitising, a minimum mapping unit should be determined for the various scales of the data sources (Cheng 2003).

- **Urban morphology analysis**
  There are three classic theories of urban morphology: the concentric area theory (an urban pattern of concentric rings with different land uses and a central business district), the sector theory (the concentric zone pattern modified by specific development along transportation corridor), and the multiple nuclei theory (patchy urban pattern formed by multiple centers of specialised land use activities) (Carter 1995). These theories structure urban morphology from a primarily static viewpoint. All of them are less well suited to analysing the more complex urban spatial evolution we witness today.

- **Spatial pattern analysis**
  After data classification and interpretation, the spatial pattern analysis should be done. In land cover and land planning/use aspects, to look for the change in study areas, through the house density, settlement shape, house material, road pattern, etc.

- **Urban and land use structure change**
  Land use is the projection of complex urban socio-economic activities on a land system. The structural and functional characteristics of land use reflect the outcomes of socio-economic processes (Kronert 2001).

### 4.4. Analysis of data and Findings

The urbanization ratio is used for showing the urbanization level. And, urbanization ratio is the ratio of the non-agricultural population number to the total population number per area (Wang 1997). It can indicate by formula:
The present urbanization level of our country has already been up to 41.7% (collective land rights study report during redevelopment of urbanizing village in Xi’an, 2006). Under this circumstance, urbanization level of Xi’an is increased year by year from 37.51% in 1991 to 44.91% in 2005 (see Table 4-3). It is more than country level 3.21%.

Table 4-3 Population in Xi’an

<table>
<thead>
<tr>
<th>year</th>
<th>total population</th>
<th>non-agricultural population</th>
<th>urbanization ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>6154777</td>
<td>2308534</td>
<td>37.51%</td>
</tr>
<tr>
<td>1992</td>
<td>6231978</td>
<td>2364545</td>
<td>37.94%</td>
</tr>
<tr>
<td>1993</td>
<td>6309145</td>
<td>2408467</td>
<td>38.17%</td>
</tr>
<tr>
<td>1994</td>
<td>6394544</td>
<td>2483546</td>
<td>38.84%</td>
</tr>
<tr>
<td>1995</td>
<td>6482079</td>
<td>2557090</td>
<td>39.45%</td>
</tr>
<tr>
<td>1996</td>
<td>6548724</td>
<td>2612786</td>
<td>39.90%</td>
</tr>
<tr>
<td>1997</td>
<td>6620578</td>
<td>2675156</td>
<td>40.41%</td>
</tr>
<tr>
<td>1998</td>
<td>6682168</td>
<td>2717526</td>
<td>40.67%</td>
</tr>
<tr>
<td>1999</td>
<td>6744977</td>
<td>2761365</td>
<td>40.94%</td>
</tr>
<tr>
<td>2000</td>
<td>6880111</td>
<td>2857913</td>
<td>41.54%</td>
</tr>
<tr>
<td>2001</td>
<td>6948369</td>
<td>2926240</td>
<td>42.11%</td>
</tr>
<tr>
<td>2002</td>
<td>7025939</td>
<td>3000463</td>
<td>42.71%</td>
</tr>
<tr>
<td>2003</td>
<td>7165784</td>
<td>3128810</td>
<td>43.66%</td>
</tr>
<tr>
<td>2004</td>
<td>7250078</td>
<td>3185035</td>
<td>43.93%</td>
</tr>
</tbody>
</table>
| 2005 | 7417263         | 3331440                     | 44.91%             

From the Xi’an Statistic Bureau

Figure 4-2 Urbanization ratio of Xi’an
4.4.1. Development of the built up area in Xi’an

In December 2004, the total built up area of Xi’an is 112382.67ha, which is 11.12% of the total area of the city. Table 4-4 shows how the built up density of different districts varies. Bei Lin District and Xin Cheng District, in which the city center is located, have relatively smaller area, but have the highest built density 99.58% and 98.89%*. A district of Lian Hu has high built up density also, about 93.13%. A district of Yan Ya, which lies on the west of the city, is impacted by policy very much in these years. The built up density is 59.2%.

<table>
<thead>
<tr>
<th>District Name</th>
<th>Xi’an</th>
<th>Xin Cheng</th>
<th>Bei Lin</th>
<th>Lian Hu</th>
<th>Ba Qiao</th>
<th>Wei Yang</th>
<th>Yan Ta</th>
<th>Yan Liang</th>
<th>Chang’an</th>
</tr>
</thead>
<tbody>
<tr>
<td>total land</td>
<td>1010801.7</td>
<td>3001.34</td>
<td>2426.58</td>
<td>4290.7</td>
<td>32535.88</td>
<td>26206.74</td>
<td>14874.43</td>
<td>24439.54</td>
<td>159012.32</td>
</tr>
<tr>
<td>built area</td>
<td>112382.67</td>
<td>2968.073</td>
<td>2416.473</td>
<td>3996.06</td>
<td>9202.887</td>
<td>10488.84</td>
<td>8813.38</td>
<td>4973.6</td>
<td>16617.0267</td>
</tr>
<tr>
<td>proportion</td>
<td>11.12%</td>
<td>98.89%</td>
<td>99.58%</td>
<td>93.13%</td>
<td>28.29%</td>
<td>40.02%</td>
<td>59.25%</td>
<td>20.35%</td>
<td>10.45%</td>
</tr>
</tbody>
</table>

* Including infrastructure area and built up area

Table 4-4 Districts and built up areas in 2004

Nowadays, we know there is a close relationship between economic development and urbanization. Therefore, the data about per capita gross domestic product from Xi’an statistic Bureau should be collected (Figure 4-3).

Figure 4-3 Per capita gross domestic product in Xi’an

In addition, many researchers usually use the per capita gross domestic product as an indicator to show the urbanization level. The per capita GDP is an important indicator of the level of economic development. To a certain extent, the increase of per capita GDP reflects the development trend of a city.
Built up area of Xi’an increased from 1052.72 km$^2$ in 2002 to 1123.83 km$^2$ in 2004. Total accumulated land is 71.11 km$^2$, the average annual increase is 35.55 km$^2$. This expansion speed is rarely seen in other Chinese or foreign cities. With the expansion of urban land, Xi’an’s per capita GDP grew from 11831 yuan per person in 2002 to 15294 yuan per person in 2004. The average annual increase is 29.27%. The rapid economic growth and urban expansion have very close relations.

![Growth of Per Capita GDP and built up area](image)

**Figure 4-4 Growth of per capita GDP and built up area**

From Figure 4-4, a correlation between the growth of GDP and the expansion of built up area can be perceived. The slopes of those two curves are almost equal and it reflects a parallel growth trend between those two indicators. From the year 2002 to 2004, the built up area of Xi’an increased from 1052.72 km$^2$ to 1123.83 km$^2$. Meanwhile, the GDP rose from 82668 million yuan to 110239 million yuan.

![Growth of GDP and Built Up Area](image)

**Figure 4-5 Growth of GDP and built up area**

From the perspective of resource economics, capital can be classified into two sorts: land resources and other resources such as money, human resources, technology, etc. In the rapid urban development
process, urban land, as the foundation of all social and economic activities, was in great demand. Thus, the urban expansion has strong dependency on urban economic growth.

4.4.2. Spatial pattern analysis associated with social-economic analysis

Of the four villages, village 1 is the nearest to the city center. The distance from city to villages is shown as Table 4-5. We can see it takes only 40 minutes from the village to the city center by bus.

<table>
<thead>
<tr>
<th>Village's No.</th>
<th>Village 4</th>
<th>Village 3</th>
<th>Village 2</th>
<th>Village 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time consuming</td>
<td>80 minutes</td>
<td>50 minutes</td>
<td>40 minutes</td>
<td>40 minutes</td>
</tr>
<tr>
<td>Distance</td>
<td>9.47 kilometers</td>
<td>7.15 kilometers</td>
<td>6.37 kilometers</td>
<td>4.2 kilometers</td>
</tr>
</tbody>
</table>

From Fieldwork Interview

By using IKONOS image of 2000 and image from Google Earth of 2007, the information of road pattern, village settlement boundary, and the land use type of surrounding areas was extracted and the results are shown as Figure 4-6, 7,8,9. From road and settlement pattern, the change can easily be identified.

Village 1: From Figure 4-6, we can see the settlement boundary of village 1 almost has no change, and also the main road still continues to use the old one. From 2000 to 2007, land use of surrounding areas has no changed. In 2000, the most surrounding areas are unused but not agriculture land. In 2007, however, the unused land turns to be a park. And there is no farmland surrounding. The texture of alley, however, has some changes. Some of them linked each other; some of them are divided into smaller ones.

Village 2: From Figure 4-7, most changes are from the road construction. We can see from the Figure that there are two new highways built near the village. Resulting from constructing new roads, the road patterns of these two years have many changes. The high quality image shows that the number of small road has decreased from 2000 to 2007. In addition, more agriculture land turned to construction land during these years. And a lot of agriculture land is transformation to construction land. The amount of agriculture land was decreased sharply. There is only 12% agriculture land left in 2007.

Village 3: From Figure 4-8, the shape of this village changed a little bit. There is also still agriculture land surrounding. From 2000 to 2007, the area of new construction land has increased a little bit and occupied the agriculture land. The new infrastructure was built up. We can see two highways were built alongside the village. Moreover, the village is surrounded by some unfinished constructions in 2007.

Village 4: No IKONOS image for 2000 was available. In 2007, there is a new highway constructed by state near village. And there is still more agriculture land surrounding, and this village is still very rural (Figure 4-9).
Figure 4-6 Comparison patterns in village 1 (houcun)

Figure 4-7 Comparison patterns in village 2 (wayaobao)
From Figure 4-6, 7, 8, we can see the spatial pattern has many changes, especially in surrounding areas. The land use structure of surrounding areas has changed much. Main changes are that agriculture land turns to construction land, and new roads are built near villages. The boundary of villages has not changed much. For the villages which are surrounded by the well planned new construction land, it is illegal to build up house outside of the village. Because the well planned construction land belongs to state. And housing areas of villages still belongs to collective community.
For the villages which are surrounded by agriculture land, due to farmland protection policy (see Chapter 3.3.2), the original villagers are not allowed to occupy farmland to build constructions. Most changes happened “inside” of the village, by the residents with changing lifestyles.

Land use structure is the relation between land with different uses (Thinh, Arlt et al. 2002). It is also can be expressed as the spatial functional configuration of land. The land use structure of a city could help us understanding a city’s functional structure, and consequently which development phase it is in, etc. It also gives clues in finding the causes of some social and economic problems.

From interview and observation, the land use structure of the four villages can be shown as in the table below:

<table>
<thead>
<tr>
<th>Village’s No.</th>
<th>Village 4</th>
<th>Village 3</th>
<th>Village 2</th>
<th>Village 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture land</td>
<td>60%</td>
<td>58%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>Non-Agriculture land</td>
<td>39%</td>
<td>40%</td>
<td>87%</td>
<td>98.88%</td>
</tr>
<tr>
<td>Unused land</td>
<td>1%</td>
<td>2%</td>
<td>1%</td>
<td>0.12%</td>
</tr>
</tbody>
</table>

From Fieldwork Interview

![Figure 4-10 Comparison of agriculture land proportion of total village land](image)

From village 4 to village 1, the agriculture land decreases from 60.32% to 0. The closer to city center, the less agriculture land it has (Figure 4-10).

What are original villagers doing in their non-agriculture land? In their memories, when the village residents start to rent their house to people who came from the outside village, there are little other business ran by villagers. But with more and more people moving into this village to hire house, the villagers started to run another kind of business, like selling articles for daily use, or running a clinic.
and so on to improve the attractiveness of villages. Therefore, original villagers change their traditional activities to commercial activities in these villages (Table 4-7).

<table>
<thead>
<tr>
<th>No.</th>
<th>Useful response</th>
<th>Shop</th>
<th>Clinic</th>
<th>Restaurant</th>
<th>Rent</th>
<th>Others (barbershop, mendery...)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village 1</td>
<td>40</td>
<td>18</td>
<td>3</td>
<td>20</td>
<td>40</td>
<td>6</td>
</tr>
<tr>
<td>Village 2</td>
<td>50</td>
<td>18</td>
<td>2</td>
<td>25</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>Village 3</td>
<td>46</td>
<td>14</td>
<td>2</td>
<td>11</td>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td>Village 4</td>
<td>54</td>
<td>11</td>
<td>2</td>
<td>9</td>
<td>54</td>
<td>6</td>
</tr>
</tbody>
</table>

From Fieldwork Interview

Furthermore, when the residents want to go out their villages, for daily working or shopping, the main transportation in these four villages is bus and motorbike (see Table 4-8, Figure 4-11).

<table>
<thead>
<tr>
<th>Transportation tools</th>
<th>Village 4</th>
<th>Village 3</th>
<th>Village 2</th>
<th>Village 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>bicycle</td>
<td>15%</td>
<td>12%</td>
<td>30.30%</td>
<td>24.04%</td>
</tr>
<tr>
<td>Motorbike</td>
<td>12.30%</td>
<td>13.20%</td>
<td>21.21%</td>
<td>28.00%</td>
</tr>
<tr>
<td>Bus</td>
<td>72.70%</td>
<td>74.80%</td>
<td>48.48%</td>
<td>47.96%</td>
</tr>
</tbody>
</table>

From fieldwork interview

Figure 4-11 Comparing the main transportation tools

In these four villages, infrastructure usually is provided and maintained by the residents themselves or the land owners, such as the internet connection, gas, and water supply.

These four villages are collective-owned (Table 4-9). That means that the residents in these villages are holding *rural hukou* (see Chapter 3.3.2) and all land are managed by village communities.

In addition, there are three main characteristics of urbanizing villages in Xi’an:

- Most of villages have less or no farmland. And most of them are surrounded by built up area.
- There is no plan guiding construction. The residents can build their house without government agreement. Moreover, building density is higher than normal.
• The infrastructure condition is not very well. Public services are carried out inefficiently.

**Table 4-9 Ownership of land**

<table>
<thead>
<tr>
<th></th>
<th>Village 4</th>
<th>Village 3</th>
<th>Village 2</th>
<th>Village 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land belongs to state</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land belongs to collective</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*From fieldwork interview*

In reality, the villager can change the land use or the activities they do on the parcel, something like new construction, renovation of exiting building and extension to the existing building, without consulting anybody.

➢ **Land acquisition & Land market**

There are three levels in Chinese land market:

- The first level land market is mainly about land acquirement, land storage and land granting.
- The second level land market are mainly about the land use rights transaction between real estate company and person.
- The third level land market are mainly about land transfer, sublease, mortgage etc among persons.

When rural land of the village land turns to urban, something happens in the first level land market—land acquisition. Nowadays, this is a hot issue in China. Land acquisition should:

- be for the public interests;
- be according to associated law;
- compensate the peasants according related regulation

According to regulations, the government must give the compensation to village residents. Since there is no market data for farmland prices, the government pays collectives and peasants a compensation package including three components:

- Compensation for the land itself
- Compensation for improvements to the land and for crops growing on the requested land
- Resettlement subsidies

Although there are regulations which government must follow in land acquisition process, the residents always disagree with this process, and always fight about land acquisition. Meanwhile, government does not want to acquire the housing area in village. The main reason is that the cost (compensation) is too high, and government does not want to make village residents angry.

**Table 4-10 Villager’s attitude about land acquisition**

<table>
<thead>
<tr>
<th></th>
<th>Agree</th>
<th>Disagree</th>
<th>Not mind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response</td>
<td>0</td>
<td>100%</td>
<td>0</td>
</tr>
</tbody>
</table>

*From Fieldwork Interview*

Because villages have less farmland, the original villagers cannot support themselves by agricultural activities. From interviewing, four main ways for income sources, as shown below:
Because of economic development, Xi’an is becoming more and more attractive. Moreover, many people living in surrounding areas want to migrate to Xi’an city. The price of real estate is high in Xi’an; most people cannot afford an apartment. Therefore, these people choose to live in villages. Hiring a house in these villages is much cheaper than buying a house in the city. Houses near the city center have good transportation conditions. Therefore, the demand for these houses is increasing day by day. This phenomenon is named ‘lease economy’.

‘Lease economy’ is a very popular phenomenon in Xi’an. Renting houses becomes the main income source for village residents. Pursuing the interests of renting houses, many unplanned buildings are built by villagers themselves.

Though rural residents find new ways to earn more money than before, there is still a big gap in income between urban residents and rural residents.

From Figure 4-14 below, we can see that the per capita annual income of rural residents has increased year by year. Compared with income of urban residents, however, the speed of income growth is still slow, and the income of urban residents is approximately two times as much as of rural residents.
In urbanizing villages, there is a different situation. Mostly, the residents in urbanizing villages get higher income than people living in the city. They can earn money from renting their house, besides doing their daily job.

Comparing the income situation of the four study areas, it is easy to see that closer to city center, the higher the average income level of the village residents. In village 1, most people get more than 4000 RMB per month. In village 2, the number of people who get more than 4000 RMB per month amounts...
to approximately 60%. In village 3, more than half people only get between 1000 RMB and 2000 RMB per month. But there are also some people who get more than 4000 RMB per month. A small group of people gets between 2000 RMB and 3000 RMB per month. In village 4, more than 90% of people’s income is less than 2000 RMB per month. Therefore, the lowest average income level is village 4. (Figure 4-15)

Because of different income levels, village residents have different consumption methods. In general, the proportions of food consumption in total consumption in these villages are almost the same, from 37.74% to 40%. Nevertheless, for other aspects, such as consumption of clothing, entertainment, and education, there is a gap between these villages. Reason is simple, when the village residents hold more money; they pay attention to their life quality.

Analyzing the answers of interview, the composition of the population in different villages was assessed. In urbanizing villages, the number of original people (people was born in this village) is much less than the people from outside of villages. For example, the village leader of Houcun (village 1) said that the number of people from outside is the nine or ten times than original people. According to data from fieldwork, approximately 90% people came from outside in village 1, and village 2 is composed by approximately 80% migrants, as is the situation in village 3. But in village 4, the proportion of migrants of total residents is only 50%. Therefore, from Figure 4-16, the conclusion is: the closer to city center, the more migrants are living in this village.

On the other hand, education level of all the village residents is lower than of urban residents are. Most of them are graduated from junior middle school or senior high school. Only a little part has received higher education. Although they have no high-level diploma or degree (see Table 4-11, 12, 13, 14), they do not care about this. Because they think they still can earn money by renting their land or house.
Table 4-11 Average education level of village 4

<table>
<thead>
<tr>
<th>Education level</th>
<th>Junior School Graduate</th>
<th>Middle School Graduate</th>
<th>Senior High School Graduate</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>30</td>
<td>22</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>55.56%</td>
<td>40.74%</td>
<td>3.70%</td>
<td>0.00%</td>
<td></td>
</tr>
</tbody>
</table>

From Fieldwork Interview

Table 4-12 Average education level of village 3

<table>
<thead>
<tr>
<th>Education level</th>
<th>Junior School Graduate</th>
<th>Middle School Graduate</th>
<th>Senior High School Graduate</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>27</td>
<td>18</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>58.70%</td>
<td>39.13%</td>
<td>2.17%</td>
<td>0.00%</td>
<td></td>
</tr>
</tbody>
</table>

From Fieldwork Interview

Table 4-13 Average education level of village 2

<table>
<thead>
<tr>
<th>Education level</th>
<th>Junior School Graduate</th>
<th>Middle School Graduate</th>
<th>Senior High School Graduate</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>19</td>
<td>17</td>
<td>13</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>38.00%</td>
<td>34.00%</td>
<td>26.00%</td>
<td>2.00%</td>
<td></td>
</tr>
</tbody>
</table>

From Fieldwork Interview

Table 4-14 Average education level of village 1

<table>
<thead>
<tr>
<th>Education level</th>
<th>Junior School Graduate</th>
<th>Middle School Graduate</th>
<th>Senior High School Graduate</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>11</td>
<td>15</td>
<td>11</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>27.50%</td>
<td>37.50%</td>
<td>27.50%</td>
<td>7.50%</td>
<td></td>
</tr>
</tbody>
</table>

From Fieldwork Interview

From interviews, the education levels in these villages appear not to be high, but because they earn more money than urban residents do, they can also afford the expensive things and live like the urban people. They pay attention to their life quality. In addition, part of them spends money for elevating their education background.

4.4.3. Stages of urbanization

This section evaluates the stages in light of theories and policies mentioned in the former chapters and based on findings of fieldwork.

After discussing the urbanizing village concepts, Chinese academicians (Guo 2005; Wu 2005; Tu 2006), also looked into types of urbanizing village to assist the development of specific redevelopment measures. In general, urbanizing village should be classified into three types: potential urbanizing village, developing urbanizing village and mature urbanizing village.

Potential urbanizing village: these villages are always located in planned urban construction area but not yet included into the urban built-up area. Landscape conflicts from these urbanizing villages are not obvious. There is still farmland and peasants living from agriculture.
Developing urbanizing village: these villages are located in the urban fringe area and are connected with the built-up area. With the expansion of urban built-up areas, the construction land of these kind urbanizing villages expands at the same time. So the conflicts between urbanizing village and city images are intensified. Large number of floating population lives in these villages.

Mature urbanizing village: these villages are located in the built-up area; they generally are surrounded completely by urban construction. Although the area of these villages is small, they occupy precious city territory. The spatial conflict between these villages and surrounding area appears more remarkable. Generally, these villages do not have spare space for further expansion; the buildings here only can grow in height. Huge number of floating population is concentrated in these villages. Rather high population density and building density makes these villages physically saturated.

The above types of urbanizing village are classified by geographic location and distance to central urban area.

In conclusion, there are three intermediate stages in village self-urbanization process: potential urbanizing village, developing urbanizing village and mature urbanizing village. The study areas in this research can be classified in this way (Figure 4-17).

![Figure 4-17 Classification of study areas](image)

In the villages (study areas), all the three kind of process mentioned in chapter 2.2.3 did happen when village turned to urban. But we say convergence is the main process.

The specific features which can be used for classifying stages are shown as table 4-15.
Table 4-15 Stages classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Physical feature</th>
<th>Land use feature</th>
<th>Population feature</th>
<th>Economic feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>potential urbanizing village</td>
<td>locate in planned urban construction area not be include into urban built-up area; Low density</td>
<td>maintain some agriculture activities; construction land area less than 30% of total area</td>
<td>The number of temporary population less than or equal to original residents.</td>
<td>the income from renting is less than 50 percentage;</td>
</tr>
<tr>
<td>developing urbanizing village</td>
<td>Locate in the urban fringe area and are connected with the built-up area.</td>
<td>construction land occupied 40%~70% of total area</td>
<td>Temporary population is 2 to 4 times than original residents.</td>
<td>renting is increasing, occupied 40-80 percentage of total incomes;</td>
</tr>
<tr>
<td>mature urbanizing village</td>
<td>Locate in the built-up area; featured redevelopment inside.</td>
<td>almost be abounded by build-up area; construction land area larger than 70% of total area</td>
<td>Temporary population is 4 to 10 times than original residents.</td>
<td>renting is the main livelihood, occupied more than 80 percentage of total incomes;</td>
</tr>
</tbody>
</table>

4.5. Conclusion

By comparing spatial pattern of different years, it is possible to classify the stages in the urbanization process. The spatial pattern of village itself doesn’t change so much. But the patterns of surrounding areas show many changes.

Based on data analysis, we find economic activities play a vital role in village self-urbanization process. The more commercial activities in village, the higher the development level of the village. Moreover, the change of residents’ activities is more important than spatial pattern change in village self-urbanization process. We can use the indicator about land use structure and social-economic aspects to classify the urbanization stages.
5. Discussion on Land Tenure and Village Self-Urbanization

5.1. Introduction

This chapter presents a presumptive curve which shows the trends of quality of life of potential urbanizing village to mature urbanizing village.

5.2. Discussion on Life quality curve

When a village undergoes through the process from potential urbanizing village to mature urbanizing village, the population density increases, and the income level of original villagers go up. Consequently, the quality of people’s life and environment is ascended with people’s activities. Along with more and more migrants moving into the village and more and more original people moving out of the village, the environment condition will be degrading, especially in mature urbanizing villages.

It suggests that there is a curve which illustrates the quality of residents’ life during the village self-urbanization process. We presume that there are different levels of life quality, just shown on the vertical axis. The level of life quality can be indicated by attributes of people, house density, economic level, infrastructure condition, and distance between opposite buildings, sanitary condition, how far people feel happy living in this village, and so on. Meanwhile, the horizontal axis shows the proximity of the business center and the village. In this research, the horizontal axis shows the village number.

![Figure 5-1 Life quality curve](image)

The parameters which determine the levels are chosen from the investigation satisfaction during fieldwork. One main parameter is from the village residents’ answer about satisfaction level. Most
people living in village 4 said they feel not very well of living in this village, because of faraway from city center, but neither very bad, because the living space of village residents is big enough. Most residents living in village 3 said they feel happy. Because the price of renting houses is reasonable, and the environment of this village is well, not very noisy, not very dirty, and not overcrowded. But it still has the space for improving the housing quality to make the village residents feel more satisfactory. People living in village 2 and 1, on the contrary, feel their housing quality is low, the public infrastructure is insufficient, the sanitary condition is not good, the alleys are narrow, and a hidden safety trouble in the village. In addition, such situation of village 1 is worse than the situation of village 2.

When city expands it start to influence the surrounding villages, infrastructure condition and housing quality of villages will be increased. The number of people who express their satisfactions about their resident environment is going up from village 4 to village 3. When village urbanized to certain extend, however, the quality of housing dramatically decreases, because in this kind of village, the most residents are poor migrants. And the village leader even the original villagers do not live in the village anymore. They are rich enough to live in urban areas and they can afford a nice apartment in the city. They care about their money more than care about the living condition, infrastructure condition and security, public service environment of the village. In this kind of village, “mostly villages’ density is greater than 70%. The villages are composed of overcrowded multi-story buildings which occupy the land for green vegetation and public infrastructure. Furthermore, the distance between opposite buildings is small. The alleys of village are so narrow that it is difficult for vehicles to pass through. Inside villages, it can be dark and damp year round and lighting may have to be kept on even during daylight hours.” (http://en.wikipedia.org/wiki/Urban_village_%28China%29) In addition, there is litter strewn all over the pavement, and nobody went to clean up the narrow alleys. Sanitary conditions have deteriorated to such an extent that there is large potential danger of disease. Meanwhile, this kind of village still belongs to collective, and is not covered by city construction plan. These areas are uncontrolled. It fulfils the irregular housing, informal constructions, and more small private business. It is going to be a slum.

Population structure also can influence the life quality curve in village. For example, in village 1, more than 90% residents are migrants. The only one thing they considered is rent. They don’t care about the environment condition. For this reason, the environment will be deteriorating.

Therefore, with the distance to city center becoming shorter and shorter, the average life quality of villagers is must going up. Then, when the distance is short and the rent price is high to support the original villagers living in city with better life, the original ones will move out of the village. Consequently, more and more migrants will come into this village. From that moment, the life quality will go down significantly.

There is a table further to show the parameters which determine the life quality level.
### Table 5-1 Parameters of life quality level

<table>
<thead>
<tr>
<th>level</th>
<th>Proportion of migrants</th>
<th>Per capita living space (m²)</th>
<th>Per capita Greenland (m²)</th>
<th>Road condition (material of road surface)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad</td>
<td>85%</td>
<td>&lt;20</td>
<td>&lt;0.5</td>
<td>No hard surface</td>
</tr>
<tr>
<td>Acceptable</td>
<td>60%~85%</td>
<td>20~25</td>
<td>&lt;2</td>
<td>Flagstone pavement</td>
</tr>
<tr>
<td>Good</td>
<td>50%~60%</td>
<td>25~35</td>
<td>2~8</td>
<td>Cement, blacktop</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>≤50%</td>
<td>&gt;35</td>
<td>&gt;8</td>
<td></td>
</tr>
</tbody>
</table>

### 5.3. Impact of land tenure

The reason leading to life quality curve is the dual land tenure system in China.

Since all four villages have collective-owned tenure system, government does not want to acquire land in these villages. There are three main impacts. Firstly it costs so much to resettle original villagers. Secondly, considering temporary stabilization, they want to avoid conflicts and make villagers angry. Thirdly, villages are pockets in the urban area with their own authority and power.

*Hukou system* restricts rural people to live in city permanently, but there are also some methods against the restrictions of *hukou book*, just like education and job (see Chapter 3.3.2). The *hukou system* plays a role in village self-urbanization process, but not very important. Because of *hukou book*, some rural migrants cannot enjoy the same rights as city residents. If they want to get the same welfare and rights, they must pay much more money. And usually, these rural people have no high education level, so they cannot get the high salary job in city, only do some low income job. For these reasons, these migrants cannot afford high price apartment in city. They will choose to live in urbanizing village with low rent houses. In conclusion, the reason why rural migrants choose to live in urbanization village is that the financial problem, not so much the *hukou system*.

### 5.4. General drivers

The classification of stages in village self-urbanization process could be useful for urban activists, planners and politicians. The stage classification can also be evaluated from a social and economic perspective. The drivers in village self-urbanization can be related to the theories.

- **Economic development**

  The theory describes that with the development of economy, the workforce will turn from primary industry to the secondary industry at first, and shift to the tertiary industry progressively following the further improvement of per capita gross domestic product. The trend is that with economic development, the primary industry reduces progressively, while the secondary and the tertiary industries increase correspondingly. Using the Industry promotional theory (see Chapter 2.4.4), we know it can improve the economic condition of area.
➢ Demand change
Economic and technology development causes more and more surplus rural labour. Because our Hukou system (see Chapter 3.3.3), the surplus rural labour is still bounded to the land. These people need jobs, because they cannot have enough income only from their farmland. Therefore, these people earn their life from running the private business. They improve the tertiary industry.

On the other hand, because more and more people move to city, they want to live in urbanizing villages (low rent and good location, and hukou system brings restriction), the demand for house renting increase. This demand makes people change their activities, such as restructure land, change house function and change economy structure. All of them can make that the village gets the characteristics of an urban area.

➢ Industrial structure change
In these villages, the tertiary industry plays a vital role. Most income of the residents comes from renting house, which can be regarded as a kind of tertiary industry (see Chapter 4.5.5.1). Using the Industry promotional theory, the relationship between urbanization level and tertiary industry is known already (see Chapter 2.4.4). Village 4 is in the first stage and village 1 in the last.

➢ Region structure change
From the results of stages classification, the Location theory can be proved. The closer to the city center, the higher economic level they can be reached. Therefore, distance is the important issue in village self-urbanization.

The road pattern is the other issue which can influence village self-urbanization process through comparing road pattern in different years of one village. If the road pattern is more regular, or village is closer to main road or highway, the stage of village self-urbanization process is higher. This is also can be explained by Location theory. Meanwhile, when transportation situation is well, movement of people and goods takes place easily. This kind of movement brings movement of capital, social transactions, and administrative and service provision. It can enhance the function of urban-rural interaction.

➢ Agglomeration factor
Moreover, in Weber’s theory (see Chapter 2.4.1), raw materials, cost of labour, and transportation are quantifiable elements, in the development of the least cost theory. Besides these factors Weber recognizes another factor he called ‘agglomeration’. The agglomeration factor results from the social nature of production, and cannot be discovered by analyzing an isolated process of production. If ‘renting house’ can be treated as a kind of economic industry, the reason why the ratio of renting house is higher and higher in these villages can be explained. And renting house can give more income to villages. Consequently, the economic level of villages will be increased. So, the agglomeration is one of the drivers of urban self-urbanization process.

➢ Policy

Hukou system
Hukou system gives the permit which decides where you can live, get job, receive education, etc. It limits people migration. And it gives the opportunity to form urbanizing villages. Once urbanizing village is formed, it will take great effort to redevelop it. In other words, to some extent hukou system restricts the village to become good quality urban area.

**Housing market**
Because there is a housing market (see Chapter 3.4.1) in China, village residents can put their house into the market (renting market). Under the drive of the economic benefits, they will think of improving the condition of the house, completing the basic construction with facilities to attract more tenements. It can make villages have urban characteristics.

5.5. **Conclusion**
Most researches show the main reason which lead to forming urbanizing village is *hukou system*. In this study, the *hukou system* also plays an important role in village self-urbanizing process. The land tenure system, however, is the most important factor to form urbanizing village. Although these villages are located in urban area, some of them are located near business center, housing land of these villages still belongs to collective community. They should be controlled by communities, but actually, communities do not serve enough responsibility to manage the village. Consequently, the life quality of this villages will first increase, then decrease. Hence, the dual land system causes the uncontrolled situation in these urbanizing villages.
6. Conclusions and Recommendations

6.1. Conclusions

Urbanization refers to a process of cultural and sociological change caused by the transformation of rural life styles into urban. Hence, urbanization causes a profound change in the way man uses his environment. Under the influence of a nearby large urban city, villages themselves develop urban characteristics with village residents’ behaviour changes.

There are a number of deliberately designed policies and strategies in urbanization. The dichotomy between rural and urban policies, land tenure system and China’s urban land policies lead to the emergence and prevalence of urbanizing villages which is a unique characteristic of China’s rapid urbanization.

By comparing spatial pattern of different years, it is possible to classify the stages in the urbanization process. The intermediate stages are visible from image. The village self-urbanization process is classified in different stages in terms of physical feature, land use feature, population feature and economic feature. There are three intermediate stages in village self-urbanization process: potential urbanizing village, developing urbanizing village and mature urbanizing village. The proximity to CBD pushes the quality up. But when quality reaches a certain level, it will dramatically decrease. The village would become a slum. The most important reason is not the hukou system, but the land tenure system.

There are three stakeholders in village self-urbanization process, namely the local government, farmer, and developer. The reason why urbanizing villages turn to be slums is that on the one hand villages’ leader and most villagers do not care about the environment of village, on the other hand, urban government do not want to redevelop urbanizing villages, it costs so much and it might make villagers angry.

In conclusion, land tenure system is the fundamental causes of villagers’ behaviour change.

6.2. Recommendation

- The conclusion of this research is that land tenure is the fundamental cause of forming urbanizing villages. It is also the main factor of improving village self-urbanization. Nevertheless, land tenure also has undergone many reforms in Chinese history, and it is a very complex process. The further research of this unique system could be done.

- Further research could be done on the validity of the rise and decline of the quality of life in the urbanizing villages.
Reference


http://faculty.washington.edu/krumme/450/table.html
http://www.unu.edu/unupress/unupbooks/uu11eef/uu11eef0r.htm
## Appendix 1

### Time arrangement of fieldwork

<table>
<thead>
<tr>
<th>Date</th>
<th>Organization</th>
<th>Data collecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>27-09-2007</td>
<td>Shaanxi Land Resource Bureau,</td>
<td>Basic statistics on lease and administrative allocation of use right of state-owned land</td>
</tr>
<tr>
<td>28-09-2007</td>
<td>Xi'an City Planning Bureau, Xi'an City Construction Bureau</td>
<td>Main indicators of investment in real estate development,</td>
</tr>
<tr>
<td>15-10-2007</td>
<td>Xi'an Institute of Surveying Mapping &amp; Geotechnical Investigation,</td>
<td>Image</td>
</tr>
<tr>
<td>16-10-2007</td>
<td>Xi'an Land Bureau,</td>
<td>1997-2010 Xi'an land use plan map, 2005 Xi'an present land-use map, and 2006 Xi'an present land-use map.</td>
</tr>
<tr>
<td>17-10-2007</td>
<td>Xi'an Statistic Bureau,</td>
<td>Population, population density and population development in representative,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gross Domestic Product,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Per Capita Gross Domestic Product,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Consumption Structure of Urban People and Rural People,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Per Capita Annual Disposable Income of Urban Households and Rural Residents.</td>
</tr>
<tr>
<td>11-10-2007</td>
<td>Shaanxi provincial library</td>
<td>Consumption of residents,</td>
</tr>
<tr>
<td>12-10-2007</td>
<td></td>
<td>Development of urban and rural labour resources,</td>
</tr>
<tr>
<td>10-10-2007</td>
<td></td>
<td>Source of funds for investment in real estate development,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Running of real estate development,</td>
</tr>
</tbody>
</table>
### Appendix 2

#### Interview schedule of authority part

<table>
<thead>
<tr>
<th>Date</th>
<th>Organization</th>
<th>Name of Interviewer</th>
<th>Content of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>27-09-2007</td>
<td>Shaanxi Land Resource Bureau, Lu yong, section chief of land use plan section Li engineer of land use plan section</td>
<td>What is procedure of land rights transfer? What problems you are faced in this procedure?</td>
<td></td>
</tr>
<tr>
<td>09-10-2007</td>
<td>Xi’an Land Bureau, Li shuping, engineer of Cadastre management section</td>
<td>When developers want to build up a new property, what actions they must do in your department? How to control the first level land market and the second level land market? Do you have any regulations about how to control the third level land market?</td>
<td>What is the process of registration of property? How long do we need when we register a new property?</td>
</tr>
<tr>
<td>15-10-2007</td>
<td>Xi’an Institute of Surveying Mapping &amp; Geotechnical Investigation, Zhang zhoupin, president of Xi’an Institute of Surveying Mapping &amp; Geotechnical Investigation</td>
<td>What is your idea about the urbanization in Xi’an? How is the dynamic change in peri-urban?</td>
<td></td>
</tr>
<tr>
<td>15-10-2007</td>
<td>Xi’an City Planning Bureau, Xi’an City Construction Bureau, Zhang, officer</td>
<td>What is the relationship between urban plan and urbanization? What is the difference between current land use and land use plan in my study area? What factors do you need consider before making a new urban plan? What are the actions that the government did to control the urban growth? What is procedure of applying new construction land?</td>
<td></td>
</tr>
</tbody>
</table>
Which areas are changed so quickly in these years? What is the reason?
What is the value of newly added fixed assets and floor spaces completed of whole city in representative years?
What is the value of newly added fixed assets and floor spaces completed of Municipal units representative years?
What is the data of private buildings construction in rural area?
Appendix 3

Questionnaire for Understanding the Village-Self Urbanization Process
For Residents/Householders

INTERNATIONAL INSTITUTE FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

Zhang Jing
Department: GIM, ITC
& Chang’an University
E-mail: jig17971@itc.nl
Phone: 13572919563
Date: 15-09-2007

A. Basic Details

<table>
<thead>
<tr>
<th>Name of the Interviewer</th>
<th>Date of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Address

B. Details of plot owner and ownership

1. Are you the owner of this plot?
   □ Yes (go to Q4) □ No
2. If no, what is your relationship with the plot owner?
   □ Relatives □ Tenant (go to Q. 3)
3. Where is the plot/building owner living?
   □ In this building □ In this plot □ Another location within this settlement □ Outside this settlement
   (If owner is living on same building/plot meet him and ask questions)

4. Detail of Household Head

<table>
<thead>
<tr>
<th>Sex</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year of birth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highest level of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation/job</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sector (Inquire the sector he/she is working)</td>
<td>Public sector, private sector, Self-employment</td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>Permanent, Temporary, Part time, Other</td>
<td></td>
</tr>
</tbody>
</table>
5. In which year did you move to this house? .............................
6. Where did you live before you came to settle in this house?
   ☐ Another location within this settlement  ☐ Outside this settlement
7. Do you have Certificate of offer for this plot?
   ☐ Yes  ☐ No  ☐ Do not know
8. Do you have any boundary dispute with your neighbors?
   ☐ Yes  ☐ No
9. What is the physical condition of the building? (Observation by the interviewer)
   ☐ Good  ☐ fair  ☐ poor
10. What is the approximate size of the plot in square meters? (To be completed by interviewer)........
11. What is the approximate size of the building in square meters? (To be completed by interviewer)........
12. Do you own other properties in this settlement?
   ☐ Yes  ☐ No
13. Can you change the land use or the activities you do on the parcel without consulting a third person?
   ☐ Yes  ☐ NO
14. If no, who limits you? What are the consequences for you?
15. Do you know if you need a governmental authorization to do improvements to your parcel?
   ☐ Yes  ☐ NO
16. If yes, what is the institution name? .................................
17. Is your land surveyed?
   ☐ Yes  ☐ NO
18. Who carried out the survey of your land?
   ☐ Private land surveyors
   ☐ Official Government Surveyors
   ☐ Others
19. How do you get such surveyors?
   ☐ Through Government Institutions
   ☐ The District Local Authority
   ☐ Others
20. Is your land registered?
   ☐ Yes  ☐ NO
21. In which department is it registered?
22. Which government land administration department do you coordinate with in the management of your land?
   ☐ Land registration Office
   ☐ The Local Authority
   ☐ Town&Country Management Office
23. What problems did you face in registering your lands?

24. Do you want to sell your land to government?

25. If your land would be acquired, what is the problem you must face?

C. Land use (including Details of the Property)
26. When did you acquire this property?
☐ Year ........  ☐ Cannot remember
27. How did you acquire this property?
☐ Bought
☐ Gift
☐ Inheritance
☐ Others (specify).
28. Was the land developed or vacant at the time of acquisition?
☐ Built  ☐ Half-built  ☐ Vacant
29. Do you have to travel outside your neighborhood to get access to:
- schools
- clinics
- market

30. What kind of transportation tools you used?
☐ Bicycle  ☐ Motorbike  ☐ Bus  ☐ Taxi  ☐ Car  ☐ other ......................
31. How long does it take to reach (a) the city centers ...................
    (b) Place of employment ...................

32. Utility is available on the plot
    | Water | Sewage | Electricity | Telephone line | Internet line | Gas |
    |-------|--------|-------------|----------------|---------------|-----|

33. Who provided these facilities?
☐ The residents
☐ The Landowner
☐ The Local Authority
☐ Town&Country Management Office
34. Who manages these infrastructure and services?
☐ Yourselves
☐ The Local Authority
☐ Central government
☐ The developers
☐ Others
35. What type of improvements have you done?
☐ New Construction on the plot
☐ Renovation of the existing building
☐ Extension to the existing building
☐ Other improvements (specify) …………………
36. For what use did you acquire this plot initially?
☐ Residential ☐ Commercial ☐ Industrial ☐ Other (Specify)…………………………
37. What factors did you consider when you decided to live in this location?

38. Current use of the buildings (Specify the current actual use of the building):
☐ Residential:………………
☐ Commercial:………………
☐ Industry:………………
☐ Other:………………
39. Do you need building permit to use this plot for the business activity?
☐ Yes ☐ No

D. Social-economic
40. What is the average monthly rent per room? …………………
41. Do you have lease agreement with the tenants? ☐ Yes ☐ No
42. If yes what is the lease period? ……………………………
43. How often pay the rent?
☐ Once a month
☐ Quarterly
☐ Every six month
☐ Annually
☐ Other (Specify)………..
44. Do you satisfy with the current use of this plot?
☐ Fully satisfied ☐ Moderately satisfied ☐ Not satisfied
45. If not satisfied, what are the reasons for it?

46. Who is the owner of this business?
☐ Plot Owner ☐ Household member
47. How did you finance to start the business?
☐ own savings ☐ Borrowings ☐ Other (specify) …………………
48. Is this business yours main income source?
☐ Yes ☐ No
49. What are the families monthly earnings (¥)
☐ <1000
☐ 1000--2000
☐ 2000--3000
☐ 3000--4000
☐ >4000
50. If no, what is your main income source?
☐ My monthly Salary ☐ Other …………………
What are these activities and how much income do they generate?
☐ <1000
☐ 1000--2000
☐ 2000--3000
☐ 3000--4000
☐ >4000

51. How many members of the family are employed? ........

52. What were the reasons to start the business in this plot?
☐ Other income source was not enough to maintain my family
☐ Location of this plot is more suitable for this business
☐ To utilized the remain vacant space of the plot
☐ Other (specify)........................................

53. The percentages of food consuming in all of income ............

54. The main channels to obtain outside news and information?
☐ TV  ☐ Radio  ☐ Internet  ☐ Book  ☐ Newspapers  ☐ other ........

55. Modernization of values:
☐ Anyone with a happy family life
☐ Intellectuals or knowledgeable persons
☐ Successful businessman
☐ Anyone with a secure job
☐ Anyone who is powerful
☐ Anyone who live in urban regions
☐ Others ........................................

56. Could you feel the city development can improve your village development? Why?

Thank you very much for your time and co-operation!
Appendix 4

Questionnaire for Understanding the Village-Self Urbanization Process
For Developers

INTERNATIONAL INSTITUTE FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

Zhang Jing Department: GIM, ITC & Chang’an University
E-mail: jing17971@itc.nl
Phone: 13572919563
Date: 15-09-2007

Basic Details

<table>
<thead>
<tr>
<th>Name of the Interviewer</th>
<th>Date of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

1. What is your occupational classification?
☐ Government employee
☐ Private sector employee
☐ Self employed
☐ Others

2. What interest/right do you own in land/property?
☐ Land/property owner
☐ Tenant
☐ Caretaker
☐ Other

3. How did you come into contact with the landowners?
☐ Through government
☐ Through an agent
☐ Through a professional Surveyor
☐ Through friends/other landowners in the area
☐ An advertisement
☐ Other

4. How long did you take to get the land construction permission?
☐ Immediately
☐ One month
☐ Six months
☐ One year
☐ More than one year
5. Do you own other property elsewhere in the city?
☐ Yes ☐ No
6. Have you secured your rights/interest to your land?
☐ Yes ☐ No
7. How are you able to secure your rights to the land?
☐ By registration ☐ By developing the land ☐ Others
8. Have you registered you interest/rights to the land?
☐ Yes ☐ No
9. If not why is your land not registered?

10. In which departments have you registered/processed your land document?

11. What are the problems you faced in registering the land?

12. For what reason did you buy the land?
☐ Residential development
☐ Commercial/Industrial/Recreational development
☐ As an investment
☐ Others

13. How long did it take you to develop your land?
☐ Less than 2 years ☐ 2-5 years
☐ 5-10 years ☐ More than 10 years
14. Why did it take that long?

15. When did you come into occupation?

16. Do you have any problems with the community in the development of your land?
☐ Yes ☐ No
17. If yes, what problems do you face?

18. Why did you have such problems?

19. Do you have a development/building permit?
☐ Yes ☐ No
20. Is your development subject to ANY planning regulations/controls?
☐ Yes ☐ No

Thank you very much for your time and co-operation!
Appendix 5

Questionnaire for Understanding the Village-Self Urbanization Process
For Authorities—village leaders

INTERNATIONAL INSTITUTE FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

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Phone: 13572919563
Date: 15-09-2007

A1: Checklist for discussion with village leader
His name and position:

1. What is the extent of your land area?
☐ Less than 50 acres
☐ 50–100 acres
☐ 100–200 acres
☐ 200–500 acres
☐ More than 500 acres

2. Do you have farmland?
☐ Yes
☐ No

3. If yes, what is the ratio of farmland in the village? ...........

4. What is the ratio of non-agricultural labour forces? ...........

5. How do you sell your land?

6. What are the conditions under which land is sold to people from outside the community?

7. What are the processes through which one can get access to land in your area?
☐ Directly
☐ Through intermediaries
☐ Others

8. How much land has been sold in your area?
☐ 100%
☐ 80%–60%
☐ 60%–40%
☐ 40%–20%
□ Less than 20%
9. Do you records of such land sales?
   □ Yes  □ No
10. If no, why?

11. Which persons are the lands sold to?
   □ The government
   □ Private companies
   □ Individuals
12. For what purpose do they buy the land?
   □ For developing residences
   □ Farming
   □ Commercial
   □ Services
   □ Infrastructure
13. How do you come into contact with your clients?
   □ Through Agents
   □ Through Professional Surveyors
   □ Through community members
   □ Advertisements
   □ Others
14. What type of professionals do you use in selling your land and why?
   □ Values/Land Economists
   □ Land Surveyors
   □ Lawyers
   □ Others
15. Are there reserved lands for the future generations?
   □ Yes  □ No
16. Does the community benefit from the sale of the land?
   □ Yes  □ No
17. What benefit does the community get?

18. How many households are living in this area?

19. How fast is the urban growth in the area?

20. Who provided the facilities?
   □ The residents
   □ The Landowner
   □ The Local Authority
   □ Town&Country Management Office
21. Who ensures the provision of land for the development of services and infrastructure?
22. What is the pattern of development in your area?
☐ Mainly Residential
☐ Commercial
☐ Mixed use
☐ Others

23. Do you attach conditions to the development of your land by the purchasers?
☐ Yes  ☐ No

24. If yes what are these conditions?

25. If no, why?

26. What are the factors that influence people to live in this village?

27. In your own opinion, what is the main cause that housing are being built without planning?

Thank you very much for your time and co-operation!
Appendix 6

Questionnaire for Understanding the Village-Self Urbanization Process
For Authorities-- Shaanxi Land Resource Bureau

INTERTATIONAL INSTITUTE FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

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Date: 15-09-2007

A2: Checklist for discussion with land use plan section of Shaanxi Land Resource Bureau

His name and position:

1. What is the role of this department in land acquisition?
2. What is the process of land transfer?
3. How long does it cost to transfer of land?
4. Does it conflict when land transfer take place? If yes, what conflict? How to deal with this problem?
5. How long does it cost to sell land in Second Level land market?
6. Do you know the property transaction in Third Level land market? If yes, do you want to control this kind of land market? How do you control?

Thank you very much for your time and co-operation!
Appendix 7

Questionnaire for Understanding the Village-Self Urbanization Process

For Authorities—Xi’an City Planning Bureau & Xi’an City Construction Bureau

INTERNATIONAL INSTITUTE FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

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Date: 15-09-2007

A5: Checklist for discussion with Xi’an City Planning Bureau & Xi’an City Construction Bureau

His name and position:

1. In your own opinion, what is the main cause that contributes to urban growth?
2. What is the difference between current land use and planning land use?
3. What is the relationship between urban plan and urbanization?
4. What factors do you need consider before making a new urban plan?
5. What are the actions that the government did to control the urban growth?
6. What kind of information do you manage in relation to urbanizing villages?
7. What is procedure of applying new construction land?
8. Which areas are changed so quickly in these years? What is the reason?
9. What is the value of newly added fixed assets and floor spaces completed of whole city in representative years?
10. What is the value of newly added fixed assets and floor spaces completed of Municipal units representative years?
11. What is the data of private buildings construction in rural area?

Thank you very much for your time and co-operation!
Appendix 8

Questionnaire for Understanding the Village-Self Urbanization Process

For Authorities-- Xi’an Land Bureau

INTERNATIONAL INSTITUTE FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

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Date: 15-09-2007

A3: Checklist for discussion with Xi’an Land Bureau (land plan department & land registration department).
His name and position:

1. What is the process of registration of a property?
2. How long and how much does it cost to register a transfer of a property?
3. Are there people in villages holding residents permit?
4. When developers want to build up a new property, what actions they must do in your department?
5. How to control the first level land market and the second level land market?
6. Do you have any regulations about how to control the third level land market?
7. In your own opinion, what is the main cause that contributes to urban growth?
8. In your opinion, what is the main reason that lead to present land use is different with the plan?

Thank you very much for your time and co-operation!