DEVELOPING ON-LINE PARTICIPATORY MODEL (OPM) FOR LAND EXPROPRIATION IN CHINA

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by

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Abstract

Land expropriation, as government tool for transferring collective-owned land to state-owned land, is playing an increasing important role in China's urbanization. However, the farmers, as the direct group affected by land expropriation, cannot fully participate into the processes of it.

In order to find a proper way for land expropriation in China, which allowing farmers' full participation during land expropriation processes, this thesis introduces and develops an On-line Participatory Model (OPM) based on the fast growing of internet based network accessibility in rural China. It starts with theoretical concepts of land expropriation, participation as well as E-government. Then, this research describes current land expropriation procedures and situations for developing the OPM in China.

Fieldwork is carried out to analyze farmers' expectations and needs during land expropriation processes and collect suggestions from different groups involved in the processes in three villages of Xi'an, Shaanxi Province, P.R. China. These needs are used to develop the model. The development of the OPM consists of definition, importance of the OPM and the architecture of it. The detail model elements (including functions and workflows) are developed using unified modelling language (UML). The OPM is finally prototyped by a developed on-line participatory platform, which shows the functions and general work processes of it. Finally, the thesis ends with conclusions and suggestions of the research.

Keywords: land expropriation, on-line participation, model developing

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1. General Introduction

1.1. Introduction

This chapter provides an overview of the research. It starts with introduction of the background and definition, and then describes land expropriation in general. It also highlighted the justification, problem and objectives of this research, followed by the conceptual framework, methodology as well as study areas selection of the research.

1.2. Background and Definition

With the development of urbanization in China, land expropriation is becoming a more and more important tool. This is because of that land expropriation is the only legal way in China to transfer farmland to construction land. However, during the current processes of land expropriation, farmers as the main group cannot participate in the processes enough. As a result, their tenure rights cannot be protected sufficiently. In other words, the public participation during land expropriation processes in China is not enough to affect the land expropriation activity with good results.

However, the Chinese government is trying to improve its work efficiency these years like most governments in other countries including improvements on land administration. The government has identified the importance of E-government development, and the E-government has developed a lot in recent years.

This research focuses on the public participation problem during land expropriation processes in China, and aims to develop an On-line Participatory Model (OPM) for it within the E-government concepts on land administration domain. The following sections provide the basic concepts involved in the research: land expropriation, public participation and E-government.

a) Land expropriation

There are many land acquisition projects where the government has no alternative but to acquire land compulsorily for specific public purposes, such as road development, school or hospital construction etc. Methods to obtain access to land by judicial procedures are available in almost all countries (United Nations, 1995). In such methods, expropriation is an option which acts more as a deterrent to private landowners from owning land which is required for public purposes (United Nations, 1995). According to Kitay (1985), the power of compulsory land acquisition can be described as follow:

"The concept of expropriation is based on a sovereign's power of eminent (ultimate) domain; this power is generally accepted worldwide and allows the State to take private land for the good of the society."

Different countries have their own definitions of land expropriation according to their political and legal backgrounds. For example, land expropriation in Canada is defined as the act of a public authority (such as federal, provincial, municipal governments or other bodies empowered by statute) taking property without the consent of an owner through a statutory or common-law processes (Expropriations Act, 1990). This process involves the payment of compensation to the owner by the authority and the owner having the right to claim additional compensation, which can be determined by the courts or an administrative board. In the U.S., expropriation is the act of a government taking private property, this right is granted, indirectly, by the fifth amendment to the Constitution, which states, in part, that "private property shall not be taken for public use, without just compensation." (The Gale Group, 2005)

Although the definitions of land expropriation are apparently different, there are common characters of them: Land expropriation should be for "public use" and carried out on behalf of the public, and it should base on just compensation.

b) Public participation

The rural people in developing countries are often far away from many important decision making processes. These people should be informed with appropriate information and included in decision-making processes when there is possibility of impacts in their life (FAO, 2007). Public participation is simply a processes of taking part in different spheres of societal life: political, economic, social, cultural and others (Rovaniemi DfA Conference, 2006). Therefore, public participation is necessary to ensure that the compensation is just and the purposes of land expropriation are for public interest.

Public participation can take different forms (PREM Word Bank, 2002):
➢ **Direct participation**: it means participators take part in the decision-making processes directly.
➢ **Representational**: representatives are selected from membership-based groups and associations; these representatives participate in decision-making processes together with decision makers.
➢ **Political**: representatives are selected and the representatives themselves are the decision makers. They are involved at different levels of the political participation introduced by Arnstein (1969).
➢ **Information-base**: with data aggregated and reported directly or through intermediaries to local and national decision makers. In this format, participants do not participate in the

decision-making processes, the merely provide information to decision makers.

On-line participation is another form of public participation except what have been introduced above. Many on-line communication methods are valuable for public participation，such as websites, email, chat rooms and shared workspaces. In brief, on-line participation generally includes the following forms (Ministry of Social Development, 2009):

➢ **Feedback and submissions**: these can be made on-line using forms, questionnaires, or email.

➢ **Full documentation on the Web**: you can post all consultation documents on websites, including supporting and background documents, submission summaries and raw submissions.

➢ **E-magazines**: keep people up-to-date by sending regular email news about a participation exercise.

➢ **On-line hearings, civic conferences or other special events**: you can invite a government minister, local authority councillor or policymaker to interact with the public for a set time.

➢ **Dialogue with specific audiences**: you can approach targeted audiences both on-line and offline to participate in discussion.

➢ **Shared workspaces:** where people can collaborate on-line and edit or comment on material produced by others.

c) E-government

E-government refers to the use of information technologies (such as Networks, the Internet, and mobile computing) by government agencies that have the ability to transform relations with citizens, businesses, and other aims of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth and cost reductions (The World Bank, 2009).

Traditionally, the interaction between a citizen or business and a government agency took place in a government office. With emerging information and communication technologies, it is possible to locate service centres closer to the clients. Such centres may consist of an unattended kiosk in the government agency, a service kiosk located close to the client, or the use of a personal computer in the home or office.

1.3. Land expropriation in China

1.3.1. Introduction

Understanding of land expropriation in China helps to get the legal background for developing the

on-line participatory model.

In China, the Land Law and the Property Rights Law are the two main and basic laws to define land rights. According to the Land Law, urban land is state-owned and rural land is collective-owned by rural collective economic organizations, except for land that has been specified as state-owned (Chinese Peoples' Congress, 1998). Individual farmers and urban land users can only obtain land use rights. In addition, the Land Law (Chinese Peoples' Congress, 1998) states that anyone who needs to use the land for construction must apply for the State-owned land. In other words, any construction or infrastructure development must take place on the state-owned land.

By law, the village collective has the right to use and supervise the use of land as farmland, but it has no right to transfer land for construction use. The state, on the other hand, may expropriate land, which is under collective ownership, if it is for the public interest. Therefore, there are two steps for transferring collective-owned land into state-owned land: land expropriation by the government from villages, and land transaction between the government and potential land users. Hence, land expropriation is, in a narrow sense, a procedure by which all rights formerly held by the village collective relinquish to the local government. In addition, land transfers may also take place through informal ways in some areas, which is not allowed by laws.

In brief, the only legal way to transfer the collective-owned land to state-owned land is by land expropriation. Figure 1-1 shows the role of land expropriation in land management system in China.
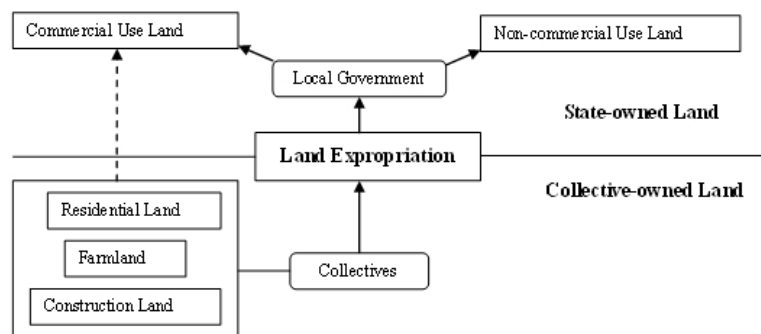
Figure 1- 1**:** Land Expropriation in China

Land expropriation is one of the cores in land management system in China. It is not only the central part of communication between state-owned land and collective-owned land, but also an important ligament connecting urban land system and rural land system. At the same time, land expropriation is the legal system to adjust land rights and allocate land benefits among government, construction investor, rural collective economic organization and individual farmer as well (Zhou & Ni, 2004).

Since the Property Law (Chinese Peoples' Congress, 2007) came into force on 1 October 2007, collective land ownership and individual land use rights are recognized as property rights that may receive certain legal protection. However, article 42 of the Property Rights Law (Chinese Peoples' Congress, 2007) states that, for the purpose of public interest, expropriation of collectively owned and individually owned real property is possible, but requires compensation.

After studying the legal system of land expropriation, the importance of land expropriation is seen. Besides, to improve the land expropriation processes, it is also important to know the drawbacks of it, such as the compensation standard, lack of proper way to reallocate farmers who lost their land, and some local government abuses the land expropriation power. In brief, the loopholes or drawbacks can be categorised into the following three main problems:

i) There are no specific regulations on "public interest" according to the current legal system;

ii) The main compensation method is one-off cash compensation, which is hard for ensuring farmers' future life, lack of consideration of compensation on employment and social security;

iii) Lack of farmers' participation, though their benefits are directly affected by the expropriation.

1.3.2. Current progresses in China

a) Progresses on the public participation

Recently, the drawbacks mentioned above have being recognized to some degree by the central government. Some measures have been taken to make progress on encouraging public participation in land expropriation, on definition of "public interest" as well as on compensation aspect. These progresses are shown as follow:

➢ Issue regulations which emphasize hearing different advices from farmers (Ministry of Land and Resource of China, 2001) , proclaiming land expropriation to farmers (State Council, 2004) and allowing farmers participate in land expropriation processes.

➢ Publicity of information on land expropriation, agreement of land surveying results and arrangement of public hearing are considered as three essential steps before the land expropriation be approved (Ministry of Land and Resource of China, 2004).

➢ "Measures should be taken to extend the land owners' rights to know and participate in land expropriation procedure," said Li Dongyu, member of the 11th National Committee of the Chinese People's Political Consultative Conference (CPPCC), at a CPPCC plenary session (Zhang, 2009).

➢ Revision of the Land Law has started. The draft shows that one of the core works during the revision is to limit the expropriation power of governments, reduce the range of government expropriation and protect farmers' land rights. Specifically, a new chapter, which focuses on land expropriation, will be added. Furthermore, there will be new regulations on "public interest" and

calculation method of compensation as well (Chang, 2009).

b) Progress on E-government development

E-government has developed a lot in China in recent years. In general, there are three main stages: the first stage focus on developing Office Automation (OA), the second stage pay attention to monitor of administration and the third stage is mainly for public service (Zhou, 2004). Currently, the OA has been realized in most government agencies, and information sharing is becoming a mainstream. In order to accelerate the development of E-government and follow the steps of informationization worldwide, China has started many projects. The milestones of E-government development on land administration domain in China are listed below:

➢ In December 1993, China started its "Three Golden Project"——the "Golden Bridge Project", the "Golden Custom Project" and the "Golden Card Project".

➢ In August 2002, the centre government of China issued "Suggestions on Construction of China's E-government", which put forward the "Twelve Golden Project". China starts to improve its administration management by using E-government.

➢ In 2005, the State Development and Reform Commission (SDRC) approved "the Golden Land Project", which means land administration in China starts to going towards E-land administration.

1.4. Justification

Fast urbanization needs land for employment placement, housing, and urban infrastructure. This demand of land is often met through urban encroachment into rural areas (Ding, 2007). According to the current legal system in China, land expropriation is the only approach to obtain the land. However, the farmers are outside the processes. The only chance that farmers can participate in the processes is when the government inform them that their land will be expropriated and get the compensation information at the end of expropriation processes (Dandan, 2008).

The legal system in China refers the status of public participation during land expropriation processes. The Implement Byelaw of the Land Law states that the blue print of land expropriation and compensation should be proclaimed in the villages where the land is going to be expropriated, and collect advice of the rural collective economy organization and farmers. If there are disputes on compensation standard, it should be harmonized by the county or higher level governments. Moreover, if no results by harmony, it should be decided by the government who authorized to expropriate the land. These regulations show that the government have identified the importance of public participation during land expropriation process, and have provided chance for the public to express their opinions. However, at the same time, the regulations are rather inexplicit. The participation of

the public is limited, and without guarantee measures. In practice, the public participation has even less guarantee. Some government cannot proclaim land expropriation-related information timely, which results in no transparency of the process. Once the public, especially farmers, loss the chance to make decision for compensation, their benefits are harmed, and they can only express their opinions by other ways such as appeal to higher authorities for help, or just refuse to deliver their land. In addition, the action of land expropriation lacks powerful supervision without public participation, which may lead to abuse expropriation power.

The public participation during land expropriation process is important because it is the precondition for collective and farmers to use their rights and protect their benefits. Firstly, through public participation, the collective and farmers can understand the purpose, compensation and other related information better, which are preparation for them to use their rights. Secondly, by public participation, the collective and farmers got the chance to communication with governments. This not only helps the government improve the expropriation plan, but also enhances social supervision of government and protects farmers' benefits. In addition, public participation helps the collective and farmers to get proper compensation.

However, during current land expropriation process, there are generally two situations for public participation. The first situation is without any participation, and second one is participate by attending public hearing meeting. In practice, few farmers have chance to attend public hearing meeting. Even for those who have taken part in it, their opinions usually get no response. The lack of farmers' participation in land expropriation fails to maintain transparency of expropriation processes. It isolates farmers from the timely access to the expropriation and compensation information, which further result in farmers' distrust on government activities. Recently, the public sectors, academia as well as governments have identified the importance of farmers' participation in land expropriation procedures. Some policies have been made to encourage farmers' participation.

In order to ensure the just, fair and transparent of land expropriation processes, to build trust between government and farmers, and secure farmers' future life, farmers as the most direct group impacted by land expropriation, should participate in expropriation processes. Many researchers (Dandan, 2008; Ding, 2007; Tan, Beckmann, van den Berg, & Qu, 2009) have done on comparing land management in China with other countries. Although these researches have found out many bottlenecks of China's land expropriation from different aspects, and have pointed out some important experience, which can be used to improve land expropriation processes in China, little has been done on how to do it.

In addition, the development of E-government and the improvement of internet network accessibility in rural areas of China provide opportunities for better communication between farmers and governors in land expropriation processes. However, there is no on-line communication platform for them to communication efficiently now.

1.5. Research problem

Land expropriation in China is known to be a form of "government tool" which is described as "using coercive measures to acquire private land under compensatory arrangement by the government in the public interest." (Shang, 1998) Many problems during land expropriation are there because of the unclear definition of public interest or the low compensation. Furthermore, the reasons also include lack of transparency during expropriation procedures, the unclear property owner and user of the collective land, the unfair allocation of compensation and corruption problems. In order to acquire the land required by the economic growth, land expropriation is inevitable. In addition, to protect farmers' benefits during land expropriation processes, their participation is necessary (Liu & Lu, 2004).

To the end the public interest, compensation and the public participation are three important aspects during land expropriation processes. The "public interest" and compensation calculation standards will be redefined in the new Land Law of China. As mention in section 1.4, the public hearing meeting are not an efficient way for the public to express their opinions and get feedback from the government, it is necessary to find or design a workable way. It is anticipated to provide enough information for the public, give them chance to participate in the processes and get feedback from government. Therefore, this research focuses on designing a workable way for farmers' participation during land expropriation processes. It aims to develop an on-line participatory model (OPM), which is based on the fast development of information communication technology (ICT) and the development environment of China's land administration. In particular, participation generally means farmers' participation in this research.

1.6. Research objectives and research questions

1.6.1. Research objective

Main objective:

The main objective of this research is to develop an on-line participatory model for land expropriation in China.

Sub-objectives:

In order to achieve the main objective, the following specific sub-objectives are defined:

Sub-objective 1: To identify requirements and conditions for developing the on-line participatory

model.

Sub-objective 2: To develop the on-line participatory model using unified modelling language (UML).

1.6.2. Research questions

In order to achieve the research objectives, the following research questions should be addressed during the study.

Sub-objective 1: To identify requirements and conditions for developing an OPM.

Q1: What are the situations of land expropriation processes worldwide and what are the characters of it in China?

Q2: What are the current situations in China for developing an OPM on land expropriation?

Q3: What are the anticipations of farmers in land expropriation processes?

Sub-objective 2: To develop the OPM.

Q4: What are the criteria and steps for developing the OPM?

Q5: What are the elements and functions of the model?

Q6: What is the architecture of the OPM?

Q7: How does the model work?

Q8: How to test the model?

1.7. Research framework

To develop the model, the following phases are carried out during the research processes. Figure 1-2 shows the conceptual framework of research.
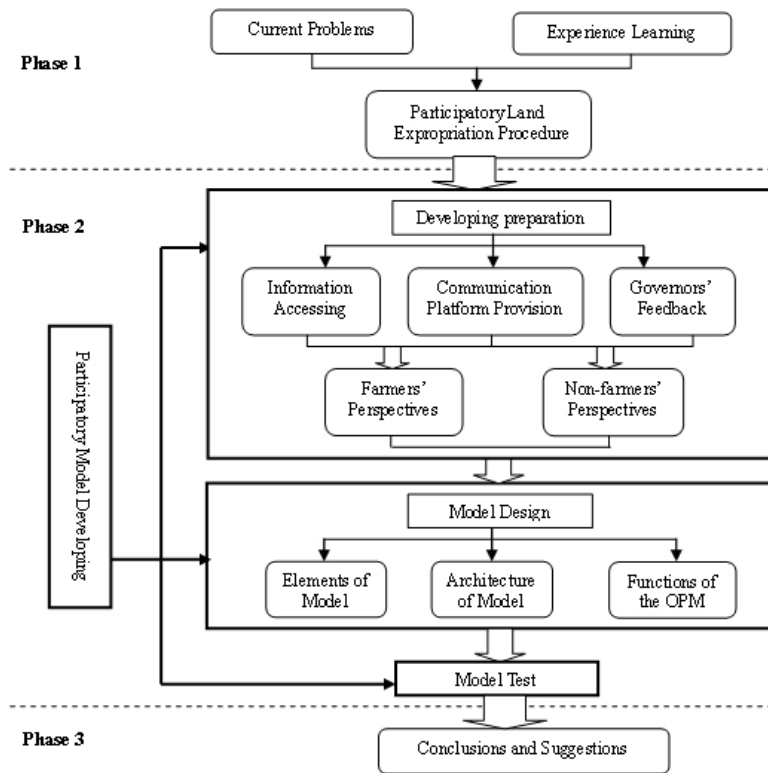
Figure 1- 2: Conceptual framework of Research

Phase 1, **Pre-model developing phase**

Before developing the model, farmers' anticipations in land expropriation processes are identified based on analysis of current land expropriation problems and data collected from fieldwork. This is the preparatory phase of the model developing.

Phase 2, Model developing phase.

This is the core of the research. It is further divided into three sub-phases: preparation phase of model design, model design phase and model test phase.

Preparation phase of model design

Preparation of model design focuses on three aspects—information accessing, communication platform and satisfaction of feedback:

➢ *Information accessing* means to demonstrate how farmers get access to enough information of the land expropriation;

➢ *Communication platform* means the model provides a communication platform for farmers to express their opinions and requirements.

➢ *Governors' feedback* means to judge if the farmers satisfy with the feedback of opinions and questions they made from government.

Data are collected and analyzed from two perspectives: farmers and non-farmers (governors, investors, land experts etc.) using designed questionnaire and interviewing them.

Model design phase

This phase is carried out after identified participatory land expropriation procedures and learning experiences from former researches in phase 1. Design of the model is considered from three aspects: elements of the model, architecture of the model and functions of the model.

➢ *Elements of model* means that considering what elements will be included in the model and why they are necessary, such as information provision, feedback etc are identified;

➢ *Architecture of the model* illustrates the architecture of internet accessing, logical architecture of the OPM and technique architecture of the OPM.

➢ *Functions* of model further introduces how the OPM works, how the farmers whose land are expropriated and government as well as other groups involved in land expropriation communicate through the OPM.

Model test phase

The OPM is tested in this phase to display how it works.

Phase 3, Post model developing Phase

After the model is finalized, conclusions and suggestions will be given in this phase.

1.8. Research methodology

To do the research, the following the phases are adopted: proposal prepare phase, pre-fieldwork phase, fieldwork phase, post-fieldwork phase and thesis writing phase. Figure 1-3 shows details of the research methodology and research questions answered in each step.
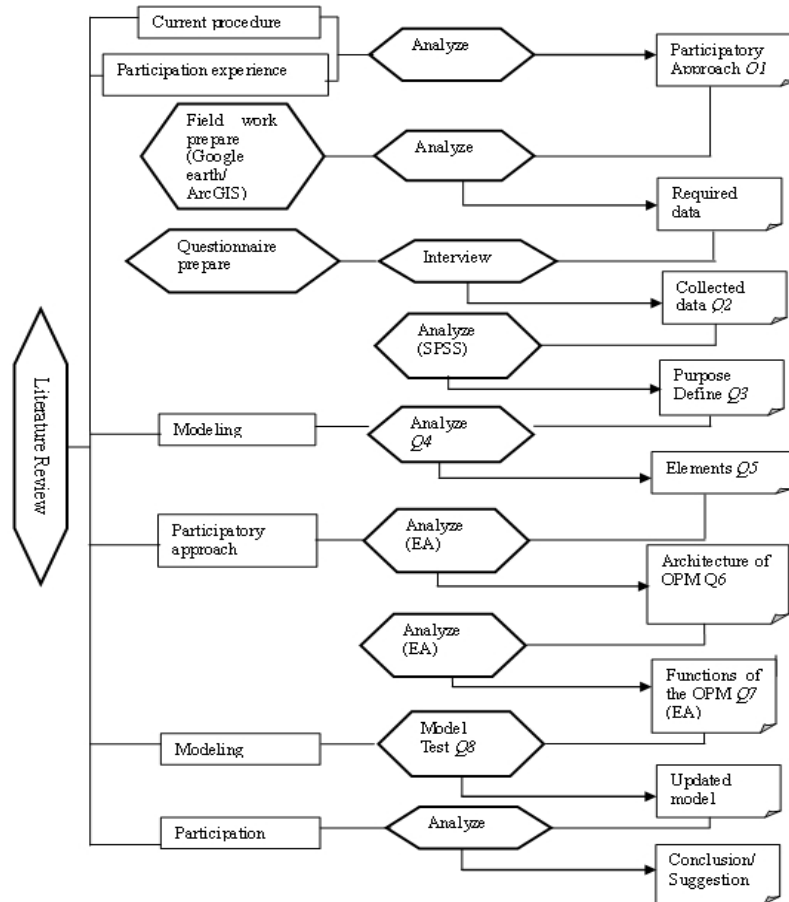
Figure 1- 3: Research Methodology

a) Preparatory phase:

Literature review and analysis: Literature review is carried out from journals, books, papers on internet or library, to find out what are the problems of current land expropriation in China and what the characters of land expropriation processes worldwide are as well as in China.

b) Pre-fieldwork phase:

Questionnaires design: Questionnaires are designed aiming at collection of data from farmers, governments and land experts, which are used to provide base for model design.

Interview preparation: Before fieldwork, the questions for different groups, the number of interviewee of each group and the interview plan (such as make appointment with interviewee) are prepared in advance.

c) Fieldwork phase:

Study area selection: Three villages in which land expropriation happens are chosen as study areas in

order to get the first-hand data. Moreover, land expropriation projects in the three villages are in different stages.

Data collection: Data such as information of the expropriation project, map of the study areas, general information of the local collective etc is collected first; data like geo-information of the expropriation area, farmers' opinions on land expropriation, feedback from governors etc are collected by questionnaires as well as interviews.

d)   Post-fieldwork phase:

Data analysis: First, data collected from the fieldwork was analyzed using SPSS (Statistical Package for Social Sciences), which aims to identify whether farmers can get access to information, the network accessibility and their perspectives on on-line participation. The perspectives from farmers and non-farmers about the model were analyzed to get suggestions for developing the model.

e) Thesis writing phase:

This phase combines all the results of former phases and come to conclusions and suggestions finally.

The following software are used during the research:

✧   **Google Earth —** to illustrate the study areas;

✧   **EA** (Enterprise Architect) **—** to develop the on-line participatory model;

✧   **ArcGIS —** to organize geo-data used when prototyping the model;

✧   **SPSS —** to analyze data that are collected from fieldwork;

✧   **Visual studio 2008 —** to develop the interface of on-line participatory platform;

✧   **Geoserver 1.7.5 —** used as the server to release map on-line;

✧   **SQL server 2005 —** used to develop the attribute database.

1.9.   Selection of study areas

Data collected from different villages of Xi'an city aims to design the participatory land expropriation model comprehensively; it also helps to improve the applicability of the model. As introduced in section 1.2, land expropriation is the only legal way to acquire construction land. As study area, three villages are selected for the research, as land expropriation is taking place in these three villages. The study areas were selected according to their different land expropriation stages. Details of the criteria for selecting study areas are introduced in Chapter 4. Figure 1-4 (from Google Earth) shows the selected study areas.

Figure 1- 4: Study areas

1.10.   Introduction of thesis structure

Chapter 1: Introduction

This chapter provides an overview of the research, which includes a general background, justification of the research, research problems, objectives and questions of the research, and research framework, methodology and structure of the thesis.

Chapter 2: Theoretical Concepts and Literature Review

This chapter describes the basic concepts related to land expropriation and on-line participation, which helps to define the concepts used in the research.

Chapter 3: Current Situations in China

This chapter introduces current situations for developing OPM model in China. It includes current land expropriation procedures in China, development of E-government and two ongoing projects on land administration the "Golden Land Project" and the second national land survey project (SNLS). In addition, it also describes the development of rural internet/ network use.

Chapter 4: Fieldwork and Data Analyses

This chapter includes two core contents: data collection and data analysis. Data collection includes study areas selection, interview groups identification and arrangement of fieldwork; data analysis is carried out after data has been collected, which provides bases for designing the OPM.

Chapter 5: OPM Developing

This chapter provides the processes of developing the OPM, which starts with definitions of the model, then the architecture of model and workflow description of the model using UML.

Chapter 6: Prototyping of the model

This chapter introduces prototyping of the designed model by using software. A simple communication platform is developed as an application of the model. The core function—information supply and on-line communication are tested on this platform.

Chapter 7: Conclusions and Recommendations

This chapter provides conclusions of the research and recommendations on China's land expropriation from two aspects: improvement of land expropriation and further development of the OPM.

2.   Theoretical Concepts and Literature Review

2.1.   Introduction

The previous chapter introduced the concepts of land expropriation, public participation and E-government briefly. This chapter gives more details from theoretical aspect of these concepts, which provides theoretical base for the research.

Section 2.2 introduces the concepts of land expropriation in detail from three aspects: the public interest, land expropriation procedures and compensation. Section 2.3 provides the definition and topology of the public participation. The concept and technology of on-line participation is discussed in section 2.4. Finally, in section 2.5, the E-government and its applications in developing countries are given.

This chapter partly answers the research question 1.

2.2.   Land expropriation

Understanding of the concept "land expropriation" worldwide helps to know the characteristics of it in the different countries, and it provides references for developing the OPM from conception aspect.

Land expropriation, which is also being called compulsory purchase, eminent domain, or simply taking, is an instrument, which allows states to acquire property against the will of its owner in order to fulfil purpose of general interest. Traditionally, expropriation has been considered as one of the main instruments of land policy (Antonio & Carlos, 2007).

The FAO (2008) states that land expropriation is the power of government to acquire private rights in land without the willing consent of its owner or occupant in order to benefit society. Land expropriation is a popular technique worldwide, in which the state is allowed to take land for public purposes, but the cost and time requirement in this technique had made it less useful. But still voluntary land acquisition technique is successful when it is coupled with real threat of compulsory land acquisition (Kitay, 1985). In many cases, where land is required for public purpose development like road construction, the land is expropriated when negotiations between land owners and government fails through other technique of land acquisition (United Nations, 1995).

In brief, land expropriation exists in most countries worldwide, it can be understood as a power that allow buying certain land by force, and only happens when the land cannot be bought through normal

bargaining. It has the following characters:

➢ For public interest, it cannot be used for non-public interest;

➢ Follow legal procedures;

➢ With compensation;

These three aspects of land expropriation are described in detail as follow:

a) Public interest

Public interest, which also being expressed through other terms such as "public use", "public purpose" etc, briefly means some general interest. The most general idea is that the individual interest of property owners must give way to the more general interests of society. Virtually every constitution that recognizes private property at the same time determines that the state can take property from individuals, under two conditions: Paying just compensation and with the purpose of satisfying some general interest. The public interest clause is then an important limit to the exercise of the eminent domain power (Antonio & Carlos, 2007).

b) Land expropriation procedures

Land expropriation is a power of government, but it is also the processes by which that power is exercised. In general, a well designed land expropriation procedures for a development project should include the following steps (FAO, 2008):

1) **Planning:** Determining the different land options available for meeting the public need in a participatory fashion. The exact location and size of the land to be acquired is identified. Relevant data are collected. The impact of the project is assessed with the participation of the affected people.

2) **Publicity:** Notice is published to inform owners and occupants in the designated area that the government intends to acquire their land. People are requested to submit claims for compensation for land to be acquired. The notice describes the purpose and processes, including important deadlines and the procedural rights of people. Public meetings provide people with an opportunity to learn more about the project, and to express their opinions and needs for compensation.

3) **Valuation and submission of claims:** Equivalent compensation for the land to be acquired is determined at the stated date of valuation. Owners or occupants submit their claims. The land is valued by the responsible agency. Then the responsible agency considers the submitted claim, and offers what it believes to be appropriate compensation. Negotiations may then be followed.

4) **Payment of compensation:** The government pays people for their land or resettles them on alternate land.

5) **Possession:** The government takes ownership and physical possession of the land for the

intended purpose.

6) **Appeals:** Owners and occupants are given the chance to contest the compulsory acquisition, including the decision to acquire the land, the processes by which the land was acquired, and the amount of compensation offered.

7) **Restitution:** Opportunity for restitution of land if the purpose for which the land was used is no longer relevant. It means that the former land users or owners have the right to require getting their land back if the land is not use as land use plan.

c) Compensation

Although different countries have specific standards for compensation, most laws on compulsory acquisition broadly define equivalent compensation with reference to market value or "just compensation". In general, compensation should be for loss of any land acquired, for buildings and other improvements to the land acquired, for the reduction in value of any land retained as a result of the acquisition, and for any disturbances or other losses to the livelihoods of the owners or occupants caused by the acquisition and dispossession (FAO, 2008).

Generally, there are two fundamental questions when talking about compensation: how to determine the amount of compensation to be paid, and who is entitled to obtain one (Antonio & Carlos, 2007). As to the general criteria for fixing the compensation, there is a clear convergence in most countries towards market value. While this does not pose a major problem when property rights are clear, it represents enormous challenges in situations where it is unclear who owns what or when the social cost of relocation outweighs the market value of the land. The second issue that affects compensation is the recognition of tenure rights. Some groups such as herders, tenants, labourers and other social categories become entitled to be compensated for the loss of their possessions.

2.3. Public participation

From the introduction of land expropriation, farmers' participation is an important and necessary part during the expropriation procedures. Public participation helps to ensure that the purpose of land expropriation is for public interest and the compensation is just, it also helps to enhance the transparency of land expropriation procedure.

2.3.1. Definition of public participation

Section 1.2 of Chapter 1 introduced the different forms of public participation briefly. This section continues to introduce the different extent of it.

Literature gives a series of definitions of participation ranging from "token involvement of people", to,

"autonomous decision making by popular organizations at local level" (Brehony, 1989). According to Martin and Quinney, quoted by Platt (1996), participation is "to take part" - this is very simplistic and implies that everyone is participating at some level in every action. If we are to understand participation we need to explore beyond "taking part" and explore the extent and nature to which people "take part".

Platt (1996) refers to three types of participation of local communities and individuals. In his opinion, "taking part" must involve all three types, physical, mental and emotional:

➢ *Physical participation*: being present, using one's skills and efforts;

➢ *Mental participation*: conceptualizing the activity, decision making, organization and management;

➢ *Emotional participation*: assuming responsibility, power and authority.

Although the definitions of participation have matured into a more empowering concept, it does not mean the right practice. In order to explore participation as it is defined by practice, this thesis now focuses on the typology of public participation. Analysis of typology of public participation helps to understand different levels of participation, and provides base for analyzing current farmers' participation extent in land expropriation processes.

2.3.2. Typology of Participation

There is a wide range of literature relating to the typology of participation. Some authorities describe the types of participation, whereas others refer to its mechanisms and to the limitations on the implementation of participatory development. The following review focus on two of the range theories as representatives: "Ladder of public participation (Figure 2-1)" by Arnstein and seven-level typology of participation (Table 2-1) presented by Pretty (1995).
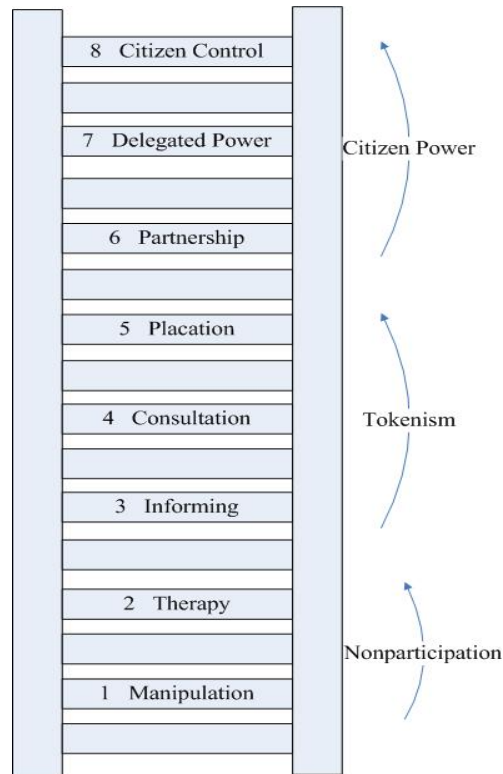
Figure 2- 1: Ladder of public participation

(1) Manipulation: This level describes level of "non-participation", the real objective is not to enable people to participate in planning or conducting programs, the power holders arrange everything.

(2) Therapy: In this level, the participation is not real participation either, the objective is to enable power holders to "educate" or "cure" the participants.

(3) Informing: In this level, citizens may indeed get information from the power holders, but under this conditions they lack the power to ensure that their views will be adopt by the powerful.

(4) Consultation: In this level, citizens may hear or be heard, but the use of their ideas still depends on the power holders.

(5) Placation: This is simply a higher level tokenism, as this level allows participants to advice more, but retain for the power holders the continued right to decide.

(6) Partnership: In this level, citizens can enter into a partnership that enables them to negotiate and engage in trade-offs with traditional power holders.

(7) Delegated Power: Citizens obtain the majority of decision-making seats.

(8) Citizen Control: Citizens obtain the full managerial power.

Pretty (1995) presented a seven level typology of participation:

Table 2 - 1: Typology of public participation

Typology	Characteristics of each type

1.Manipulative participation:	Participation is pretence with people's representatives on official boards but who are unelected and have no power.
2.Passive participation:	People participate by being told what has been decided and has already happened.
3.Participation by Consultation:	People participate by being consulted or by answering questions. This process does not concede any share in decision making and professionals are under no obligation to adopt people's views.
4.Participation for Material incentives:	People participate by contributing resources, e.g. labor, in return for food, cash or other material incentives.
5.Functional Participation:	People's participation is seen by external agents as a means of achieving project goals, especially reductions in costs. People may form groups to meet pre-determined objectives. This participation may be inter-active and may involve shared decision making, but tends to arise only after major decisions have been made by external agents. Local people may only be co-opted to serve external goals.
6.Interactive participation:	People participate in joint analysis, development of action plans and the formation, or strengthening, of local institutions. Participation is seen as a right, not just as a means of achieving project goals. People have a stake in maintaining structures and practices.
7.Self Mobilization:	People participate by taking initiatives, independently of external institutions, to change systems. They develop contacts with external institutions for the resources and technical advice that they need, but retain control over how the resources are used.

(Source: Pretty, 1995.)

From both the ladder and seven-level topology of public participation, different extent of it is illustrated. Public participation can be of different forms at different levels. Hence, it is important to understand the level of participation while focusing on land expropriation processes, but not just participated. In other words, people may have chance to participate in the processes apparently, but it does not mean that their participation works.

2.4. On-line participation

2.4.1. General introduction

With the development of information communication technology, now people can take part in many activities on-line. For example, they can chat or do business on-line. All of these need on-line communication. Currently, more and more people, from governments to individual persons, governments to companies and individual persons to governments choose to communicate on-line as it is an efficient and timesaving communication mechanism. Hence, on-line participation can be an effective way of participation compare to common participation formats like meeting, interviews and so on. In general, people who are affected by public policies and services are in a good position to help to improve these policies and services. On-line participation is one way of seeking peoples' views. It responds to people's expectations that they will be more involved in the design and delivery of policy and services.

According to the British Cabinet Office (2008), on-line participation aims to make government work well, the principles for participation on-line includes:

➢ Be credible: be accurate, fair, thorough and transparent.

➢ Be consistent: encourage constructive criticism and deliberation. Be honest and professional at all times.

➢ Be responsive: when you gain insight, share it where appropriate.

➢ Be integrated: wherever possible, align on-line participation with other offline communications.

➢ Be a civil servant: wherever possible, disclose your position as a representative of your department or agency.

On-line Participation Project of the New Zealand (2007) indicates that on-line participation can help:

a) On-line participation can help ministers and State servants:

➢ Make existing policy and services fit better with people's experiences and needs

➢ Navigate future uncertainty by tapping people's knowledge and experience to design better policies and services

➢ Focus the public's good will and knowledge on significant, complex problems that need local solutions (e.g. climate change, obesity, road safety).

b) On-line participation can help people:

➢ Understand the purposes and processes involved in designing and delivering policies and programmes

➢ Enhance accountability for the results of policies and programmes

➢ Contribute to improving policies and services affecting them

2.4.2. Technology for realizing on-line participation

According to section 2.3, on-line participation is a nice way for public participation. Then, the problem is how to realize it. The core of on-line participation is to communicate on-line, which means that the on-line users are not only information viewers, but also information providers. They are contributing to the on-line resource when they get information from it. Web 2.0, is becoming more and more popular in recent years, which accelerated user participation a lot in an interactive information system.

1) Concept of "Web 2.0"

The concept of "Web 2.0" started with a conference brainstorming session between O'Reilly and MediaLive International. In the year and a half since the conference, the term "Web 2.0" has clearly taken hold, with more than 9.5 million citations in Google. However, there is still a huge amount of disagreement about just what Web 2.0 means, with some people decrying it as a meaningless marketing buzzword, and others accepting it as the new conventional wisdom (O'Reilly, 2005). Currently, Web 2.0 is commonly associated with web applications that facilitate interactive information sharing, interoperability, user-centred design and collaboration on the World Wide Web (Sharma, 2008b).

2) Applications of "Web 2.0"

Examples of Web 2.0 include web-based communities, hosted services, web applications, social-networking sites, video-sharing sites and blogs. A Web 2.0 site allows its users to interact with other users and to change website contents, in contrast to non-interactive websites where users are limited to the passive viewing of information that is provided to them (Sharma, 2008a). An important character of Web 2.0 is to harness collective intelligence. Detail examples are as follow:

➢ Hyperlinking is the foundation of the web. As users add new content and new sites, it links the structure of the web by other users discovering the content and linking to it.

➢ Yahoo! was born as a catalog, or directory of links, an aggregation of the best work of thousands, then millions of web users.

➢ Google's breakthrough in search is a method of using the link structure of the web rather than just the characteristics of documents to provide better search results.

➢ eBay's product is the collective activity of all its users; like the web itself, eBay grows organically in response to user activity, and the company's role is as an enabler of a context in which that user activity can happen.

The on-line participation during land expropriation processes aims to encourage communication between farmers and government, which need to harness collective intelligence as well. Hence, technologies of Web 2.0 can be used to realize on-line participation.

2.5. E-government

E-government as a form of on-line activities is playing an increasing important role in recent years. It needs participation of different departments of government. Hence, on the one hand, on-line participation is an important part for E-government development. On the other hand, the fast development of E-government provides environment for development of on-line participation.

2.5.1. Introduction

E-government refers to the use of information and communications technologies (ICT) to improve the efficiency, effectiveness, transparency and accountability of government (The World Bank, 2009). The European Commission (2009) defines E-government as using the tools and systems made possible by Information and Communication Technologies (ICT) to provide better public services to citizens and businesses.

E-government can be seen simply as moving citizen services on-line, but in its broadest sense, it refers to the technology-enabled transformation of government - governments' best hope to reduce costs, whilst promoting economic development, increasing transparency in government, improving service delivery and public administration, and facilitating the advancement of an information society (The World Bank, 2009).

E-government usually describes relationships across 3 modalities:

➢ *Government to Citizen (G2C)* deals with the relationship between government and citizens. G2C allows citizens to access government information and services instantly, conveniently, from everywhere, by use of multiple channels.

➢ *Government to Business (G2B)* consists of e-interactions between government and the private sector. The opportunity to conduct on-line transactions with government reduces red tape and simplifies regulatory processes, therefore helping businesses to become more competitive.

➢ *Government to Government (G2G)* means governments depend on other levels of government within the state to effectively deliver services and allocate responsibilities. In promoting citizen-centric service, a single access point to government is the ultimate goal, for which cooperation among different governmental departments and agencies is necessary. G2G facilitates the sharing of databases, resources and capabilities, enhancing the efficiency and effectiveness of processes.

Many World Bank client countries are in the processes of designing and implementing E-government strategies, programs and projects, for which assistance in this area, both in terms of knowledge and financial support, is increasingly demanded. Many countries have already requested bank support and several projects are under preparation or implementation.

2.5.2. E-government appropriate for developing countries

Although it is early to judge the macro impact of E-government on overall development in developing countries, there are several examples of nation wide applications that have delivered significant benefits, with moderate investments (The World Bank, 2009). Evaluations of some E-government projects conducted by independent agencies indicate that costs of accessing services by citizens have been reduced, corruption has lessened and government tax revenues have grown.

Since the potential impact on reform goals that the World Bank pursues in many developing countries has been demonstrated, task managers and government clients should consider E-government investments to create new opportunities for building institutional capacity and efficient, citizen-centric service delivery. Early experience shows that E-government can be developed in stages, with projects suitable for different levels of technology preparedness in a country. Two examples of E-government development in China and India each are introduced as follow:

Beijing's Business e-Park (www.zhongguancun.com.cn) is a new system that applies the latest computer and Internet technologies to improve the efficiency and responsiveness of government. If businesses choose to use this system, they can reduce the time required for gaining approval for specific applications from 2-3 months to few days. Moreover, data can now be submitted on line, greatly increasing the quality of service for customers (Lin, Zhu, & Hachigian, 2001).

E-government helps to increase the transparency of decision-making processes. In many cases E-government offers opportunities for citizens to directly participate in decision-making, by allowing them to provide their own ideas and suggestions in forums and on-line communities. The Central Vigilance Commission (CVC) in India started an initiative to create a website with the objective of reducing corruption and increasing transparency by sharing a large amount of information related to corruption with citizens. The CVC website (http://cvc.nic.in/) communicates directly with the public through messages and speeches to bolster confidence in the institution, informs the public about its efforts in fighting corruption, and makes public the names of officers from the elite administrative and revenue service against whom investigations have been ordered or penalties imposed for corruption. Members of the public are highly encouraged to make their complaints and to provide information against a public servant about taking of bribes in order for the commission to undertake the necessary anticorruption actions to eliminate bribery and to increase the transparency of rules, procedures and service delivery (Bhatnagar, 2001).

2.6. Concluding remarks

This chapter provided the theoretical base for developing an on-line participatory model. Many research-related concepts are introduced in detail.

Different countries have different definitions of land expropriation according to their own situations. However, some similar characters are there, such as public interest is important and compensation is necessary. Also, most countries follow general procedures introduced in section 2.2.

On the concept of public participation, it is important to know the extent of it. The participation extent is what needs to be paid attention to during land expropriation processes, but not just participated or not.

From the introduction of section 2.4, the development of information communication technology accelerates development of on-line participation. The development of Web 2.0 makes it possible to collect public ideas on-line, which can be used in land expropriation processes.

The E-government development helps to enhance the communication between government and citizens. It also has developed a lot in developing countries, which provides possibilities and opportunities for developing on-line participatory platform for land expropriation.

3.   Current Situations in China

3.1.   Introduction

The development and application of network and improvements on land management in recent years provide bases for developing an on-line participatory communication platform and the OPM. After reviewed theoretical concepts that involved when building the OPM in the previous chapter, this chapter further introduces the current situations in China for developing the OPM, which including land expropriation in China, development of E-government in China, the "Golden Land Project" and the Second National Land Survey in China as well as network development in rural areas.

Section 3.2 introduces land expropriation in China, and characters of it. Land expropriation procedure and farmers' rights during land expropriation processes are also involved in this section. Section 3.3 provides status of E-government development in China. Then two detail land projects: the "Golden Land Project" and the SNLSP are described in section 3.4 and 3.5 separately. Finally, section 3.6 describes network development in rural China.

This chapter answers partly research question 1 and question 2.

3.2.   Land expropriation in China

Land expropriation exists in many countries of the world, but in western countries, it has different meanings with respect to that in China. For most European countries, land expropriation means a power to buy land by force to some degree, it only happens when the land cannot be acquired through normal procedures. However, as introduced in section 1.2, urban land is state-owned and rural land is collective owned in China. The only legal way to transfer the collective-owned land to state-owned land is legal land expropriation. The state, in accordance with the law, may expropriate land, which is under collective ownership, if it is for the public interest. Thus, land expropriation is, in a narrow sense, a procedure by which all rights formerly held by the village collective are relinquished to the local government.

When focus on acquiring land from private landowners or land users, land expropriation is the last methods that would be used in many European countries. However, in China, it is the only measure to be taken. Therefore, to a certain extent, land expropriation in China is similar to land acquisition in western countries.

Land expropriation is an important land system regulated by Chinese Constitution, the Land Law as

well as the Property Law and so on. There are two kinds of land expropriation in China: first, the ownership of the land is expropriated, which means the ownership changed from collective owned to state owned; second, only the use rights of the land are expropriated for certain time, after the land been used for a period of time, the state return it to the collective. Most of the time, the first situation is much common rather than the second one. In this research, land expropriation in China specially means the first situation.

3.2.1. Land expropriation procedure in China

Currently, there is no uniform procedure for land expropriation to follow in China. However, based on current regulations and practices of different areas in China, land expropriation generally contains the following steps:

1) **Land expropriation notice:** the city or county people's government, or land administrative management department provides the land expropriation notice to target villages before land expropriation. The content of the notice generally includes the name of projects, approved organizations, the use, location, bound and area of expropriation land. It also includes the compensation standard and methods, allocation methods, rights to apply public hearing and other related things.

2) **Survey and agreement of current land situation:** after informed general information of land expropriation to farmers, city or county people's government organize related departments to execute land survey. The purpose of survey is to investigate the ownership, use and area of land as well as ownership, categories and amount of attachments on land. Then the compensation standard and allocation plan should be made, and these plans should be agreed by the rural collective economic organization and farmers finally.

3) **Opinion listening and public hearing meeting organizing:** before all the documents for land expropriation submitted to provincial level, the agreed results should be open to the public at least 5 days in villages. During this period, the collective economic organization and farmers can apply for public hearing meeting if they do not fully agree with the compensation or allocation plan. Land administrative management departments should organize public hearing and notice farmers in writing. All the suggestions collected in the meeting and records of the meeting should be submitted as necessary documents for applying land expropriation.

4) **Preparation and submission of documents for land expropriation:** the main documents for expropriation include farmland conversion plan, farmland supplying plan, land expropriation plan, land providing plan and constructive land use report. All the documents should be prepared by city or county land administrative management departments, and be examined and approved by county or city people's government before submit them to provincial people's government.

5) **Examination of land expropriation:** the provincial land resource office examines the

documents for land expropriation submitted by city or county people's government, then the provincial people's government examine these documents and decide to approve the expropriation or not. In case of expropriation of basal farmland, the application documents should be examined by the Land Resource Ministry finally.

6) **Bulletin of land expropriation:** if land expropriation project is approved, the land resource administrative management department should publish the approved proceeding for ten days in target villages. If the project is denied, the proclaiming made at first in villages should be cancelled in writing.

7) **Registration for compensation:** the landowners or land users whose land is expropriated should go to land resource administrative management departments to register for compensation with proof of their land rights.

8) **Compensation and allocation plan making and application:** the land management departments are responsible for making the compensation and allocation plan according to land expropriation plan. The plan should be public to farmers for collecting opinions. Base on the collected opinions, the plan may be improved. Then, the plan should be submitted to provincial land administrative management department to apply for agreement. It can only be executed after approved.

9) **Execution of compensation and allocation plan and delivering land:** after the compensation and allocation plan is approved, the city and county people's government should organize to execute it in time. The rural collective economic organization and farmers can deny delivering land until they get sufficient compensation.

10) **Solution for conflicts:** the people's government are responsible for solving conflicts if rural collective economic organization or farmers disagree with compensation standards. The execution of land expropriation plan should not be affected by the conflicts.

From the description of the general procedures, government provides some information for farmers at the beginning of land expropriation activity. Farmers can also participate in land expropriation by applying and attending public hearing. However, on the one hand, there is no enough and efficient way for communication between government and farmers; on the other hand, farmers do not know the results of their participation, which means the feedback is too limited or even no feedback. Hence, it is important to develop and platform for land expropriation to provide enough information for farmers and enhance communication as well.

3.2.2. Farmer's rights during land expropriation procedures

Although farmers' participation during current land expropriation procedure is not enough, it does not mean excluding farmers in all the steps and farmers have no rights to speak out. In general, farmers

have the following rights during land expropriation processes:

a) Right to know and agree land expropriation information

In order to ensure farmers have rights to know and agree land expropriation information, local government and related departments should take the following measures according to current regulations:

➢ Inform of land expropriation: Local government should inform farmers the land use plan, location of land, compensation standards, and allocation plan etc.

➢ Survey results agreement: all the land survey results should be agreed by farmers before further applying of land expropriation.

➢ Land expropriation bulletin: the approved proceedings of land expropriation should be public to farmers in villages.

The documents known and agreed by farmers are necessary for applying land expropriation projects. If they are missed, the examination department cannot approve the expropriation project. Even the project is approved, it is illegal.

b) Right to apply for public hearing meeting

Before submission of compensation and allocation plan, local land resource departments should inform farmers in writing that farmers have right to apply for public hearing meeting. Land resource management departments should organize it if farmers apply for the meeting. The notice should include the following contents:

➢ the reasons of hearing;

➢ the time and location of hearing meeting;

➢ name and profession of hearing officer and recorder;

➢ the rights and obligations of parties and organizers;

➢ other proceedings to be noticed.

The record of public hearing meeting should be included in application documents of land expropriation project.

c) Right to refuse delivery of land

The city and county people's government cannot approve using land for construction if the compensation for land expropriation have not been fully paid or the allocation plan have not been executed properly. Rural collective economic organization and farmers have rights to refuse delivery of land. In this case, local government has no rights to force farmers to provide land and construction companies have no rights to use the expropriated land either.

d) Right to supervise execution of project

Farmers whose land is expropriated have rights to supervise the use of expropriated land. If local government do not use the land within two years after expropriated, the rural collective economic organization has rights to apply for cancelling the previous approved land expropriation plan.

The above rights are important for farmers to protect their benefits during land expropriation. However, having the rights does not mean that they can be used properly. Therefore, it is also important to ensure that farmers can use these rights, except for just having them. The on-line participatory model of this research aims to do this, which is introduced in detail in chapter 5.

3.3. E-government in China

As introduced in section 2.4.2, E-government has developed a lot in many developing countries. China as a developing country has put lot efforts on E-government development. The E-government development in China not only helps to provide opportunities for on-line communication development, but also provides on-line methods for land management.

3.3.1. Introduction

E-government development in China is similar to other countries because of the similar characters of government's function. In general, based on backgrounds of China, characters of E-government development includes enhancing supervising function of government, protecting public benefits, improving efficiency of government's work and providing better service for people.

3.3.2. Development of E-government in China

China's "Government On-line Project", launched in 1999, illustrates the ambition to set up E-government. Now, the central government is employing the Internet as a tool to assist and accelerate the processes of reformation and efficiently execution of some political measures.

China has acknowledged the importance of E-government. By introducing a rational and transparent E-government, the Chinese government has taken a significant step towards technical legitimacy. The propaganda department of the central government is quite aware that a website on the internet has many more advantages than a newspaper or book, as the Internet provides people with a 24 hour a day service. Due to the advantages of the Internet, an on-line presence has become the Chinese government's favourite means of improving its image.

As the milestone of E-government development in China, the "Government On-line Project" officially started in January 1999. The goal of it is to build up a highly effective E-government as well as to

make existing information accessible to all citizens and to facilitate bureaucratic procedures (Junhua, 2001). The "Government On-line Project" includes the following contents: On-line electronic information exchange, on-line government procurement bidding, on-line welfare payments, electronic delivery, information centre, electronic document management; electronic tax; and digital identification. At the same time, the Chinese government's E-government project undertook the development of a well-connected intranet system for governmental use. One purpose of the intranet is to enable existing information to be available to all relevant institutions that need it. The Chinese government wishes to play a role of collector and sharer of information for the central governance.

3.4. The "Golden Land Project" in China

3.4.1. Introduction

The concept of "Golden Land Project" was first proposed in 2004, the core of it is to accelerate informationization of land resource management. As an important project of land resource management, the project focuses on the following domains: development of arable land protection monitoring system, mineral resources security assurance system and geological disaster forecasting system (Information Center of Land Resource, 2004). It also includes developing a state cadastral database. In brief, the project contains "three systems and one database" (Jiang, 2006).

3.4.2. Systems and database developing

The "three systems and one database" of the Golden Land Project are described in detail as follow:

➢ **Arable land protection monitoring system**: this system is developed base on integrating current land resource databases. It will be an integrated management and decision-making supporting system. The system includes land use planning, land use dynamic monitoring, construction land use examining and approving, land consolidation and farmland management systems. Moreover, it will be a technical platform for executing arable land protection and food security ensuring.

➢ **Mineral resources security assurance system:** this is an integrated management and decision-making supporting system, which focus on mineral resource planning management information system and mining rights. The system is based on the integration of the following databases: geo-database of mineral resource reserves, mineral resource planning database, mineral production database and mineral resource potential database. It is also a technical platform for ensuring safety of mineral resource.

➢ **Geological disaster forecasting system:** this is a platform for forecasting geological disaster and commanding when come across emergency. It is based on development of geological disaster forecasting geo-database, geological disaster integrative information database and integrative data management system.

> ➢ **State cadastre database:** this database includes land ownership and land use status data, grade and price data of land in cities and towns, grade of farmland and so on. The purpose of developing such a database is to know the status and dynamic changing tendency of land resource, to improve government's capability on managing land market and to provide effective information for the public.

3.4.3. Schedule of the project

According to schedule, the "Golden Land Project" will be finished in 6 years (from 2005 to 2010). The whole project is divided into three phases (Wang, 2005).

The first phase is to start experimental unit for state monitoring system of arable land protection and state security system of mineral resources. The second phase is to complete the two systems in the first phase and develop experimental unit for forecast system of geological disaster. The third stage is to develop land resource databases such as state cadastre database, geological information database as well as resource and economic environment database.

Currently, the first stage of project was finished and the monitoring platform for comprehensive information concerning land approval, supply, use, supplement and inquiry was primarily established.

In brief, the "Golden Land Project" is a milestone on development of E-land administration. The study of on-line participatory model for land expropriation can be seen as part of the entire E-land administration development. The "Golden Land Project" provides environment for the research of on-line participation, and the research contributes to the project at the same time.

3.5. The second national land survey（SNLS）

The second national land survey (SNLS) focuses more details on land information compare to the "Golden Land Project". It involves investigation of land information as well as establishment of databases. The results of the SNLS include timely information of land, which can be used as reference and base data for land expropriation. Moreover, data sharing saves lots of time.

3.5.1. Introduction

The State Department of China first approved the second national land survey project in May 2007. The SNLS is the most comprehensive land survey after the first national land survey in 1996. According to documents of the State Department, the purpose of the SNLS is to investigate land use of the whole country, get basic data of land, and realize informationization and on-line management of survey results finally (The State Department Office, 2006). It also includes establishing and

improving land survey, land statistic and land registration system. Finally, it aims to provide land resource information for the public, meet demands of social-economic development as well as macro control and management of land resource.

3.5.2. Contents of the SNLS

According to the General Scheme of the Second National Land Survey (2007), the contents of the SNLS includes:

➢ Investigate land categories and area parcel by parcel; get the distribution and use status of arable land, garden plot, woodland, industry use land, infrastructure use land, financial and commercial use land, development zone use land, real estate land and unused land by using advanced technologies like remote sensing, based on ortho-image;

➢ Investigate the land ownership and land use rights of all categories of land in both urban and rural areas, get land use rights information of state-owned land and ownership information of collective-owned land;

➢ Investigate the amount, distribution and protection status of basic farmland; mark and register every piece of basic farmland;

➢ Develop state-provincial-city-county four-level land survey databases, which including image, graph, land category, area and ownership data;

➢ Develop systems for investigating and recording, timely monitoring and rapid updating of land resource information.

3.5.3. Database establishment of the SNLS

The database developing of the SNLS includes two main contents: the four-level (state, province, city and county) land use database and the city cadastre information system.

Four level land use database: according to the developing standard of land use database, the steps to establish the database are as follow:

➢ Establishing county land use database to manage current land use data, land ownership data and basal farmland data for satisfying demand of daily updating;

➢ Establishing city level database, integrate land use data of each county to satisfy demand of land resource management of the city.

➢ Establishing provincial land use database, integrate city and county level database to satisfy demand of provincial land resource management.

➢ Using current network system, establish state land use database at centrally level to provide functions such as querying, counting, analysis, output, transfer and so on.

➢ In addition, provide interface for accessing and transferring between all levels of database to meet demands of data uploading, receiving, transferring, recording, updating and daily using.

City cadastre information system: each city develops the cadastre information system according to standards and requirements to manage graph data, parcel property and all kinds of tables, blocks, volumes of cadastre surveying and results of cadastration together. The system also provides management functions such as editing, recording, updating, outputting, registration and so on to meet daily business management demands.

3.5.4. Results of the SNLS

The results of the SNLS contain countrywide land use status information and collective land ownership registration information in general. Details of the results include data, maps, reports and databases.

1) Data results:
- Area data of all kinds of land in each level administrative district
- Area data of basal farmland in each level administrative district
- Area data of arable land in different gradient level
- Area data of city and town land use category in each level administrative district
- Land ownership information data of all kinds of land in each level administrative district

2) Map results:
- Current land use status map of each level
- Basal farmland distribution map of each level
- Current land use status map of city, county and town
- Land ownership borderline map
- Atlas of the SNLS

3) Reports:
- ✧ Integration report:
- Work report of the SNLS of each level
- Technology report of the SNLS of each level
- Outcome analysis report of the SNLS of each level
- ✧ Special topic report
- Analysis report of basal farmland status of each level
- Analysis report of land use status of each city, county and town

4) Database results:
- Land use database of each level

> ➢ Land ownership database of each level
> ➢ Remote sensing image database of each level
> ➢ Basal farmland database of each level
> ➢ City (county) level town cadastre information system

In conclusion, by doing the SNLS, the land use information in China becomes much clear. The results of the survey provide basic data for land administration of China. In this research, the land survey databases are used to provide data for land expropriation information and share data with other databases.

3.6. Internet/Network development in rural China

The network is the core precondition for development of on-line participatory model and on-line communication platform. This research is about farmers' participation during land expropriation processes; hence, the network development in rural China is an important aspect to know.

3.6.1. General introduction

Rural informationization development is an important content of constructing new socialist countryside. In order to provide benefits for rural people, Chinese government has increased investment on network development in rural areas in recent years. Till the end of 2008, 98% of countrywide towns can get access to network and 95% of them have wide band. 27 provinces have realized "every town using network". Moreover, in the year 2008, 12364 administrative villages got access to network, which is 89% of all the administrative villages. And there are 19 provinces generally realized "each administrative village using network"(China Internet Network Information Center, 2009).

Currently, the average time spent on using network in rural areas increased about one hour than in the year 2007, to 13.1 hours per week. 39.4% of rural network users ever started new post on-line and 51.3% users ever post reply (China Internet Network Information Center, 2009). Though there is still gap with network users in urban areas, comparing to the year 2007, the enthusiasm of participating in communication on-line has enhanced.

3.6.2. Rural informationization construction

Rural informationization construction is important for ensuring the countrywide informationization construction. Many on-line platforms such as "Information Garden", "Information platform for farmer working" and so on have been constructed for providing information service for rural areas. "Every Town Has Website" project has been started in eight provinces including Anhui province, which is a

big agricultural province in China. Currently, more than 1600 websites has been constructed for free and more than 2000 workers have been trained. Ningxia municipality, Sichuan province and almost other ten provinces have developed rural information network model, which including county information centre, town information station and village information workers.

Rural network is developing rapidly these years. It is not only the core of the countrywide network development, but also potential of China's further network development. In 2008, the total number of network users in rural increased 31900 thousands, up to 84600 thousands. The increasing rate is over 60%. The following two figures (Figure 3.1 and Figure 3.2) showing the increasing situation of rural network users from number and rate separately.
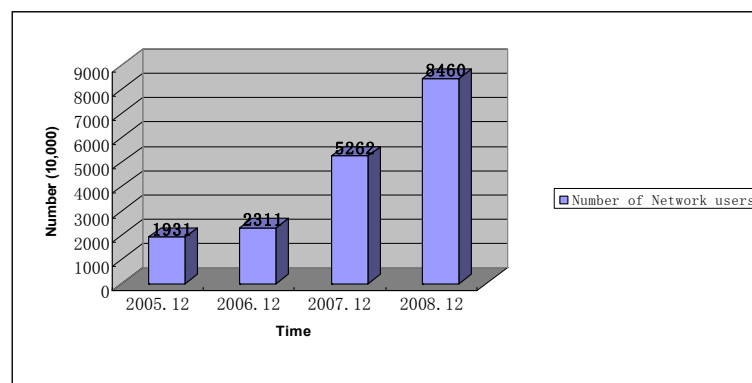
Figure 3 - 1: Number increasing of rural network users
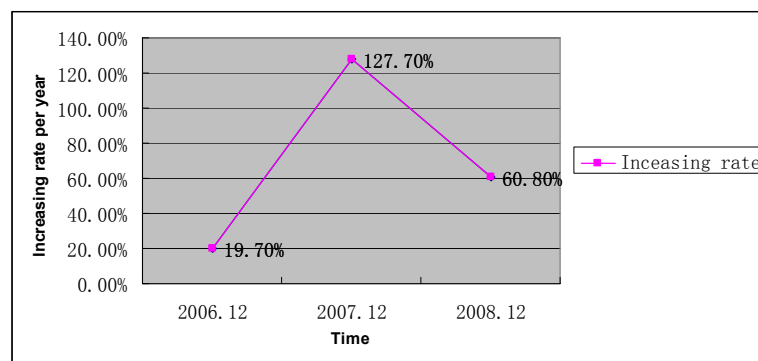
Figure 3 - 2: Increasing rates of rural network users

(Data resource: 2008-2009 Rural Network Development Report of China)

3.6.3. On-line communication development

With the development of Web2.0, network users are not only the receivers of on-line information, but also the editor and creator of it. The communication function of network provides a nice platform for people's participation on social business management, expressing suggestions and so on. As the way of information disseminating and accessing are limited, and literacy of people in rural areas is

relatively low, farmers' consciousness on participation and ability to affect social are not high. However, network development provides chances for farmers. As mentioned above, 39.4% of rural network users ever started new post on-line and 51.3% users ever post reply.

In conclusion, the fast development of network in rural China provides conditions and opportunities for farmers' on-line participation. Network accessibility in rural areas cannot limit but accelerate farmers to participate in land expropriation processes on-line.

3.7. Concluding remarks

This chapter introduced current situations for the research in China, which can be concluded as follow:

Currently, though land expropriation in China has no formal procedures, it still follows some general procedures. Farmers have their rights during the general procedures. However, the information providing and farmers' participation in current procedure is not enough. Moreover, there is no mechanism to ensure the exertion of farmers' rights.

The development of E-government in China accelerates development of E-land administration, which provides opportunities for developing on-line participatory platform for land expropriation. At the same time, the on-line participation also contributes the development of E-government.

The "Golden Land Project" as the milestone of E-land administration development, provides environment for developing on-line participation platform. In addition, the results of SNLS can be used to provide geo-information of land in the on-line participation platform. Hence, both of these two projects help to develop the model.

In addition, as introduced in section 3.6, the network development in rural China has active affects on the model developing too.

4. Fieldwork and Data Analysis

4.1. Introduction

The previous chapter introduced the current situations in China. This chapter goes further to collect perspectives from different groups involved in land expropriation by doing fieldwork, especially the farmer. Farmers' anticipations are determined by analyzing the collected data. This chapter answers research question 3.

Section 4.2 provides an introduction of fieldwork, which contains the purposes, preparation work and deficiency of the fieldwork. Furthermore, the preparation work includes study areas selection, question design, organization selection and methods used for fieldwork. Section 4.3 introduces data analysis. It introduces the methods for analysis, and then the findings of data analysis.

4.2. Fieldwork and data collection

4.2.1. Fieldwork purpose

The aim of fieldwork is to collect the first hand data, which are related to land expropriation processes by interviewing land expropriation involved stakeholders, and finally provide basic information for the OPM development.

4.2.2. Fieldwork preparation

Before fieldwork, study areas are selected, questionnaires are prepared and appointments are made in advance.

a. Selection of study areas

Farmers as the most direct group affected by land expropriation is the main role in developing on-line participatory model. By interviewing farmers, data on current participation status, farmers' anticipations and so on can be collected.

1) Criteria for selecting study areas:

Study areas selection is important for getting comprehensive and useful data during fieldwork. The conditions for selecting study areas are summarized as follow:

Firstly, land expropriation should have been taken place in the villages. This is important as we need those farmers whose lands are expropriated for interviewing.

Secondly, land expropriation project should take place in recent years. This is to see of land expropriation has affected by any new policies. Projects in recent years can show the current situation of land expropriation better.

Lastly, land expropriation projects are in different stages in selected villages. As farmers in different stages of land expropriation processes have different opinions. This is important for ensuring the comprehensive of data.

2) Introduction of study areas

According to the criteria mentioned above, three villages are chose — Andi village, Zhaocun village and Xinfang village. Figure 4-1 shows the location of the three villages, and figure 4-2 shows different land expropriation stages in each village.

(a) Xi'an, Shaanxi   **(b) Baqiao district, Xi'an**   **(c) three villages, Baqiao district**
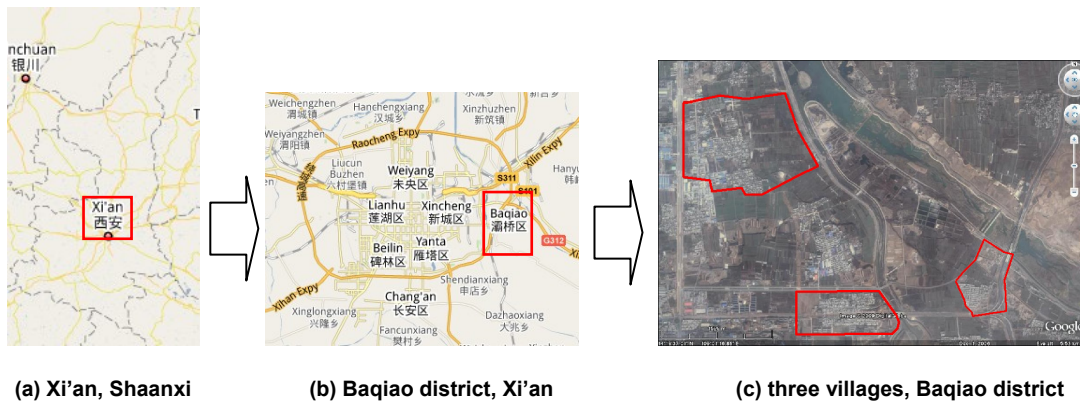
Figure 4 - 1: Location of selected villages

The land expropriation phase of each village is showing in figure 4-2:

Figure 4 - 2: Land expropriation stage in each village

The purpose of land expropriation in Andi village is for road construction. Currently, the land expropriation is on going. Some of farmers have been allocated, while others are not. Land expropriation in Zhaocun village is just started. People in this village have known that their land will be expropriated. The land is said to be used for infrastructure construction of new district. Land expropriation in Xinfang villages has finished. All farmers whose land was expropriated in this village have been allocated in a new-build village. The land were also expropriated for road construction. In

addition, all the land expropriation projects in the three villages were started after 2005.

b.   Questionnaire design

The questionnaires are designed for different groups: the farmers group, the governors group and the land experts group (see Appendix 1--3). In addition, all the questions are designed based on theories and policies related to land expropriation processes, aiming to collect anticipated information.

c.   Organizations

During the 4 weeks fieldwork, governors and land experts from the following organizations were interviewed through different formats: Shaanxi LRO; Land use evaluation Center of Shaanxi LRO; Xi'an Land Resource Bureau; Chanba ecological district management commission; Chang'an University; Shaanxi Provincial Library and Shenzhen Weizhenda Network Technical Company. Table 4.1 shows the detail interview formats and information collection.

Table 4 - 1:Interview formats and information collection

Group	Information	Method	Interviewee	Contribution to OPM
Farmers	**a.** Understanding on land expropriation information **b.** Consciousness on participation **c.** Current status of on-line participation	**a.**Questionnaire **b.** Face-to- face interview	**a.** Andi village—50; **b.** Zhaocun village—80 ; **c.** Xinfang village—65	**Foundation:** Current status and Basic anticipates of farmers
Governors	**a.** Main problems exist in current land expropriation **b.** Farmers' participation situation during expropriation processes **c.** Land expropriation policies and suggestions on OPM	**a.** Questionnaire **b.** Face-to- face interview; **c.** Telephone interview	**a.** Land use evaluation of Shaanxi LRO; **b.** Xi'an Land Resource Bureau; **c.** Chanba ecological district management commission	**Policy** aspect of land expropriation
Land experts	**a.** Reasons for land expropriation problems **b.** Solutions for solving problems **c.** Potential difficulties	**a.** Face-to- face interview	Land expert from: **a.** Shaanxi LRO—2; **b.** Chanba ecological district management—2; **c.** Chang'an University—3;	**Method :** Solutions of solving problems

d.   Methods

Fieldwork methods used during the fieldwork include questionnaires, semi-structured interviews,

face-to-face interviews and telephone interviews. The questions were designed for different groups, both close-ended questions and open-ended questions are included. One assistant, who works on land administration, is invited for interviewing the farmers in selected villages. The interviews in three villages took two weeks and used mainly semi-structured interviews. Finally, 200 responses were obtained. After checking the quality, all responses are used for the analysis. Moreover, the images used in the research are from Google earth.

4.2.3. Deficiency of fieldwork

Though much useful information was obtained during fieldwork with the help from different organizations and departments, some deficiencies cannot be avoided. Therefore, there are some constrains in the research.

➢ Firstly, the officers cannot tell the true situation sometimes, as the land expropriation procedure is not transparent enough. Hence, it can only be obtained from the farmers. In addition, different farmers have different opinions. Some of them are too emotional when talking about the land expropriation, especially when they are not satisfied with compensation or allocation. Thus, the veracity of information is affected to some degree.

➢ Secondly, not every farmer, whose land to be or have been expropriated, could be interviewed. The semi-structure interview is time-consuming and time for fieldwork is limited.

➢ Thirdly, not every interviewee has time to be interviewed face-to-face. Some originally designed face-to-face interview has to be changed into telephone interview or questionnaire. Therefore, information planed to be collected is more or less affected.

4.3. Data Analysis
4.3.1. Introduction of data analysis

According the requirements of the research — developing the OPM for land expropriation, the analysis work is carried out from three aspects, which is classified by groups involved in land expropriation processes. The three groups are the farmers, the governors and the land experts.

➢ SPSS is used to analyze collected data. By analysing data from each of the village, farmers' perspectives on different stages of land expropriation are obtained. By analysing all data together, the overview information of the entire land expropriation processes is got. These analyses are finally used to get farmers' perspectives on current land expropriation and anticipations on on-line participation platform.

➢ Analysis of governors' perspectives provides policies supporting for developing the OPM. Information that needs to be get from governors is listed in table 4.1. These perspectives are

concluded from interview results.

➢ Land experts from different organizations were interviewed. The purpose of analysing experts' ideas is to obtain suggestions on solutions of problems. The analysis is done according to organizations. Perspectives from both high-level land management offices and low-level execution departments are analyzed.

4.3.2. Data analysis and findings

After understand the general situation of analysis, this part goes further to the details of the three perspectives on land expropriation mentioned above.

4.3.2.1. Farmers' perspectives

Farmers' perspectives are analyzed from three aspects: farmers' understanding on land expropriation information, their ideas on participation and current status of on-line participation.

1) Understanding on land expropriation information

Farmers' understanding on land expropriation information is further analyzed from the following contents separately: their opinions on current communication, compensation and allocation of land expropriation.

a) Opinions on current communication

Timely communication between governors and farmers is helpful for improving the transparency of land expropriation. Analysis of the current communication status helps to understand farmers' current satisfaction on it.

Data analysis: Figure 4-3 shows the status of communication of study areas, 89.2% of farmers think that current communication satiation is "OK", which means they can communicate with the governors, but the communication is not enough. Going details to each village, as shown in the bar chart, farmers from Xinfang village are less satisfied with current communication, with 76.9% of them selected "OK" and 20% selected "very difficult", compare to 92% in Andi village and 97.5% in Zhaocun village selected "OK". That is because land expropriation in Xinfang village has finished, compare to villages that just start or on going of land expropriation, they know the communication status during the entire land expropriation processes. In their mind, their communication with governors and feedback from governors becomes less and less during the progress of land expropriation processes.
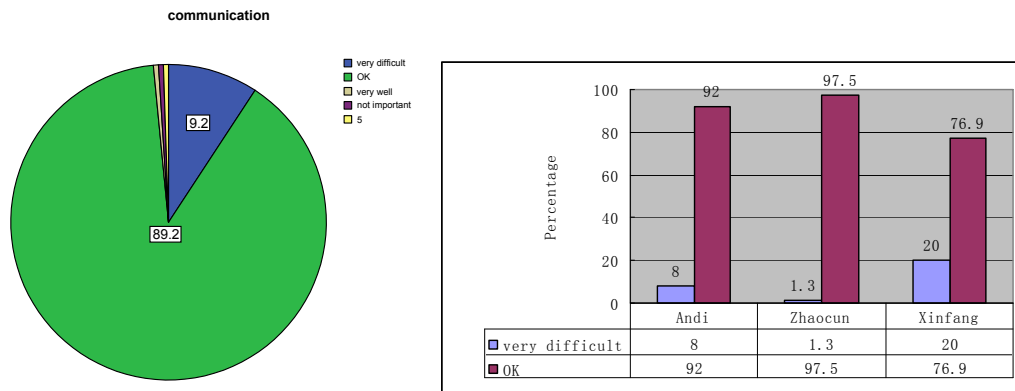
Figure 4 - 3: Current status of communication

Findings: In conclusion, farmers at different stages of land expropriation processes have different ideas. The more the expropriation is the less chance that farmers can participate in the process. In other words, current farmers' participation is too limited. They need real and more participation during land expropriation processes to express their ideas and protect their rights.

b) Opinions on current compensation situation

Data analysis: Figure 4-4 shows the current situation of farmers' impression on compensation. From the pie chart, 55.9% of farmers think that compensation is low for many farmers and 43.6% of them think there are a few situations with low compensation. Further more, in each of the three villages, showing in the bar chart, more than half of farmers consider that many low compensation cases exist during land expropriation. That is because, on the one hand, farmers think that corruption is a big problem when allocating the compensation; on the other hand, the allocation situation of compensation for the community is not transparent enough. Farmers do not know how this part of compensation is used. Hence, farmers expect that the processes of compensation allocation should be more transparent.

Findings: On the one hand, the compensation standard should be made in a more scientific way to provide a more reasonable compensation for farmers. On the other hand, the allocation and use of compensation for collective should be transparent.
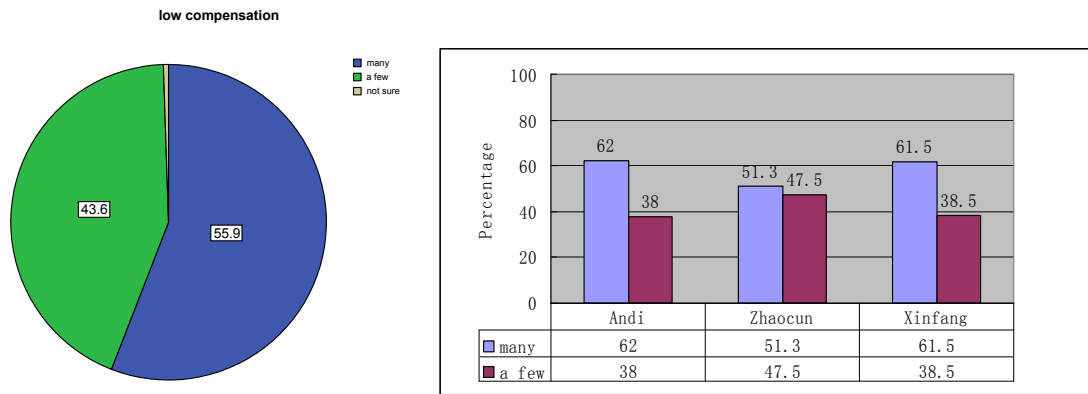
Figure 4 - 4: Current status of compensation

c) *Allocation*

Data analysis: Allocation here means providing living space for farmers. The pie chart of figure 4-5 shows that 57.9% of farmers think the allocation situation is OK and 41.5% of them think the allocation is very good. However, when going to each village, the bar chart indicates that 83.1% of farmers in Xinfang village think the allocation is very good, as they have moved into well-constructed new village. For farmers from Andi village, in which only some of farmers live in new village, 12.5% of them selected "very good". In addition, in Zhaocun village, 34% of them think that the allocation will be "very good", as they only got promises that they will have new houses, but they do not know what the real situation will be.

Findings: In general, farmers' impression on house allocation itself is much better as compared to their impression on compensation and communication. This is because house allocation occupies the main part of entire compensation of land expropriation.
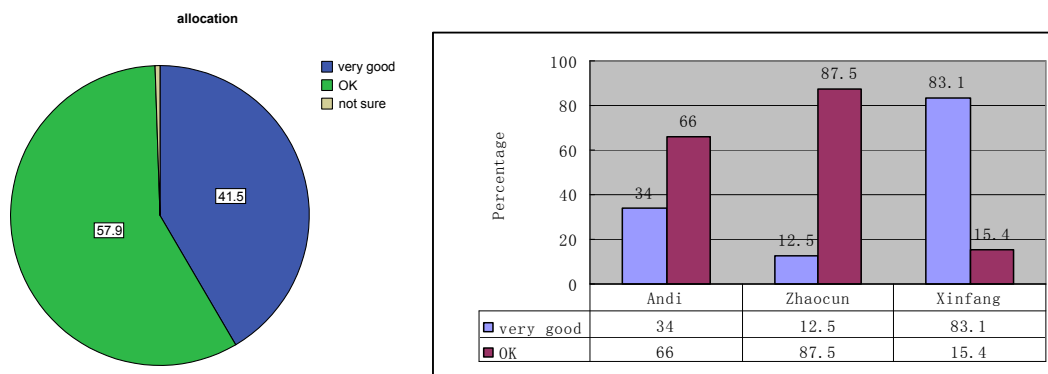
Figure 4 - 5: Current status of allocation

2) **Consciousness on participation**

a) *Necessary of farmers' participation*

Data analysis: Figure 4-6 shows farmers' ideas about their participation during land expropriation. The pie chart shows that all farmers think it is necessary to participate in land expropriation, and 61% of them think it is very much necessary. Farmers of Zhaocun village desire more to participate in land expropriation indicating 90% of them think they need to participate in land expropriation very much. As till now, they know nothing but that their land will be expropriated. Farmers in Xinfang village and Andi village have less desire than those in Zhaocun village.

**Findings:** Farmers want to participate in land expropriation very much. The more the land expropriation progress is the more farmers have desire to participate in. This is general because they need and want to know more information about the land expropriation.
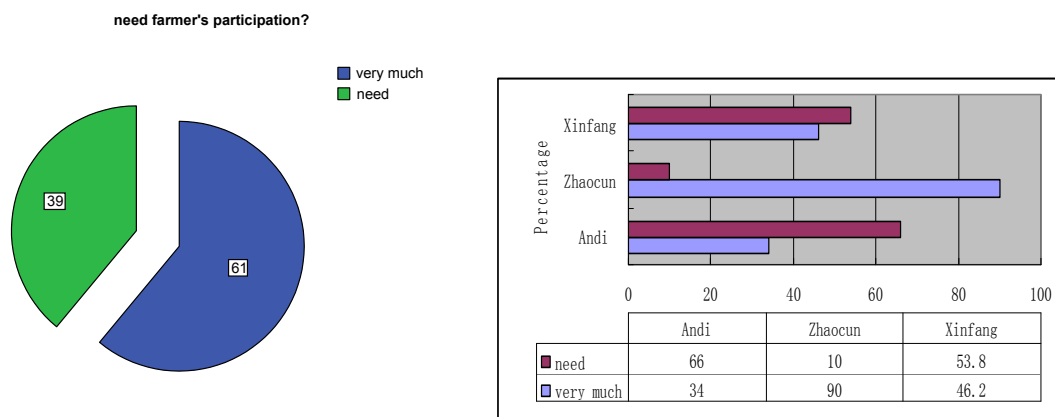
Figure 4 - 6: Current status of allocation

b) Current participation situation

Data analysis: Figure 4-7 shows current farmers' opinions on participation situation during land expropriation processes. From the pie chart, 21.5% of them think current participation is only professedly participation, but not real participation. 77.4% of farmers think that current participation is not enough. As shown in the bar chart, in Andi village, 48% of them think the participation is not enough, as farmers only got general expropriation information from government's notice. In Xinfang village, where farmers have participated in public hearing once or twice, 84.6% of them think current participation is not enough. Moreover, in Zhaocun village, the number is 90%, as no information has been provided for farmers yet.

Findings: In villages where land expropriation is just started, farmers desire to have more about land expropriation. In village which public hearing have been hold once or twice, farmers still not satisfy with their participation, this is generally because they got little or no feedbacks from the governments.

current participation
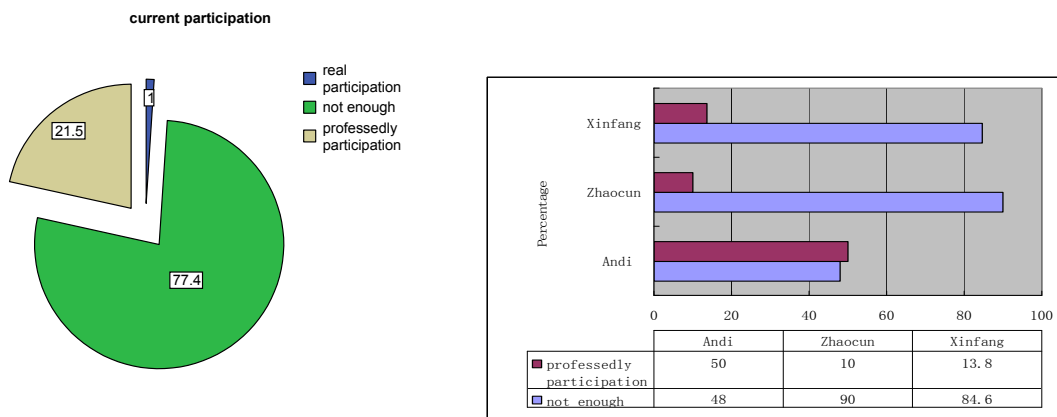
Figure 4 - 7: Current status of farmers' participation

c) Current status of participation on-line

Data analysis: Figure 4-8(a) shows the on-line frequency of farmers in study areas, with 40% of them often on-line and 13.3% of them are on-line everyday. Figure 4-8(b) shows farmers who can get access to network, over 90% (78.5% and 11.8%) of them ever concerned communication platform between government and farmers' communication, though 78.5% only concern the communication occasionally.

frequency online   **concern government and farmer's communication**

(a)   (b)
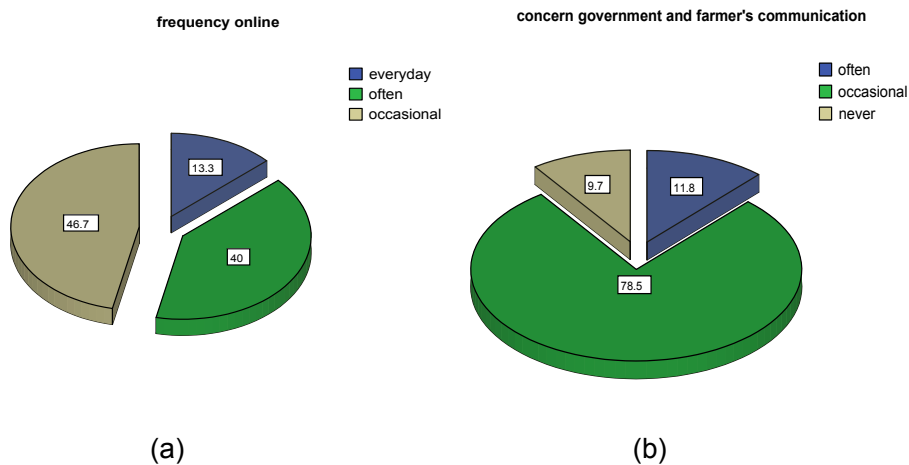
Figure 4 - 8: Current statuses of farmer's frequency on-line and concern on communication

For those who do not participate on-line, reasons were divided into no formal communication platform, the participation is too formalistic, information is not public enough and the accessibility of internet. Figure 4-9 shows that only 3.6% of farmers who do not participate on-line think that the internet accessibility is the reason to limit on-line participation. 34.9% of them think that a formal communication platform is needed while another 34.9% of them think the formalistic of participation is the biggest problems to be solved.
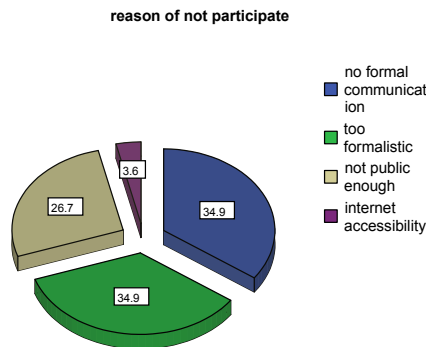
Figure 4 - 9: Reasons for not concern government on-line

Findings: Network accessibility in rural areas is not the main reason to limit farmers to participate in land expropriation on-line. The formalistic of on-line participation and lack of formal communication platform is two crucial problems needs to be solved.

4.3.2.2. Governors' perspectives

Governors' perspectives on land expropriation help to understand it more comprehensively. In general, different levels of governments have their own responsibilities. In order to get their perspectives, three levels of government were interviewed: the Land use evaluation centre of Shaanxi Land Resource Office (SLRO), Xi'an Land Resource Bureau (XLRB) and Chanba Ecological District Management Commission (CEDMC).

The SLRO as the highest management organization of land expropriation in Shaanxi province is mainly responsible for examining and approving land expropriation projects or applying for projects from Land Resource Ministry (LRM). It focuses more on policy making and monitoring of policy execution.

Interviewing Ms. Li Yan (a high level officer) from XLRO, she indicates that the XLRO mainly focuses on accepting application documents of land expropriation projects, pro-examining them and submits them to SLRO, except for executing expropriation polices made by the higher-level governments. She also mentioned that, it would be effective if the farmers can participate into land expropriation processes directly, such as direct negotiating on compensation or allocation methods.

The CEDMC as the direct department involved in land expropriation, is responsible for executing land expropriation projects. The following information is collected by interviewing governors in the

CEDMC face-to-face.

✧ About 60% of problems proposed by farmers are about land conflicts, others mainly on environment protection.

✧ Farmers' participation during land expropriation helps governors to get timely information, which is also helpful for solving land conflicts.

✧ There are no on-line platforms for communication between farmers and government currently. It is necessary to develop such a platform and they have planned to do this.

✧ The core of developing an on-line communication platform is to get the farmers' trust, which depends on whether the problems proposed by farmers can be feedback timely by on-line communication.

In brief, from the governors' perspectives, problems related to land expropriation and participation include:

➢ Land Management Law needs to be amended;

➢ Illegal land use problem is serious;

➢ The difference of compensation standard for land expropriation is great;

➢ Lack of uniform documents for distributing of compensation;

➢ Life of farmers who lost land cannot be ensure;

➢ Lack of communication platform;

Aiming at solving these problems, governments provide the following suggestions:

✧ Enhance overall land use planning to provide base for land use conversion;

✧ Improve work efficiency to reduce illegal land use cases;

✧ Make uniform compensation standard for same area;

✧ Make transparent distributing method for compensation;

✧ Propose to amending the Land Law to provide legal base for land expropriation;

✧ Develop on-line participation platform, combine it with the "Golden Land Project";

✧ Share information between land management departments.

4.3.2.3. Land experts' perspectives

Land experts that are interviewed include Prof. Ma Zhimin from Chang'an University, Prof. Ye shuhua from SLRO, Prof. Zhao Shude from Shaanxi Surveying and Mapping Bureau, Mr. Yun from Shaanxi Guoyuan Technical Company and Mr. Qiao and Zhu from Xi'an CEDMC. All the interviews are face-to-face interview, contents of these interviews range from general direction of land expropriation to concrete execution measures.

Prof. Ma mentioned that it would be nice and effective if the farmers can participate into land expropriation on-line, especially combining the participation with the "Golden Land Project". He also pointed out that the fast growing network accessibility in rural areas provides good opportunities for developing on-line participatory platform.

In order to solve or alleviate problems related to current land expropriation processes, such as low compensation and simplex allocation method, land experts provide the following suggestions:

✧ Make reasonable compensation standard: the compensation standard should be distinguished according to different purposes of land expropriation. It is for public benefits. On the one hand, if it is for public purpose, the compensation standard could be made by government; however, the land value should be estimated by the best use of land, try to be close to the true value of land. On the other hand, if the land is expropriated for other purposes like commercial land use or industry land use, it is better to introduce competition mechanism, trying to ensure farmers' income right.

✧ Enhance management of compensation: first, the compensation for land expropriation should be distributed to farmers directly; second, prohibit using the compensation fees for unclear purposes; third, improve the transparency of using compensation for communities.

✧ Increase allocation methods: First, the government should provide more work opportunities for farmers. Second, for some projects which have long benefits, villages could negotiate with developers to allow farmers become stakeholders of the project using compensation fees. Third, after negotiate with farmers, part of the compensation fees can be use to build commercial constructions, which can be distributed to farmers for commercial use.

✧ Increase training for young farmers: provide training services to improve their opportunities for getting jobs.

4.4. Concluding remarks

Farmers as the main group involved in land expropriation processes have their own ideas on the expropriation. In other words, they have their own characters and anticipations. From the analysis of data collected from fieldwork, the information that farmers want to know during land expropriation can be summarized as follow:

➢ Details of land use policies and related regulations: most farmers knowing land policies and regulations more or less from reading newspaper or watching television or other ways. However, they know little about the details of policies and regulations, and sometimes they even

misunderstand them. Hence, they want to get more detail information on land policies and related regulations.

➢ Land expropriation information: which include what are the purpose of land expropriation, what is the plan of expropriation, when the government execute the land expropriation plan and so on. The transparency of the information is also important to ensure that the purpose of land expropriation is for public purpose.

➢ Compensation information: it include compensation standard for the collective and individual farmer, it also contains the using of the collective compensation. For individual compensation, the farmers concern more about the standard, as the standard determined the amount of compensation they will get. For the collective compensation, farmers concern the total amount and the use of it in the future. If the compensation standard is just and the use of compensation for collective is transparent, they will complain little about compensation.

➢ The allocation standard and the allocation plan: Most farmers think that the allocation standard and plan affect their future life directly. For example, if farmers only get better house after their land was expropriated, it does not mean that they will live a better life. For farmers, they need more information like job opportunities to ensure their future life.

➢ Feedback of suggestions: Currently, farmers can express their idea when holding the public hearing. However, most of them think they cannot get feedback in time. In other words, they can participate in land expropriation and express their ideas to some extent, but it does not mean the government will adopt these ideas.

The perspectives of governors and land experts are described in detail in section 4.3.2.2 and 4.3.2.3 separately, these information provide base for developing the OPM.

5.   The   On-line   Participatory   Model development

5.1. Introduction

Last chapter introduced farmers' anticipations during land expropriation and perspectives of governors and land experts. This chapter is about the development of the On-line Participatory Model (OPM) for land expropriation. As the core of the research, it first introduces the OPM in section 5.2, which includes definition of the OPM in this research, importance of the model, and criteria as well as steps to develop the model. Then section 5.3 describes the architecture of the model and section 5.4 is about the functions of it. Section 5.5 introduces the model design using Unified Modelling Language (UML). It contains class diagram, use case diagram and activity diagram of the OPM.

The entire chapter answers research questions 4, question 5 and question 6.

5.2. Introduction of the OPM

The introduction of the OPM includes two parts: the definition of the OPM in this research and the importance of it for land expropriation.

5.2.1. Definition of the OPM

The OPM is a kind of participatory model based on internet technologies, which includes the communication processes and behaviours between governors and farmers. In this research, it specially means communication between farmers and governments during land expropriation processes. By developing the model, the way for providing information for farmers are illustrated and the platform for communication between governors and farmers is designed. It is the base for developing an on-line participatory platform. In brief, the aim of the research is to provide an easy, friendly and efficient way for farmers' participation during land expropriation processes.

5.2.2. Importance of the model for land expropriation

The fast development of E-government and land management databases in China demands more and more on-line information and business. The development of the OPM will contributes to the use of E-government concepts on land administration.

Land expropriation is considered as a government tool, which means that governments can expropriate land for public purposes without farmers' agreement. However, the farmer is the main group affected by land expropriation. Therefore, how farmers participate in land expropriation

processes to protect their rights is a problem that needs to be solved in China. Although farmers can participate more or less in current land expropriation processes in China, it is not enough. The OPM provides a modern way for farmers' participation in land expropriation, which helps them to get information that they anticipated and to protect their rights. In addition, the model provides a base for developing on-line participatory platform.

The purpose of developing the OPM is not only to ensure farmers participation itself, but also to increase the transparency of land expropriation processes, improve efficiency of land expropriation and avoid land conflicts leaded by land expropriation.

5.2.3.   Criteria and steps for developing the OPM

a) Criteria for model developing

When developing the OPM, many factors should be taken account of, such as characters of land expropriation in China, farmers' literacy level, functions of the model and so on. The criteria for developing it are summarized as follow:

- *Easy:* it means that if a platform is developed base on the model, it should be easy to operate. This is important for farmers because of their relative low literacy level.
- *Comprehensive:* it means that the model should provided comprehensive land expropriation information that farmers want to know.
- *Specialization:* on the one hand, it means this model is for land expropriation particularly, it should not be confused with other land activities. On the other hand, the model is for farmers' participation, hence, other roles involved like land experts and researchers are not involved here.
- *Mutual:* it means the communication between government and farmers in the model should be interactive. In other words, feedback should be highlighted in communication.
- *Security*: different roles in the model should have different rights to get access to data. For example, farmers should not have right to update databases.

b) Steps of model developing

When developing the OPM, the following steps are followed:

- *First*, identify the criteria and steps for developing the model.
- *Second*, design the architecture of the model, which including conceptual architecture and interface architecture.
- *Third*, illustrate the function of the model.
- *Forth*, design the model using UML, which containing class diagram, use case diagram and activity diagram of the OPM.

5.3. Architecture of the OPM

After known the criteria and steps to develop the OPM, this section starts to design the architecture of the model. It helps to look at the model from a holistic view, which includes the conceptual architecture of the model and work principle of on-line participation.

5.3.1. Conceptual architecture of the OPM

According to the criteria, the on-line participation should be easy to operate. One of the main characters of Web 2.0 is collecting collective intelligence and communication in multi ways. Hence, the OPM select Web 2.0 as the core methods of participation.

In section 4.4, farmers anticipate to get enough land expropriation information in order to protect their rights. The transparency of land expropriation information also helps to alleviate land conflicts resulted by land expropriation and furthermore, to build trust between farmers and governors. All the land expropriation information is designed to store in a land expropriation database in the model.

As showing in figure 5-1, the model can be divided into three parts: the users, the on-line participation interface and the databases.

Users: Farmers are the main group to use the on-line participation interface. Users use web 2.0 to get access to on-line participation interface and search information that they want to know. At the same time, users can express their ideas to the on-line participation interface to communication with governors.

On-line Participation Interface: the on-line participation interface is a communication platform between users and governors. Governors get information from the land expropriation database and public some of the information on the on-line participation interfaces. Users get information from the interface and express their ideas to it, then the governors get people's anticipates and match them to the land expropriation database.

DB—database   **LEDB**—land expropriation database

SNLSDB—second national land survey database   **RS**—remote sensing

GLPDB—Gold Land Project database   **LSDB**—land survey database
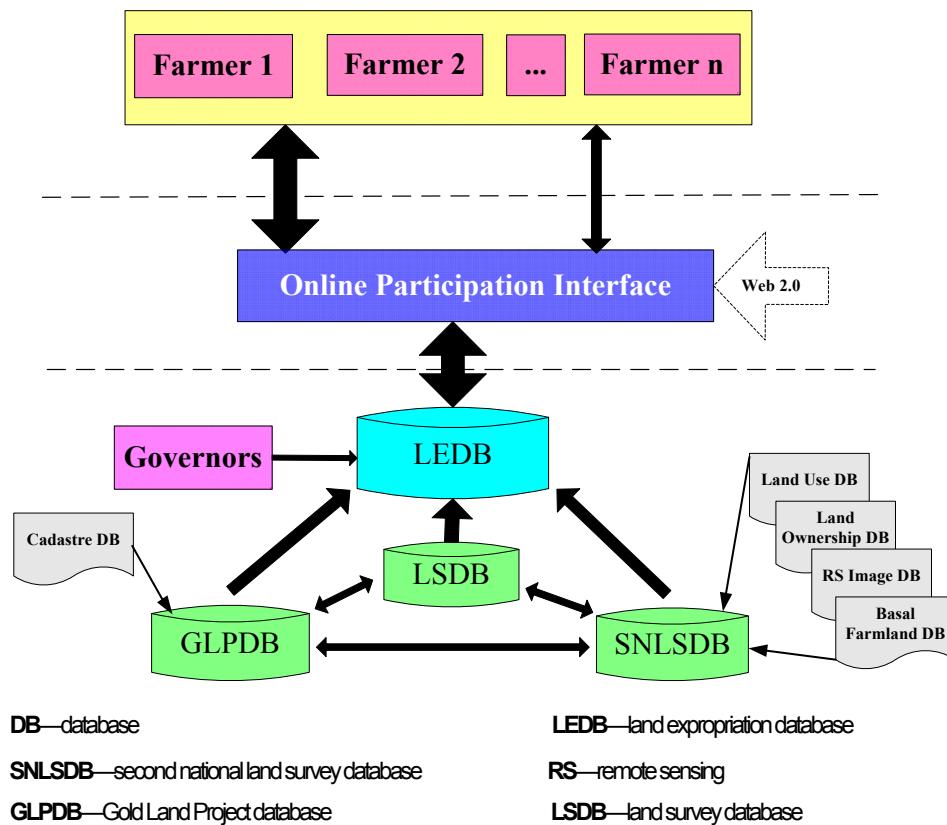
Figure 5- 1: Conceptual architecture of the OPM

Databases: databases include land expropriation database (LEDB), land survey database (LSDB), the "Golden Land Project" database (GLPDB) and the second national land survey database (SNLSDB). The LEDB includes all land expropriation information in certain duration, which is classified by land expropriation projects. Detail information of each land expropriation project is store in it. The LSDB stores information of survey results of each land expropriation project and provide them to the LEDB. Other information like land rights, land use or cadastre information can be got from the SNLSDB and the GLPDB. All the information shared among databases can be used to update them at the same time.

5.3.2. Working principle of the on-line participation interface

From analysis of fieldwork results, farmer anticipated information was summarized in section 4.4. In addition, farmers' literacy level is relative low. Hence, on one hand, it is important to know how the interface works to make sure farmers can get anticipate information in a brief way. On the other hand, according to the criteria, it is necessary to ensure the data security as not all information can provide to users. Figure 5-2 shows the work principle of the on-line participation interface.
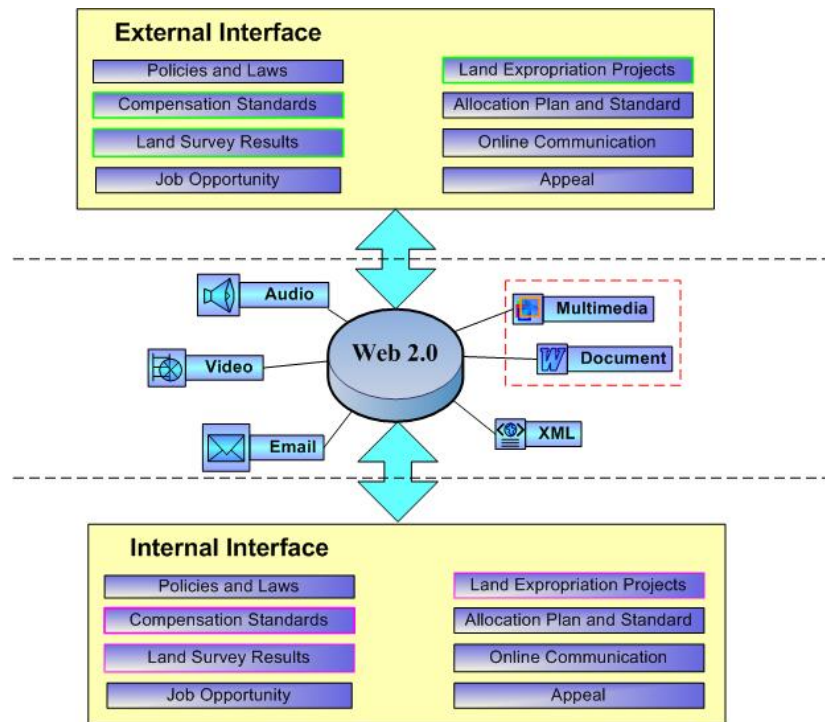
Figure 5- 2: Work principle of On-line Participation Interface

Considering data security, the on-line participation interface includes two interfaces: the external interface and the internal interface. Web 2.0 connects the two interfaces.

The external interface: this is what both the governors and users can get access. The interface includes modules of land expropriation. These modules are classified according to farmers' anticipations. Each module contains detail land expropriation related information, such as policies and laws, compensation standards, land survey results and so on. Users can comment and question all information on the external interface. The on-line communication module provides live communicate methods for farmers and governors by chatting on-line or by using audio and video. Other information like job opportunities and appeals are also involved.

The internal interface: it is what the governors can get access. It has same structure with the external interface. This interface can get access to requirements of users from the external interface. Except provide public information like policies and standards, if there are questions on land expropriation related information like land survey results, managers can pick up them from the LEDB and compare them to corresponding information from the external interface.

Work processes of the interface: first, farmers get public land expropriation information on the external interface. If they have questions, they can mark on this information directly on them, and

then these modules will be highlighted. Then, on the internal interface, governors check the information. If it does have problems, the database will be updated and corresponding information will be feedback to the external interface. Except mark information on the external interface, at certain time duration, farmers can talk with governors directly by audio or video, and their questions can be answered timely. In addition, different participation way can be used together when communicating.

5.4. Functions of the OPM modules

The OPM is designed to contain the following functions: user identify, information query, on-line communication, database updating as well as supervision and appeal. Figure 5-4 shows the function modules of it.
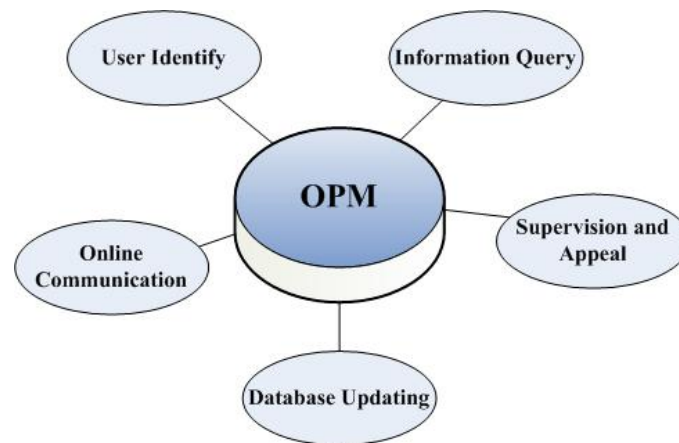
Figure 5- 3: Function modules of the OPM

User identify module: according to current legal system, farmers can only get access to detail information of their own used land, hence, it is important to identify the status of the participators. This also helps to enhance the data security. Participators have to provide correspond identification first, if they want to get related detail information. They have to register first before they get access to the external interface.

Information query module: this is one of the main functions of the model. It provides information from general land policies and laws to detail land survey results, as well as job information. The external interface shows the details of this function.

On-line communication module: this is the core function of the OPM. The communications between farmers and governors include many ways, such as email, on-line chat, and face-to-face talk by video, multi media and so on. They can also combine some of these methods.

Database updating module: Once the governors find the information in the database does have problems after compare with information provided by farmers, or lack of some information, they can update the database timely, and feedback to farmers.

Supervision and appeal module: If farmers find the land expropriation is not executed according to original land expropriation plan, such as farmers cannot get compensations timely or the compensation is not enough, they can express their ideas to governors. After that, if the problems still exist, they can appeal to higher-level governors.

5.5. Design of the model

The previous section described the architecture and functions of the OPM, this section continue to design the model. It first introduces the modelling tool — UML, then design the class diagram, use case diagram and activity diagram using the UML.

5.5.1. The modelling tool

The Unified Modelling Language (UML) is a standard language for specifying, visualizing, constructing, and documenting the artefacts of software systems, as well as for business modelling and other non-software systems (Braun, Sivils, Shapiro, & Versteegh, 2000). The UML provide users with a ready-to-use, expressive visual modelling language so they can develop and exchange meaningful models. It provides extensibility and specialization mechanisms to extend the core concepts and support higher-level development concepts such as collaborations, frameworks, patterns and components. Hence, UML model can be used to describe and implement various components and their links of land management within the scope of a management framework for developing the information systems and their business processes (Tuladhar, 2004).

5.5.2. Class diagram

The purpose of a class diagram is to document the relationships between roles and entities. It is used for two main purposes: to show how roles and entities are collaborating to implement a business processes and to show static structure and relationships among entities. The following diagram is the class diagram of the OPM.
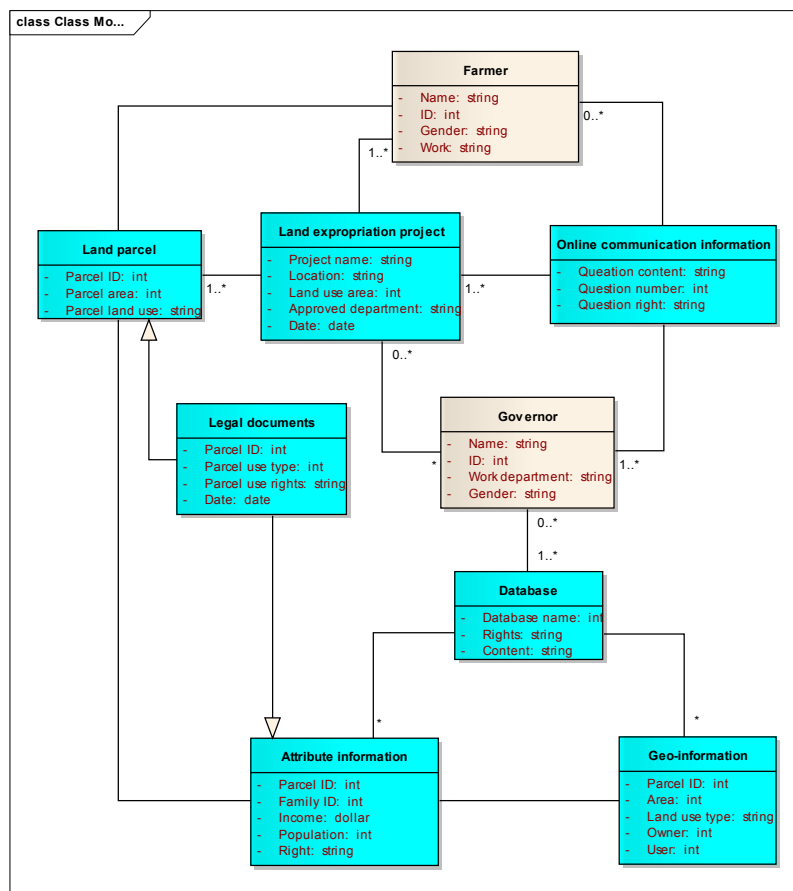
Figure 5- 4: Class diagram of on-line participation

Figure 5-4 illustrates a static component of the OPM. The component contains farmer, governor, on-line communication information, land expropriation project and so on.

Farmer is the one who get on-line information, and the governor provide the information when they get it from database. The data resource of database includes attribute information and geo-information. The on-line communication information is provided base on land expropriation projects, which involve one or more parcels. Legal documents are subclass of both land parcel and attribute information as it provides proof of land rights.

5.5.3. Use case diagram

A use case is a set of scenarios that describing an interaction between a user and a system.   A use case diagram displays the relationship among actors and use cases. The two main components of a use case diagram are use cases and actors. An actor represents a user or another system that will interact with the system you are modelling. A use case is an external view of the system that represents some action the user might perform in order to complete a task. Figure 5-5 shows the use case diagram of on-line
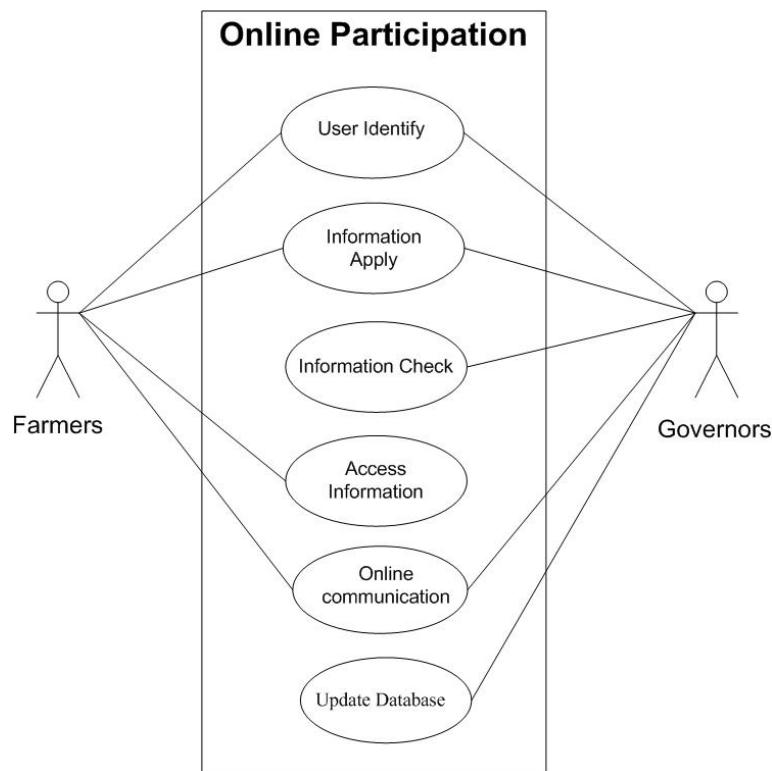
participation.

Figure 5- 5: Use case diagram of on-line participation

There are two actors in this use case diagram: Farmers and governors. If farmers want to get land expropriation related information, they have to apply first, as not everyone can get all the information. They provide their identification to prove their status. After the governors identified the farmers' status, they check the accessibility of the required information. Two aspects need to be checked: the farmers have rights or not to get the information and there is the required information or not in the LEDB. If the farmers have the rights to access the information in the database, then the governors can provide it to them. In this case, the farmers get the information. Then, if the farmers find mistakes or even error information, or they have questions on the information, they can communicate with governors. Finally, the farmers' questions may be answered and governors may update the database after get the right information.

5.5.3. Activity diagram of the OPM

State diagram displays the sequences of states that an object of an interaction goes through during its life in response to received stimuli, together with its responses and actions. Activity diagram displays a special state diagram where most of the states are action states and most of the transitions are triggered by completion of the actions in the source states. This diagram focuses on flows driven by

internal possessing (Braun et al., 2000). The main reason to use activity diagrams is to model the workflow behind the system being designed. Activity diagrams are also useful for analyzing a use case by describing what actions need to take place and when they should occur. Figure 5-6 shows the activity diagram of the OPM.
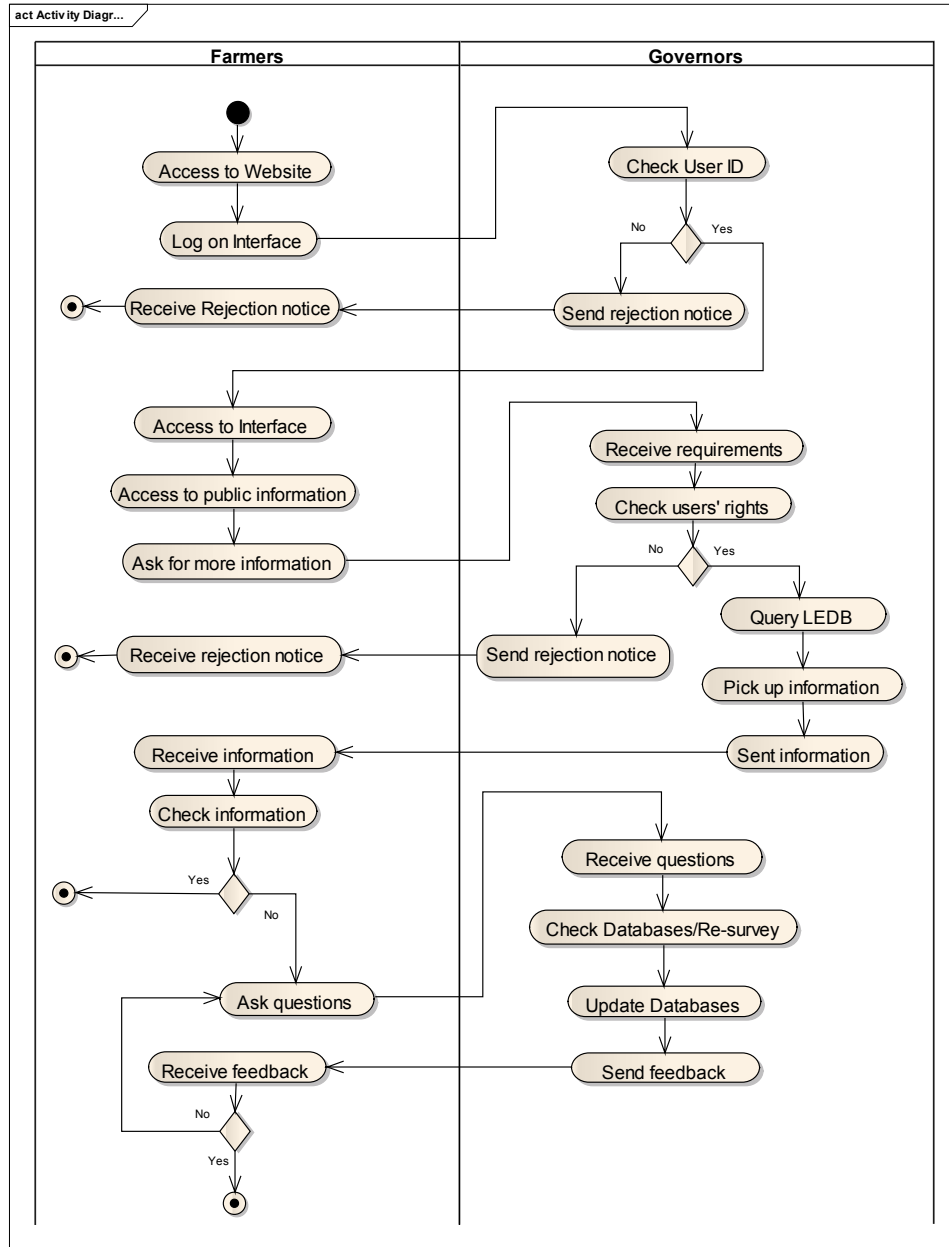
Figure 5- 6: Activity diagram of on-line participation

5.6. Concluding remarks

This chapter described the processes of the model development.

The definition of the OPM points out the main groups involved in the model — farmers and

governors. The model development is important for the use of E-government in land administration.

The criteria provide standards for the model developing and the steps shows the development processes. The architecture of the model introduces conceptual architecture of the model and the work principle of the model interface, which provides a framework for further on-line participation platform developing. The function of the model contains two main functions — information providing and on-line communication, as well as other functions such as user identify, supervision and appeal, and database updating.

The model developed using UML includes class diagram, use case diagram and activity diagram of the model. The class diagram describes the components of the model and relations between each entity. The use case diagram introduces the relationship among actors and use cases involve in the model. In addition, the activity diagram shows the work processes of the model.

6.   Prototyping of the OPM

6.1.   Introduction

The previous chapter 5 provided design of the on-line participatory model using UML. The function of the model, roles of farmers and governors in the model as well as workflow are described.

This chapter develops a simple on-line participatory platform to prototyping the model. The main functions of the model are illustrated in this chapter, which includes providing comprehensive land expropriation information, on-line participation and updated information feedback.

This chapter answers research questions 7 and 8 as described in the chapter 1.

6.2.   Prototyping software

The developing of the on-line participatory platform contains two parts: the interface developing and database design. Asp.net was used to develop the interface in Visual studio 2008, Geoserver 1.7.5 was used as the server to release map on-line and SQL server 2005 was used to develop the attribute database. The geo-database used in this platform was selected from the SNLS database by using Arcgis.

6.3.   Dataset for prototyping model

The attribute database is the LSDB illustrated in figure 5.3, and the geo-database is the SNLSDB of it. These two databases compose the LEDB. The LSDB contains farmers' information surveyed by surveyors before land expropriation and the geo-database contains information of the land parcels that will be expropriated.

6.3.1.   The land survey database

The data used in this database is merely some examples for the model testing. It aims to show the function of the model. There should be more information in real land expropriation processes. Figure 6-1 shows the table established in SQL server.
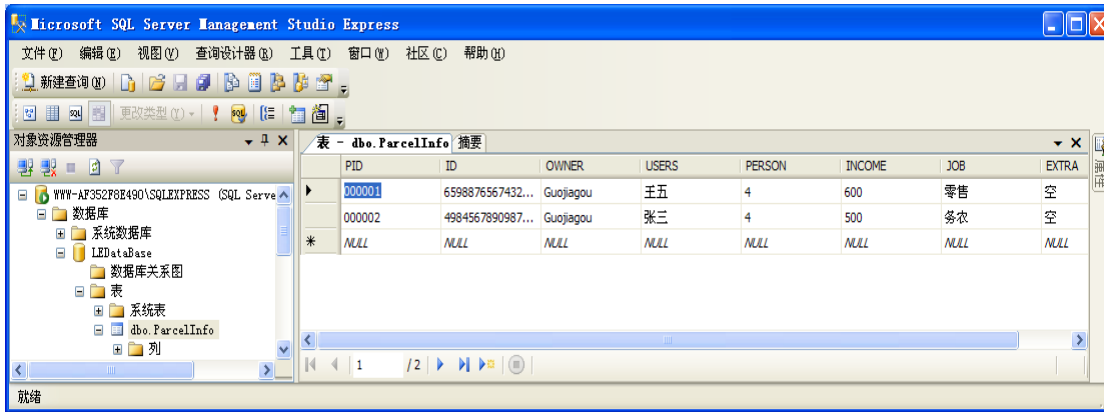
Figure 6- 1: Database table established in SQL server

The items listed in the database table include information surveyed before land is expropriated.

PID: This code is in accordance with geo-information in geo-database. For each piece of the land that to be expropriated, it has a unique "*pid*" value.

ID: This is the unique code for land user of each piece of land. It is used for identify the status of the land users.

OWNER: This "*OWNER*" here means who own the land or who has the ownership of the land. It generally means the collective economic organizations in rural China.

USERS: "*USERS*" stands for the person who has the use rights of the land. It generally means individual farmer in rural China.

PERSON: It means the number of person in the family of the land user.

INCOME: It is the personal average income in the family per year. The unit is dollar.

JOB: "*JOB*" means what is the main job of the family. In other words, what is the main source of their income.

EXTRA: It means some other special information of the land users, such as too many children or other special difficulties in the family.

6.3.2. The geo-database

The geo-database contains geo-data of each piece of land; the data in it is picked-up from the SNLSDB using Arcgis. Figure 6-2 shows the table of the geo-data.

Figure 6- 2: Attribute table of geo-data in Arcgis

The attributes of land includes:

BSM: it is a unified code to identify certain parcel. Each parcel has its unified "bsm" code in the database. It is generated automatically by the system.

DLMC: this is the name of the land use type. For example, "012" stands for irrigated arable land.

QSDWDM: it is the code of landowners, which is coding according to administrative villages.

QSDWMC: this is the name of the administrative villages.

TBMJ: this stands for the area of the parcel.

XZDWMJ: this is the total area of constructions in each parcel.

TBDLMJ: this stands for the pure area of each parcel; it means the area of parcel that has excluded the constructions.

BGRQ: this stands for the updated date of the survey result.

6.4. Function test of the model

As introduced in section 6.1, the main function of the model is to provide land expropriation information for farmers, participation on-line and database updating. This part introduces the test of three functions in the on-line participation platform in detail below.

6.4.1 Provide information for farmers

Providing comprehensive land expropriation information for farmers is the precondition for them to participate into land expropriation the processes. It is also important for ensure the transparency of land expropriation processes. Hence, the on-line participatory model designed to provide land expropriation related information from eight aspects showing in figure 5-3 and figure 6-3.
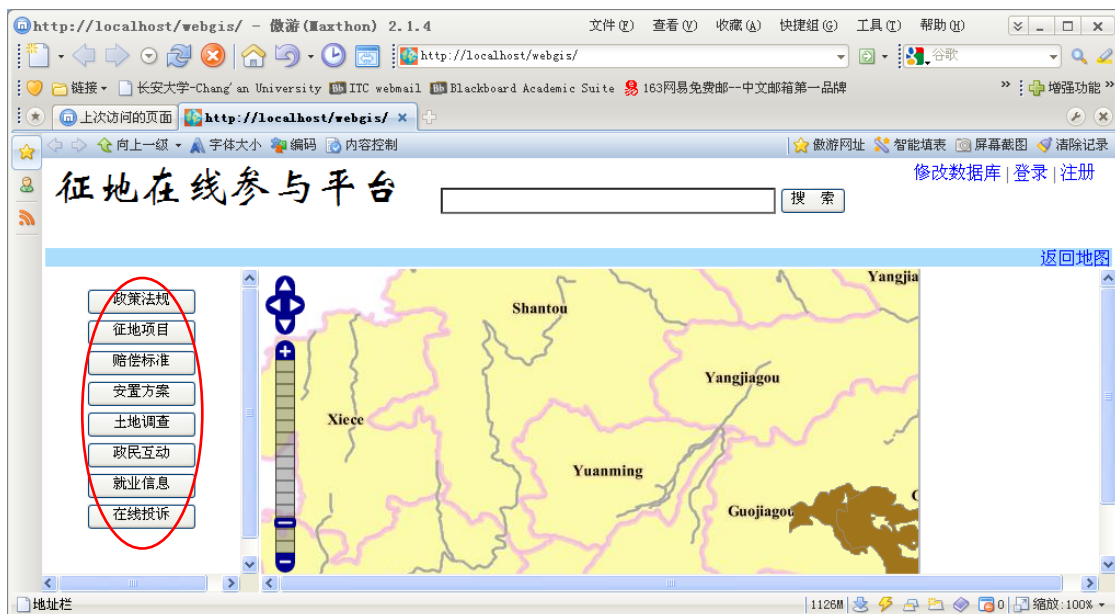
Figure 6- 3: Information provided by the model

To show how the information is provided, information on *Policies and Laws, Compensation standards, Job Opportunities* as well as *land survey results and geo-information* are illustrated as examples in the following part. Other information is provided in a similar way.

Policies and Laws*:* figure 6-4 shows how to the platform provide information on "Policies and Laws".

i)   Click the "Policies and Laws" on the left side of the interface, then the items of polices and laws are listed in the middle of the window.

ii)   Select the interested policy or law from the list and click the item.

iii)   The content of the selected policy or law is showing in the window.
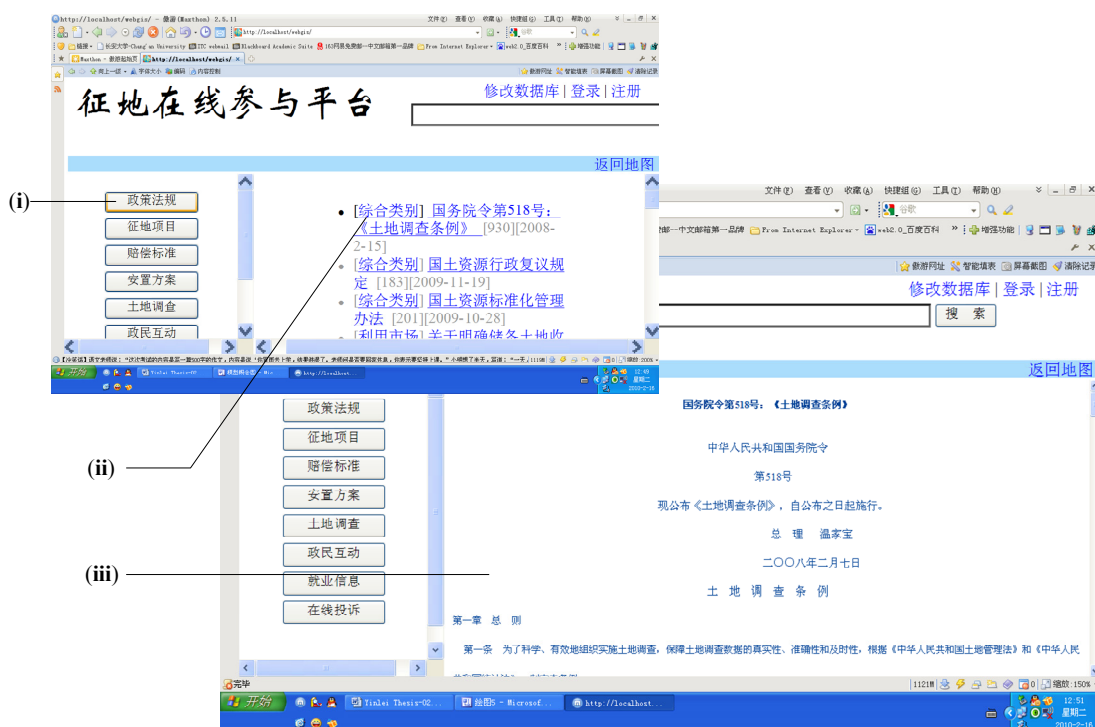
Figure 6- 4: Land policies and laws displaying

Compensation standards*:* Figure 6-5 shows how to get the information of compensation standard on the platform.

i)   Find the *compensation standards* button on the left side of the window; click it, the colour of the button changed.

ii)   Choose corresponding program in the list of land expropriation programs that are showing in the window and click the item, the colour of the item changed.

iii)   The compensation plan of the selected land expropriation program is showing in the window.
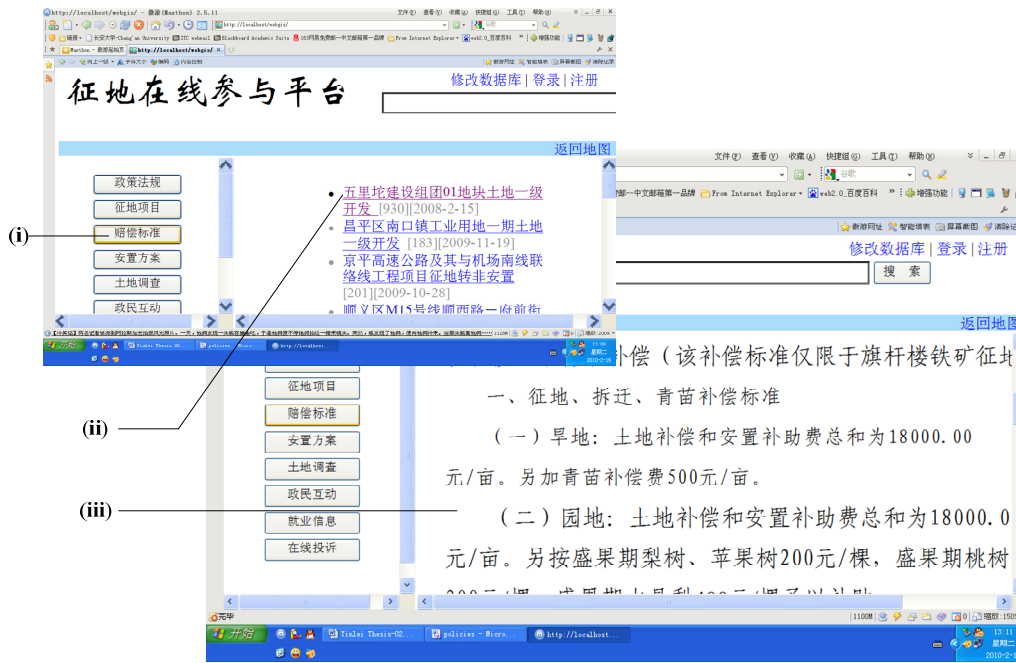
Figure 6- 5: Compensation plan information displaying

Job opportunities: this part provides job information for farmers. Figure 6-6 shows the information provided by the platform. The processes to get the information are similar with getting information on policies and laws and compensation standards.

Figure 6- 6: Job opportunity information displaying

Land survey results and geo-information: The default interface of the platform provides a web map of land expropriation areas (as showing in figure 6.3). From the map, farmers can get both the land survey results and the geo-information of land to be expropriated. This function is showing in figure 6-7.
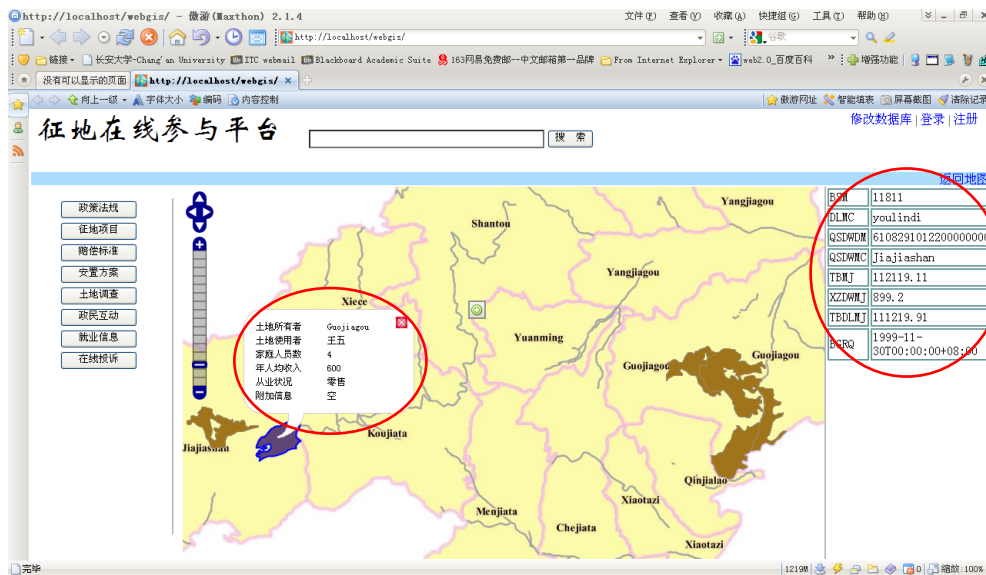
Figure 6- 7: Information displayed on web map

The web map can be zoomed in to different scales. In order to get the land survey results and geo-information of the land to be expropriated, just click the parcel, the land survey results appears on the map directly, and the geo-information of the parcel are showing on the right of part of the window.

6.4.2   On-line participation

1)   Farmers' on-line participation

After farmers get the information that they want to know, they need to express their ideas on this information. Hence, it is necessary to provide them a platform for expressing their opinions. Moreover, the land survey results need to be agreed by farmers.

If farmers do not agree with some information, they can put it forward on the "on-line communication" module of the platform. For example, farmer Wangwu do not agree with the personal average income per year of his family, the steps to express on-line are as follow:

i)   Click the "on-line communication" button, the interface appears.

ii)   Input user name and question in the question area, and click submit. For example, "I think the income information of my family is not true, it should be around 500 dollars".

iii)   The information is submitted to the governor.

Figure 6- 8: On-line participation processes

2)   **Information feedback**

After the governors received the farmers' opinion, they check the database or survey again to make clear the information. If the information is right, then they can tell the farmer there are no problems with it. Alternatively, if the previous information do has problems, they update the database (Figure 6-9). The processes are as follow:

i)   Click the "Update database" button, the database-updating interface is turned on.

ii)   Click the "Start to edit" button, the data in the database can be update now.

iii) Double click the data that need to update, change it and click "Stop edit" button.

iv)   The data is updated and the database is locked.

After update the database, the information is released again. The updated information is showing on the map (Figure 6-10).
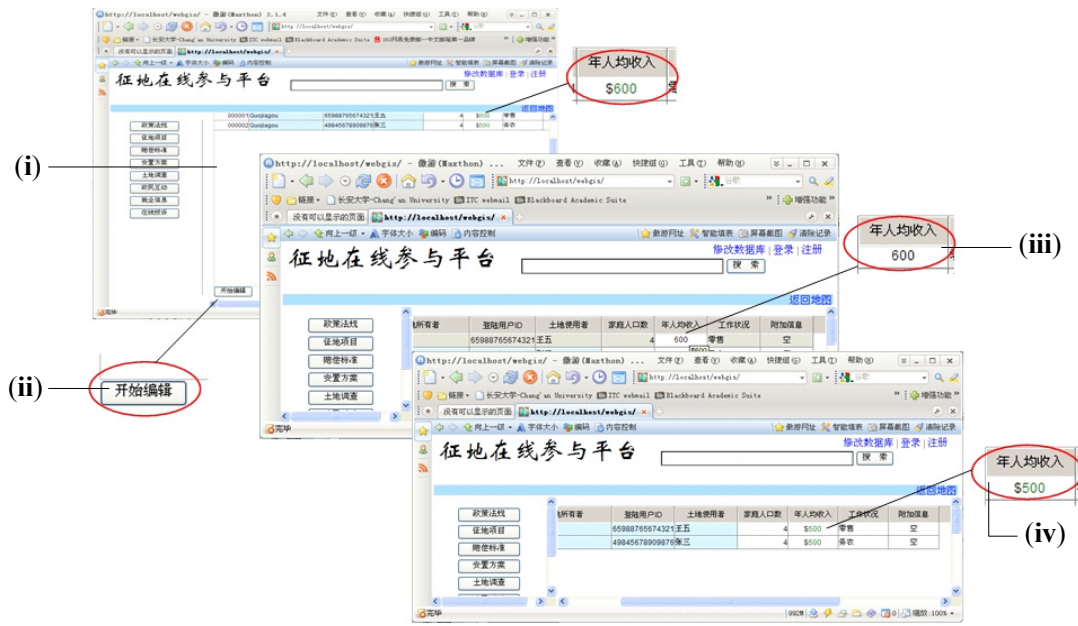
Figure 6- 9: Database update processes
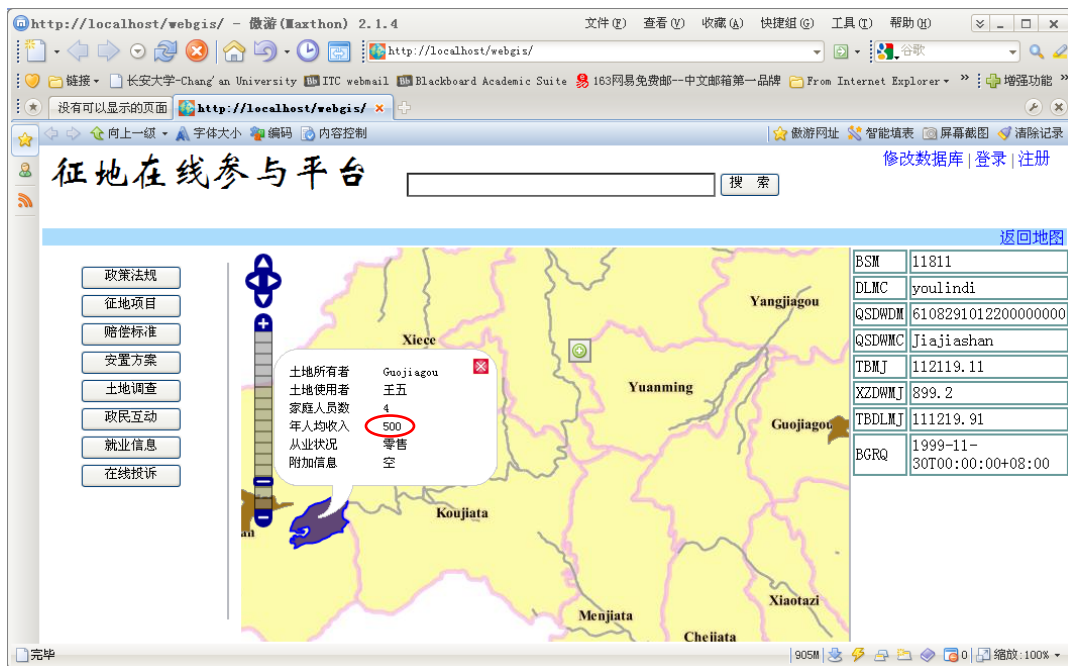
Figure 6- 10: Map after database update

6.5. Concluding remarks

This chapter described the prototyping of the on-line participatory model by using a simple developed on-line platform from three aspects: the software used to develop the platform, the dataset used to test the model and the functions of the model.

In general, the main functions of the OPM are tested. First is providing information. By using the communication platform, farmers can get access to detail information about land expropriation. Second is on-line communication. If farmers have questions with the information, they can communicate with the governors in different ways. In addition, the operations are easy, which is nice for farmers.

Geo-data from the second national land survey database are used, and new database is designed for storing land survey results. In addition, the land survey results can be updated easily. This means the data in different database can be shared and the database can be updated timely.

The dissemination of the updated data can be seen as feedback to farmers. This also helps to enhance the communication between farmers and governors.

7. Conclusions and Suggestions

This chapter presents conclusions of this research and recommendations for further research.

7.1. Conclusions

As introduced in the section 1.6, the objective of the research is to develop an on-line participatory model, and there are two sub-objectives. The conclusions are drawn along these two sub-objectives addressing the answers of the research questions corresponding with them.

The first sub-objective is to identify the conditions and requirements for developing the OPM. This objective has been fulfilled as discussed in previous chapters especially chapter 3 and chapter 4.

This research clearly indicates the necessity of developing the OPM and conditions to do it in China. First, it is important for China to allow farmers during land expropriation, which helps to improve the transparency of the processes and the trust between farmers and governments. As land expropriation in many other countries is the last measure to be taken while in China it is the only legal method. Second, farmers can only get limited information passively in current land expropriation processes. Then, E-government development in China provides good opportunities for on-line participation approaches. Moreover, the "Golden Land Project" and the "Second National Land Survey" accelerate the development of E-land administration. They also provide basal data for the on-line participatory model. In addition, the network development in rural accelerates the on-line participation too.

The requirements for developing the model are derived after fieldwork. It is important to decide the functions of the model. First, the model should provide enough information for farmers. The model designed to provide information for farmers for eight aspects illustrated in figure 5-3 according to their anticipations described in section 4.4. Then anther requirement is on-line communication between farmers and governors. To do this, Web 2.0 is used when developing the model, which ensures that farmers can express their ideas except for just receive information. In addition, other requirements are listed in the criteria for developing the model.

The second sub-objective is to develop the model. This objective has been achieved by developing the model using UML. The detail processes are provided in chapter 5.

As introduced in the chapter 5, the criteria for develop the model contains: Easy, Comprehensive, Specialization, Mutual and Security. Furthermore, the elements of the model include the users, the

participation interface and the databases. The users include farmers as the information searchers and the governors as the information providers. Different databases are integrated together to provide data for the governors. The architecture of the model is illustrated from two aspects: the conceptual architecture illustrates the model from a general view and the interface architecture illustrates its work principle.

The work processes and test of the model are described in chapter 6. The prototyping proved that the functions of the model can be realized, and on-line participation is a nice and effective way for the farmers to participate in land expropriation processes.

The main objective of the research is thus fulfilled after the two sub-objectives are achieved.

7.2. Suggestions

The on-line participatory model provides a method for farmers' participation in theory, however, the application of the model and the effects after application of the model need further researches.

On-line participation platform development is one topic for further research. The prototyping of the model is just a simple platform to show the possibility to apply the model and the functions of the model. In practice, how to develop a comprehensive on-line participatory platform and use requires more researches.

How to attract more attention from society is another topic that can be researched. Currently, only farmers whose land will be expropriated focus much on land expropriation. In order to improve the justice and transparency of land expropriation, the processes need supervision from the whole society. Hence, how the land expropriation accepts the supervision of the society is a topic for further researches.

In addition, on-line participation use to other domain is also a topic to research. This research focus on the on-line participatory model used in land expropriation in China, further researches can study its application on other domains like land use supervision, arable land protection supervision and so on.

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Appendix 1

Questionnaire for On-line Participatory Model Developing

(For Farmers)

INTERNATIONAL INSTITUTION FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

Yin Lei   Department: LA, ITC

& Chang'an University

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Date: 11-10-2009

A. Basic information

Name of Interviewer		Data of interview	
Address			

B. Understanding of land expropriation

1) Do you know what the expropriated land will be used for?

☐private company   ☐Public Project   ☐build uptown   ☐have no idea

2) Who do you think will get the most benefit from land expropriation?

☐the government   ☐some individuals   ☐companies   ☐farmers

3) Do you think the land expropriation will waste land?

☐Yes   ☐depends   ☐no   ☐have no idea

4) Do you know some illegal land expropriation activities?

☐yes, many   ☐a few   ☐no   ☐have no idea

5) Is it easy to communicate between governors and farmers?

☐very difficult   ☐OK   ☐ very easy   ☐not important

6) Is there any land expropriation with low compensation happen?

☐often   ☐ a few   ☐few   ☐have no idea

7) Do you think farmers get nice allocation after loss land?

☐yes, nice   ☐OK   ☐no allocation at all   ☐have no idea

8) In your opinion, what are the benefits of land expropriation for farmers?

☐bring much benefits to farmers   ☐no change

☐have much impact on farmers' future life

☐damage farmers benefit a lot

9) What are the negative affects for farmers and society of the land expropriation?

10) How to protect farmers' benefits during land expropriation? What're your suggestions?

C. Information on farmers' participation

11) Do you know the land expropriation project？

	Very well	More or less	Little	Nothing
☐Purpose	…………	…………	………..	.. ………
☐schedule	…………	…………	………..	.. ………
☐Procedures	…………	…………	………..	.. ………

12) Do you agree with the project?

☐yes   ☐more or less   ☐no   ☐ not care

13) How did you know about the project at first?

☐notice   ☐public hearing   ☐TV   ☐broadcast

☐newspaper   ☐network   ☐meeting   ☐others

14) Do you think farmers' participation is important?

☐very important   ☐OK   ☐not necessary   ☐not care

a) If not necessary, why?

b) If yes, how do you think of the current participation?

☐real participation   ☐OK, but not enough

☐not real participation   ☐no participation

15) In your opinion, does the participation mention above have effects on land expropriation?

☐a lot   ☐a little   ☐little   ☐no affect

16) In what way do you want to participate in land expropriation?

（public hearing，on-line， face-to-face， letters…）

17) Which stages do you think need farmers' participation?

☐decision making   ☐information confirm

☐land expropriation supervision

☐compensation standards making

18) Have you ever applied or participated public hearing?

19) What's your opinion on current public hearing?

	Absolutely agree	agree	almost agree	not agree
☐purpose is clear：	……..	..…….	……..	..……..
☐time is proper：	……..	..…….	……..	..……..
☐location is proper：	……..	..…….	……..	..……..
☐provide clear information：	……..	..…….	……..	..……..
☐participator can affect results：	……..	..…….	……..	..……..

20) Why do you want to participate in land expropriation processes?

☐protect my rights   ☐get more compensation

☐follow others   ☐not sure

21) Did you idea ever be accepted?

☐yes   ☐ no   ☐not sure

22) If not, what do you think the reasons are?

23) If yes, when and how they were accepted?

24) Did you get feedback?

25) In what way do you want get the feedback of your idea?

☐face-to-face talk   ☐network   ☐in writing   ☐telephone

☐public hearing   ☐letter   ☐others

C.Information about on-line participation

26) Do you have web access at home?

☐yes   ☐no   ☐preparing

27) Do you often surf the network?

☐almost everyday   ☐often   ☐sometimes   ☐never

28) What do you usually do when you log on the net?

☐amusement   ☐browse websites ☐work requirements   ☐look for information

29) Do you know E-government?

☐yes   ☐a little   ☐no

30) Do you concern governments' websites?

☐often   ☐ sometimes   ☐never

31) What do you think about the government public their business through network?

☐transparent   ☐ OK   ☐transparent, but not enough   ☐not public

32) Do you know you can participate in land management on-line?

☐yes   ☐ a little   ☐do not know

33) Do you want to participate in land expropriation on-line?

☐very much   ☐OK   ☐not care   ☐no

34) What is your reason?

☐to improve land expropriation efficiency   ☐improve communication extent

☐get efficient feedback   ☐more convenient

35) If you do not want to participate on-line, why?

☐network is not popularization enough

☐governments' information is not public enough

☐cannot really solve problems

☐lack of participation platforms

36) If there is a special on-line participation platform, what will you do?

☐Participate more   ☐Participate less   ☐almost no change   ☐not care

37) What are your suggestions on improving farmers' participation during land expropriation processes?

38) What is your anticipations on develop an on-line participation platform for land expropriation in China?

─────*THANKS FOR YOUR SUPPORT!*─────

Appendix 2

Questionnaire for On-line Participatory Model Developing

(For Governments)

INTERNATIONAL INSTITUTION FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

Yin Lei   Department: LA, ITC

& Chang'an University

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Date: 12-10-2009

A. Basic information

Name of Interviewer		Data of interview	
Address			

B. Land expropriation information

1)   Do you think farmers' participation is necessary during land expropriation?

☐necessary   ☐unnecessary   ☐not important

2)   If not necessary, why?.........If necessary, what do you think of the current participation?

☐real participation   ☐OK, but not enough

☐not real participation   ☐no participation

3)   How many times the public hearing were hold?.............

4)   What are the current situations of application for public hearing?

☐often   ☐sometimes   ☐never

5)   Who usually attend the public hearing?

☐governors   ☐represents of collectives   ☐farmers

☐land experts   ☐ investors   ☐journalist   ☐others

6)   What's your opinion on current public hearing?

	Absolutely agree	agree	almost agree	not agree
☐purpose is clear：	……..	..……	……..	..…….
☐time is proper：	……..	..……	……..	..…….
☐location is proper：	……..	..……	……..	..…….
☐provide clear information：	……..	..……	……..	..…….
☐participator can affect results：	……..	..……	……..	..…….

7) Do you think the public hearing can show farmers' will?

☐absolutely   ☐ more or less   ☐no

8) How do governments provide feedback for farmers' question?

9) What are the benefits on land expropriation if farmers participate in it in your opinion?

☐very much   ☐more or less   ☐little   ☐no

10) Which stages do you think need farmers' participation?

☐decision making   ☐information confirm

☐land expropriation supervision

☐compensation standards making

C.Network application in governments

11) Do you have platform for releasing information in your government's website?

☐yes   ☐no

12) Do you use on-line Office Automation System (OAS) in your department：

☐using   ☐establishing   ☐prepare to establish   ☐no plan yet

13) Do you have E-document delivery system in local government ：

☐yes   ☐no, but plan to establish   ☐no

14) Do you have E-document delivery system among different levels governments：

☐yes   ☐no, but plan to establish   ☐no

15) Is there one-stop on-line land expropriation examine and approve system：

☐yes   ☐no, but plan to establish   ☐no

16) What do you think about the government public their business through network?

☐transparent   ☐ OK   ☐transparent, but not enough   ☐not public

D.Communication with the public1

17) Do you have communication platform for public participation： ☐yes   ☐no

If yes, it mainly used for:

☐consultation and appeal   ☐collect public ideas   ☐real time communication

If yes, the way to communicate includes:

☐E-mail ☐message board   ☐on-line appeal

☐on-line survey   ☐forum   ☐others

18) Do you agree with farmers' on-line participation:

☐very much   ☐agree   ☐not agree

If agree, why?

☐improve land expropriation efficiency

☐communication more with the public

☐timely feedback for the public

☐more convenient and transparency

If not agree, why?

☐network is not popularization enough

☐governments' information is not public enough

☐cannot really solve problems

☐lack of participation platforms

19) What's your opinion on developing an on-line participation platform for land expropriation? What do you suggest to do?

20) What is your anticipated on-line participation platform for land expropriation?

————*THANKS FOR YOUR SUPPORT!*————

Appendix 3

Questionnaire for On-line Participatory Model Developing

(For Land Experts)

INTERNATIONAL INSTITUTION FOR GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

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Date: 13-10-2009

A. Basic information

Name of Interviewer		Data of interview	
Address			

B.Interview questions

1) What's your opinion on development of E-government in China?

2) What are the main applications of E-government used in land management in China?

3) What do you think of the "Second nation land survey" and "the Golden Land" project executed in China?

4) Currently, most governments' websites have platforms like "interactive communication between government ant the public", but most of them have little use, what are the reasons in your opinion?

5) Do you think the farmers' benefit can be protected during current land expropriation processes? Is farmers' participation important? And how should they participate?

6) What are the active and passive affects of farmers' participation?

7) Do you agree with that farmers' on-line participation? Why?

8) What do you suggest on developing an on-line platform, which can provide comprehensive land expropriation information and enhance communication between governments and farmers?

————*THANKS FOR YOUR SUPPORT!*————