

Smart Land Consolidation Approach in China a Case Study of Chengdu Plain

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SUMMARY

Over the last 20 years, more than 100,000 land consolidation projects have been carried out around China. Some of them are successful, some of them are failed. For lack of public participation, low reconstruction quality and unreasonable large-scale demolishing of old village, land consolidation are criticized sometimes by the public and media in China. Recently, the situation is changing step by step in some areas. For instance, “smart land consolidation” is undertaking in Sichuan plain from 2013. Quoted from smart power in diplomacy area, smart land consolidation pays much attention on public participation during a project, man-earth harmony, sustainable renovation of village, high-level integrated planning. Therefore, most of the rural woodlands, or Lin Pan, the important heritage and wealth of Chengdu plain are preserved carefully.

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1. INTRODUCTION

Land consolidation is one paramount measure to optimize the land utility structure, promote farmland protection as well as upgrade intensive land usage level. During the period of Twelfth Five-Year Plan, statistics show that 530 million mu consolidated farmland have transformed into 400 million mu high standard farmland across the whole China, which averagely upgrade one level with 10%-20% increasing output per mu. With the aid of this land reconstruction policy tool, it has strongly enhanced the basic commissariat security, raised the land carrying capacity in China, and promoted famers' income, agricultural productivity and development in countryside. According to the new established The Plan on Land Consolidation across China (2016-2020), Chinese Central Government stated clearly that at least another 400 million mu and a higher aim of 600 million mu land will be constructed into high standard farmland during the Thirteenth Five-Year period with total investment up to 1700 billion Yuan, which will base on those offinished 400 million mu in Twelfth Five-Year period. This significant policy orientation fully highlights the basic strategic position of land consolidation in economic and social development.

However, compared with the society rapid development and people's demanding, there are still some gaps and drawbacks on land consolidation work, detailed as paying attention on capital investment while looking down on scientific demonstration, paying attention on construction speed while looking down on engineering quality, paying attention on policy implementation while looking down on public involvement, paying attention on old houses demolition while looking down on village protection. Although the capital has poured into some projects and related employees usually work overtime, they are not commonly accepted by the local people and occasionally criticized by the mass media.

Under the above background, land system interior and the whole society begin to rethink. As a public product, how the land consolidation improve supply quality, working capital efficiency and the satisfactory from the stakeholders? Should we use reversed thinking to try with subtraction since for a period of time we indulged in addition thinking on land consolidation? Take a broad view on Thirteenth Five-Year Era and even a further period, does land consolidation could reference the notion of Soft Power from International relationship and play a more important role in the areas of village protection, agricultural landscape, rural culture inheritance and cultural heritage protection?

2. PROPOSAL OF THE NOTION OF SMART LAND CONSOLIDATION AND MAIN FEATURES

2.1 Notion of Lin Pan and Current Situation

Pan, refer to the flat and shallow vessels used for placing goods. Lin Pan, is known as discoid field green land mutually formed by the country residence and forestry environment on Chuanxi Plain,

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Helsinki, Finland, May 29-June 2, 2017

an integrated residential environment and rural settlements combine with living, production, ecology and landscape. The inner circle of Lin Pan is dwelling, outer circle is woodland and the outmost circle is irrigation and field. As the unique agricultural living pattern in Sichuan province, the typical Lin Pan is mainly distributed along the Du Jiang Yan irrigation area on Chengdu plain. The agricultural and farming environment on Chuanxi plain combine with Lin Pan and Du Jiang Yan irrigation canal is the only one area which is adjusted by the artificial technology and still play a role over thousands of years.

Statistically, Lin Pan, including big and small sized, account to 140 thousand, total area is 67.8 thousand hectares and the density inside Chengdu Lin Pan protective planning area is 15 per square hectare. Scattering on the field, 140 thousand Lin Pan mix freely and form many forestry green islands on Chuanxi plain, which represent the magnificent landscape with high valuation on ecology, landscape, production and culture.

Nevertheless, as time goes by and the increasing progress of urbanization, some problems of Lin Pan gradually show up. Firstly, high percentages of construction land. According to the statistic, there are 4440 thousand residential people in Chuanxi Lin Pan, per capita area is 155 square meters, which exceeds the average level in Sichuan. Secondly, poor living function inside Lin Pan. The appearance of many Lin Pan look amazing, but they actually lack of necessary infrastructure, and environment is dirty and messy. Thirdly, the phenomenon of Lin Pan hollowing is increasingly universal. Some peasant households are not satisfied with original living condition, moving to the city, town or the country concentrated living area, so that the previous inhabited Lin Pan become hollowing. For instance, recent years in Pi Xian, the quantity of Lin Pan has reduced from 11 thousand to 8 thousand in this county, and less than 900 Lin Pan are inhabited by homes above 10.

2.2 Smart Land Consolidation Practice on Chengdu Plain

Under this background, from 2012, the rural land consolidation work in Chengdu decisively abandon the mode of Overall Planning, Overall Circulation, Overall concentration raised by some regions, instead of cherishing and utilizing reasonably the specific Lin Pan resources on Chuanxi plain, leading a new way of land consolidation which is least interfered to nature and maximum protection to rural landscape.

First and foremost, protecting Lin Pan's original pattern maximally, making efforts on little adjustment of spatial structure and no alternation on ecological environment. Natural resources are not distributed evenly, it indicates that there are several advantages on resources distribution on Chuanxi plain since Lin Pan has existed there over thousands of years. Firstly, the woods of Lin Pan produce a great deal of oxygen, which can adsorb the dust and poisonous gas in order to purify the air. Furthermore, the photosynthesis of forest consumes plenty of exhausted gas, carbon dioxide, decreasing greenhouse effect and creating comfortable and cool climate. Thirdly, Lin Pan, is regarded as the artificial wetland on Chuanxi plain, which has an impact on conserving soil and water resources and maintaining the topsoil from erosion effectively. Woods could intercept rainfalls and store up moisture, therefore, the soil near Lin Pan just like the absorbent sponge, which not only benefits the annual crop, rice growth, but also avoid surface runoff destroy building basement. Fourthly, the mode of Inhabitant-woodland-farmland in Lin Pan, equals to add some green islands amongst the large-scaled artificial farming landscape, introducing the circumstances

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Helsinki, Finland, May 29–June 2, 2017

of Little Forest, meanwhile, it creates the transition borderland from woods to farmland, increasing the wildlife diversity.

In order to ensure Lin Pan's ecosystem barrier completely and improve the ecological environment, classified protection to Lin Pan has been carried on in Chengdu. The first category is 2100 human inhabited Lin Pan protective sites, which will draw 290 thousand rural residence. The focus of improvement is infrastructure and living environment. The second group is 2885 non-residential ecological Lin Pan protective sites. There will be no homes any longer, previous houses and dwelling will be restored to farmland after demolishment, implementing overall protection to landscape pattern and environment form. The third is other Lin Pan's protection. Previous dwelling will also be restored to farmland after pulling down in these Lin Pan areas, implementing woods resources protection for playing an ecological role.

Moreover, Lin Pan's core area should be protected, where the traditional dwellings in Chuanxi are involved. Most of the buildings in Lin Pan are representative conventional Chuanxi folk houses, which symbolize the architecture in Chinese rural areas. Provided these traditional dwellings are removed for construction purpose, it is no difference to kill the chicken that lay golden egg. During the progress of village innovation in Chengdu, according to the established Lin Pan Planning in Chengdu, it is proclaimed that practical measure must be taken to 2100 human inhabited Lin Pan protective sites. It is forbidden to pull down the conventional folk houses with historical cultural value in these areas, all the trees with 15 centimeters above diameter and bamboo forests above 3 clumps must be registered and guarded strictly. For those on the list of national and provincial historical cultural villages, the entire village must be protected. With the guidance of policy and investment, farmers should be encouraged to reconstruct and repair the traditional buildings with comparatively holonomic and protective value rather than knocking down for newly-built ones. Government maintain and strengthen the public buildings, like ancestral halls and temples, with public capital as well as collapse the unauthorized buildings which are not coordinated with the surroundings in order to ensure the unity of the architecture style in Lin Pan.

Thirdly, scientific and rational construction in new villages. 10 Thousand People Community ever appeared in some regions during the previous construction process in new villages, problems show up since many farms live on the high-rise buildings and get away from the conventional farming life. On the basis of adequately consultation from peasants themselves' willing and planning expertise suggestion, the new village construction model 'getting together when appropriate while loosening up when necessary' comes into being. Basically, the scale of new village is 100-300 homes which constitutes several groups and each group is better to have 20-30 homes, no more than 50 homes in principle. The dwellings in new villages maintain the traditional architecture style. They have two stories building with 20-30 square meters kitchen garden and flower garden in front of and behind the house. Each group is connected via roads extending to all directions and water, electricity, gas, optical fiber network and broadband are all well served. At the same time, the ratio of public infrastructure climbs up dramatically, it is required to equip clinic, supermarket, bicycle leasing station, nursery, village library and so on. The style of new villages not only maintain the rural atmosphere, but also promote the level of modernization, which are in the sharp contrast with the city, forming the country landscape in Chuanxi as the dwellings are in the field as well as connect with the field.

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Helsinki, Finland, May 29–June 2, 2017

Fourthly, laying emphasis on village connotation development and promotion. During the process of Lin Pan remodeling and new village construction in Chengdu, government not only focus on the protection of traditional inhabited country areas, but also pay attention to the development of village's connotation. Through the low-interfered reconstruction procedure, specialized industries have been embedded for segmentation development. For example, Qing Gang Shu village which is 30 km away from the city center of Chengdu energetically develops the upmarket exhibition industry and Shu Embroidery industry rely on the position advantages; Ming Yue village which is 100 km away from the city center of Chengdu expands cultural creative industry with the advantages of ancient kiln progress, some well-known artists own their studios in succession in this obscure village; Wu Xing village reconstructed the 10-kilometer above wasteland along the river as the wetland park, graceful scenery appeal large-scaled hotel groups to rent the spare new houses from the peasants for village hostel; Ran Yi town centralizes the high quality farmland to the large grain production households via land consolidation, recovering the specific agricultural goods production, like famous Ran Yi tribute rice in history.

2.3 The Notion of Smart Land Consolidation

Smart Land Consolidation is a new land reconstruction mode that stands for low intervening to nature and maximally protects the rural landscape and traditional villages. It does not advocate the large-scale demolition and opposes to introduce the urban greening into the country, whereas lays more emphasis on keeping the original local natural characteristics and cultural context and pays more attention to develop and promote the unique natural landscape, offering space for ecological protection and economic development. Smart Land Consolidation usually adopts controlled engineering measures and stresses the ecological design, frequently gaining the folk wisdom from the conventional rural architecture.

3. THE SIGNIFICANCE OF SMART LAND CONSOLIDATION IN CHINA

3.1 Matching the people's demand for slow life

Over the decades of reform and opening-up, Chinese people have experienced extremely abundant material life, however, empty hearts and anxiety appeared which resulted in a number of health and social problems. An increasing middle class Chinese people are thirsty for a slow-paced life to coordinate body and soul after striving in career. The Slow City Principle which originated from Italy has been introduced into China as a highly recommended sustainable development path. Yaxi town which is located in Gaochun, Nanjing becomes the first Slow City in China in 2010. What behind the slow-paced life is the rediscovery and promotion to the rural valuation. Outside the rapid-paced city life, people recognize that spacious countryside is just the right natural space to bear slow-paced life. Initially, agricultural landscape is the vastest natural attraction and ancient Chinese often searched for the wisdom of the harmony between heaven and human via returning to the farming life. Secondly, the whole new villages through land consolidation not just keep the rural scene, but also the place where the modern living facilities increase greatly, which can better cater for the country leisure demand from city people. If say the requirement to land management of rapid-paced city life is conservation and intensivism, by contrast, that of slow-paced life just is smart land consolidation. Land consolidation could guide the whole society to promote national

Smart Land Consolidation Approach in China a Case Study of Chengdu Plain (8777)
Lei Yang (China, PR)

FIG Working Week 2017

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Helsinki, Finland, May 29–June 2, 2017

spirit via providing public products, like amazing villages and entertaining spaces.

3.2 Embodying the Concept of Cultural Heritage Spread in China

The definition of cultural heritage refers to the cultural treasures, building groups and relics with value of history, aesthetics, archaeology, science, ethnology and anthropology. The rustic landscapes and agricultural custom with regional characteristics that defined as Cultural Landscape Heritage, belonging to cultural heritage, are treasures formed by nature and human beings through a long period. In 2002, United Nations Food and Agriculture Organization (FAO) raised the concept of Globally Important Agricultural Heritage Systems which was aimed at building protective systems for global important agricultural heritage and other involved landscape, biodiversity, knowledge and culture. Over one decade, international community has paying growing attention to agricultural heritage. Up to now, 31 traditional agricultural systems from 13 countries have been listed in the directory of Globally Important Agricultural Heritage Systems. Lamentedly, many superior resources that have been qualified for applying for agricultural heritage were scattered in the countryside in China, with their unknown value. The proposed concept of Smart Land Consolidation indicates that some regions have upgraded the protection of ancient villages and agricultural landscapes to the equal level of the cultural heritage protection, thus it is a qualitative improvement to the land consolidation work in China. The spreading of the concept of cultural heritage in China is the introspection on the ‘hundreds of villages with the same appearance’ phenomenon, is the home back road for land consolidation, also is spiritual returning for Chinese people.

3.3 Complying with the Fundamental Policy of Ecological Civilization Construction

Ecological civilization construction is the fundamental policy for Chinese development in this new era. Nowadays, the government of China has upgraded the ecological protection to the level of redline, who points out that the red line of ecological protection means regions with special and important ecological functions must be protected compulsorily and strictly, including major areas with ecological functions, such as water conservation, and biodiversity conservation as well as the areas with sensitive and vulnerable environment which faces water and soil loss and land desertification, in Several Opinions about the Red Line Delimiting and Defending Ecological Protection, recently issued. Several Opinions demand that before the end of 2020, the red line delimiting will need to be accomplished completely across the nation, the regime of ecological protection will be established basically, the homeland ecological space will be optimized and effectively protected, the ecological functions will be well-maintained, and the national ecological security structure will be improved further. During the process of smart land consolidation on Chengdu plain, the key protective Lin Pan areas initially set up will aim at no alternation on the overall pattern and no reduction on the ecological functions, which is the implement and practice to the concept of ecological civilization.

4. SUGGESTION ON PUSHING SMART LAND CONSOLIDATION

4.1 Learning global experience

Absorbing the advanced experience in the era of worldwide cultural heritage protection. There are

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Lei Yang (China, PR)

FIG Working Week 2017

Surveying the world of tomorrow - From digitalisation to augmented reality
Helsinki, Finland, May 29–June 2, 2017

many successful precedents in plenty of nations all over the world. For instance, Board of Paradors and Inns of Spain manages more than 100 hotels most of which are distributed in the countryside and rebuilt from monasteries, castles, even prisons in the past times. Because of the magnificent historic cultural heritage and pretty scene, they appeal a great number of tourists across the globe. Another example is Shriakawa in Japan, it becomes the well-renowned cultural heritage tourist route due to tens of well-preserved thatched cottages which assemble the folded palms. They are always in heavy demand on every candlelight ceremony in each year's snow season.

Despite China is a big power with cultural heritage, we still have a huge gap between the above exemplified nations in rural culture heritage protection and development and we should gain the experience seriously.

4.2 Step by step

Following the principle of gradual improvement, no suddenly expanding, no smart landconsolidation and construction by campaign style. On the foundation of respecting regional culture and natural law, smart land consolidation develop protective land reconstruction prudently, laying special emphasis on scientific demonstration of the projects, as a consequence, the rapid-paced engineering always against the rural cultural heritage protection, which will ruin the unique texture lasting for thousands of years in different villages, leading to the misconception of homogenization.

4.3 Carry out public participation

Developing public participation feasibly in the land consolidation projects. Listening to the stakeholder's suggestion attentively and providing guidance scientifically in order to enhance the sense of gain of the masses in project areas. Advancing the sense of public services and never impose the government willing to peasants.

4.4 Enhancing the planning level

Elevating planning level, enriching engineering approaches, paying attention to the connection of the adjacent periods. As a policy tool, land consolidation can promote production, living and ecological infrastructure dramatically in the projects areas, compared with these investment, private capital is out of reach. Since the projects later-stage maintenance is always related with the users, the joint work should be done smoothly. Take the reconstruction of Lin Pan as example, according to the different purposes of the reformed Lin Pan, the arrangement should be carried out in the early phase in the planning and construction loops.

4.5 Promoting public awareness

The sense of agricultural culture heritage protection needs to be raised urgently. General survey to agricultural culture heritage is advised across the whole country, awareness of local government's heritage protection should be increased further. Government should popularize energetically to the whole society that once the agricultural culture heritage disappear, the involved unique wildlife resources, production technology, ecological environment and cultural benefits will also vanish,

Smart Land Consolidation Approach in China a Case Study of Chengdu Plain (8777)
Lei Yang (China, PR)

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Helsinki, Finland, May 29–June 2, 2017

which is a significant loss to China, a big conventional agricultural farming country.

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