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Published in:
Habitat International

DOI:
[10.1016/j.habitatint.2017.01.005](https://doi.org/10.1016/j.habitatint.2017.01.005)

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Recommended citation(APA):
Wang, H., Zhang, X., Wang, H., & Skitmore, M. (2017). The right-of-use transfer mechanism of collective construction land in new urban districts in China: The case of Zhoushan City. *Habitat International*, 61, 55-63. <https://doi.org/10.1016/j.habitatint.2017.01.005>

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The right-of-use transfer mechanism of collective construction land in new urban districts in China: The case of Zhoushan City

Hao Wang, Xiaoling Zhang, Hanzhao Wang and Martin Skitmore

Abstract

With the accelerating urbanization in China, the right-of-use transfer (RUT) of rural collectively owned construction land provides a promising means of increasing the efficiency of rural land use and promoting urban and rural integration. There are various ways of doing this and no universal mode of RUT that fits all areas because of the divergent cultural characteristics and geographical features of different regions and locations in China and decisions need to be made on a case-by-case basis. This paper proposes an analytical framework to help in such decision making. Firstly, the literature concerning the RUT of collective construction land is reviewed and six typical pilot reform areas are studied. Secondly, a theoretical analytical framework for the choice of RUT mode is developed based on the findings of the literature review and the experiences of the pilot reform areas. Thirdly, Zhoushan City's new urban district is used as a case study to demonstrate and test the framework, and an appropriate RUT mechanism is suggested. The analytical framework can serve as a guideline for local governments to make decisions on the form of collective construction land RUT throughout China.

Keywords: Collective construction land, right-of-use transfer, mechanism, new urban districts, China.

1 Introduction

With the accelerating urbanization in China, there is a profound need to increase the amount of industrial and urban land and, in the more economically developed regions, land resources have become increasingly precious (Zdruli, 2014; Holden & Otsuka, 2014). The latest statistics from Ministry of Land and Resources show that the total amount of urban and rural construction land in China is over 25 million hectares, in which the amount of rural collective construction land is nearly 5 times as much as urban construction land and rural per capita occupation of construction land is almost 4 times as much as urban population (Ministry of Land and Resources, 2015). In a free land market, the situation would resolve itself as developers purchase the land needed from the rural owners at a price that suits both parties, subject to planning approval. However, such a process is not possible in China's current socialist market economy, where the reclassification, or transfer, of what was originally designated as rural farmland land into urban construction land is severely restricted by the complexities of land ownership and right-of-use. As stated in the "Land Administration Law of the

People's Republic of China", farmers collectively own rural construction land but do not have the full right-of-use transfer (RUT) or disposal. Collective construction land cannot directly enter the market but must first be expropriated into state-owned land, a process that is strictly controlled.

In practice, however, the rapid development of the economy and increasing pace of industrialization and urbanization in rural areas has resulted in a continuously growing variety of forms of ownership of economic entities and, in order to utilize rural land resources more fairly and efficiently, the RUT of collective construction land has become a controversial issue. The biggest problems related to the RUT in China focus on the underused rural collective construction land and not free and fully approved RUT system, and one of the greatest motivations for promoting the RUT is to explore the development potential of rural construction land for the growing demand of urbanization. To investigate possible land reform measures, the government has conducted pilot reform projects widely in different parts of China. Newly issued laws and policies also provide great support for the RUT of collective construction land, the experience of which can be used for reference in a wide range of reforms of the collective construction land RUT system in the future.

The potential for large-scale land transfer in rural areas needs to be tapped and reform of the collective construction land RUT is becoming increasingly imminent. This is due to the inefficient use of rural collective land (Liu et al., 2014) and the scattered layout of settlements in suburban areas. Collective construction land RUT can integrate dispersed land sites, further promote the intensive use of rural land and provide a more efficient use of land resources. In addition, a standardized land RUT mechanism can also promote the formation of a unified construction land market under the integration of urban and rural areas, protect farmers' interests and partly solve the conflicts of interest involved in sharing land RUT.

The RUT of rural collective construction land has great practical significance. For farmers, it can protect their vital interests and improve living standards. With the full realization of the economic value of land, farmers could gain more net income in the form of dividends, bonuses on shares, etc. In developed areas, RUT profits have become an important source of income for the village collective and funding for rural public welfare. The development of secondary and the tertiary industries brought about by collective construction land RUT also provides farmers with the opportunity to increase income and effectively protect their vital interests. For the government, reform could partly solve the problem caused by the abuse of power in the land requisition system. As an administrative act, collective land expropriation by the government is mandatory, with the owner of the collective land and the government of unequal status. An open market for the RUT of rural collective construction land can guarantee a dual-track system of land supply that competes with illegal expropriation.

The circulation scale of rural collective construction land is constantly expanding, particularly in economically developed areas such as the Pearl River Delta region. However, there are still problems such as collective economic organizations selling their land cheaply and enterprises buying collective land cheaply in private. Therefore, this study aims to develop the highly needed and widely applicable mechanism for the RUT of collective construction land in different places that is absent in the current system.

2 Literature Review

There have been many studies of rural construction land worldwide. Svendsen (2014), for example, has studied the situation for construction of a non-agriculturalist discourse of rurality in Denmark. The most relevant for this paper are those relating to the situation in China, with its unique traditions and political economy. Wang et al. (2011), for example, investigate today's practices and problems associated with rural construction land; Liu et al. (2014) discuss the relationship between rural construction land and the urbanization rate; Cai et al. (2014) present an assessment framework for consolidating urban-rural construction land; and Yuan et al. (2014) demonstrate the problems in the current market of non-agricultural construction land in China. In addition, some studies focus on the relationship between rural construction land and urban construction land. Huang et al. (2014), for instance, review recent land use policies of *Linking the Decrease in Rural Construction Land with the Increase in Urban Construction Land* in China through a case study, while Yang et al. (2013) discuss the suitability of projects by linking the increase/decrease in urban and rural construction land.

Many studies discuss the meaning and significance of rural construction land RUT and from a variety of perspectives. Zou et al. (2014), for example, briefly demonstrate the importance of the marketization of rural construction land in China and Tian and Zhu (2013) conclude that rural construction land RUT provides an effective way to solve the problems of the double-track land use and management system in current non-agricultural land use through a case study of Shunde in China. The increasingly prominent construction land expansion and cultivated land protection in China's urbanization is a further issue, with Liu et al.'s (2015) analysis of China national land survey data from 1996 to 2006 indicating that less than 20% of the lost farmland was actually converted to construction sites and hence the need for a better way to transfer rural construction land.

There are also a number of studies focusing on the market for rural construction land RUT. In a case study of Shenzhen in Guangdong Province, Zou et al. (2014) conclude that the existing dual-track land administration system has led to numerous social problems, and a unified and open market for urban-rural construction land should provide a potential solution. Other researchers attempt to use different methods/tools to measure the value of land or improve the operational services of land RUT. Han (2010),

for example, applies NPV and game analysis methods to analyze the market price of rural construction land, and estimate the price by a regression analysis of demand and supply curves, while Liang et al. (2012) show the potential for constructing a land RUT information platform using information technology for more efficient land RUT management.

The behavior of stakeholders in the land RUT process is influenced by several factors, and Shui et al. (2014) use statistical analysis and logistic regression to identify the factors influencing resettled farmers' satisfaction under a policy that balances the increase in urban construction land with the concomitant decrease in rural construction land; Liu and Li (2013) employ game theory to examine how to optimize the generation process of rural construction land RUT; and Yang (2010) use game analysis to focus on the impact of government regulations on the RUT of rural land.

In overseas countries, the transfer of development rights was analyzed as a new tool for land use policy several decades ago (Bailey and Ogg, 1977). After that, researchers are increasingly interested in land rights and land ownership, and consider the rights as a kind of policy instrument on land use. For example, Omar and Yusof (2002) examine the indigenous land rights and the dynamics of land market in Malaysia. Kamara et al. (2005) investigate the relationship between property rights and land use change using empirical data in southern Ethiopia. Soro (2007) explain the interrelationship between land rights and the productive use of land based on an intra-family analysis in France. Barrows and Prenguber (2009) rethink the transfer of development rights as a land use policy using a theoretical and case study analysis. In recent years, property or land use rights/ownership and control still keep attracting the attention of scholars in different countries (Unruh, 2012; Garin and Barraqué, 2012; Mitchell, 2014; Barry and Roux, 2016).

Although there is existing literature on the RUT of rural collective construction land from various perspectives, such as the relationship between rural and urban construction land, the importance of the RUT and establishing a market for collective construction land RUT, a universal analysis framework for the choice of RUT mechanism/mode of collective construction land has yet to be developed. This paper seeks to rectify this situation by the use of a case study based on the findings from related research and pilot reform projects to develop a theoretical analysis framework for collective construction land RUT and from which an applicable RUT mechanism can be developed.

3 An analytical framework for the RUT of collective construction land

3.1 Definition

There is currently no clear legal definition of the RUT of collective construction land and academic opinions diverge. There are various standards to classify land RUT modes and different types are classified based only on theories and different perspectives rather than diametrically opposed forms. The circulation of land functions and the RUT is usually described from two different perspectives. For example, due to the rapid development of the economy and society in China, the increasing demand for construction land is a major driving force for the RUT of collective construction land. The lack of legal recognition has led to the closed-door RUT from farmers and rural collective economic organizations to land operators in the form of leasing, transfer, etc. after converting agricultural land to construction land because of the temptation of differential benefits. This has resulted in a black market for both the RUT (land users conversion from farmers to land operators) and the transfer of land functions (conversion from agricultural land to construction land).

As an aspect of land transfer, the RUT of collective construction land is a land-use mode that features unchanged landowners resulting from the country's rapid economic and social development, as well as the process of industrialization, urbanization and agricultural modernization. In this paper, it is a given that the land-use rights of collective construction land legally acquired by the owners can be transferred within a certain period in accordance with legal procedures, i.e. in the form of sales, leases, joint ventures, shares, etc.

3.2 Forms of collective construction land RUT

China's laws and regulations in the past strictly restricted the RUT of collective construction land. In recent years, however, the central government has developed major policies to probe the possibilities for reform. For example, "Decision of the central committee of the communist party of China on some major issues in promoting rural reform and development" stated that a unified land market for urban and rural areas would be built in 2008; several years later, "Some opinions on speeding up the construction of agricultural modernization by strengthening reform and innovation" (called No. 1 Document for Central Government in 2015) further relaxed land operation rights and allowed to guide and regulate the rural collective construction land into the market. The main forms of RUT reform are:

- (1) **Mortgage**, in which landowners regard land use rights as a guaranteed debt. If the debtor fails to repay the debt at the time of its maturity, the creditor is entitled to use the land use rights secured by the debtor for debt repayment. Mortgage can also be divided into initial circulation mortgage and re-circulation mortgage.

- (2) **Transfer**, referring to individuals or units holding collective construction land use rights land selling the rights to a new user in a new way. In essence, this is a shift in land ownership, involving the main forms of inheritance, gifts, etc.
- (3) **Lease**, including the lease of initial circulation and the lease of re-circulation. The former refers to landowners leasing the land use rights to individuals or units for a specific period in exchange for an appropriate rent. The latter refers to those who legally obtained land use rights leasing the rights again to other individuals or units. Currently, leasing is the main form of collective construction RUT. It involves site rental, factory building rental, etc., mainly by village collective organizations, village enterprises or individual farmers.
- (4) **Sale**, by which town or village collective landowners specify a period during which the land-use rights may to be transferred to other users in return for a fee. This is a form of initial land circulation, involving the separation of land-use rights and ownership. Land users also have a usufructuary right within the period, allowing them to possess, use and partially dispose of the land while obtaining the corresponding benefits.
- (5) **Shares and joint venture**, referring to the owners or users of rural collective construction land legally taking the use-rights as shares or conditions of investment, cooperation and joint venture, and jointly establishing township or village enterprises or other economic organizations with other units and individuals to jointly obtain the dividend income.
- (6) **Replacement** refers to the reconfiguration of different plots. The premise of replacement is that the land has been approved for non-agricultural construction and will therefore lead to the change in land use rights.

3.3 Development of a theoretical framework for RUT mode analysis

In order to test if the RUT of collective construction land can be implemented legally and detect associated conflicts and disputes in advance, the central government has launched pilot reform projects in different areas such as Wuhu City in Anhui Province and Nanhai City in Guangdong Province. These pilot projects use a variety of methods of RUT and have accumulated valuable experience for a future RUT nationwide.

The RUT methods of six typical pilot projects are summarized in Table 1.

<insert Table 1 here>

Based on the analysis of the pilot projects, a theoretical framework is designed for the systematic analysis of the RUT mode. In this framework, five key factors affecting the selection of the RUT modes are identified and analyzed, including two land factors of land distribution and land-use efficiency, and three non-land factors of economic level, government incentive and public spontaneity. The five fundamental factors were identified based on previous document analysis and expert survey. A focus group meeting consisting of eight experienced practitioners and scholars in the Ministry of

Land and Resources was conducted to collect the experts' opinions through individual interviews and group discussions. The definitions and descriptions of the five key factors are shown as Table 2.

<insert Table 2 here>

Regarding *land factors*, *land distribution* is an endogenous and unchanged attribute due to the immobility of land and that the distribution/location of collective construction land influences the vitality of the RUT. For example, if the land is spatially dispersed, the government may not be able to achieve unified land development in the batch due to the dispersal of property rights. Similarly, *land-use efficiency* varies between different zones/pieces of land because of the differences in inherent conditions, such as natural resources and geological conditions. For instance, collective construction land with high land-use efficiency can produce more utility and profits so the owners may not be willing to transfer. Conversely, the owners may wish to transfer land with low land-use efficiency to obtain benefits in another way, and the underused land can be reutilized by others to improve land-use efficiency. For *non-land factors*, the three key perspectives are identified based on the in-depth analysis of the RUT pilot projects. These factors can be driving forces for the RUT in three different ways. For example, the local *economic level* of development drives the RUT practices in Nanhai, Guangdong Province; local *government incentives* stimulate RUT implementation in Wuhu, Anhui Province; and *public spontaneity* plays an important role in RUT reform in Chengdu, Sichuan Province.

As displayed in Fig. 1, the analytical process of an appropriate RUT mechanism is that the collective construction land to be transferred is classified by the two land factors in the first stage and the three non-land factors are analyzed based on the conditions of the land in the second stage. Finally, three RUT modes of government-led, market-driven and public spontaneity are given corresponding to the main features of the three non-land factors. This framework provides a way to identify the appropriate modes/mechanism for the RUT in a new area. The mechanism is that, after a comprehensive survey of land and non-land factors in a new city/region, different land zones with different characteristics can be selectively allocated to one of the three different RUT modes.

<insert Fig. 1 here>

4 An applicable mechanism of collective construction land RUT in Zhoushan

4.1 The *status quo*

(1) Parcel number, total area and distribution of collective construction land

As a city in Zhejiang Province, Zhoushan is composed of two districts and two counties: the Dinghai and Putuo Districts and Daishan and Shengsi Counties. The city has 1390 islands, with a total area of 22,200 square kilometers, comprising a sea area of 20,800 square kilometers and land area of only 1,440 square kilometers. Table 3 summarizes the incomplete statistical data available of the distribution of the collective construction land (including homesteads) in Zhoushan.

<insert Table 3 here>

The phenomenon of ‘a household with multi-homestead’ (一户多宅) and ‘over standard of homestead’ (用地超标) in the fishing village of Zhoushan is the main reason for the low efficiency of rural land use. Therefore, carrying out the spatial replacement reform of rural homesteads and guiding farmers to live together is an important measure to promote intensive land use and solve the difficulties of land use in new districts.

(2) Actual use of collective construction land

In addition to homesteads, collective construction land in Zhoushan also includes public service and profit-making land, the majority of which is the former at around 2,000 mu. Tables 4 and 5 summarize the statistical data available for the current actual use of collective construction land in the Dinghai and Daishan Districts.

<insert Table 4 here>

<insert Table 5 here>

4.2 Key issues in the collective construction land RUT in Zhoushan

(1) Land area and transferable land

The land area of Zhoushan city is approximately 1,440 square kilometers, equivalent to only an inland county. Due to topographical restrictions, the islands available for development account for only 31% of the total number of islands in the city, 44.3% of the total land area of the islands has a ground slope greater than 15 degrees and most of the land contains ecological protection forest that is inappropriate for development. For the land with a ground slope of less than 15 degrees, about 15,446 hectares of tideland is a transitional zone for marine and terrestrial ecosystems and the key area of island

ecological protection. According to the aims of the new district development, part of the coastal wetland will be an important space for development and construction, making the coordination of land development and ecological protection an arduous task.

Rural collective construction land in Zhoushan City includes farmers' homesteads, land for public welfare and land for profit making. The majority is the homesteads, which are the main focus of the RUT. The land for public welfare mainly comprises village primary schools, village offices, senior activity centers and other public facilities, which can also be a candidate for RUT. There is virtually no registered collective construction land for profit making, and therefore this is not taken into account here.

(2) Scope

For the purpose of construction and industrial development, both national and rural collective economic organizations serving the public interest and companies, social organizations, etc. operating for other purposes can be included in considering the RUT of collective construction land.

(3) Distribution

Based on the current land use plan (2006-2020) in China, the remaining quota for new construction land was only 1392 hectares by the end of 2012, accounting for 18.4% of the amount needed (State Council, 2008). Because of its scattered distribution, however, this is insufficient to satisfy all the kinds of infrastructure construction needed, particularly that for the marine industry, since the land demand relies solely on the new land quota. Moreover, the use of the construction land stock is inefficient. According to field investigations, Zhoushan has little available stock of collective construction land for profit making, but has about 2,000 mu for public welfare lying idle or being used inefficiently. In addition, the quota for rural residential land is extensive and often more than needed. Therefore, one approach to meeting the urgent demand of the new district development is by optimizing and integrating existing stock and new construction land.

4.3 Mechanism for collective construction land RUT

The RUT for the new district can be obtained from the proposed analytical framework based on the conditions and characteristics of the current rural collective construction land, and industrial and economic development needs in Zhoushan. Specifically, suitable RUT modes can be chosen for the variously developed villages and towns in the city (e.g. between the main island and the other islands).

To systematically analyze the land factors in the case study, a four-quadrant model is applied to depict land distribution and land-use efficiency in the new district of Zhoushan. As shown in Fig. 2, the collective construction land is divided into four

categories of “concentrated but underused”, “concentrated and efficient”, “dispersed and underused” and “dispersed but efficient”.

<insert Fig. 2 here>

Based on these four categories, the non-land factors are analyzed for each category as summarized in Table 6.

<insert Table 6 here>

Based on this analysis, an adaptive mechanism for the RUT of collective construction land in Zhoushan can be introduced as follows.

(1) “Concentrated but underused” land zones exist in the peripheral rural areas of the Dinghai main island, where collective construction land is relatively concentrated spatially and land-use efficiency is low due to the low level of economic development. Maximizing public spontaneity is the key to the successful promotion of RUT in these zones.

The pilot project in Nanhai provides a good reference, with its core practice of centrally planned collective land leased to enterprises for business use without change of ownership, which breaks the monopoly of national land expropriation for farmland conversion. To meet the land demand of industrialization and protect the interests of the landowners, the Nanhai collective farmers have spontaneously created “land shareholding”. This involves the collective land being divided into shares that are allocated to the residentially registered farmers in the community, with a dividend determined according to their share ratio. The collective economic organizations operate the planning, development, leasing and revenue collection of the land. These organizations have become substantial land managers and set up stock companies with each village as a unit.

(2) “Concentrated and efficient” land zones occur in suburbs close to the urban area of Dinghai’s main island, where collective construction land is mostly spatially concentrated and efficiently utilized. The market can be a main driving force for the RUT as the levels of economic development and maturity of the land market are prominent advantages in these zones.

Nanhai again provides a good reference. Its economic level is high and the land is divided into three areas: farmland protection areas for agricultural production, economic development zones for industrial development, and commercial and residential areas for commerce and residences. Part of the rural collectively owned land can be converted into construction land for non-agricultural purposes, providing access for the collective land market. In other words, collectively owned land can directly enter the construction land market without expropriation by government. As a result, the

income from the collective construction land RUT is concentrated in the collective interior, enabling farmers to share the benefits of the increased land value.

(3) For the “dispersed and underused” land zones, such as Daishan, Shengsi and other small islands, the collective construction land is small in both size and quantity. Due to terrain and economic constraints, land is quite widely dispersed and mostly underdeveloped. Under these circumstances, the local government’s incentive for RUT would be high and the public spontaneity might be high too.

Taking the Wuhu pilot project as an example, the core practice is for the land ownership of village collectives not to change and all collective land is planned, developed and transferred by the local government. Land income distribution is state-led and the RUT of collective construction land is mainly in the form of land-use right leasing or purchase (with financial compensation) by local government/town-owned investment companies who then sell/transfer the land-use right to interested enterprises.

(4) “Dispersed but efficient” land zones occur in parts of suburbs in Putuo and Daishan, where collective construction land is scattered due to topographic constraints, and land-use efficiency is relatively high in zones such as the Putuo Mountain Resorts. Normally, the government may be motivated to encourage the RUT for large-scale land provision that may not be favored or of interest to the public.

Wuhu practice is also instructive for this type of zone, as the government is the main promoter of collective construction land RUT. In this case, the land is centrally purchased through investment companies established by the local government, and the dispossessed farmers are compensated according to the compensation standards of state-owned land expropriation. The land is sold/rented to enterprises after land consolidation and development by the investment companies. Wuhu practice is a typical government-led mode in that land can be transferred under the premise of retaining the ownership of collective construction land, overstepping existing laws and regulations.

In summary, therefore, the RUT of collective construction land in Zhoushan should take into account market-driven, government-led and public spontaneous RUT modes, selectively choosing an appropriate mode for each specific zone depending on its land and non-land characteristics. In addition, government-led Wuhu practices and market-driven Nanhai practices can be used as good examples for the form of RUT needed. That is, Nanhai practice is best for zones with concentrated land distribution and high economic levels, while Wuhu practice is more suited to zones needing support from local government.

5 Discussion

The RUT of collective construction land in China is still in a preliminary stage. Because of the land demand for further urbanization and the need for rural sustainable

development, the RUT of rural collective construction land should be circulated legally and freely in a unified land market to realize the actual value of rural collective land and encourage coordinated urban-rural development. The following aspects of the RUT mechanism are therefore considered necessary for promoting RUT and ensuring its vitality in China.

- (1) *Eliminating legal discrimination and establishing full rights and interests of RUT.* Rural land is collectively owned by farmers, which is a form of land ownership parallel to the national land ownership of urban areas. For a long time in China, many restrictions have been placed on collective land ownership for maximizing the economic and social benefits of rural land. However, these restrictions on collective construction land RUT are contrary to the principle of necessity. The only measure needed to protect farmland and provide macro-control of the land market with smaller loss, is rigorous planning. The removal of the other current restrictions will restore the land property rights of the farmer owners of collective land, allowing them to enjoy moderately free collective land ownership while still achieving the coordinated development of the farmer collectives and the state.
- (2) *Emphasizing the basic role of the market mechanism in the allocation of construction land resources.* Using the market regulation mechanism for collective construction land supply will allow the rational allocation of collective land resources to be maintained, aligning land supply activities with the requirements of the law of value. The allocative efficiency of collective construction land resources can be fully exploited through the market competition mechanism, and a unified, open, competitive and orderly modern land market system needs to be established to meet the needs of urbanization and marketization, avoiding/reducing unnecessary government intervention.
- (3) *Reasonably allocating RUT income to protect the farmers' dominant position in the income distribution.* The distribution of land income in rural collective construction land RUT is related to the benefit mechanism of RUT system. In principle, the income from collective construction land RUT can be equitably distributed between the state, farmer collectives and individual farmers. The state (government) as the manager, service provider and infrastructure investor, can adjust RUT income through tax, applying service fees and receiving a share of the construction land value-added benefits from the construction land development rights; the farmer collectives, as the landowners, receive the construction land rent plus their share of the value-added benefits; with the collective income being distributed to the individual farmers as voted by the village assembly. As the value of collective construction land also includes both the value of land rights and land investment, it is necessary to consider all the rights embodied in the land and added value from the investment when determining the income distribution involved.

(4) *Strengthening supervision and management to ensure the healthy and orderly RUT of collective construction land.* The reform of the collective construction RUT system involves integrating state-owned land and collective construction land into a unified supply market based on the principle of separation of land ownership and rights of use. The reform follows the market mode of "planning control + market allocation". This aims to establish the basic role of the market mechanism in the allocation of land resources by balancing land market supply and demand through an effective macro management monitoring mechanism to ensure fair competition and normal running of the market, including the level of macro-control management, market operation and supervision.

6 Conclusion

The intention of the RUT of collective construction in China land is to both promote the integration of urban and rural areas in the process of development and effectively safeguard the interests of farmers who collectively own the land, so that farmers can share the benefits of increased civilization and urbanization. However, this has encountered difficulties and problems in policy and practice over the years. In order to explore a universal mechanism for the RUT of collective construction land in urban new districts, this paper proposes an analytical framework for the choice of RUT mode in Zhoushan City's new urban district based on the experience of current pilot reform projects. The highlights include a comprehensive literature review focusing on China's rural construction land RUT, a comparative analysis of several RUT methods used in different pilot areas and a well-tailored RUT mechanism for Zhoushan. The significance is that the findings of this paper can serve as a useful reference for other similarly placed cities in China and beyond.

Acknowledgements

The authors wish to express their sincere gratitude to NSFC (No. 71403304, 71402200, 71401194, 71473283) and the Central University of Finance and Economics (No. 14ZZD006) in China for funding support for the research project on which this paper is based.

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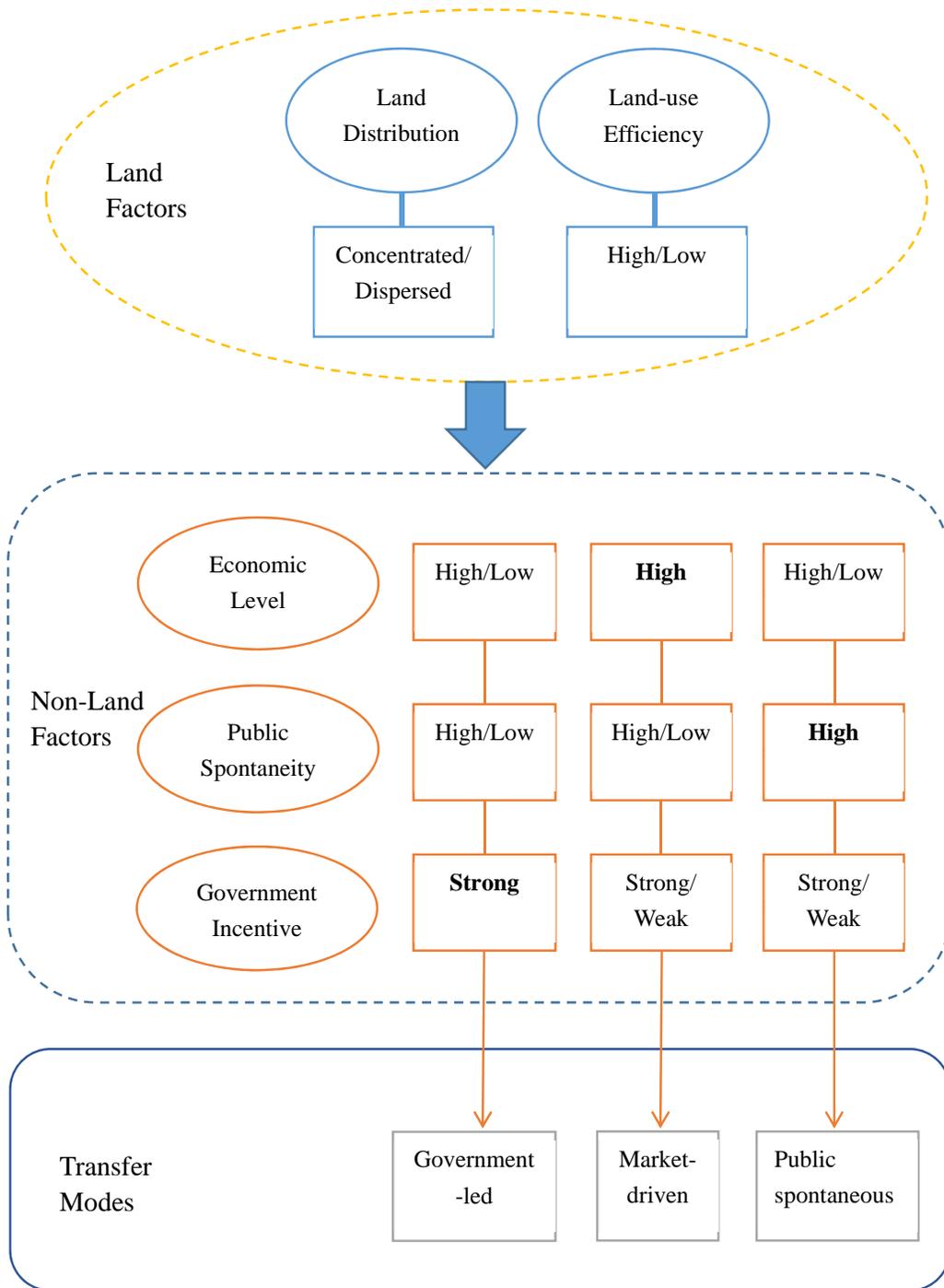


Fig. 1. The analytical framework for the RUT mode

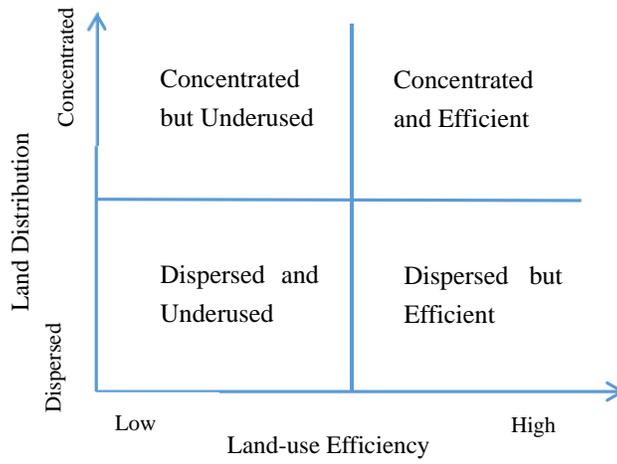


Fig. 2. Four-quadrant model for land factors

Table 1. RUT methods used in different pilot areas

Pilot area	Driving force	Form of circulation	Allocation of land revenue	State of land ownership
Huzhou, Zhejiang	Top-down	Varies with different ways of corporate restructuring	Compensation for original contract farmers, land protection and development, infrastructure and public construction, and social security	Land ownership is converted to state-owned within the planning area, and the land outside the planning area does not change
Wuhu, Anhui	Top-down	Transfer, lease, valued shares, joint venture, joint construction and mortgage	The revenue is shared by landowners, village (town) and county governments with an allocation proportion of 5: 4: 1	Ownership does not change
Nanhai, Guangdong	Bottom-up	Developing a unified plan for collective land and leasing the land or buildings to enterprises	Land shares cooperative system; leasing the land or buildings to enterprises	Ownership does not change
Suzhou, Jiangsu	Bottom-up	Transferring or leasing collective construction land with a specified amount of money and time	Paying the income from the circulation of collective construction land in the first circulation; paying a value-added fee for circulation again	Land ownership is converted to state-owned within the planning area, and the land outside the planning area does not change
Chengdu, Sichuan	Bottom-up	Auction of quotas of rural collective construction land	The government announces the reserve price of land use rights of collective construction land; the income belongs to the rural collective economic organizations	Due to the reform of property rights, farmers are given the full power of ownership
Kunshan, Jiangsu	Top-down	Farmers voluntarily assemble into investment associations or share cooperatives to tender for land use rights and to invest in the construction of factories and dormitories for rent	Farmers can obtain 85 percent of the revenue, and the rest belongs to the government	Ownership does not change

Table 2. Five key factors for analysis of the RUT mode

Factor		Definition	Description
Land Factors	Land Distribution	The spatial distribution of collective construction land in the pilot area	Concentrated/ Dispersed
	Land-use Efficiency	The efficiency of collective construction land use in the pilot area	High/Low
Non-land Factors	Economic Level	The level of economic development and marketization in the pilot area	High/Low
	Government Incentive	The initiative and incentive of local government for collective construction RUT in the pilot area	Strong/Weak
	Public Spontaneity	The spontaneity and motivation of farmers for collective construction RUT in the pilot area	High/Low

Table 3. Distribution of collective construction land in Zhoushan (Unit: m²)

Zone	Land area (including homestead)	Approved land area	Building area	Approved building area	Parcel number
Daixi	563535		469900		4720
Daidong	597008.363	555091.6			4185
Xiushan	508075.16			502275.5	3502
Changtu	595206.13				5347
Dinghaishuangqiao, Cenggang	725264.2	638040.9	566417.9	496406.2	6219
Shuangqiao Street	700091.9	66728.6	99405.58	51856.58	5810
Caiyuan	184350.76	184350.8	414789.2	414789.2	1593
Huanglong	35906.53	35906.53	80789.69	79533.69	139
Chengshan	380328.036	380328	855738.1	853226.1	913
Wulong	233196.4415	196676.5	524877.3	524902.1	1615
Taohua	612094.1	506679.5	673303.5	557347.5	5036
Xiazhi Fishing Village	916657.9	654138.3	1008324	719552.1	7079
Administrative office of Goushan	418120.5	325153.5	604204.9	482891.8	4967
Lincheng Street	240665.1	220629.1	213931.1	199317.1	1838

Table 4. Actual use of collective construction land in Dinghai

	Land area (m²)	Building area (m²)	Number of land parcels
Clinics	40	40	1
Office buildings for village government	4540	3680	8
Parks and Green space	94983	3819	20
Office buildings	46676	32798	51
Village enterprises	41490	32596	23
Auditoriums	19600	9230	13
Parks	146139	4911	37
Activity centers for the elderly	35258	26363	36
Temples	160070	112250	51
Enterprises	27770	21923	14
Sunning grounds	54612	5029	59
Schools	73244	71924	24
Hospitals	21972	19895	20
Meeting halls	259	259	1
Total	726653	344717	358

Table 5. Actual use of collective construction land in Daishan

Zone	Land use	Land area (m²)	Building area (m²)	Number of land parcels
Daidong	Office		1960	6
	Public Welfare		3336	14
	Rent		430	4
	Idle		1320	3
	Total		7046	27
Daixi	Office	12757	5557	20
	Public Welfare	4650	3610	18
	Commercial	1930	1240	6
	Others	1210	1210	7
	Total	20547	11617	51
Xiushan	Office	1180	1180	2
	Rent	5000	5000	3
	Public Welfare	3780	3780	13
	Administration	220	220	1
	Total	10180	10180	19

Table 6. Comparative analysis of non-land factors

Land Category	Economic Level	Government Incentive	Public Spontaneity
Concentrated but Underused	Although collective construction land is spatially concentrated and able to be transferred on a large scale, the land market valuation is low due to low land-use efficiency, leading to an underdeveloped land market.	As collective construction land is underdeveloped but spatially concentrated, large-scale land development can be undertaken directly by local government. Therefore, the government's motivation for RUT is low as the transfer may not be necessary.	Since collective economic organizations are unable to utilize the land efficiently, they prefer to gain profits through RUT to others while also improving land-use efficiency. Public spontaneity may be high.
Concentrated and Efficient	As the land has been utilized efficiently and property integration has taken place, the demand for the RUT of large pieces of land (packages) in the capital market may increase. This can be a channel to collective financing under a high level of economic development.	As the land distribution is concentrated and has been efficiently developed by the collectives, local government intervention is not necessary for promoting the RUT. Therefore, government incentive may be low.	Since the land has been efficiently used by the collectives, there is no desire for the RUT of land with high output efficiency. Public spontaneity may be low.
Dispersed and Underused	The level of economic development is probably low. Not only is the land distribution scattered so that it cannot be used on a large scale, but also land-use efficiency is low so that it is undervalued by the market.	Local government motivation is probably high. The scattered land properties can be integrated after the RUT so as to provide large-scale developments with large pieces of land while also improving land-use efficiency.	Public spontaneity is probably high. Since the collectives cannot utilize their land efficiently, they hope to increase income (selling/leasing by RUT or developing land jointly).
Dispersed but Efficient	Although the land is utilized efficiently, the land distribution is dispersed, so that large pieces of construction land for large-scale development will be scarce in the land market.	Local government may be highly incentivized. Although the land has been efficiently used by the owners, the scattered land lots can be integrated for large-scale developments through the RUT.	Since the land has been utilized efficiently in the collectives and the individual landowners are benefiting from the land, they normally will not use the RUT to others. Public spontaneity is probably low.