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# Urban–Rural Construction Land Replacement for More Sustainable Land Use and Regional Development in China: Policies and Practices

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**Abstract:** With the rapid development of urbanization and industrialization, land exploitation in China has caused a decrease of cultivated land, posing a threat to national food security. To achieve the goals of both economic development and cultivated land protection, China launched an urban–rural land replacement measure supported by a new land use policy of "increasing vs. decreasing balance" of construction land between urban and rural areas in 2008. Setting China's urban and rural land use policies in a historical context and urban–rural sustainable development, this paper discusses four practices in Jiangsu Province, Tianjin Municipality, Shandong Province, and Chongqing Municipality. These practices achieved success in impelling agricultural modernization development, improving rural infrastructure and living circumstances, releasing the potential of rural land resources, and increasing cultivated land and urban construction land in the past decade. However, in some practices, problems, and even some conflicts, exist in the protection of farmers' rights and interests. These challenges are discussed in the context of implementation. In order to better implement urban–rural construction land replacement and achieve better results, the authors argue that farmers' rights and interests must always be put first and their wishes should be respected more, a consolidated urban–rural land market and a better land market mechanism should be founded, the supply of public goods and services for villagers should be further improved, and supervision and evaluation mechanisms should be further strengthened.

**Keywords:** "supply vs. demand imbalance" of land use; urban–rural land replacement; "increasing vs. decreasing balance" land use policy; typical practices; China

## 1. Introduction

China has experienced rapid economic growth since 1978 with a significant impact on social development as well as land use. In the 1990s, the urban construction land growth rate in eastern coastal China was far higher than that in the developed world (4.2% vs. 1.2%) [1,2]. In other regions and cities of China, construction land also increased [3–6]. Since 2001, the increase of urban construction land in China has been out of control, spurring extensive discussions in intensive land use in both the urban and rural sector [7,8]. From 1991 to 2008, urban construction land in China increased by 27,118 km$^2$ at a rate of more than 6.9% per year, and the speed after the 21st century is 1% higher than that before the 1990s [9]. Such land expansion in China is at great expense to farmland loss.

In China's 145 major cities, 70% of newly increased urban construction land in the 1990s was achieved by acquiring farmland [10]. This increase would be even greater without the following tightened cultivated land protection policy put forward by the central government, aiming to maintain the total cultivated land area at no less than 1.8 billion mu (120 million ha) in the period to 2020.

Besides urban construction land, the bulk of the construction land is widely scattered in the countryside. Rapid urban development and expansion bring about significant migration from rural areas to cities for non-farm occupations [11–14]. The resident population in rural areas and agricultural household registration population have experienced a rapid decrease between 1996 and 2001, but rural residential land continues to expand significantly [15–17]. One reason is that some farmers work and live in cities for a long time but still keep their old rural houses undemolished, which results in them occupying residential land both in urban and rural areas [18,19]. Furthermore, farmers' preference for building their houses in villages close to roads and other infrastructure has contributed to the loss of agricultural land [20–22]. Because of depopulation and the abandonment of rural buildings and land, hollowed-out villages with idle residential land have become a widespread phenomenon in China [15,23–25]. In addition, at present, rural residential land in China amounts for two-thirds of both urban–rural construction land and construction land mainly for industry and mining, four times larger than urban construction land, and at 229 $m^2$ per head, considerably above the national standard of 150 $m^2$ per head [8,26], reflecting inefficient utilization of rural construction land. To deal with the tension between the increasing demand for urban construction land and farmland protection, rural construction land is pivotal.

Sustainable rural development in China has attracted considerable academic interest [27–29], and has recently included research on rural restructuring and urban–rural transformation [28,30]. With the shortage of land for urban construction, "urban–rural construction land replacement" was introduced, which transforms construction land quotas saved by rural land restructuring into urban land for development. It is supported by a new land use policy of "increasing vs. decreasing balance" introduced in 2005 to maintain the balance between increases in urban construction land with decreases in rural construction land [24]. However, its implementation in pilot areas has not been smooth.

The goal of this research is to place the new land use policy of "increasing vs. decreasing balance" in the context of a framework that links land use to sustainability, and to highlight four case studies that identify the sustainable development of urban and rural areas is required. In the next section, a brief literature review of land use in China is undertaken to contextualize a land use and sustainability framework. Section 3 summarizes the new land use policy, setting it within the framework. Section 4 details four case studies of relatively successful experiments in the implementation of the new policy. Section 5 gives a brief discussion about the current practices. In drawing conclusions from these experiments, Section 6 highlights implications for realizing urban–rural sustainable development in the future.

## 2. Brief Literature Review of Land Use in China

There is no dearth of studies on land use and its challenges in China. They are categorized as characterizing the land use situation in China, policies related to land use, and regional sustainable development through land use. For instance, Zhang (2012) traced the changes in land use policies since the founding of the People's Republic of China in 1949 [31]. He et al. (2012) contrasts the importance of land use in China's economic growth with its relative unimportance in Western economic growth theories, and also documented serious social tensions, environmental degradation, and economic fluctuations as major consequences [32]. Ho and Lin (2004) discussed non-agricultural land use in post-reform China in terms of population density, urbanization, and level of economic development [33]. Li and Xie (2015) echoed the inefficient urban land use while Wei et al. (2015) blamed uncertainty with planning failure [34,35].

In terms of policy efficacy, Liu et al. (2014) attribute China's land use problems to a lack of policy coordination [36]. Han and Lai (2012) pointed to the shifting role of the central government,

with the once exclusive role of urban economic development replaced by multiple goals that are hard to achieve [37]. Li (2016) pointed to regulatory failure in the central government's failure to control local land use [38]. Dean and Daam-Luhr (2010) likewise pointed to reforms not going far enough to protect rural dwellers' rights [39].

In editing a special issue on sustainable development, Xie (2017) put together a series of papers on the dynamics of land use, land use sustainability, and environmental issues affecting sustainability [40]. Likewise, Liu (2018) addressed the issue of rural sustainability in his discussion of China's land use [41]. Li et al. (2018) also supported land consolidation for achieving rural sustainability in China [42].

The above literature review speaks to a situation in China where many theories applicable to Western countries fail in their application to Chinese cases. For instance, studies on reverse migration from cities to suburban areas (e.g. Ford and Hill, 1971) have little relevance for China where urban and rural land markets are segregated [43]. Instead, an analytical framework akin to that shown in Figure 1 may be appropriate in viewing the China situation. Figure 1 shows, in the box on the left, the factors that contribute to the land use situation before the introduction of the new land use policy. The new land use policy seeks to incentivize the consolidation of rural land, some of which would be released for urban construction, while also improving land productivity. With improved land management and administration, success with the new land use policy would lead to agricultural sustainability in the medium to long term. Currently, the new policy, the focus of this paper, is still a work in progress. However, case studies can point, through their successes and challenges, the way forward towards achieving more sustainable development of urban and rural areas.

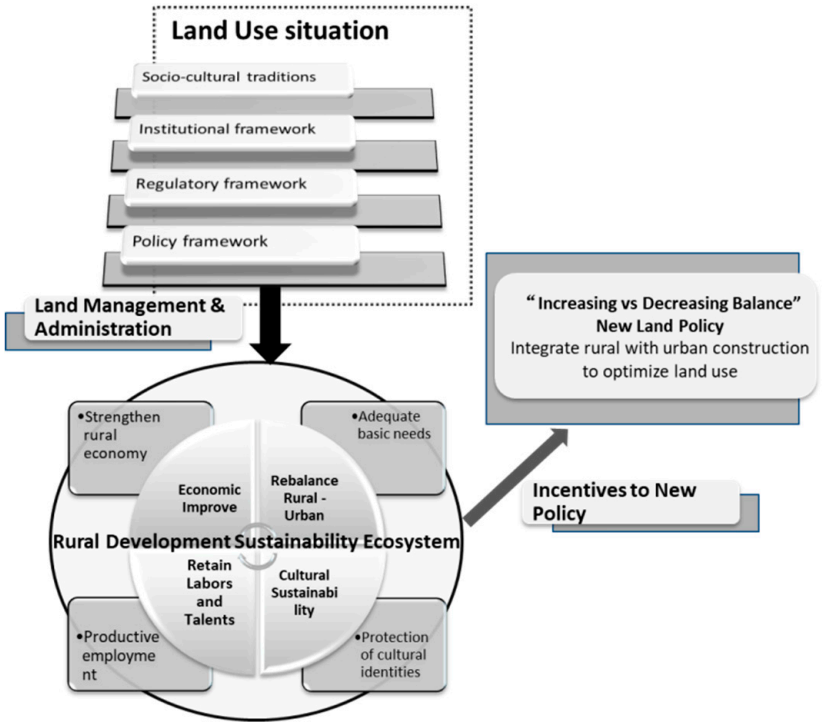


**Figure 1.** Analytical framework for linking land use and rural sustainability through a new policy in China.

## 3. A New Land Use Policy: "Increasing vs. Decreasing Balance" (Zengjian Guagou)

In China's history, land use policy is an important component of national policies contributing to socio-economic development through rationalizing land allocation, strengthening land administration, and coordinating urban and rural development [44]. Land in China is classified as agricultural land, construction land, and unused land, according to the Land Administration Law (first drafted in 1986 and revised in 1988, 1998, 2004, and 2019). Construction land consists of urban construction land

and rural construction land. According to the Land Administration Law, urban construction land is state-owned and rural construction land is collectively owned, except the state-owned sectors. Since 1949, urban–rural construction land has increased significantly, as influenced by relative policies, including land use policies, population growth, and economic development.

Since the establishment of the People's Republic of China, efforts to protect the rural population and reduce social inequalities have had the effect of controlling rural urban migration and segmenting land markets. With respect to the former, the Hukou system was introduced in 1958 while ownership of all rural land was in the hands of collectives, leaving farmers only with land use rights. Thus, the "dual track structure" began for urban and rural areas. The Land Administration Law that came into effect in 1988, and was revised in 1998 and 2004, further limited any conversion of agricultural land into land for construction and prohibited the transfer of land use rights of rural collectives for non-agricultural construction.

In light of the existing distortions, both structural and policy-imposed, China has instituted a new land use policy. However, it has not been successful in preventing the decline of arable land to the detriment of food security. To ensure food security and support socio-economic development (*shuangbao*) and "build a new countryside", the "increasing vs. decreasing balance" land use policy was adopted. Since its introduction, this new policy has undergone four stages: Appearance, practice, management, and rectification. In 2004, a rural construction land restructuring and linking up with increased urban construction land was proposed to achieve optimal land use. In the following year, guidelines for regularizing changes in urban and rural construction land were drawn up by the Ministry of Land and Resources of China (MLRC). Next, the policy was put into practice for the first time after five provinces and municipalities were approved as pilot areas. Since December 2010, the practice has reached the rectification stage, because the central government issued a special document to regulate the local government's behavior in the implementation of this policy [45]. Violent demolishment and forcing farmers to live in tall buildings are strictly prohibited. And local governments are required to provide collectives and farmers with proper compensation and resettlement.

*Zengjian guagou* involves urban–rural construction land reorganization, with new houses built, old houses demolished (*jianxin chaijiu*), and the land reclaimed for agricultural purposes [46]. It is an experiment in urban–rural construction land replacement to achieve a balance in construction land between the urban and rural sectors. Its purpose is to increase and improve cultivated land quality to support food security goals, optimize the allocation of land resources, and intensify the use of urban–rural construction land along with balancing urban and rural development.

The detailed mechanics of the "increasing vs. decreasing balance" land use policy is shown in Figure 2. First, an ad hoc investigation is to be carried out in the pilot cities or counties to clarify land use status, ownership, and grade; assess the consolidation potential of rural construction land and urban construction land requirements; and elucidate knowledge of the production and living conditions of local farmers and their desires for land replacement. Next, the local government draws up an ad hoc plan with a spatial layout to begin the process of urban planning. Approval of this planning requires that a number of conditions, such as consolidation potential and local government support, are met. An implementation plan follows that includes a plan for land replacement scale, scope, and layout development of a work schedule and budget, together with plans for raising funds, old rural construction land reclamation, resettlement, and replacement land use. The process of acceptance then moves from the county level to the provincial level and finally to the national level.

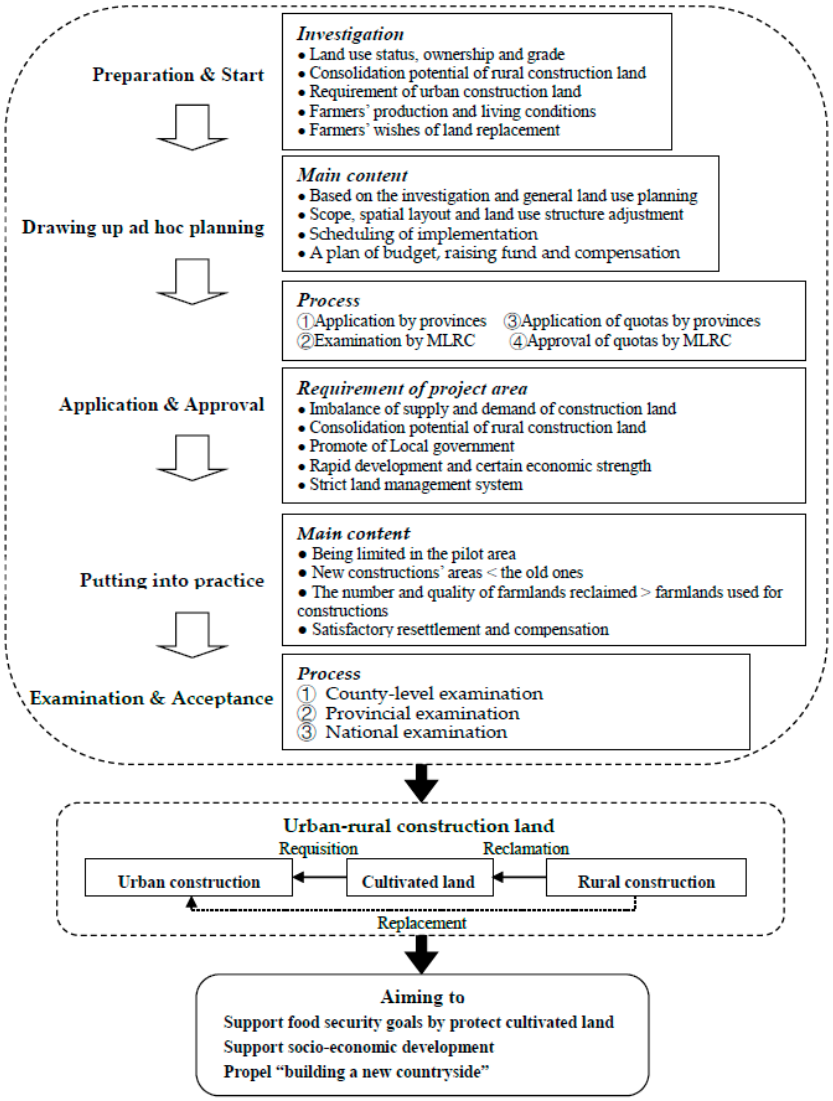


**Figure 2.** Process of urban–rural construction land replacement supported by the "increasing vs. decreasing balance" land use policy in China.

The application of this policy requires a pilot province to establish a database for drawing up an implementation plan on the basis of which it applies for land replacement quotas. Only when land quotas are authorized can implementation begin.

Rules also apply to the affected areas. First, new construction areas must be smaller than old construction sites, and the area and quality of farmland reclaimed by old construction should be larger than farmland new constructions. The number of land quotas saved after new constructions can be added to the total of the urban construction for socio-economic development. In addition, implementation is limited to the pilot area and cannot be outside of it. Removal and resettlement of farmers cannot be against farmers' wishes, and satisfactory compensation must be provided. Furthermore, farmers' production and living conditions must be improved by resettlement. Finally, after the completion of the initiative, the pilot area will be assessed first at the county-level, then at the provincial level, and the result will be reported to MLRC.

Despite its relatively brief history, this "increasing vs. decreasing balance" land use policy has achieved some successes but also encountered challenges. These successes and challenges are on display in the following case studies, where context also plays a major role in China. They show that

while a single strategy is promoted, the instrumentality for operationalizing this strategy varies from case to case.

## 4. Case Studies of the "Increasing vs. Decreasing Balance" Land Use Policy

The first group of pilot provinces (or municipalities), Tianjin, Jiangsu, Shandong, Hubei, and Sichuan, was approved in April 2006, and consists of 183 areas and 4924 ha of replacement quotas. In the next two years, Inner Mongolia, Zhejiang, Anhui, Henan, Guangdong, Chongqing, Hunan, Fujian, Hebei, Liaoning, Jiangxi, and Yunnan (metropolitan cities and autonomous regions) became pilot areas. Until June 2010, there were 27 pilot provinces (metropolitan cities and autonomous regions) with a total of 45,000 ha (Figure 3). Obviously, local governments expanded their pilot areas without authorization. Recently, Jiangsu Province, Tianjin Municipality, Shandong Province, and Chongqing Municipality have pioneered different methods for achieving urban–rural construction land replacement. Even now, their practices are the most representative. Therefore, we chose these four provinces and municipalities as case study areas.

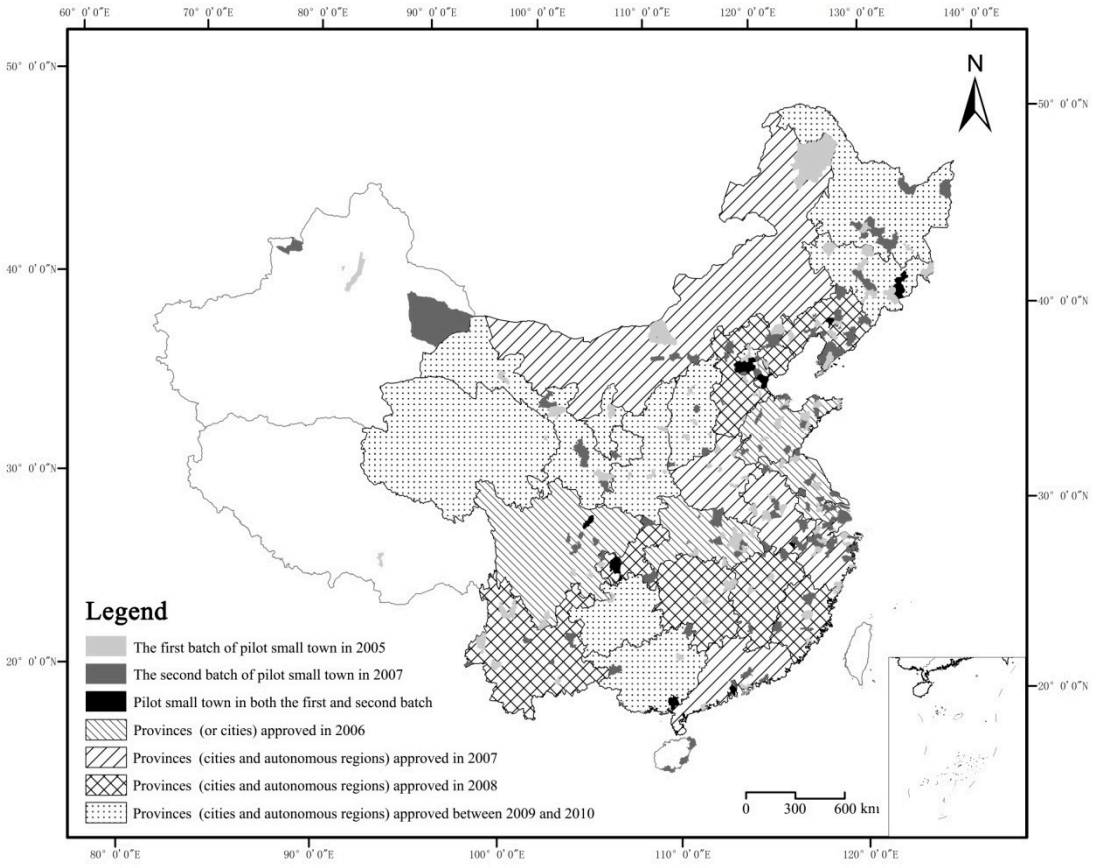


**Figure 3.** Pilot areas approved by MLRC from 2006 to 2010 in China. Pilot small towns are a batch of pilot towns displaying an exemplary role by institutional and mechanism innovation, and developing the town is an important experiment to explore the urbanization path with Chinese characteristics. The implementation started in 2005, pushed by the National Development and Reform Commission and the first batch of 118 pilot small towns came out. The second batch were chosen based on the first batch with a strong reform sense, obvious characteristics in the industry, favorable geographic conditions, great developing potential, and a leading population and market. The central government will support them and accelerate their urbanization and promote rural development for a well-off society. Later, pilot counties implementing "increasing vs. decreasing balance" land use policy will be chosen among small towns.

### *4.1. Case Study 1: Jiangsu Province—"The Boundless Expanse of Fertile Farmland Construction" (Wanqing Liangtian Jianshe)*

Jiangsu Province is a more developed province in eastern coastal China. During rapid industrialization and urbanization, the supply demand imbalance of construction land became acute. Hence, in 1990, intensive land use in an industrial park was located in south Jiangsu. In 2004, the framework of concentrating industries, population, and residences in a development zone was put forward. Rapid growth of secondary and tertiary industries caused many rural laborers to take up off-farm jobs, and rural areas contained a large share of non-agricultural industries. Additionally, because of dispersed habitation and cultivation, the agricultural sector was saddled with inefficient development. Under these circumstances, especially "increasing vs. decreasing balance" land use policy, the Jiangsu government launched a project, the *Boundless Expanse of Fertile Farmland Construction* (FFC), in June 2009 under the policy framework of "increasing vs. decreasing balance". Its objective is to transfer local residents to central villages or towns and build up large contiguous areas of fertile farmland through land consolidation. This would lead to residential agglomeration and greater efficiency in agriculture, thus speeding up the process of "building a new countryside" (Figure 4).

FFC focuses on increasing the effective areas of cultivated land and improving land quality. During the first two years of its implementation, 41 programs were approved with a planned increase of 123.7 thousand mu (8246 ha) of cultivated land. For the resettlement of rural residents, several options were offered, including monetary incentives and settling in rest homes and towns or central villages. Additionally, Jiangsu Province allowed those relocated residents the right to transfer (*zhuanrang*), subcontract (*zhuanbao*), and lease (*chuzu*) the land, turning them into shareholders (*rugu*). Basically, except dealing with the actual problem, FFC is also beneficial in that it promotes rural land use reform, aiming at intensive management of rural land and the implementation of policies to propel urban–rural coordination.

However, FFC may infringe on farmers' usufruct of residential land, which may be manifested in the following three aspects: First, the compensation for the usufruct of residential land is concealed under the condition of changing houses; second, the farmers are induced to abandon their residential land by using low reward as bait, and the compensation due to the usufruct of residential land is turned into a reward; and third, replacement for urban construction land has produced huge benefits, but these benefits are difficult for farmers to share, and the income right of residential land cannot be guaranteed [47].

**Figure 4.** Newly consolidated farmland (left) and new settlements under construction (right).

### *4.2. Case Study 2: Tianjin Municipality—"Exchange Residential Land for Houses" (Zhaijidi Huanfang)*

Tianjin is one of the four municipalities in China and is an important coastal open city in north China. It encompasses 144 agriculture-related villages and towns, including 3833 villages covering 1183.9 $km^2$ of construction land in total, with 247 $m^2$ per capita [48]. The problem here is that the scale of villages and towns are small, the area per capita of construction land is large but under-utilized,

low environment quality, poor management, and a lack construction funds and planning. Therefore, the Tianjin government put forward "Exchange Residential Lands for Houses" (ERL) in 2005 to solve the construction land problem and also to spur "small town construction". With the launch of the "increasing vs. decreasing balance" land use policy, Tianjin has been one pilot area out of the five approved by MLRC, and ERL was considered an option for construction land replacement. In August 2009, ERL was promulgated formally and farmers can settle in small towns obtain a new house by exchanging the old one to build a small town suitable for agricultural socio-economic development, industrial agglomeration, and eco-livability [49].

Two major characteristics of ERL relate to resettlement and financing. Resettlement is a common problem in most pilot areas, and it has been solved innovatively in Tianjin. First, the local government attaches great importance to the farmers' willingness to move. Furthermore, the residents exchange their old residential land for accommodation of a certain standard. Once residents move into town, the government provides city and town social security (*chengzhen shebao*) and job opportunities for them (Figure 5). In addition, since resettlement causes an increased distance from the residence to farmland the government plans to set up a modern agriculture park to improve rural industrialization while also introducing incentives, such as asset quantification reform and granting resettlers' land contractual rights to be a shareholder, to achieve the "farmers-to-residents" transition and allow them to own capital stock. Financing is another common problem faced by resettlers. ERL establishes investment institutions in small towns, and then applies to the China Development Bank for a loan. The funds are used for the construction of residences and infrastructure, and the construction quotas saved by residential land reclamation are transferred to the land market, including bidding, auctions, and listing (*zhaopaigua*). The incomes are used for repayment and town construction.

**Figure 5.** New community for resettlers in Huaming town of Tianjin.

From the point of view of the feasibility of the innovation of the housing exchange system, the success of the system innovation must be based on land balance and capital balance [50]. Land balance constitutes the institutional constraints of housing replacement, and insisting on land balance is the premise and foundation of housing replacement; capital balance is the key to the success of the housing replacement system, because the whole process of housing replacement requires a lot of financial support, and all funds ultimately come from the transfer funds of land replacement. Therefore, the key to the success of this policy depends on the balance of funds realized by the unit land value or the total income of land transfer in the region.

### *4.3. Case Study 3: Shandong Province—"Rural Community-Oriented Development" (Nongcun Shequhua)*

Community-oriented development was first put forward in the Sixth Plenary Session of the 16th Central Committee of the Communist Party of China and was emphasized at the Third Plenary Session of the 17th Central Committee. Following this policy and the subsequent launch of the "increasing vs. decreasing balance" land use policy, Shandong Province focused on rural community-oriented development (RCD). Zhucheng, considered as the most typical county in the province, was selected as a pilot county among 296 counties in the country. Its RCD went through three stages: Firstly, improving rural community-oriented services and construction by building communities in 2007; secondly, facilitating rural community-oriented development by developing public services, economy, policy, culture, and management in every community; and thirdly, merging small villages into central communities (*checun bingju*) in 2010. In the end, 208 communities were built by merging and abolishing 1249 administrative villages. Implementation of RCD formed a new urban–rural framework of a "central city-town-rural community".

RCD in Shandong is a spatial form of reorganization. Each community is built up based on a central village supported by convenient transportation, development potential, and core function (Figure 6). It consists of about five villages or 1500 households within a radius of two kilometers and is consolidated in accordance with social affinities. However, in management and services, it is not a spatial but more a structural change. The functional position of the new rural community provides basic public services. In every community, party organizations at the community level and coordination committees for community development have been established to guide construction. Some village management systems, such as land contract relationships, remain unchanged. In addition, service centers, including medical and health, social security, disaster management, environment sanitation, culture and education, sport and recreation, and family planning services, are established. This advances rural infrastructure construction and allows farmers to enjoy basic public services. It also represents a new way of promoting rural urbanization, replacing the traditional practice of living within the confines of a village.

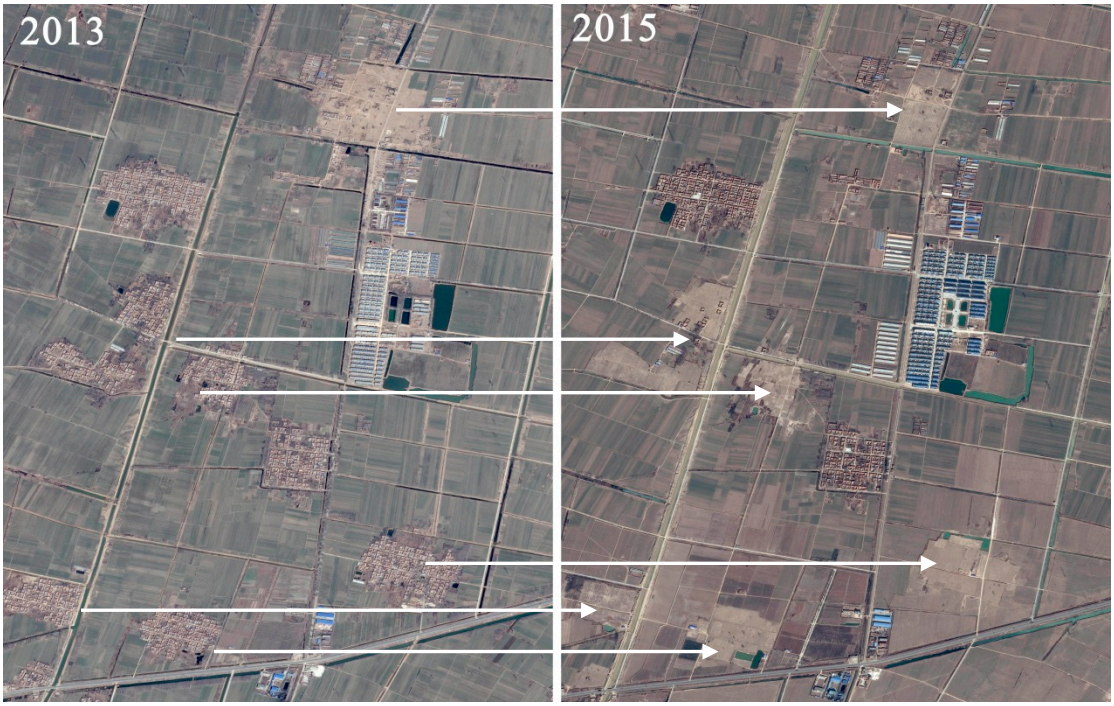


**Figure 6.** (Residential) land use change in a typical rural area experienced RCD in Dezhou city. **Note**: From the picture we can see the new communities built in 2012 and the old villages gradually demolished afterwards.

The driving force of new community construction lies in the strong pursuit of construction land quota by local governments. Increasing the density of rural residential areas to achieve intensive rural land use is the most effective ways to acquire the quota. Therefore, "living in buildings" has become a major scheme of the construction of new communities. Some reports show that the problems of increased living costs and difficult integration into an urban life are common among farmers who "go to cities" and "go upstairs" [51]. After urbanization, farmers have been further deterred from agricultural production and are unable to be self-sufficient. Expenditures on daily necessities and water and electricity have increased substantially. More than three-quarters of the farmers said that their household expenditures have increased [51]. In the field research, we also found that "upstairs" farmers not only do not have a vegetable yard but also encounter the problem of having nowhere to raise livestock or stack farm tools. Many people even moved downstairs to the garage, planting vegetables and raising chickens in the green space of the community. In addition, the "increasing vs. decreasing balance" land use policy brings huge benefits from land transfer, far more than the compensation distributed to farmers. Even though living conditions have improved, farmers feel that collective assets have been plundered to some extent. Therefore, in the follow-up work of RCD, more attention should be paid to the balance of interests among major actors.

### *4.4. Case Study 4: Chongqing Municipality—"Ticket for Construction Land Transaction" (Dipiao)*

Chongqing is a municipality in China with 51.6% of its population urbanized and its residential land is 1847 $km^2$, nearly three times as large as urban construction land [9]. It was approved as a pilot area for urban–rural comprehensive reforms in May 2007 and as a pilot city for implementing the "increasing vs. decreasing balance" land use policy in the following year. Given the severe imbalance between urban and rural construction land use resulting from land supply and demand, Chongqing established the Chongqing Rural Land Exchange (CRLE), a government-funded organization to form a unified urban–rural land transaction market. In November 2008, the Interim Measures of CRLE Management were approved and subsequently CRLE was officially established, mainly for the transaction of construction land quotas. In this document, the transaction scope, mode, qualification, and right and interest protection, etc. were detailed. The construction land quota, namely *dipiao*, is defined as quota from reclaiming rural construction land, including rural residential land, villages' and towns' enterprises land, and rural communal facilities land. By the end of 2015, a total of 11.52 thousand ha and 34.566 billion yuan of *dipiao* had been traded, of which poor areas accounted for 75.65% and 75.45% of the total area and money of *dipiao*, respectively. Accumulative use of *dipiao* amounted to 7833 ha, which occupied 4880 ha of arable land [52]. Based on the *dipiao* model, Chongqing realized the balance between occupation and compensation of cultivated land. At the same time, the reduction of the rural population was accompanied by a reduction of rural construction land and the increase of arable land.

It was implemented under a special procedure under the interim measures. The holders of *dipiao* can participate directly in transactions or through an agency. They first apply to a county-level land resources administration department for land reclamation, and then after land has been reclaimed, examined and approved, the county-level department applies to a municipal-level department for vouchers to carry out "increasing vs. decreasing balance". Following that, quotas for reclamation are then entered into a database of CRLE, examined, and then launched in the public. CRLE organizes land fairs to gather individuals or collectives to bid for quotas with their base price fixed by the Chongqing government according to the total expenses of reclamation and cost of a new construction. After a successful transaction, the quota is used for urban construction plans, without which the urban land is not allowed to be developed. Figure 7 shows the auction spot of *dipiao* trading.


**Figure 7.** The auction spot of *dipiao* trading.

The Chongqing *dipiao* market is an important instrument to ensure the enforcement of the "increasing vs. decreasing balance" land use policy. The market provides a public platform, allowing rural construction land mobility and trading. It can be seen as a great reform towards the rural communist land system. Meanwhile, it can also be viewed as a trial project to integrate rural land with urban land, thus achieving a coordinated urban–rural construction land market. However, it suffers from several drawbacks. Firstly, collective economic organizations, who possess land ownership and offer land quota (*dipiao*), received less rewards from the *dipiao* trading system. In China's rural land system, as land is not allowed to be privatized, land ownership belongs to rural collective communities while land tenure and operating rights are distributed to rural households and rural enterprises. In the *dipiao* system, it is the farmers and township enterprises that obtained great benefits from land quota trading to urban counterparties, leaving landowners and collective communities less rewarded economically. Secondly, it enlarged the regional development gaps in remote areas. To a certain extent, construction land is a carrier of socio-economic activities. It guarantees regional development. The land quota obtained from rural areas is often used to support well-developed rather than less-developed urban areas, further aggravating the regional development inequality and the balanced and coordinated development of the region. Specifically, by purchasing *dipiao*, developed regions obtain sufficient construction land quota for development and construction. Regions with a relatively backward level of economic development obtain a monetized income of land assets through *dipiao* transactions in a short time, but they lose the quota for industrial upgrading and industrial construction in the future, and thus lose the right to land development. Thirdly, the distribution of value-added income is not reasonable enough. *Dipiao* transaction costs not only cover the value of rural collective construction land use rights but also the huge added-on value, such as value-added transaction, land transfer income, tax revenue, and differential income when landing, etc. However, the distribution of these benefits is unfair. In particular, the land value-added income generated by the *dipiao* is straightaway taken by the local government alone while the *dipiao* suppliers (especially the former rural collective economic organization) are largely neglected in the distribution of the value-added income.

## 5. Discussions

### *5.1. Brief Comparison of the Four Cases*

Leveraging the four case studies, land consolidation is found to be a diversified and complicated process. Participated in by various local stakeholders, "increasing vs. decreasing balance" land use policy is restrained by diversiform factors. The effectiveness of the scheme is determined by

the coordination among the local stakeholders. However, local stakeholders with self- interest are not compatible in practice. Especially, villagers, the most vulnerable actors, are forced to sacrifice. Moreover, problems are diversified in the four cases, which is attributed to the different approaches and mechanisms they adopted. Therefore, they provide diverse empirical references. FFC in Jiangsu reclaimed the rural construction land for farmland, increasing the farmland amount on the one hand, and promoting agro-industrialization on the other hand. However, farmers suffered from the inadequacy of the compensation. ERL in Tianjiang fueled local urbanization, the fast pace of which brought side-effects to rural dwellers in terms of daily agriculture activities and lifestyle. RCD in Shandong underlined the infrastructure improvement. Nevertheless, it increased rural living costs and deterred peasants away from daily farming after relocation. The *dipiao* system in Chongqing, the pilot in establishing a rural construction market, allowed rural construction land after reclamation into farmland to be traded as quota in the land market, with which the urban counterparty can be further developed. It helped to maintain the rural–urban construction land constant in quantity. However, it is critiqued as being less time effective since reclamation and its performance assessment is a long process to undertake. Beyond this, it was pursued by governments and developers for self-interest, threatening the benefits of villagers. Based on the above discussion, it is found that forcible relocation, inadequacy of compensation, mindset, and social identity change are the common issues arising from 'increasing vs. decreasing balance' schemes, deterring rural dwellers away from land consolidation. The dynamics behind these issues are attributed to an unsound legitimation system at the national level, incoordination in policy implementation in the local government hierarchy, and less references to modify the land consolidation model and to refer empirically (Table 1). Therefore, it requires a long-lasting mechanism and system to be built to further secure land consolidation. The existing practices provide important references for the improvement of "increasing vs. decreasing balance" land use policy.

**Table 1.** Analysis of the practical problems of urban–rural construction land replacement in the four cases.

| Cases | Main Problems | Main Reasons |
| --- | --- | --- |
| Jiangsu: the boundless expanse of fertile farmland construction | ➢ Unmanageable relocation process and inadequate compensation to villagers<br>➢ Forcible land transfer happens in some regions | • Imperfect institutional arrangement<br>• Inadequate implementation by local governments<br>• Lack of theoretical and empirical research support |
| Tianjin: exchange residential land for houses | ➢ Rural land concentration changes the traditional rural lifestyle<br>➢ The compensation to relocated rural dwellers and their future life are unsecured | |
| Shandong: rural community-oriented development | ➢ Hard to change rural villagers' mindset<br>➢ Land for agricultural facilities is not fully considered<br>➢ Inadequate infrastructure and high costs for basic services<br>➢ Forcible relocation to high-rise apartments | |
| Chongqing: *Dipiao* system | ➢ Unbalanced benefit distribution between villagers and governments<br>➢ Unreasonable distribution of value-added income in land transfer<br>➢ The *dipiao* system was not fully integrated into regional master plan and it was implemented without efficient functional restriction mechanism for local governments and developers | |

### *5.2. Whether It Is of Benefit to Farmers?*

Urban–rural construction land replacement, implemented under the "increasing vs. decreasing balance" land use policy, is not only an important method to achieve equilibrium in land supply and demand to improve urban development but may also facilitate rural restructuring to build a "new countryside", which may bring about an improved living environment. Both the National Land Consolidation Planning (2010–2015) and National Land Consolidation Planning (2016–2020) emphasize the consolidation of rural construction land (Table 2). However, after implementation, are there really so many benefits for farmers? Farmers are the key stakeholders and they should benefit from these practices. However, there has been strong discontent from farmers who protest against the demolition of housing and are reluctant to move into new settlements. These incidents question the central government's intention to protect rural residents' rights and interests, which have always been the top priority of the reform. Why are the farmers dissatisfied with the well-intended reform? Two explanations come to mind, both of which are the consequences of expectational mismatches.

**Table 2.** Major planning goals/indicators in National Land Consolidation Planning of 2011–2015 and 2016–2020.

| Major Planning Indicators | 2011–2015 ($10^4$ ha) | 2016–2020 ($10^4$ ha) |
|---|---|---|
| Construction Scale of High Standard Farmland | 2666.7 | 2666.7–4000 |
| Improvement of farmland quality after consolidation | 1 grade | 1 grade |
| Newly added farmland | 160 | 133.3 |
| Through cultivated land consolidation | 72 | 60 |
| Through land reclamation | 28.3 | 24 |
| Through developing unused land suitable for cultivation | 59.7 | 34 |
| Through rural construction land consolidation | — | 15.3 |
| Area of rural construction land consolidation | 30 | 40 |
| Area of redevelopment of inefficient urban land | — | 40 |

**Source:** National Land Consolidation Planning of 2011–2015 and 2016–2020.

The first explanation is mainly about the adequacy of compensation and social security after resettlement. Every local household in the rural areas of China is entitled to own a house built on a tract of land. There are four or more people in a rural Chinese family and the houses are usually very spacious with several rooms and a yard and the area per household (229 $m^2$) is considerably above the national standard of 150 $m^2$ [26]. However, in construction land replacement, not only do households suffer from removal and resetting but the new houses are also always smaller than the old ones they left behind, let alone being able to store some agricultural implements. This was an issue for ERL in Tianjin Municipality, and also in the RCD in Shandong and FFC in Jiangsu. Villagers generally felt that a house of 80 $m^2$ is inadequate for them, but they could not afford to buy larger houses. When the local government pays villagers compensation for demolition, another problem arises. The compensation standard may be adequate for those living in old houses but not for those who had built their houses in recent years. Furthermore, when villagers move into communities, living costs like paying for infrastructures, including water, gas, heating, etc., will increase, which become a big cash expense. In addition, some farmers have to abandon farmland and give up farming-related work to become urban dwellers, as has occurred with FFC in Jiangsu Province and ERL in Tianjin municipality. Loss of farmland, insufficient compensation, and a lack of employable skills have left some Chinese farmers living harshly, resulting in less confidence in their future [53].

The second factor relates to a productive lifestyle and living circumstances changes. In rural China, almost every local household needs a yard to rear cattle and to dry grain in the sun. However, most of these new houses and communities do not have such spaces [54]. Also, the new concentrated living mode increases distances from farmland, although some districts try to deal with the problem by the method of compensation or agricultural cooperation, e.g., in ERL of Tianjin. Moreover, especially for old villagers, residential land is taken as their lifeblood where they had grown up, as some had

been residents in their houses all their lives and the houses were passed from one generation to another. Once they move to a new place, the traditions and way of life would have been ended with unprecedented change. Farmers retaining certain rural traditions are facing lifestyle habit changes and a psychology transition.

However, our recent studies in Shandong, Henan and so on reveal a dynamic attitude change of relocated local dwellers towards the new community, reflecting in their satisfaction towards changing lifestyle. The residents gradually admit and pursue land consolidation. Therefore, the conclusion towards its failures are still uncertain, which takes time to exam especially the satisfaction of local dwellers. Nevertheless, there will be significant spatial and social change in the future rural China. Rural areas in China cannot be rebuilt following the standard of urban areas, as it is attached to low costs and rational and sustainable development integrating rural production space with ecological space and living space. Currently, the priority is to secure farmers' legitimate rights and interests, and ensure they benefit from the reform and practice. In follow-up practices, more attention should be paid to farmers' rights and participation [55,56].

### *5.3. Reconciling Central Government Objectives with Local Government Interests*

Urban–rural construction land replacement in China, like most of other policies, is a "top-down" decision-making mode driven by the central government, and finally implemented by local governments at the county level [24]. In recent years, despite some impressive achievements, voices of disapproval have surfaced, querying and criticizing government behavior in pursuit of special interests [54]. Several challenges continue to harass the effective implementation of land use policy. Firstly, in the transitional period of rapid development in China, most cities lacked urban construction land for socio-economic development, and "increasing vs. decreasing balance" land use policy provides an opportunity to remedy this deficiency. Since there is no set implementation mechanism, some local governments blindly encourage the increase of urban construction land quotas in the pursuit of economic gains, resulting in an expansion of pilot areas without authorization [57]. Secondly, land finance is a way of trading land for fiscal subsides. Because of the potentially huge land acquisition revenue in the process of construction land replacement, it is a channel for local governments to increase land finance through the implementation of "increasing vs. decreasing balance" land use policy to some extent, even at the expense of the rural residents. Thirdly, during the periods of intensive implementation of the policy, the local government pays more attention to achieving quantitative targets at the expense of the quality of construction. Some even engage in violent demolition of rural homes to obtain construction land quotas to transfer without considering farmers' interests seriously [24,57].

Recently, on 26 March 2018, the General Office of the State Council promulgated the "Measures for State Overall Management of Supplementary Cropland across Provinces" and "Measures for the Management of Interprovincial Adjustment of Savings Indicators Linked to the Increase and Decrease of Urban and Rural Construction Land", allowing the increase and decrease of urban and rural construction land, which has been limited to the province, and even county, can be carried out across provinces. This may bring new opportunities to remote areas but may also constrain their development in the long run to some extent. Therefore, local governments need to seek a better balance in the implementation of "increasing vs. decreasing balance" land use policy and the realization of sustainable regional development and urban-rural integration.

In short, although driven by a sound concept at the central government level, implementation by local governments has been driven by local self-interests that did not help, and potentially may also have harmed, long-term interests of the government. Motivated by self-interests, heads of local authorities depend on land transfer to boost local gross domestic product and fiscal revenues, resulting in some problems, such as forcible demolishing and eviction of farmers. To deal with the problem, the first way is to improve supervision, management, and examination mechanisms, which can restrict local authorities' behavior and move implementation in the right direction.

## 6. Conclusions

In this paper, we gave a brief introduction about the background and content of "increasing vs. decreasing balance" land use policy, and analyzed four typical regional practices under the framework of sustainable development of urban and rural areas. The four case studies highlight differences in the contexts that motivated the adoption of the new land use policy. FFC in Jiangsu focuses on increasing the effective areas of cultivated land and improving land quality; ERL in Tianjin explores a new city-oriented resettlement; RCD in Shandong tries a new way of developing urbanization so that farmers do not need to move into towns or cities; and CRLE in Chongqing practices a new mode of rural construction land transaction. The analysis shows that, since the new policy was launched in 2008, pilot schemes were carried out and urban–rural construction land replacement has achieved a series of successes, such as accelerating agricultural modernization and rural infrastructure construction, improving living circumstances, releasing rural land resources, and increasing cultivated land, thus providing good references for other pilot areas and the future work.

In general, urban–rural construction land replacement will be implemented continuously and will be a focal point to cope with the "supply vs. demand imbalance" of land use for some time. Recently, the top-down nature of the program has caused controversy and criticism and the problem of "pursuing interests vs. losing benefits imbalance" is obvious. The conflicts have received attention from the central government and some measures have been taken after pilot areas were strictly standardized and regulated. It is believed that some problems will be solved, urban–rural construction land replacement will enter a well-developed stage, and the scale will be extended.

Given the conflicts happening nowadays and regarding the discussions above, there are several suggestions in the future process of implementation. Firstly, farmers' rights and interests must always be put first and their wishes must be fully respected, so improvement of the compensation mechanism and an open implementation that allows more people to take part in and supervise the implementation is needed. Secondly, a consolidated urban–rural land market and a better land market mechanism should be founded, contributing to rural construction land transfer, and the benefits from any increase in the value of the land should be returned to farmers as much as possible. Thirdly, the supply of public goods and services should be improved and provide sufficient opportunities of employment and social insurance. Fourthly, supervision and evaluation in the process or after every project should be strengthened.

Besides, there are three aspects of issues that should be paid attention to in the future. Firstly, scientific research on urban–rural construction land replacement should be carried out as soon as possible. At present, the related research is concentrated on rural construction land restructuring, consisting of research on the methodology and calculation model of land consolidation potential by theoretical and empirical analysis, spatial distribution of land consolidation projects and reconstruction models, conversion direction of rural residential land consolidation, and effect analysis of rural residential land consolidation. Few studies have investigated zoning and planning to link up increased urban construction land with decreased rural construction land. As a whole, related studies are at the initial stage and need to be systematic. According to a series of problems that have happened recently, some research, such as the calculation of compensation for requisition in the process of policy implementation, site selection of a rural restructuring area, application of construction land quota saved by restructuring, replacement models, and spatial pattern evolution, should be developed to guide urban–rural construction land replacement practice. In addition, we should also enrich the study of farmers' satisfaction dynamic change, in order to obtain more reliable implications.

Secondly, strict control of the rapid and inefficient expansion of cities is still required. The increase of construction land is a process of utilization efficiency growing and spatial expansion, and controlling the process rationally can achieve intensive growth of land. However, under the drive of industrialization and urbanization, and because of the incomplete land use system, urban construction land expands seriously while land use efficiency is still low. Although urban–rural construction land replacement

is a proper and effective method currently, to achieve ideal urban construction land increase, urban construction land expansion should be controlled and land use efficiency needs to be regulated.

Thirdly, full attention should be given to the positive role of this policy in the construction of towns. Small towns are important nodes in implementing the strategy of rural vitalization and could play an important role in rural development. However, at present, construction land quotas are usually given to large cities, county towns, and development zones, thus there is not enough construction land quotas for town development, which makes it difficult to make towns bigger and stronger. Urban–rural construction land replacement practice should link up small town construction both to balance urban construction land increasing and rural construction land decreasing and to propel small town construction, like forming a "village-central village-small town" pattern contribution to small town system construction.

Overall, this policy is an important innovation. It is vital to solve the current dilemma of urban and rural land use and development. The implementation process of the policy is very complex, and each project needs the participation of local actors. It takes time to implement and access its final performance. In order to achieve more sustainable land use, urban-rural integration and regional development, it requires periodic examination and modification towards the local practical modes with their emerging issues.

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