



Review of Transferable Development Rights (TDR) - An Innovative Planning Technique: Schemes Difference in and Beyond China

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Abstract. The use of Transferable Development Rights (TDR) has been going on for decades, but the level of application varies among countries. The specific implementation of TDR projects is differentiated towards distinctive development requirements. In an ideal application, TDR is considered a Pareto improvement, but in practice, participants could always suffer interest loss. This paper seeks to conclude common superiorities and inferiorities in general scenario in recent applications as well as compare the difference within and beyond China. The application difference in China is also analyzed under the highly dependent land finance for local government revenue and unique market mechanism. It is expected to inspire some of the current problems encountered in the application of TDR and provide some insights for future improvement.

Keywords: Transferable Development Rights · Urbanization · Land use · Planning

1 Introduction

In the past decades, conflicts between urban growth pressures caused by rapid urbanization and natural resource conservation are intensified [2], in which transferable development rights (TDR) as an innovative planning tool have been widely applied to balance scarce land resources and the development vision of the government. TDR is described as a transformation of development right from preserved areas to places with higher residential density. Commonly, agricultural and cultural site conservation as well as historic district preservation projects adopt TDR [4]. After the 60-year development when TDR was first introduced in the United States in the 1960s, development rights were transferable and separated from other land rights such as mineral rights, utility easements, and conservation easements [7, 19]. TDR then is interpreted as a market-based mechanism for the transfer of development rights among regions [10]. To be more specific, TDR describes a mechanism by which development rights are traded in the market, where the development rights owners gain benefits while developers receive development rights through trading. Moreover, the essence of TDR is further explained as the reallocation of development, which tends to be more flexible than the rigid traditional land use planning [4]. Thus, as an optimization of the resource allocation, TDR could theoretically be

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regarded as a Pareto improvement due to all participating entities receiving benefits. This paper seeks to discuss TDR from perspectives of strengths and weaknesses, practical practice when implementing, as well as a comparison study of TDR inside and beyond China by reviewing recent studies, and finally reach some optimization solutions for the TDR program.

2 Transferable Development Rights Within and Beyond China

In this section, the application of TDR in general scenarios will be discussed, as well as several TDR projects will be given as examples for comparison purpose within and beyond China.

2.1 General Discussions About Pros and Cons of TDR

TDR is usually supported for its essence of efficient resource reallocation and market attributes. From the perspective of the economy, TDR contributes to both the sending sites and the receiving sites of development rights. For the former, “potential development possibilities” are normally restricted by policy or capital, which makes them more inclined to trade development rights for a financial return, resulting in large compensation flows. More non-land investments are attracted to the original site and local heritage, culture and agricultural values are preserved [20]. For instance, a project of the ecological fruit park in Guangzhou innovatively adopts TDR to balance the development needs of the land with the conservation purposes of the area, resulting in the value retention of agricultural land, in which the core is the realization of agricultural development rights of landowners [12]. Additionally, financial compensation usually comes from developers, which also reduces the extra financial pressure on the government to protect the original cultural and historic value. In terms of receiving sites, higher development density is rewarded, directly stimulating sustainable economic growth [11]. This Pareto-style reallocation of abstract land resources (development rights) facilitates the transfer of development at the social level and is ultimately reflected in the physical construction of the land, while creating more development possibilities and maximizing the land value [16], demonstrating a high degree of flexibility and efficiency [4]. Moreover, TDR is regarded as a market-based transaction containing low cost facing the public [9], and the high market dependence on TDR could enhance the efficient allocation of resources, where the strength could be even more pronounced under neoliberal market conditions.

TDR is also accused of causing market failure and social equity issues with its market attributes and inadequate regulations as well as legal authorities. The market attributes of TDR may also raise some supply-and-demand-based issues, such as monopolies. The right to development as an abstract commodity is closely connected to supply and demand relationships. When the demand is limited, development rights suppliers may face difficulties in marketing them, in contrast, when suppliers are few in the market, they may gain larger discourse rights in arguing prices, leading to monopolies [9]. Furthermore, though this paper argues that TDR is a Pareto improvement theoretically, in the actual implementing process, it could always be unjust where the interests of some participants are harmed, which is due to incomplete legal management systems and the

absence of dedicated regulatory authorities. Notably, the phenomena where individual interests are compromised prevail in countries with greater government involvement in the TDR program, such as China, due to differences in state planning of land and land ownership [12]. In terms of environmental aspects, though receiving sites could benefit from greater development density, they may still suffer higher environmental pressures, as well as a decline in housing affordability [15], leading to decreasing standard of living environment ecologically or even gentrification.

2.2 TDR Program in Practical Practice

TDR promotes efficient reallocation of social resources at the macro level and exhibits the conservation and development purpose for the sending and receiving sites respectively (with emphasis on specific sites), it may still fail in certain projects. Chiodelli and Moroni (2016) divided the life cycle of TDR into development rights designation, transference, and consumption. In some projects, TDR may falter at the beginning for lacking the easement value appraisal. According to Janssen-Jansen (2008), development demand and the appropriate incentives are necessary to make successful TDR programs, when the market is in a state of imbalance between supply and demand, TDR programs also could lead to failure. As for the transferring stage, since TDR is normally described as a voluntary development instrument for both parties [15], when they fail to reach a consensus, the TDR program inclines to stall or even fail. This also explains the more functional TDR programs in mandatory projects [9]. From the perspective of consumption consequences, TDR does not always satisfy the interests of both participating entities. In some developing countries, TDR is initially adopted to mitigate the urban sprawl caused by urbanization while preserving a certain amount of agricultural land [17]. However, the moratorium on urban expansion is only prevalent at the prefecture level, and its utility at higher levels remains controversial [18]. Moreover, though the interests of landowners are always accommodated in development considerations, they could still be ignored or compromised for other government development purposes. “Dipiao” in Chongqing is a good example illustrating TDR deviation between purpose and consequence. “Dipiao” refers to a kind of certificate for transferring development rights introduced by the Chongqing government, which aims to increase villagers’ income, meet urban development needs and optimize urban and rural land use structure [2]. However, a few years after the introduction of “Dipiao”, the TDR market tended to cool off due to factors such as higher land development costs, developers’ expectations of future prices, and alternative access to development rights, villagers suffer from indirect interest loss [2, 18]. It is worth noticing that villagers do not sell land development rights directly. The Chongqing municipal government degrades land acquisition through policy means, then collect the development rights of the land centrally and auctions them off through Chongqing Country Land Exchange (CCLE), and benefits proceed back to the villagers in a form of compensation [21]. This exploitation-like repossession of development rights and the final benefit loss of villagers manifest the damage to their interests [21], in which TDR fails to satisfy supply-side interests. As for the developer side, alternative means of development rights exist, and TDR does not fulfill its purpose of stimulating development. The market demand for TDR could always be hard to predict [1], and due to the absence of unified management authorities, TDR may fail in

many of the development projects. Predictably, when the development density within the city reaches saturation, urban sprawl could become unstoppable, which means the failure of the TDR mechanism.

2.3 TDR Schemes in and Beyond China

Among the countries implementing TDR programs, China is relatively independent owing to the differences in land ownership relationships. The land system in China is considered a dual-track system, in which the state owns urban land and the rural collective organizations (RCOs) hold rural land [5]. Under such conditions, along with the contradiction between agricultural land preservation and urban construction demand, the Chinese government focuses more on the land quota, while ecological protection is usually used as an excuse [12]. Central government usually maintains a great involvement in the TDR market and even directs TDR programs, resulting in the interest loss of individuals, which have been proved in program such as the cultivated land conversion project in Guangxi, “Dipiao” in Chongqing, and “Link Policy” in Ezhou [3, 17, 21]. Compared to the Chinese government’s emphasis on development and neglect of personal interests, some countries focus relatively more on the protection of ecological resources and the preservation of personal interests. The United States is considered to be one of the most successful countries in implementing TDR programs. U.S. property law allows the private ownership of land and regulates that landowners are entitled to rights including land ownership, air rights, and relatively separated development rights [9]. Normally TDR programs are implemented at the municipal level, with a focus on the protection of the natural or built environment, as well as managing growth [9]. The municipal government also emphasizes the interests of related stakeholders [10], without overemphasizing the development need. Though TDR-bank-like authorities prevail in many countries, they differ in mechanism and purpose. CCLE is recognized as the TDR bank in Chongqing, government proactively utilizes it for selling land development rights through the auction for the controlling purpose of the TDR market [2]. But in some states in the U.S., TDR banks maintain the stability of market trading through the direct purchase of TDRs, identification of potential TDR participants, and provision of credibility [10]. In terms of beneficiaries of interest, landowners in the U.S. can usually receive the transaction amount, but in China, compensation is given to villagers who only have land use rights, while RCOs also take a share of the proceeds. Beyond the United States, many countries have maintained some degree of homogeneity in the TDR scheme, which usually prevails in countries with private ownership of lands, such as Australia, the U.K., and Switzerland [13, 14]. In short, the differences in China’s TDR scheme can be attributed to the specificity of land ownership relationships and the government’s development focus.

TDR has demonstrated vitality under various market systems, though effectiveness is differentiated with various involvement of governments. The Chinese government put more restrictions on development rights for responding to the urban plan need compared with other countries allowing it as a commodity participating in the market. The difference in transaction freedom results in a higher barrier for Chinese land developers to enter, but TDR still shows strong applicability under different institutional development requirements. In China, local governments have become more dependent on land finance

for revenue since the tax sharing reform in 1994 [8]. Rapid urbanization comes as the result of government-led land development [8], which has since reached a relatively slow stage. TDR then has been adopted for stimulating development and shifting urbanization to higher levels of urban development, while being closely linked to land finance. Government-initiated development areas (which could always be agricultural land) are delineated to meet the needs of urban expansion while generating significant revenue for the government. Finally, the high dependence of local finance on land finance largely determines heavy restrictions and controls on development rights transactions. Notably, TDR projects in China may expropriate agricultural land for urban expansion, which is contrary to the purpose of applying TDR in other countries. Under such discussion, TDR shows positive market returns in accompany by urban expansion, but still faces basic problems such as imperfect processes, environmental damage, and low individual compensation in their primary stage in China.

3 Discussion About TDR in Practical Practice

Despite the differences in land ownership systems among countries, there still exist some commonalities in optimizing TDR. According to Fang et al. (2019), programs with TDR banks tend to be more successful than those without TDR banks. The government could put adequate incentives in the TDR market, while institutions like TDR banks can be established to ensure stable and fair trading. Moreover, TDR programs are often implemented at the municipal level, the country also needs a unified authority to balance the TDR market across the country, and expand the applicability of TDR in cross-city programs. Thus, TDR-related policies should be refined and specialized institutions should be established to ensure a complete trading system. In addition, the leading role of the market needs to be identified where the government should only play a regulatory and major decision-making role. The core of this is to clarify the relationship between development and ownership rights, leveraging the resource allocation strengths of neoliberal markets while ensuring equity. Furthermore, a positive correlation between the type of TDR development needs and the success of the project has been demonstrated, where housing projects keep a large potential in utilizing the TDR program [10]. More land-related development projects need to be evaluated to broaden the application scenarios of TDR. The TDR application in China is still in the primary stage due to the short process duration and sparsely applied cities. Issues such as environmental protection, and unreasonable compensation for individual users exist. The government still need to further improve the processing system of TDR, and further relax the direct control over TDR to release a greater market validity with lower barrier for developers.

4 Conclusion

To conclude, TDR always argues to be controversial due to its market attributes, although it is efficient in resource reallocation at the social level, injustice could still occur in the actual implementation process. Countries may have distinctive understandings of TDR due to the differences in land ownership and development focus, but they keep certain commonalities in optimizing TDR programs, which can be explained by the similar

inherent resource reallocation mechanisms. TDR maintains a great application vitality, though constraints vary under different social contexts, it still being efficient in advancing social development. TDR keeps a great potential especially in developing regions as well as application fields such as housing, historical site preservation and commercial area development.

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