

# Analysis on the Benefit Evaluation of Railway Land Comprehensive Development

Congcong Bu

School of Economics and Management  
Beijing Jiaotong University  
Beijing, China

Yongzhong Tang

School of Economics and Management  
Beijing Jiaotong University  
Beijing, China

**Abstract**—There have been some problems that are difficult to solve in the benefit evaluation of railway land comprehensive development. This paper finds these problems and their causes through the comprehensive development of railway land comprehensive development and the comprehensive evaluation of railway land comprehensive development, and further analyzes the benefit evaluation of a railway land comprehensive development project, and finally puts forward some relevant suggestions. This study has certain reference value for the benefit evaluation of railway land comprehensive development.

**Keywords**—railway traffic; land comprehensive development; benefit evaluation; problem analysis

## I. INTRODUCTION

The comprehensive development of railway land is based on the railway infrastructure project. The comprehensive development of railway land rationally utilizes the comprehensive utilization and development of the above-ground and underground space of the railway and the adjacent land. Comprehensive development of the land assets can not only enhance its own “hematopoietic” ability, but also increase the economic benefit of enterprises and subsidize the construction and operation of railways. The comprehensive development of railway land is also a key task to analyze the problems existing in the evaluation of railway land comprehensive development benefit.

## II. RESEARCH STATUS

### A. Status of Comprehensive Development of Railway Land

Comprehensive development is listed as the top priority of iron total asset management. Eighteen projects have been integrated development programmers prepared by the railway authority All railway bureaus must integrate personnel strength, technical strength, and financial strength to improve and reorganize their home buyers. Those railway bureaus with opportunities can set up real estate enterprises. If some railway administrations have jurisdiction over multiple regions or provinces, they may establish subsidiaries or project companies according to the different policy requirements of each region, the actual situation of projects, the distribution of resources owned and administrative levels. However, as of December 29, 2014, there is still no land ownership company in the description of its organizational structure displayed on the

official website of China Railway Corporation. This shows that although the iron is highly valued for comprehensive development, it still has not set up corresponding unified real estate development enterprises. According to the data, although the various road bureaus attach great importance to comprehensive development, quite a number of railway bureaus still do not have a corresponding unified real estate development enterprise for the comprehensive development of railways.

### B. Current Status of Benefit Evaluation of Railway Land Comprehensive Development

From the iron level, the iron company did not provide relevant important materials for the evaluation of the comprehensive development of land. In the balance sheet of the railway company in the “China Railway Corporation’s Third Quarter 2016 Audit Report” issued by China Bond Information Network on November 21, 2016, it is not possible to disclose the total land assets at the company level (For related information, see “Table I”).

TABLE I. ASSETS OF THE RAILWAY HEAD OFFICE AS OF THE END OF SEPTEMBER 2016

No.	Item	Amount (100million yuan)
<i>1</i>	assets	
<i>1.1</i>	Current assets	
<i>1.1.1</i>	Money funds	1,980
<i>1.1.2</i>	stock	749
<i>1.1.3</i>	Receivables	3,193
<i>1.1.4</i>	other	0
	<b>Total current assets</b>	5,922
<i>1.2</i>	Long-term investment	915
<i>1.3</i>	net value of fixed assets	42,287
<i>1.4</i>	Construction in progress	13,281
<i>1.5</i>	other	3,953
	<b>Total assets</b>	66,358

In terms of the road bureau, the Chinese railway system is a semi-military management enterprise system. The evaluation of the comprehensive development benefit of the land will not only be effective against the total iron, but will not surpass the total iron. Therefore, it can be concluded that each road bureau has no relevant information on the comprehensive development benefits of its land at the level of its roads.

### III. ANALYSIS OF THE BENEFIT EVALUATION OF RAILWAY LAND COMPREHENSIVE DEVELOPMENT

#### A. *Analysis of the Comprehensive Development of Railway Land*

1) *The actual operation is difficult:* The comprehensive development of railway construction land, in addition to the good vision created by the "Opinions" to all parties, the actual operation is still difficult and difficult to take the lead. This is mainly due to the problems of land use rights along the old railway lines, the limited use of railways in large cities, and limited railway development capabilities.

2) *The problem of land idle is serious:* The poor utilization rate of railway land resources has become a consensus. Moreover, although in theory, the value-added benefits of comprehensive land development within and outside the red line of the high-speed rail site are obvious, the reality is that hundreds of billions of potential land revenues have been wasted.

3) *The right to land development along the line has not been determined:* Since the Ministry of Railways decentralized the inter-city railway to the local government, the current financing is relatively good in Guangdong Province, but the current problem is stuck in the lack of suitable cooperative investors and who will dominate the red line. Land development rights [1].

#### B. *Problems in the Evaluation of the Benefits of Comprehensive Development of Railway Land*

Even if the problems at the comprehensive development level have been effectively solved, there are some problems that are difficult to solve at the level of comprehensive development benefit evaluation.

1) *More influence variables:* The key to comprehensive development benefit evaluation is to assess the value of railway land, and the value of land is deeply affected by many factors. These factors include psychological effects, the impact of urban expansion, the impact of farmers on land dependence, the impact of people on other land needs, the impact of intensification, the impact of land marginal returns, the impact of migrants, and the impact of future uncertainties.

2) *Short history of development:* The short history means the lack of accumulated historical data. For land price assessment, historical data plays a very important role. Without sufficient historical data, it is impossible to obtain a generally effective evaluation result.

3) *Insufficient research:* The relevant research is not sufficient. Firstly, it is represented by the iron and its subordinate bureaus. The comprehensive development evaluation is not regarded as an important work. Secondly, there are not enough relevant research results and the research system based on these evaluation results.

### IV. ANALYSIS OF THE CAUSES OF THE BENEFIT EVALUATION OF CHINA RAILWAY LAND COMPREHENSIVE DEVELOPMENT

#### A. *Analysis of the Causes of the Comprehensive Development of China's Railway Land*

The existing macro-control policies also have a relatively restrictive effect on the healthy development of the comprehensive development mechanism. If railway construction is still a policy tool for "guaranteeing growth" and "stable growth", it will be difficult to switch from supernormal development to conventional development. This is intended to alleviate the reform of railway capital hunger, or it is difficult to heal the railway system. In short, although the State Council actively promotes comprehensive development, the existing land management system and existing macro-control policies restrict the arduous development of comprehensive development.

The biggest problem in comprehensive development is that the construction of high-speed rail sites is fast and fast, and there is no integration with the surrounding land development. China Railways has not really understood how to combine railway construction with comprehensive land development and utilization. This is an important reason for the difficulty in the effective development of land along the railway [3].

#### B. *Analysis of the Causes of the Benefit Evaluation of China Railway Land Comprehensive Development*

Although China has been conducting real estate appraisal for more than 20 years, it was not until July 2 this year that China promulgated the "Agricultural Assets Appraisal Law of the People's Republic of China" (the "Evaluation Law"). The law only came into effect on December 1 this year. Although the comprehensive development benefit evaluation relies to a large extent on the "assessment law", it is not completely subordinate to the scope of asset evaluation. If the comprehensive development benefit evaluation is completely based on the "Assessment Law", it will be difficult to fully reflect the particularity of the railway land. Otherwise, the comprehensive development benefit evaluation will have no legal basis.

After the iron and its subordinate bureaus recognized the need to carry out railway land, they also faced the challenge of evaluating capabilities. Since the establishment of China's railways and enterprises before the establishment of the iron, it is not necessary to evaluate the benefits of comprehensive land development. Therefore, the Chinese railway system does not have a dedicated land development benefit assessment talent. After the establishment of the iron, talents are still an important bottleneck due to the delay in launching relevant research. If the general railway or its subordinate departments seek an external brain, it will face some problems, for example, how to determine whether the exobrain has the ability to evaluate the benefits of comprehensive development. [4]

V. CASE ANALYSIS OF RAILWAY LAND COMPREHENSIVE DEVELOPMENT BENEFIT EVALUATION

A. Case Situation

The total planned area of a project is 50,800,000 m<sup>2</sup> (50.8 km<sup>2</sup>). In the planning area, the water area, the villagers' land for construction, and the planned reserve land are non-constructive land. Excluding these three items, the actual construction land area of the project is 33,000,000 m<sup>2</sup> (33 km<sup>2</sup>). In the area of construction land, the current status of reserved land, protective green space, and road land are non-development land.

Excluding these three items, the actual exploitable area of the project is 23,000,000 m<sup>2</sup> (23 km<sup>2</sup>), and the core area development scope of the project is about 2,100,000 m<sup>2</sup> (2.1 km<sup>2</sup>).

It is estimated that the project population and employment population is between 300,000 and 330,000. Among them, the resident population is estimated to be 148,800 to 165,000. It is estimated that the total development of the case 2 project is between 14,000,000 m<sup>2</sup> and 22,000,000 m<sup>2</sup>, as shown in "Table II".

TABLE II. CASE PROJECT TOTAL AMOUNT CALCULATION TABLE

Total population (million)	Average floor area per household (m <sup>2</sup> )	Average number of people per household (person)	Living ratio	Development amount (m <sup>2</sup> )
14.88	98	2.94	25%	19840000
14.88	98	2.94	35%	14171429
16.5	98	2.94	25%	22000000
16.5	98	2.94	35%	15714286

In the core area of Case, business and office should be the dominant functions, and residential construction and public construction should be about half of each (See "Table III" for specific ratio recommendations).

VI. SUGGESTIONS ON THE EVALUATION OF THE COMPREHENSIVE DEVELOPMENT OF RAILWAY LAND

TABLE III. MATCHING DESIGN TABLE OF VARIOUS BUILDING TYPES IN THE CORE AREA OF THE PROJECT

Building Type	Proportion (%)
Residential building	50 - 60
Commercial Building	10 - 20
Office building	15 - 25
Hotel	5 - 10
Entertainment and other buildings	5 - 15

A. Comprehensive Development

1) *Grasping the right time*: Considering the risk factors, large-scale real estate development projects need to adopt a development model of "whole consideration, step-by-step implementation". When the development time is not mature, the developer chooses to control and reserve, instead of rushing for success by sacrificing development quality and reducing positioning.

2) *Actively improving development conditions*: The two projects leveraged the opportunity of intercity railway construction to optimize the value of the land in the planned area by optimizing the infrastructure within the area.

3) *Fully cooperating with the government*: The two projects make full use of their projects as the local image portal area of the local city. The quality of their development directly affects the image of the city. Therefore, the project actively communicates with the municipal government and has received strong support from all aspects of the municipal government.

4) *Correcting development content in a timely manner*: The planning, design and development of the project is also a long-term process. When the external environment changes or the existing planning solution does not adapt to the external environment, it is necessary to actively and timely adjust and correct the development content according to the external environmental changes, so as to ensure the ultimate success of the comprehensive development and construction of the project plot.

B. Case Project Land Price Estimation

The land price calculation results of the real estate development projects around the second project are shown in "Table IV".

TABLE IV. LAND PRICE OF REAL ESTATE DEVELOPMENT PROJECTS AROUND THE PROJECT

Land nature	Land unit price (yuan/m <sup>2</sup> )
Residential land	3874
Commercial and residential land	8149
Commercial and financial land	1805
Other business places	528
Industrial land	168
Cultural sports medical land	100

According to comprehensive calculations, the land price of the 23 km<sup>2</sup> area of the second case project is between 68 billion yuan and 75 billion yuan.

B. Benefit Evaluation of Railway Land Comprehensive Development

1) *Fully recognizing the multi-faceted benefits of comprehensive development*: As can be seen from the case

project, comprehensive development has the following six benefits.

- promoting the comprehensive development of the social economy of the city where it is located;
- promoting the formation of cooperative effects by using railways as a link across cities;
- optimizing the population layout of the city where it is located;
- increasing the effective supply of various real estate development projects in the city;
- saving the land in the city and promoting the improvement of land development intensity;
- solving the problem of metropolitan congestion [5].

2) *Making full use of the positive impact of comprehensive development on the city to promote rational development:* The comprehensive development project of railway land is not only the external image window of the city, but also the promotion of the exchange between the city and the surrounding central cities and important cities. It should be fully affirmed by the municipal government of the city and strongly supported by all aspects of the government [6].

3) *Reasonably setting the scale of development:* Through a variety of mandatory, and according to the different requirements of the government, determine the reasonable scale of development, so as to ensure their own reasonable development benefits [7].

## VII. CONCLUSION

The high-speed railway station project is not only the hub of the foreign exchange of the city, but also the window of the city's external image. Therefore, its development benefits are not only direct economic benefits, but also more important social benefits. To maximize the benefits, stakeholders in the railway land development project, especially developers and government agencies, need to work closely together.

## REFERENCES

- [1] Chen Hao, Zhang Li. Experience in comprehensive development of railway land in advanced areas is drawn from [J]. *Transportation enterprise management*, 2017, 32 (02): 103-106.
- [2] Jin Xuwei, Tan Xiao. Discussion on Comprehensive Land Development Evaluation System of New Railway [J]. *Railway Economic Research*, 2017 (04): 27-32.
- [3] Science; Studies from University of Tokyo in the Area of Science Reported (The impact of a high-speed railway on residential land prices) [J]. *Science Letter*, 2018.
- [4] Rohit Sharma, Peter Newman. Does urban rail increase land value in emerging cities? Value uplift from Bangalore Metro [J]. *Transportation Research Part A*, 2018, 117.
- [5] Wang Shengsheng, Zhu Jie. Study on the process of comprehensive land development for newly-built railway [J]. *Management of transportation enterprises*, 2017, 32(02): 83-86.
- [6] Li Tengwu. Research and Practice on Valuation of Land Use Right of Railway Authorized Management [J]. *China Railway*, 2017 (09): 33-36.

- [7] Zhang Shuo. Reflections and Enlightenments from experience of comprehensive development of railway land at home and abroad [J]. *Management of transportation enterprises*, 2018, 33(03): 103-106.