



# Sustainable Development and Comparison Between Three Provinces of Northeast China and Ruhr Germany from the Perspective of Industrial Tourism

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**Abstract.** The proposal of old industrial bases revitalization strategy in Northeast China has initiated the transformation of a large number of old industrial cities in the three provinces of Northeast China. However, in the process of transformation, a large number of industrial relics such as industrial buildings and industrial sites were demolished and destroyed, making how to dispose of industrial heritage a major problem. Ruhr Industrial Base, as an area received industrial heritage protection early in Germany, has formed a characteristic industrial tour route and industrial heritage protection mode through long-term exploration. This paper will study the existing problems of the three provinces of Northeast China and put forward suggestions for sustainable development through comparative analysis from the perspective of industrial tourism.

**Keywords:** Ruhr Germany · three provinces of Northeast China · industrial tourism · sustainable development · industrial heritage

## 1 Introduction

As an old industrial base in China, Northeast China has a solid industrial foundation, yet, it faces a series of problems such as remarkable urban recession and labor loss in post industrial society in China. Jilin, Liaoning and Heilongjiang provinces in Northeast China have 34 prefecture-level cities and 55 county-level cities in total. Among the “National List of Resource-based Cities (2013)” and “National List of Resource Exhausted Cities (69)”, there are 37 resource-based cities and 20 resource exhausted cities (counties and districts) from Jilin, Liaoning and Heilongjiang included. At present, Northeast China is confronted with the problem of increasing number of resource declining cities and resource exhausted cities, which have shown remarkable areal distribution characteristics [1].

Ruhr-gebiet, as a typical old industrial base in Germany, has been successfully transformed. The study of its industrial heritage protection mode and industrial tourism boasts guiding significance for the urban transformation of the three provinces of Northeast

China. From the perspective of industrial tourism, this paper will analyze the spatial distribution and development advantages of industrial heritage in Northeast China, make comparison with Ruhr Germany, study the existing problems and put forward suggestions for sustainable development.

## 2 Industrial Tourism

Industrial tourism is closely related to industrial culture. It mainly refers to tourism activities carried out on the basis of industrial related factors, such as the production process, features, corporate culture, and workers' residence, etc. of the factory in operation [2]. Industrial heritage tourism, a branch of industrial tourism, is established on the basis of abandoned industrial sites or modern industries with past industries. By visiting sites where industrial production activities actually took place, understanding factory operations and witnessing production processes, tourists can expand their cultural experience and understand the past and present economic activities of the place [3]. Industrial tourism reflects the specific landscape potential, spatial behavior and influence of the region. Meanwhile, it plays an important role in revitalizing the economy of old industrialized areas and seeking new regional characteristics [4].

## 3 The Three Provinces of Northeast China

### 3.1 Overview

The three provinces of Northeast China include three provincial administrative regions, namely, Heilongjiang Province, Jilin Province and Liaoning Province, which are located in the northeast of China. However, the eastern Mongolia is excluded. It's a concept different from the Northeast China [5]. Northeast China has a solid industrial foundation and a long history. It has formed a relatively perfect heavy industry system before the period of the Northern Warlords. After the founding of new China, the main part of aid projects of the Soviet Union to China was located in Northeast China. After 1990, the old industrial bases in Northeast China began to decline because of domestic economic transformation and the adjustment of policies and guidelines. Later, the proposal of old industrial bases revitalization strategy in Northeast China and the high attention of the state again aroused the public's attention to the old industrial bases in Northeast China [6]. At the third plenary meeting of China Industrial Tourism Industry Development Consortium in 2019, Qiqihar City in Heilongjiang and Dalian City in Liaoning were selected as the "top ten industrial tourism cities in China".

### 3.2 Spatial Distribution

By May 2022, a total of 22 items in Northeast China have been included in the *List of National Industrial Heritage* (the first batch - the fifth batch), 26 items have been included in the *List of China's Industrial Heritage Protection* (the first batch and the second batch), and 38 items remained after removing the duplicates. Hereby, I would like to mark the distribution of 38 industrial heritages in the three provinces of Northeast China



**Fig. 1.** Distribution of some industrial heritages in the three provinces of Northeast China [Owner-draw, and The base map comes from the Ministry of Natural Resources of the People’s Republic of China (Exam No. GS(2019)1652)]

on the map as follows (Fig. 1) after I referred to the official website of China Industrial Heritages Online ([www.ciho.org.cn](http://www.ciho.org.cn)). The figure shows that the industrial heritage of the three provinces of Northeast China is evenly distributed in space in all provinces with the characteristics of centralized distribution along the China Eastern Railway.

### 3.3 Advantages of Industrial Heritage Tourism in the Three Provinces of Northeast China

The three provinces of Northeast China have three outstanding advantages in developing industrial heritage tourism: first, the state has attached great importance to it. In 2003, the State Council established the “leading group of the State Council for revitalizing the northeast and other old industrial bases”, which is specially responsible for revitalizing the old industrial bases in the northeast. Later, it issued the Northeast Revitalization Plan and the Northeast Tourism Development Plan, Several Opinions on Comprehensively Revitalizing Northeast China and Other Old Industrial Bases step by step; Second, the three provinces of Northeast China have a long industrial history, a large number of industrial heritages and high industrial popularity; Third, the three provinces of Northeast China have large area, convenient transportation and rich natural and cultural tourism resources.

## 4 Ruhr Industrial Base, Germany

Germany carried out protection to industrial heritage earlier and has established effective industrial heritage protection regulations. As early as 1815, the *Basic Principles for the Protection of Prussian National Cultural Relics and Monuments* was issued. By May 2021, a total of 10 industrial heritage protection regulations has been issued [8]. Ruhr Industrial Base, located in North Rhine-Westphalia Province in middle west Germany, is an important industrial base in Germany. Modern enterprises in Germany are built on its coal mining and steel manufacturing industries. The landscape of the industrial base has witnessed the development history of the coal industry in the past 150 years, which industrial buildings adopted typical Bauhaus style. With its unique industrial heritage resources, Ruhr Industrial Base has formed three tourism development modes, namely, museum style represented by Zollverein, theme park style represented by Duisburg North Landscape park and shopping park style represented by Oberhausen Shopping Mall [7]. As early as 1920, Ruhr-gebiet established SVR, an association composed of cities in Ruhr-gebiet, which is responsible for managing regional development affairs [8]. In 2001, Zollverein Coal Mine Industrial Complex in Essen was included in the *World Heritage List*.

The development of industrial tourism in Ruhr Industrial Base originates from the multi-objective comprehensive regional renovation and revitalization plan -IBA Plan, the purpose of which is to revitalize the declining Ruhr Industrial Base by means of industrial tourism, so that it can gradually develop and achieve the purpose of economic revitalization [9]. In 1999, Ruhr-gebiet began to build “route industriekultur”, including 31 theme lines, which consists of 57 major industrial heritages and more than 1,000 secondary sites, reflecting the industrial cultural landscape of Ruhr-gebiet in all aspects (Fig. 2). At present, Germany has more than 120 industrial tour routes, most of which have clear themes and are related to a certain industry, such as toy road, automobile road, beer road, glass road, etc. [10].

## 5 Prominent Problems in Three Provinces of Northeast China and Suggestions on Sustainable Development

### 5.1 Single Mode of Industrial Heritage Protection and Development

At the beginning, the main purpose of industrial heritage protection in the three provinces of Northeast China was to protect industrial buildings, so it basically adopted the museum style. For example, Shenyang Foundry is now Shenyang Industrial Museum. In this regard, we should follow the diverse reuse and development modes in Germany and study the transformation schemes with their own characteristics on the basis of local characteristics and the historical and cultural connotation carried by buildings, such as transforming industrial buildings into cultural and creative centers, transforming high-rises into urban landmarks, and making them theme parks of urban cultural memory, etc.

## **5.2 Low Degree of Regional Integration, Lack of Local Independent Management Agencies, Regulations and Development Plans**

Obviously, the development of industrial tourism in the three provinces of Northeast China is uneven. The research on industrial tourism in Liaoning started earlier. Shenyang, the provincial capital, has formed four theme industrial tour routes: the road to rise, new industrial culture, industrial recreation and vitality impression. Dalian, another coastal tourism city, has formed an industrial tourism mode integrating seafood industry and fishing village folk culture. In contrast, Heilongjiang and Jilin are still in the initial document preparation stage without specific implementations.

In addition, compared with Ruhr in Germany, the three provinces of Northeast China only have management teams at national level and comprehensive promotion plans, but lack management agencies and industrial heritage management regulations at municipal level, and lack dedicated industrial tourism development plan. It is also different from some regions in China. For example, Huangshi City Hubei Province issued the local protection regulations - *Huangshi Industrial Heritage Protection Regulations* in 2016, and Huangshi Industrial Heritage Protection Center was established in 2019. As a result, the three provinces of Northeast China should strengthen regional ties, take Liaoning as the center to link up cities and provinces and promote regional tourism development. For instance, Shenyang is the machinery center, Dalian is the shipbuilding base, Changchun is known as the “Automobile City”, and Harbin is known as the “hometown of power and city of tools”. These large industrial areas can be connected with the China Eastern Railway to form a characteristic tour route.

## **5.3 Low Popularity of Industrial Tourism and Poor Integration with Traditional Tourism**

At present, the tourism industry in the three provinces of Northeast China is dominated by traditional tourism as usual, while the popularity of industrial tourism is low. Therefore, we should increase capital investment and promote industrial tourism through Internet, television, radio and other means, so as to make industrial tourism quickly perceive by the public. In addition, an industrial tourism website should be built to provide assistance for tourists, and provide customized services for groups with a large number of tourists, such as research and study groups and team-building groups. For example, Ruhr in Germany, Shanghai and Huangshi in China have established a website locally to introduce industrial tourism, enabling tourists to learn about tour routes through the websites and make reservations for popular sites. Moreover, industrial tourism should be integrated with traditional tourism, so that traditional tourism can drive the development of industrial tourism.

## **5.4 Low Attention to Industrial Heritage Protection and Lack of World Industrial Heritage**

The three provinces of Northeast China pay less attention to the protection of industrial heritage. A large number of industrial sites were destroyed in the early stage of urban transformation. Only in Shenyang, known as the “Oriental Ruhr”, more than

4,000 chimneys were demolished, and a large number of industrial historical buildings in Tiexi District were demolished for the development of real estate. Industrial heritage is an important part of a region, which constitutes a region's cultural, social and economic concepts and urban heritage [11]. It embodies different meanings for each generation living in the region and has made great contributions to the regional economic development. It is not renewable. Once it is damaged, it will be a permanent loss. As a result, we should reuse the abandoned buildings and sites to integrate them into the new urban development instead of blindly demolishing them. Furthermore, attention must be paid to the application for world heritage. If it applies for the world heritage successfully, it can be used as a center to develop industrial tourism and greatly improve its popularity and passenger flow. For example, Ruhr Germany takes Essen as the center to develop its industrial tourism.

## 6 Conclusion

As one of China's old industrial bases, the three provinces of Northeast China once led China's industrial and economic development and played a leading role in China's industrialization and modernization. Their coal and steel have had a lasting impact on people, regional awareness and landscape. Overall speaking, the industrial cultural landscape of the three provinces of Northeast China is qualified to identify as a UNESCO World Heritage. On the other hand, the successful development of industrial tourism in the three provinces of Northeast China will promote regional economic development and become a model of regional transformation. This paper only puts forward some suggestions on sustainable development for the four prominent problems after comparing with Ruhr in Germany, but it will face more unpredictable difficulties in the process of developing industrial tourism.

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