

Study on Reuse Strategy of Abandoned Industrial Square – in the case of Jingxi Wang Ping Coal Mine

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Abstract. Wangping Coal Mine, whose industrial heritage is of great value, was one of the eight coal mines in Beijing. A large number of field surveys and analysis of the abandoned industrial facilities of Wangping Coal Mine were carried out in this paper. From the perspective of protecting industrial heritage culture and sustainable development, this paper studies the ideas and strategies for reusing the abandoned facilities of the Wangping Coal Mine. In order to protect its industrial heritage as much as possible, it is suggested to reuse the industrial square of Wangping Coal Mine as a community park.

1 Introduction

According to the instructions of *Responsibility Document for Resolving Overcapacity in the Coal Industry to Realize the Goal of Relief from Difficulty*, Wangping Coal Mine was asked to stop its production on August 16th, 2016. It was formally established in 1964 and suspended at the beginning of 1994. With 30 years of mining history, it has made outstanding contributions to the development of the coal industry of Beijing[1].



Fig.2-1 Location map of Wangping Coal Mine.

2 Overview of Wangping Coal Mine

2.1 Geographic location

Wangping Coal Mine is located in Wangping Town, which is in the west of Mentougou District in Beijing. The railway from Yongding Gate to Muchengjian passes through it. 109 National Road runs to the east of it. Tanwang Road passes through the middle of it (Fig. 2-1). The whole mining area is steep, because its north, west and south are surrounded by mountains.

2.2 Historical evolution

Wangping Coal Mine has a long history (Table 2-1) and was one of the eight coal mines of Jingxi Mining Bureau[2].

Table 2-1 History of Wangping Coal Mine.

Age	Historical events
1919	Huazhao Wen opened Anjiatan Coal Mine around Anjiatan and Wangping. It was the predecessor of Wangping Coal Mine.
1951	The Beijing Public Security Bureau took over Yugong Mine and Shengli Mine and established Qinghe Mine in Anjiatan Village.
1953	In April, the local government took over Tongfeng Coal Mine in Anjiatan Village and all the surrounding coal mines.
1954	In March, Jingxi Mining Bureau took over them and established Anjiatan Coal Mine.
1958	In May, construction of Wangping shaft was started. In August, Jingxi Mining Bureau decided to build Huapogen footrill.

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1960	In April, Wangping shaft was put into operation.
1964	In March, Wangping Coal Mine was established.
1977	Wangping Coal Mine absorbed Dajiao Mine, which was part of Mentougou Coal Mine. In August, Jiulong footrill was started to be built.
1994	The production of Wangping Coal Mine was suspended. Prior to that, its annual output was 800,000 tons.

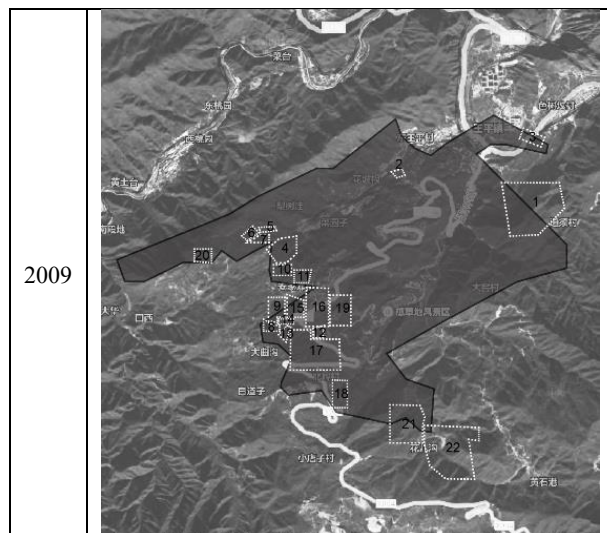
2.3 Small coal kilns

Before the foundation of New China, besides Tongfeng Coal Mine, there were five or six small coal kilns around Wangping Village. In 1951, Tongxian Military District, the Public Security Bureau of Beijing Municipal Public Security Bureau, and the National Coal Mine Trade Union and other units have successively established 16 small coal kilns in Anjiatan Village. In April 1953, The local government took over Tongfeng Coal Mine and all the surrounding small coal kilns [3].

Most of the small coal kilns in Wangping Coal Mine were located in Lujiapo, Jiaoling and Anjiatan. According to the government requirements, they were shut down successively in 2000, 2001 and 2009. Except for the comprehensive information on he small coal kilns closed in 2009, the data on that closed in 2000 and 2001 were barely preserved. (Table 2-2)

Table 2-2 List of closed coal kilns in Wangping Coal Mine, 2000-2009.

Age	List of closed coal kilns
2000	Xiwangping Coal Mine , Yumin Coal Mine , Huangqugou Coal Mine , Pingjiu Coal Mine , Houling Coal Mine , Menlingkou Coal Mine , Daqiao Coal Mine, Fuxing Coal Mine
2001	Dongwangping Coal Mine, Baoshun Coal Mine, Jiuyuan Coal Mine , Xingwang Coal Mine , Huanggang Coal Mine, Dongshan Coal Mine , Guacaodi Coal Mine , Shizidao Coal Mine , Wanda Coal Mine, Shanlindaxin Coal Mine
2009	Magezhuang Coal Mine (1) , Nanjian Coal Mine (2) , Ximage Coal Mine (3) , Chunan Coal Mine (4) , Jiaoling Xingda Coal Mine (5) , Pingxi Coal Mine (6) , Yunfutong Coal Mine (7) , Nanwayao Coal Mine in Bai Daozi (8) , Pingdong Coal Mine(9) , Daqugou Coal Mine(10) , Xinkou Coal Mine in Zhuanyaogou (11) , Longshan Coal Mine (12) , Changhong Coal Mine in Baidaozi (13) , Suwa Coal Mine (14) , Houtouyuan Coal Mine (15) , Jinxiu Coal Mine (16) , Jinyu Coal Mine (17) , Qingtou Coal Mine (18) , Shunmin Coal Mine in Bei Ling (19) , Dongkou Coal Mine of Dahua (20) , Zhaojiatai Coal Mine (21) , Tanzhesi Coal Mine (22) (As shown on the right Fig.) .



3 Security situation

3.1 Goafs and collapse sites

Most of the goafs in Wangping Coal Mine were located in the west and south of Anjiatan, Nanling, Beiling, Liujiafen, Shizidao and other villages. They covered about 2km².

In August 2016, there were five small collapse pits on the hillside of wasteland in the west of Anjiatan. Based on many investigations and evaluations of the current geological environment of Wangping Coal Mine, the development of small collapse pits has been basically stable. [4] Under the current conditions, the mine geological environment has slight impacts on the human settlements and the environment around[5,6].

3.2 Groundwater

Related research showed that after the shutdown of Wangping coal mine, the groundwater level has picked up. The content and saturation of original water has been restored. The underground water in the mining area has no toxic or harmful substances and can be exploited and utilized [7,8].

4 Protective reuse strategy

It is found that the production equipments, office buildings, dormitory buildings, railroad tracks and others of Wangping Coal Mine industrial square are well preserved (Fig. 4-1). They are very valuable industrial heritage buildings.



Fig.4-1 Current situation of industrial square facilities

4.1 Reuse principle

In order to take good use of the original appearance of the industrial square, it is suggested to take some reinforcement measures. And buildings that have nothing to save should be demolished, and some coal-industry-style facilities should be reserved.

4.2 Reuse strategy

Furthermore, the needs of local residents and urban tourists should be taken into account. Therefore, the industrial square of Wangping Coal Mine is suggested to be reused as a community park [9]. It consists of Pedestrian street, Industrial heritage park, Civic activity center, Railway park, Ecological experiment base (Fig.4-2). This strategy creates more room for interaction and outdoor activities for people. The commercial pedestrian street at the entrance has promoted local economic development which also satisfies residents' shopping needs.

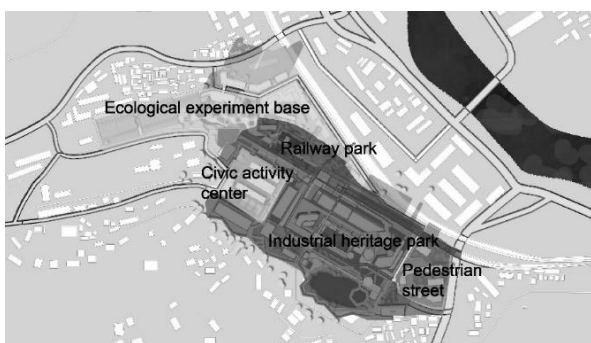


Fig.4-2 Function zoning map

The part of the coal mine ecological park includes the ring path system and the industrial park system. The design of the ring path, which allows visitors to overlook the Wangping Coal Mine, was inspired by the Acropolis' tour and the New York High Line Park. The design of the industrial park is based on the successful experience of the German Ruhr area.

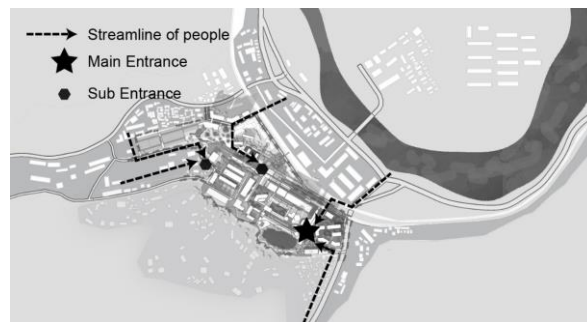


Fig.4-2 Streamline analysis diagram

Because of its high degree of advantage, the coal bunker has become a landmark of the entire mining area. It was reused as a watchtower connected to the circular path system. The Waterscape Park under the observation tower was transformed from the original collapsing pit, which echoes the northern wetland of Wangping Town.

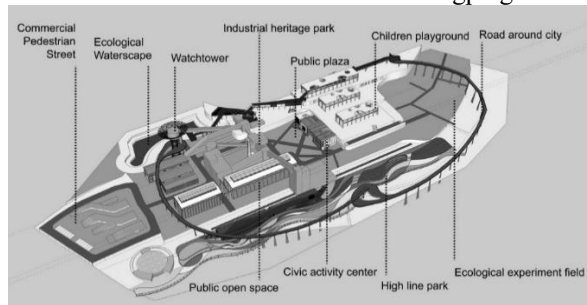


Fig. 4-3 Aerial view

5 Conclusion

Wangping Coal Mine have witnessed the profound impact of mining activities on Beijing. Its reuse is a respect for the history of cities and the culture of coal mines. At the same time it helps to enhance the local residents' sense of identity and social belonging. This study explores the reuse strategy of Wangping Coal Mine Industrial square and hopes to promote the reusing and sustainable development of Jingxi Coal Mine.

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