

Research on Countermeasures for the Protection and Utilization of Daqing Industrial Heritage

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Abstract: *Daqing industrial heritage is an important component of human civilization, and is the material carrier of national spirit, era spirit, and urban culture. At present, the protection and utilization of Daqing industrial heritage is still relatively weak, and it is urgent to accurately grasp the main tasks of the protection and utilization of Daqing industrial heritage based on a deep understanding of the significance of industrial heritage protection and utilization. By selecting a group of outstanding industrial heritage with significant historical value and social influence, large scale, and complete industrial historical features, it is necessary to implement the comprehensive engineering construction of Daqing industrial heritage protection and utilization, promote cultural rescue and protection projects, and comprehensively improve the level of effective protection and rational utilization of Daqing's industrial heritage.*

Keywords: *Industrial heritage; Daqing spirit; Iron Man Spirit; Protection and utilization*

1. Introduction

Daqing is an industrial museum without walls, and a spiritual highland with rich red cultural resources. The industrial heritage of Daqing is an important component of human civilization and a material carrier of national spirit, era spirit, and urban culture. It not only witnesses the development process of China's oil industry with a turning point, but also embodies and highlights the rich spiritual connotation of its historical and cultural value - the Daqing spirit, iron man spirit, and fine traditional style. It is an extremely valuable red cultural resource. Currently, the protection and utilization of Daqing industrial heritage is still relatively weak, especially when some petroleum industrial heritage has been damaged, destroyed, or even disappeared. It is urgent to accurately grasp the main tasks of the protection and utilization of Daqing industrial heritage based on a deep understanding of the significance of the protection and utilization of Daqing industrial heritage, and through the implementation of key projects, effective measures, effective protection, and reasonable utilization during the 14th Five Year Plan period.

2. The Significance of Daqing Industrial Heritage Protection and Utilization

Industrial heritage is the witness of industrial civilization, the carrier of industrial culture, and an important component of human cultural heritage. "It is necessary to properly handle the relationship between protection and development, pay attention to the continuation of the historical context of the city, respect and treat the old buildings in the city as if they were the elderly, preserve the historical and cultural memory of the city, enable people to remember the history, remember the nostalgia, strengthen the cultural self-confidence, and enhance the feelings of home and country."^[1]

Industrial civilization is a state of modern social civilization marked by industrialization and dominated by mechanized mass production. In the process of industrial civilization since the Westernization Movement in the second half of the 19th century, especially in different historical periods after the founding of New China, China has left precious industrial heritage. Industrial heritage contains rich historical, cultural, technological, social, economic, and aesthetic values, and is non-renewable. It is an important evidence and material support for the historical development of a city, and a beautiful card for understanding and interpreting modern civilized cities. Ignoring or abandoning this precious heritage is tantamount to erasing the city's most important historical memory. Therefore, in recent years, these forgotten corners have gradually received sustained attention from people of insight, and many countries and cities are actively exploring reasonable strategies for the protection and

utilization of industrial heritage. The protection and utilization of industrial heritage has gradually become an international consensus, gradually emerging from the old and diverging path of clearing and destroying and rebuilding after destruction. Abroad, the British Iron Bridge Canyon is the birthplace and symbol of the Industrial Revolution, and is the world's first example of a world cultural heritage with an industrial heritage theme. After transformation, the Fiat Automobile Factory in Turin, Italy, has become a large-scale commercial complex integrating conference centers, shopping malls, hotels, and museums. Manhattan Elevated Railway Park in New York, USA, is considered a successful example of public welfare development of industrial heritage. In China, Beijing 798 Art District, Shanghai No.8 Bridge, Wuxi Beicangmen Life Art Center, Changzhou Canal No.5 Creative Block, and Xintiandi, Shanghai are all classic cases of transforming industrial waste plants into cultural creative centers (blocks) to protect and utilize industrial heritage.

The discovery of Daqing Oilfield more than 60 years ago opened a historic turning point in the history of China's oil development and ushered in the leapfrog development of China's oil industry. The development and construction of Daqing Oilfield has always been highly valued and warmly cared for by the Organization and the country. Due to the brilliant achievements and great dedication of the people of Daqing, the Organization Central Committee and Chairman Mao Zedong issued a call to "learn from Daqing about industry" in early 1964. In 1978, Comrade Deng Xiaoping inspected Daqing for the third time and issued an instruction to build Daqing Oilfield into a beautiful and large oilfield. In a congratulatory letter to the 60th anniversary of the discovery of Daqing Oilfield, it was emphasized that "the outstanding contributions of Daqing Oilfield have been engraved on the historical monument of the great motherland, and the Daqing spirit and the Iron Man spirit have become an important component of the great spirit of the Chinese nation."^[2]

Over the past 60 years, several generations of Daqing people have worked hard to establish the largest oil production base in China on the ancient wasteland. This has not only laid an important material foundation for China's economic construction, but also provided valuable ideological incentives for the Chinese people to overcome hardships and strive to build their motherland. It has forged the Daqing spirit of Iron Man with the main connotation of patriotism, entrepreneurship, pragmatism, and dedication. It has left a rich spiritual wealth and industrial remains with high historical, technological, social, and artistic values. The core items of Daqing's industrial heritage mainly include meritorious wells (sites), workshops, management and scientific research sites that witness the development of the national petroleum industry and the development and construction process of Daqing Oilfield, and carry the spirit of the Iron Man of Daqing and the fine traditional style of Daqing. Related living facilities and production tools, machinery and equipment, products, archives, etc. that have rich industrial and cultural connotations, have a strong impact on the socio-economic and cultural development of the time, and reflect the style of the times, as well as material and non-material remains of significant revolutionary significance such as oil development technology, oil process knowledge, management systems, and corporate culture.

The protection and utilization of Daqing's industrial heritage has a significant responsibility. Doing a good job in the protection and utilization of Daqing industrial sites is conducive to preserving historical testimony, strengthening national memory, inheriting and promoting the Daqing spirit and Iron Man spirit, and strengthening cultural confidence. It is beneficial to deeply explore the cultural value and spiritual connotation of Daqing's industrial heritage, further enhance urban functions, enrich urban connotation, and promote the construction of industrial culture with petroleum characteristics and Daqing style; It is conducive to cultivating new sources of power for high-quality development, realizing the transformation from industrial rust belt to life show belt, promoting the transformation and development of Daqing's resource-based city through cultural revitalization, and continuously satisfying the aspirations of the people for a better life.

3. The main tasks of protecting and utilizing Daqing's industrial heritage

Promoting the protection and utilization of Daqing's industrial heritage is a systematic cultural project.

3.1 Carry out resource identification management

We will comprehensively carry out inspections of Daqing's industrial heritage and the identification of a new batch of municipal and district (county) level industrial heritage, ascertain the base number of Daqing's industrial heritage throughout the region, clarify the type and content of industrial heritage,

establish archives, establish monuments, and list them, and establish a database of Daqing's industrial heritage. Implement a registration system for endangered industrial heritage, focusing on strengthening the repair and maintenance of industrial heritage, and strengthening the dynamic tracking of the protection and utilization of industrial heritage. Implement the industrial culture rescue project, continuously carry out Daqing Oil Battle and Daqing Oral History Interview of Industrial Studies through audio, video, and text transcription methods, rescue the historical memory of old battles and Daqing National Memory of Industrial Studies, preserve video and voice data, and collect the industrial cultural relics involved. Strive to understand the base number and protection and utilization status of industrial heritage throughout Daqing through extensive research, strengthen top-level design, regional integration and classification management, plan for long-term development, and build a protection and utilization system for various types of industrial heritage at national, provincial, municipal, district (county) levels.

3.2 Promote key protection exhibitions

Strengthen the protection of industrial heritage at or above the municipal level and comprehensive treatment of the surrounding environment, and select a number of municipal industrial heritage demonstration areas. Strengthen the cooperation between existing national and provincial cultural and cultural protection units, universities, and research institutes, support the construction of the Daqing Spirit Iron Man Spirit Exhibition Hall by universities in Qinghai, strengthen the interpretation and display of the value of industrial heritage, explore the contemporary value of the petroleum industry heritage, and promote the petroleum spirit. Relying on national and provincial protection units such as the first oil well in Daqing - Songji Well 3, Tieren Well 1 - Sa55, and the former site of Daqing Petroleum Battle Headquarters - Daqing Oilfield History Exhibition Hall, a national cultural relics protection demonstration area will be established.

3.3 Improve the industrial museum system

Vigorously promote the reform and innovation of institutional mechanisms and methods, gather social resources through investment attraction, and improve the protection, display, and utilization level of Daqing's industrial heritage by using modern scientific and technological means such as big data, cloud computing, VR, and AI. Integrate cultural relics resources, relying on the Conference Shed (now the CPC Daqing History Exhibition Hall), the former site of the 1977 National Industrial Science Daqing Conference, establish the National Industrial Science Daqing Museum, enhance the technological content of existing museums, exhibition halls, and other venues, strengthen the application of modern technologies such as VR and AI, and create a smart museum. Relying on the collection resources of the Iron Man Wang Jinxi Memorial Hall, Daqing Oilfield History Exhibition Hall, Daqing Oilfield Science and Technology Museum, and Daqing Planning Exhibition Hall, we will launch industrial civilization exhibition, social science research, and cultural and creative experience activities to achieve the unity of cognition and experience in the protection and utilization of industrial heritage, and the combination of education and entertainment. Encourage various schools to actively cooperate with industrial heritage conservation units, promote the introduction of industrial heritage into schools in the Daqing Spirit Iron Man Spirit learning and education activities, and jointly organize characteristic education and practical activities through the industrial relocation cloud exhibition and other methods.

3.4 Expand cultural living space.

Highlight social benefits, focus on inheritance, combine protection with utilization, strengthen educational functions, enhance communication capabilities, make industrial heritage alive, and integrate industrial culture into people's lives. Relying on the early typical buildings of Daqing General Machinery Factory, we will create a Daqing 1959 Cultural and Creative Park. Strengthen the cultural service functions of industrial museums, exhibition halls, promote the opening of industrial heritage protection projects at or above the municipal level to the public, and improve the city's public cultural service capacity. Strengthen the cultural connotation of urban cultural squares and parks such as Entrepreneurship Square, Iron Man Square, Oil Square, Century Square, and Daqing Oilfield Park and Children's Park, add oil industry themed landscapes integrated with modern design concepts, and enhance cultural taste.

3.5 Create a new image of urban civilization.

To ensure the historical authenticity, style integrity, and cultural continuity of industrial sites, comprehensive protection and overall protection should be taken to comprehensively promote rescue and preventive protection, as well as the protection of the site itself and the surrounding environment. Incorporate Daqing's industrial and cultural landscape into the overall urban construction plan to form an urban architectural complex with petroleum characteristics and Daqing style. Set the date of the Daqing Petroleum Conference and the Ten Thousand People Pledge Conference as the April 29th Daqing Industrial Heritage Day. Cooperate with universities, scientific research institutions, and enterprises and institutions to promote the cultural promotion of industrial heritage, implement actions to cultivate and enhance the industrial heritage of Daqing City, promote socialist core values, enhance the quality of Daqing City, and highlight the characteristics of Daqing City. Through efforts, the protection and utilization of Daqing industrial heritage has significantly improved, and the protection of industrial heritage has become a consensus among the whole people. The level of protection and utilization of industrial heritage has been continuously improved, creating a number of life show belts that integrate urban memory, knowledge dissemination, creative culture, and leisure experience, and forming an industrial heritage protection and utilization system with petroleum characteristics and Daqing style.

4. The construction of comprehensive engineering for the protection and utilization of Daqing industrial heritage

Focusing on the task of protecting and utilizing Daqing's industrial heritage, during the 14th Five Year Plan period, it is necessary to select a group of outstanding industrial heritage with significant historical value and social influence, large scale, and complete industrial historical features, timely launch the construction of comprehensive projects for the protection and utilization of industrial heritage, and continue to promote cultural rescue and protection projects, "Adhere to the protection and utilization of industrial heritage as an important content in promoting the high-quality development of old industrial cities, accelerate the development of industrial culture with Chinese characteristics in the new era, promote the coordination and mutual progress of the protection and utilization of industrial heritage with cultural protection and inheritance, industrial innovation and development, and urban function improvement, and create a batch of life show belts integrating urban memory, knowledge dissemination, creative culture, and leisure experience."^[3-4]

4.1 The renovation and protection project for the site of the Gandali Group in Hongqi Village

Gandali is a vivid carrier of Daqing's history and an eternal symbol of the Daqing spirit, the Iron Man spirit. The spirit Gandali is one of the six heirlooms of hard work and entrepreneurship in Daqing Oilfield. The Gandali Group in Hongqi Village is the only remaining residential area with its own functional system during the Daqing Oil Battle. It was listed as a municipal cultural relics protection unit in 2007 and a provincial cultural relics protection unit in 2014. There are 59 existing houses in the Gandali Group in Hongqi Village, which are worryingly preserved and urgently need to be repaired and protected. During the 14th Five Year Plan period, we can strengthen the repair and protection of the Red Flag Village's cadre base group by clarifying property rights, attracting investment, and entrusting management, based on the principle of restoring the old as before. Through comprehensive management of the surrounding environment of the Gan Da Lei Group, the establishment of a Gandali experience area, and improvement of community service facilities in the surrounding residential areas, we will build it into a life show belt in the southern urban area that integrates red tourism, life, leisure, and practical experience.

4.2 Reconstruction and expansion project of Daqing Museum of Industrial Studies

At the beginning of 1964, Chairman Mao Zedong issued a call to learn from Daqing in industry, and the national industrial front launched the call to learn from Daqing in industry movement. In 1977, the National Daqing Conference on Industrial Studies was held in Daqing and Beijing. This meeting affirmed the spirit of Daqing, its achievements and experience, and the role and significance of the Daqing Movement of Learning from Industry. In 1981, Document No. 47 of the Central Committee of the Communist Organization of China fully affirmed the spirit and basic experience of Daqing. During the 14th Five Year Plan period, relying on the Conference Shed (now the CPC Daqing History Exhibition Hall), the former site of the National Industrial Science Daqing in 1977, we can strengthen the overall spatial design and comprehensive functional transformation through municipal enterprise cooperation, property rights replacement, entrusted management, etc., establish the Industrial Science

Daqing Museum, do a good job in collecting and sorting out the historical relics and historical materials of the National Industrial Science Daqing, improve the level of digital display, and create a smart museum. Strengthen comprehensive management of the surrounding environment and strive to build it into a life show belt in the central urban area that integrates national memory, education and training, and leisure and entertainment.

4.3 Daqing 1959 Creative Industry Park Construction Project

Transforming abandoned industrial plants into creative industrial parks is a conventional method of transforming traditional industrial sites. Daqing General Machinery Factory was founded in 1960, covering an area of 120000 square meters, with a building area of 37000 square meters. It mainly focuses on the maintenance and production of petroleum related equipment. Currently, it is difficult to maintain due to outdated plant buildings, aging equipment, serious pollution, and excessive transformation costs. During the 14th Five Year Plan period, the Daqing 1959 Creative Industry Park can be built by means of off-site reconstruction and plant replacement, relying on the early typical buildings of Daqing General Machinery Plant. The preliminary assumption is to divide the park into three major sections: Zone I, Region Area, and Taro Area. Zone I is an industrial heritage and cultural area. The existing 55 industrial plants will be transformed into a cultural and creative experience area, a cultural and artistic creation area, and a conference and exhibition business area. The area is located in the open area of the plant area, creating a commercial pedestrian area. Taro District is a steel sculpture landscape area, and a theme sculpture museum park built using waste steel parts has been built. Through tax exemption measures and special subsidies, introduce professional management and development teams, improve the market-oriented operation level of the park, and achieve the transformation of economic and social benefits.

4.4 Zhongsan Road Petroleum Landscape Belt Construction Project

Pumping unit is a kind of mechanical equipment used to exploit oil, commonly known as kowtow machine, and is the most typical material manifestation and spiritual symbol of Daqing's oil industry culture. In order to make full use of petroleum elements and tap into the cultural characteristics of the city, relying on the kowtow machines scattered in the ecological landscape avenue and wetlands on both sides of Daqing Zhongsan Road, the site is selected to create an oil cultural landscape node with Daqing characteristics around Dongfeng Lake, and focusing on creating the East Lake Three Wells around Dongfeng Lake, making Zhongsan Road an ecological oil cultural landscape avenue. During the 14th Five Year Plan period, it is possible to carry out pavement renovation on the Zhongsan Road, increase green plants and industrial cultural landscapes along the line, and build trestle roads, pavilions, etc. around Dongfeng Lake, demonstrating the harmonious beauty of oil landscapes and ecological wetlands.

4.5 Daqing Oil Battle Oral History and Culture Rescue Project

The Old Battlemen is the pioneers and founders of the exploration, development, and construction of Daqing Oilfield, and a witness to the historical development of China's petroleum industry. As time goes by, many old battlemen are old or have passed away. The project will rely on the Daqing Spirit Research Base of Daqing Normal University to preserve and organize the historical memory of the old battlemen through surveys and interviews, using oral historical research methods, and using audio, video, and text transcription. Currently, the project has interviewed more than 240 people in the old battles, and the compiled 1.35 million word 3-volume Oral Record of Daqing Oil Battlemen has been published by China Workers Publishing House. Currently, based on the previous research results, this project has been approved as the National Social Science Foundation project Research on the Oral History of Daqing Spirit Iron Man Spirit (No.: 20BDJ077), which has elevated the oral history research of Daqing Oil Battlemen to the national level. During the 14th Five Year Plan period, we will continue to promote this cultural rescue project that races against time, preserve the national memory of the development of the petroleum industry, and promote the display and application of research results.

4.6 Daqing Industrial Heritage and Historical Data Digital Transformation Project

The development of technology, especially virtual reality technology, has provided new methods and opportunities for the digital protection of industrial heritage and historical materials. During the 14th Five Year Plan period, on the one hand, relying on professional technology companies and through government procurement services, VR technology was used to achieve a comprehensive digital representation of industrial heritage at or above the municipal level, enriching the user experience; On the other hand, comprehensively collect relevant literature on the development and construction of

Daqing Oilfield and the development of Daqing City, while strengthening text protection, achieve digital transformation of historical materials, and achieve long-term preservation and sustainable display of historical materials related to Daqing Industrial Heritage. The protection and utilization of Daqing's industrial heritage is not only an extremely complex systematic project, but also a historical and cultural project with far-reaching impact. Its achievements are in the contemporary era, and its benefits are in the future. It requires long-term efforts. The protection and utilization of Daqing industrial heritage is an important part of promoting the sustainable development of oil fields and the high-quality development of Daqing.

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