INDUSTRIAL HERITAGE AND REGENERATION:

HANYANG IRON WORKS, WUHAN, CHINA

By

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Abstract

Industrial heritage and subsequent values placed upon it has been a way of dealing with de-industrialisation in many parts of the world. Now, as China has begun to move away from traditional heavy industry and primary production, it too has been embracing industrial heritage as a means of preservation, commemoration, and economic development with regard to the legacies of its industrial past. The number of designated industrial heritage sites in China continues to grow as does the need to re-purpose and regenerate the previous industrialised landscape and communities.

Relatively little research has been undertaken with regard to the processes and variety of stakeholders involved with the regeneration of heavy industrial sites in China. This thesis recognises that such processes take place over a long period of time and during that time there are changes amongst the differing interest groups involved in both the production and consumption of any re-development. I focus on the case of the Hanyang Iron Works in Wuhan China. The Iron Works were founded in the 1890s and at their height were one of the largest such works in China, and particularly important in the modernisation of the country. When the works finally closed a huge expanse of land was in need of being transformed.

Based upon document collection, on-site observations and semi-structured interviews with stakeholders involved in the re-development of the site and its subsequent use and daily consumption, this thesis examines the transformation of the Hanyang Iron Works. It highlights the particular role that the private commercial sector has played in

the process and the relatively minor role that has been given to developing the site as an industrial heritage. In part, this is due to the weak voice of industrial heritage proponents matched by the increasing dominance of powerful commercial interests, but I argue that contextual aspects of the location, size and complexity of the site, together with the wider frameworks of economic need and local / regional governance have also been significant. Moreover, beneath this there has been a weak grasp with regard to the value of the site's industrial heritage value, compounded by the ways by which the memory of the site is rapidly being lost amongst the younger generations now using the transformed site. While there are still remains of the former Iron works as heritage markers, without interpretation and reminders, these too are easily overlooked by those who now consume the site making it difficult to imagine the industrial past of the site.

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Chapter 1 Introduction

1.1 Introduction

As a typical generation born in the 1990s, industrial production is quite unfamiliar to me while many urban leisure venues transformed by the former factories in the 2010s with a special architectural style attract my early attention. Originating from an interest in industrial aesthetics, and due to a precious opportunity to participate in Hanyang Iron Works' conservation project introduced by my supervisor in the post-graduate period, a bond between me and industrial heritage has been built. Then my post-graduate research develops industrial heritage and its relationship with urban regeneration taking Hanyang Iron Works in Wuhan as an example.

Compared with most other cases that would be redeveloped immediately after the removal of the factory (Berta et al., 2018), Hanyang Steel Works had been continuously transformed by multiple stakeholders over two decades with an unresolved outcome as of 2019 when I finished my postgraduate research. At that time, curiosity about the regeneration outcome of such a large factory's future transformation largely drove my further exploration. This dissertation hence develops my post-graduate research interests focusing on the continuous transformation process of the former industrial site within the context of regeneration. The major concern of this study is how industrial heritage fits in regeneration processes in economic, social, and political aspects by evaluating the views of heritage stakeholders involved in Hanyang Iron Works conservation and regeneration. It takes a longitudinal view beginning with the processes of de-industrialisation, the emergence

of strategies in regeneration, the concomitant heritagisation of industrial remains and the evolution of adaptive reuse, creative industries development and place-making. While focusing specifically on China, this essay will situate the value of industrial heritage in regeneration with applicability to cases in other countries. The fast-changing context in terms of China's urban industrial landscape transformation and regeneration serving rapid economic and political agendas will contribute to the understanding of industrial heritage conservation in post-modernism. The research indicates the malleability and temporalities of industrial heritage in China constructed mainly by heritage producers (local authorities and their private partnerships) and consumed by most heritage users exert limited economic, social and political influence on urban regeneration. This chapter begins with a brief introduction of the emerging interests in China's industrial heritage then tries to locate several key issues as well as my research interests passing to my aims and objectives of the study. Finally, a thesis organisation will be provided to help clarify my research.

1.2 Emerging Interest in Industrial Heritage and Regeneration

Industrial heritage is an emerging topic worldwide including China. It was first observed and promoted by British academics within the context of the destruction of the industrial landscape in the 1950s, calling for extending the profound understanding of industrialisation as well as the conservation of industrial remains (Cossons, 2000; Palmer et al., 2012). Physical evidence of industrial civilisation was beginning to be noticed. However, industrial heritage as a new concept cannot fit into common sense and popular definition of something that should be inherited by the next generations, because it is too recent, too altered, with no conventional

architectural aesthetic (Alfrey and Putnam, 1992).

Industrial heritage does not seem to be as popular as traditional heritage. Industrial heritage has developed uniquely, adapting the commonality of cultural heritage while showing some differences. First, it is utilised as an instrumental role like traditional cultural heritage to reinforce national identity imposing from a top-down perspective. For example, the Industrial World Heritage in the UK was inscribed to manifest as the birthplace of the Industrial Revolution (Falconer, 2005). Other countries in Europe and North America such as Spain, Belgium, France, and America actively registered on the National Industrial Heritage List (Oevermann and Mieg, 2015). Second, public memory and oral history of the industrial community from a relative bottom-up level (Leary and Sholes, 2000a) receive attention. More importantly, with the deepening impact of de-industrialisation, the number and scale of the obsolete industrial complex had unprecedentedly expanded. Influenced by some exemplars such as North America that successfully transformed the deindustrialised areas through conservation, the economic viability of industrial heritage has been recognised after the 1980s (Xie, 2015a). As Oevermann and Mieg (2015) point out industrial heritage is not only about identity and memory traditions and labour movements, it belongs to cities' industrial sites and their transformation. These shifts led developers and authorities to capitalise on new economic demands through the heritagisation of industrial remains as well as adapting them to tourism, residential and commercial developments for regeneration to ease the social distress and economic losses associated with deindustrialisation (Smith, 2005).

Though industrial heritage as an instrumental role in regeneration has been identified as an assistance compensating for the decline of secondary industry and regaining valid meaning in contemporary society such as the enhancement of collective identities and community cohesion in some regions (Liu and Feng, 2009), there is limited empirical evidence on the degree to which industrial heritage in this type of schemes contributes to the social and economic development of a city (Reeve and Shipley, 2014). Thus, to contribute to this empirical limit, my intention in this thesis is to locate industrial heritage within regeneration that responds to the economic, social and political needs. I discuss how industrial heritage constructions in China are exposed as mainly economic and political resources in response to the economic restructuring process and wider urban transformations, place-marketing and other global influences. The social and political needs are interlinked, and they are considered sometimes together in this thesis with the former emphasising on public facilities improvements and the latter on place identity issues.

Regeneration in this thesis is defined as reinvestment in an obsolete place with the conservation and transformation of the former industrial sites to renew local communities' identity, revitalise economies, and improve the physical infrastructures and image (branding) of cities. In examining the relationship between industrial heritage and regeneration, there is obvious difficulty in quantifying the economic, political and social role of industrial heritage, which is diffuse and difficult to disentangle from other activities (Graham et al., 2000). As such, I do not focus on quantifying the specific effects industrial heritage could exert in regeneration. Instead, I attempt to analyse the attitudes, needs and expectations of an array of stakeholders involved in

industrial heritage production and consumption as evidence to perceive the significance of conserving industrial remains when transforming the former industrial sites. To further measure the effectiveness of industrial heritage in regeneration, the consideration of changes in industrial heritage over a relatively long period is emphasised. The changes concern industrial heritage construction methods and their acceptance or rejectiveness by wider audiences.

I chose industrial heritage in China's urban context to examine its role in regeneration because China's rising industrial heritage discourse has been closely linked to the agenda of urban regeneration in terms of economic and political aspects (Su and Hong, 2017). After experiencing an accelerated process of industrialisation since the 1980s and industrial restructuring since around the 2000s (Friedmann, 2005), abandoned industrial lands have rapidly accumulated beginning to be noticed. Yet physical remains of factories were treated as polluted obstacles for urbanism and modernised development, and most industrial relics especially those with geographical advantages had been quickly knocked down and transacted to new properties meeting the huge housing demands (Wang and Chen, 2012). To save the fast-disappearing physical evidence of industrial civilisation across the country, the idea of industrial heritage conservation was first officially introduced and promoted by the State Administration of Cultural Heritage (SACH) to China in 2006 with the emergent promulgation in the official document – the Wuxi Proposal (Liu, 2012a; Wang, 2008; Luo et al., 2018). This official document heralded the advent of nationwide interest in conserving industrial remains through the promotion of multiple adaptive reuse methods (SACH, 2006). Since the 2010s, embedded in the following increased central government policies

and the practical application of successful Western regeneration approaches shown by pioneered Chinese mega-cities practices, industrial heritage has been integrated with museumification, tourism, artistic reuse initiatives, creative industries development and regeneration (Lu et al., 2019). Industrial heritage in this study is determined as those that fail in the administration of urban planning departments hence subject to adaptive reuse of industrial remains instead of those that are nominated as cultural heritage type subject to strict preservation.

Notably, juxtaposed with the context of rapid urban transitions and economic restructuring in China, proper new functions considering other economic and social regeneration needs justify the retention of industrial buildings with heritage significance (Yu, 2016). This trend has contributed to an increasing practical and academic emphasis on the potential of industrial heritage to facilitate urban regeneration (Zhang and Han, 2018). Conservation of industrial remains has been intentionally incorporated into a wider development scheme in China including the promotion of physical environment renewal, stimulation of urban economic growth, and reshaping city image (Niu et al., 2018). In addition, the recent rising National Industrial Heritage System led by the Ministry of Industry and Information Technology of the People's Republic of China (MIITPRC) since 2016 also emphasised the relationship between industrial heritage and national identity construction (MIITPRC, 2016). This recent national identity construction shift thereby emphasises industrial heritage’s role in socialist cohesion, which needs to be examined further. As such, industrial heritage in China has become and is being transformed into a bourgeoning

economic and political resource that is actively manipulated in regeneration and wider development schemes.

This paper adopts the single-case study approach to focus on deeply understanding the longitude development processes. The case of Hanyang Iron Works in Wuhan, China is chosen in this study to analyse the role of industrial heritage for two reasons. On the one hand, it is a representative case that has integrated industrial heritage as a strategy to regenerate the abandoned industrial site for economic growth and identity construction. In such a transformation process, industrial obsolescence was first ignored as industrial waste to be demolished and then treasured as a resource to be conserved with the aim of regeneration by different functions such as tourism, the development of creative industry, and consumption. Nonetheless, the commemoration of Hanyang Iron Works is linked with the conserved remains of Hanyang Steel Works for commemoration and image-making to revitalise local and national industrial identity. Notably, the detailed relationship between Hanyang Iron Works and Hanyang Steel Works will be introduced in the context chapter. On the other hand, this case has undergone a long-term transformation over 20 years, which is good for observing and examining the effectiveness of industrial heritage construction of Hanyang Iron Works in the former factory site's regeneration. The next section will give a brief introduction to my research case.

1.3 An Overview of Hanyang Iron Works, Wuhan

This section gives a brief context of the development of Hanyang Iron Works as well

as its conservation processes. Information on Hanyang Iron Works' location and its spatial changes and conservation methods are illustrated first. Then interactions between different stakeholders in the public and private realms give a clear understanding of Hanyang Iron Works' situation.

Wuhan has a long industrial development history that can be traced back to the late nineteenth century in the Qing dynasty, which was promoted by nationwide the Self-Strengthening Movement (Li, 2010). At that time, Zhang Zhidong as the governor of Wuhan in Hubei province actively joined the industrialisation development, and Westernised technologies of iron and steel production were applied to develop and construct the factory of Hanyang Iron Works (Kennedy, 1973). This factory is well-known as China's first modern industrial complex introducing Western world-class technologies including Luxemburg and Germany (Shen, 2015). Other factories such as Hanyang Arsenal were built near Hanyang Iron Works, forming an industrial area that contributed to Wuhan's modernisation and urbanisation development (Yuan, 2014).

However, in the anti-Japanese war from 1938 to 1949, partial facilities of Hanyang Iron Works were moved to Chongqing leaving those unmovable ones blown up avoiding serving Japanese iron and steel production (Han, 2019). After the funding of the People's Republic of China, Wuhan focused on steel industry production and a new factory named Hanyang Steel Works was constructed near the original site of Hanyang Iron Works. As can be shown in Figure 1.1, Hanyang Steel Works is located

on the west side of Hanyang Iron Works' original location, and these two factories have limited relationships in terms of historical inheritance and factory organisational connections (Xiyuqingshan, 2014). The turning point was in 1994 when several descendants of engineers, who helped the construction and steel production of Hanyang Iron Works, came to Hanyang Steel Works to find their historical connections, which inspired Hanyang Steel Works to focus on its inheritance relationship between Hanyang Iron Works (Long, 2002, 2003). Since then, Hanyang Steel Works began to be recognised by the factory as having some connections related to Hanyang Iron Works. The commemoration of Hanyang Iron Works' past especially the historical figure, Zhang Zhidong, who made great significance in its construction, was further developed by the factory as a historical resource for tourism.

Starting from the construction of a museum named Zhang Zhidong and Hanyang Iron Works in 2002, Hanyang Steel Works has actively conserved Hanyang Iron Works as a type of heritage. Though there were some opponents from local communities questioned this conservation theme, with the increasing industrial heritage discourses from both bottom-up and top-down ways, industrial heritage conservation of Hanyang Iron Works has extended to conservation areas integrating into different urban functions including museum, creative industries of Hanyang Zao, commercialisation, residential areas, and green parks since 2006 (Figure 1.1). More importantly, the national industrial heritage call in 2017 from the state level nominated Hanyang Iron Works as one of only twelve national designations in the first batch, which brought a new challenge to its conservation for national industrial identity construction rather than conservation in physical and economic aspects.

Figure 1.1 Geographic locations of Hanyang Iron Works and Hanyang Steel Works
(Source: by the author)

The transformation of Hanyang Steel Works' site has lasted around twenty years, and it is still being transformed. Because of the excellent site location alongside the river in inner Wuhan, the Hanyang Steel Works site was at risk of wholesale demolition and redevelopment. The north side factory of the Hanyang Steel Works site was transformed quickly in the booming real estate development in 2005 (Han, 2019). Vanke as a real estate company showed ambition in transforming the whole site to complex functions with commercial and residential districts in 2010. Yet this scheme was stopped due to the withdrawal of Vanke due to its financial problems. In 2019, Sunac was introduced in the Hanyang Steel Works project as a new developer who exerted conservation and regeneration, but followed by Sunac's bankruptcy, Hanyang Steel Works was stopped for implementation again in 2022. Such a large industrial

site of Hanyang Steel Works covering around 25 hectares experienced two times failed transformations, and simultaneously conservation of Hanyang Iron Works continues to adapt to changing economic and political needs. There is a shifting array of stakeholders including the factory and its parent companies, government agencies at different levels, the private sector mainly real estate companies and creative companies, changing residents, tourists, visitors, and consumers. In this thesis, I consider all participants as stakeholders (Gray, 1989) and those who can participate in the decision-making process or related to the industrial heritage production process are generally described as producers, and those who are impacted and involved are described as heritage users or consumers.

Hanyang Iron Works hence is a suitable case for my research proposal to understand the role of industrial heritage in regeneration. This study case's long-term transformation processes make space for discussing the perceptions of stakeholders on industrial heritage, and how industrial heritage fits in wider schemes. The specific research aims and objectives will be illustrated in the next section.

1.4 Aims and Objectives of the Research

In line with Harvey's (2001) view, this thesis perceives heritage as a cultural process with people continually engaging with it, re-working it, appropriating it, and contesting it. Though considerable research has been undertaken with regard to the conservation and management of industrial heritage, there have been few efforts to understand how it is produced and consumed over the long term (Fouseki and Nicolau, 2018). This

study attempts to uncover the longer transformative processes involved in the re-development of a large industrial plant within an urban area. I am interested in the different ways in which former attributes of the industrial past and their meanings are changed, commemorated, interpreted, and utilised in the different aspects of site regeneration, from demolition to renovation, and adaptive reuse.

Taking a long-term perspective on how former industrial sites are re-developed makes several contributions to the field of industrial heritage. First, it provides insight into the activities, motivations and underlying values of the various stakeholders involved especially those with the capacity to promote heritage construction. Those who have participated in and have exerted influence on, conserving and regenerating industrial sites are the major concerns of this study and this group of stakeholders is defined as heritage producers. Keeping relics of the industrial past as part of a society's heritage is not a foregone conclusion and as Elias (2004) reminds us, the interests, perceptions, and values of stakeholders involved with industrial heritage change over time. A longitudinal analysis makes space for discussing the under-researched area of multiple rounds of interactions between key actors and their roles in the re-development of industrial sites (Beaulieu and Pasquero, 2002). These interactions reflecting confrontation and collaboration shed light on the changing role that industrial heritage plays in the wider evolutionary processes of urban development, regeneration, or stagnation (Hashimoto and Telfer, 2017).

Second, this study generates insights into changing notions of, attitudes to, and

appreciation of, industrial heritage according to different users and consumers involved in transformations of the former industrial sites. These groups consume, use, and interpret industrial heritage and can be broadly divided into two types with one, mainly the former workers and local communities, who have first-hand experience and memories of industrial production; and the other one, such as tourists are passive even distant observers. Cultural continuity, as well as the intergenerational challenges in industrial heritage conservation and regeneration both operate in this study. The population of former workers and local communities are fast reducing, while new generations are reinterpreting and even neglecting industrial remains of the past that are now largely outside their experience (Baker and Chitty, 2013).

Third, this study points to the fact that the processes involved in the production and consumption of industrial heritage are discursively practised by stakeholders seeking to understand the significance of industrial heritage in regenerating declining factories.

In light of the above, this thesis has aimed to examine the role of industrial heritage in the regeneration of China's former industrial sites against the backdrop of deindustrialisation and the move towards a post-industrial economy. The Hanyang Iron Works proved to be a fascinating case and one that allowed me to engage with the processes of transformation. My interest has been to address the fundamental question of what does society do with the remains of the industrial past? And within this, what role does the concept and practice of industrial heritage play in the various strategies that are behind the transformation of old industrial space and economies to

new economies and new spaces? In addressing these questions, I was always aware that not everything from the industrial era has value as heritage and therefore ‘should’ or even ‘can’ be preserved. This aim and underlying questions led me to the following objectives:

To understand the processes of industrial heritage construction as well as changing motivations and purposes of heritage producers engaging in industrial heritage and regeneration.

To examine the use of different industrial heritage conservation strategies employed by heritage producers as a way of evaluating the effectiveness of industrial heritage conservation incorporating regeneration initiatives.

To set the above in the longitudinal and encompassing wider social, political, and economic changes taking place in China, so as to give insight into the significance of industrial heritage conservation in regenerating declining industrial sites.

Drawing on data collected from Hanyang Iron Works, relevant evidence shows that industrial heritage production in the realm of regeneration is mainly adaptive to post-industrial economic restructuring and urban transformations from the perspective of capital accumulation, though other issues play a role within the evolution of industrial heritage conservation referring to political ideology, heritage conservation philosophy, modernity, and consumerism. Gradually exposed the economic dimension of industrial heritage in regeneration generally utilises symbolic, while ironically homogeneous aesthetics of industrial remains as a backdrop to artistic and creative production,

tourist consumption, and other multiple urban functions, but in the absence of comprehensive industrial heritage values including such as labour history and industrial culture. This risk of dissolution of historical and geographic uniqueness of place origins contributed by industrial heritage eroding the idea of place and replacing it with space in post-modernity (Xie, 2015b), which further leads to constant abandonment and unsustainability after a shorter period of fuelled consumption and fetishisation of industrial heritage. I argue that industrial heritage contributes limited to regeneration in short-term economic, political and social aspects, especially in a society with rapid economic development and fast urban transitions.

The concept of industrial heritage in China is heavily framed by the de-industrialisation experiences and the wider heritage paradigm that has prevailed in the ‘Western world’ (Lu et al., 2019). My focus on the Chinese case of the re-development of the Hanyang Iron Works site in Wuhan has allowed me to examine how the concept of industrial heritage is operationalised within a non-western context. Over the past decade in particular, China has recognised the importance of marking its industrial past through heritage while also trying to deal pragmatically with rapid changes in its economy and society for twenty years. While there have been some aspects of my study that speak to the particularities of China’s transition from large-scale de-industrialisation to a new economy, there are general principles and processes at work which be applied to other regeneration projects in other countries. In particular, my case highlights the shifting roles of interest groups and the power relations between them and how this is shaped by a wider understanding of the values of industrial heritage and the extent to which it can be mobilised in programmes of regeneration and adaptive reuse.

1.5 Overall Research Methodology

This research adopts a qualitative approach based on fieldwork at the Hanyang Iron Works site in Wuhan. Based on an epistemological point of view to interpret a range of data by qualitative methods, fieldwork observations, semi-structured in-depth interviews, and document collections are formed as three main approaches to collect data for the following analysis.

First, semi-structured interviews are conducted to investigate different stakeholders' driving forces of participation, which helps to provide insight to better understand their perceptions, attitudes, and motivations for involvement. Their shifting attitudes and what factors influence them with the consideration of change over time are the major focus. Interviews are the primary sources of data for probing industrial heritage-making processes and for eliciting the ambitions of using industrial heritage as multifunctional devices. Instead of key stakeholders in the factory of Hanyang Steel Works, local public and private agencies, and academics who were deeply involved in the whole process of Hanyang Steel Works site's transformation, other heritage users were concerned with analysing their appreciation or rejection of industrial heritage ideas. Second, fieldwork observations also provide uses, appreciations, and consumption patterns of tourists, residents and consumers. Finally, contextual information is collected from heritage and planning documents, and policies to understand government interventions. Reports, journals and other public materials were collected to offer a longer narrative of interpreting the industrial heritage conservation methods of Hanyang Iron Works. Three different sources

were collected, applying triangulation in this thesis to avoid short-sightedness on a single aspect. A detailed explanation of methods conducted in this study is in Chapter Four.

1.6 Organisation of thesis

My thesis is an examination of the role of industrial heritage in regeneration. It takes a longitudinal view to examine the processes of industrial heritage production and consumption with stakeholders' interactions. The transformation of the former factory of Hanyang Steel Works begins with the processes of de-industrialisation, the emergence of regeneration strategies, the concomitant heritagisation of industrial remains and the evolution of adaptive reuse methods and the integration of these remains in new development. A series of fundamental questions surround the range of stakeholders such as: why should industrial remains be conserved as heritage, what forms this conservation takes, and how the values of the stakeholders manifest themselves in the practical and policy dimensions of a site of regeneration.

This thesis constitutes seven chapters in the following sequence: the introduction of the study, the literature reviews in terms of relevant research, the context of the study case in China, the methodological instructions, the analysis of industrial heritage production, and the discussion of industrial heritage consumption, finally conclusions summarising my findings. Following an introductory chapter in which the significance of the research and a wider context is established, the literature review (Chapter Two) will examine the concept of industrial heritage and how it has been drawn into debates

of regeneration. It will situate industrial heritage within the de-industrial – post-industrial dynamic and how this has generated and been impacted by new values. It will also discuss the heritage debate in terms of stakeholder theory and the relative and shifting positions of power and authority.

Chapter three will set out the context for the research focusing on China's industrial heritage development as well as Wuhan's circumstances referring to industrial heritage policies, the historical development, the herigisation processes, and the stakeholders involved in the case of Hanyang Iron Works. The spatial and historical dimensions of the site will be outlined and the shifting policy positions of China will be examined in the light of the tension between heritage preservation and industrial growth/change. Chapter four will map out the methodological approach to the research and will focus on philosophical concerns and the specific methods used along with their limitations and any ethical implications.

Chapters five and six will be two analytical chapters that explore the findings of the research in the context of the relevant wider theoretical debates. The former presents my findings with regard to industrial heritage production considering its changing processes to fit in economic and political concerns. By examining the relationships between heritage governance, economic regeneration and identity recognition in contemporary China, the notions of industrial heritage could be linked to modernity, creative industry and image-making strategies. It is most important to understand the impact of such multiple interactions on the definition, interpretation, scope, and

physical change of heritage. The latter combined views of industrial heritage users and consumers who respond to industrial heritage producers and changes of fast disappearing industrial remains. Industrial heritage consumption based on the appreciation of industrial environments with aesthetics and spectacles is primarily dealt with in chapter six, and other identity, images, memory issues and cultural changes will be discussed.

Chapter seven brings together my findings and what these mean in terms of our knowledge of industrial heritage production and consumption. China's industrial heritage concepts have evolved and are still evolving as a result of changing attitudes and expectations of stakeholders, which engages us in the debate of wider economic and political needs. This chapter demonstrates the role of industrial heritage in the sense of economic and social regeneration, which is also the potential value of this research. Limitations and strengths are manifested, and future directions of industrial heritage are pointed out.

1.7 Conclusion

This chapter briefly introduces the emerging interests of industrial heritage in China and the empirical deficits in understanding industrial heritage in regeneration, which helps justify and locate my research aims and objectives. Economic and political concerns about the uses of industrial heritage are primarily dealt with when considering the transformation of the former industrial sites in wider development schemes. I aim to examine the role of industrial heritage through the combination of

multiple research methods to investigate the attitudes and perceptions of an array of stakeholders to industrial heritage production and consumption. Mobility and dynamics of changing attitudes will be considered to examine the effectiveness of economic and political uses of industrial heritage in a relative long-term transformation of the large industrial site of Hanyang Steel Works.

This thesis emerged from the idea that China's industrial heritage is developed in the context of economic restructuring and urban transitions as well as global competitions. The conceptions of industrial heritage development and how this concept adapts to dynamic discourses including modernity, nationalism and current post-modernity. After introducing key features related to my research, the next chapter will review industrial heritage research in a global context providing the scope of the study.

Chapter 2 Industrial Heritage and Regeneration in Global Context

2.1 Introduction

Since the first Industrial Revolution began in the late eighteenth century, major waves of industrialisation spilt globally over the past three centuries. As the deepening of industrialisation, some industrial sectors began to fade resulting in gradual industrial decline and de-industrialisation of some prior industrial regions, thus leading to severe physical obsolescence, urban decay, and concomitant socio-economic issues. Within the context of a wide range of destruction of industrial remains, preserving industrial heritage was put forward and promoted by British academics in the 1950s (Cossons, 2000; Palmer et al., 2012). This idea found synergy with large-scale deindustrialisation and post-industrial commodification of heritage in most Western countries, which contributed to the development of industrial heritage. Moreover, as multiple roles of industrial heritage have been recognised in terms of economy, society and culture, the regeneration of decaying industrialised regions through the utilisation of industrial heritage began to gain popularity in the 1980s (Fouseki and Nicolau, 2018). Set against this background, industrial heritage is not only about identity, memory, traditions, labour movements, and history, beyond cultural heritage, it also belongs to cities, sites, and their transformations (Oevermann and Mieg, 2017). Therefore, conflicts and clashes of different discourses over demolition, re-use, preservation, and development come together involving dynamic interactions between stakeholders in the combination of industrial heritage and urban regeneration.

This part will first review the expansion of heritage scope and the dynamic definitions of heritage that follow perceptions and contestations between human actors who

interact with history or the past. Starting from a brief history of industrial development, how wasted industrial ruin is reclaimed for heritage status together with its evolution in terms of types and values will be examined. Second, the next part explores the definitions, causes and implications of deindustrialisation and how it has influenced industrial heritage adapting to various forms of commodification in post-industrialism (Savage, 2003; Sargin, 2004; Shackel and Palus, 2006). The work discussed in this section can be understood as an increasing response from the interested public to the industrial dereliction, and the conditions under which ruins are negotiated as heritage in different forms for purposes of tourism and commodification. In the following, after reviewing the development of urban regeneration for discussing when industrial heritage started to exert a role, the complex roles of industrial heritage in urban regeneration in terms of economy, society and environment will be explored. More importantly, dynamic interactions between a variety of stakeholders are considered including their different intents and resultant outcomes that influence industrial heritage in the long run. After sorting out relevant literature, this chapter also provides a theoretical foundation for the subsequent development of the conceptual framework for this study.

2.2 Origin of Heritage and Industrial Heritage

Heritage is a loaded word that has a variety of different meanings with its evolution (Meethan, 1996). Some scholars trace the origin of heritage through a longer historical analysis within a Europe context (Hobsbawm, 1990; Harvey, 2001). They suggested monuments, legends and traditions can be seen as heritage (Blair, 1988; Sack, 1986). Many commentators place the emergence of the current concept of heritage within the

context of modernity after the late eighteenth century in Western Europe (Walsh, 1992; Jokilehto, 1999; Smith, 2006), though others suggest the proliferation of heritage is a condition in the later twentieth century (Lowenthal, 1998; Graham et al., 2000). Modernity rooted in the Enlightenment period of eighteenth-century Europe contributed to the development of modern historical consciousness and the nation-state through the development of museums and the preservation of monuments (Pendlebury, 2008). Similar systems of protection were subsequently adopted in Germany and the United States, and later exported to Western European colonies (Murtagh, 1997; Harrison, 2013). Smith (2006) argues these sites always refer to the old, grand, and aesthetically pleasing things as national symbols contributing to the construction of cultural identity.

There has been a remarkable proliferation of heritage in terms of its classification and the number of sites after the 1970s because of many combined reasons: the heritagisation of redundancy caused by deindustrialisation (Hetherington, 2004); commercialisation of heritage contributing to the post-industrial economy (Walsh, 1992). The criteria for designating something as heritage were not restricted to architectural styles, temporal periods and spatial scales (Pendlebury, 2015; Storm, 2008). Interest in the small, ordinary, traumatic even ugly associated with the collective memory and emotion of ordinary people was also added to the field of heritage including industrial heritage (Nora, 1989). Heritage was thus reconfigured as an issue of broad public concern in the later twentieth century. The issue of heritage also received attention at the international level along with the emergence of a new concept of world heritage in 1972, and the formulation of agreed standards and organisations

internationally such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) and International Council on Monuments and Sites (ICOMOS) (Ahmad, 2006). The scope of heritage is standardised by these institutions, but it is still changeable, generally divided into cultural heritage including tangible and intangible one, and natural heritage, though some Western countries have objected to the relevance of intangible heritage (Kurin, 2004).

As the scope of heritage is continually altered, a discursive approach to heritage is gradually acknowledged in understanding when something becomes heritagised or ceases to be heritagised (Xie, 2015a; Harvey, 2001; Davison, 2008; Harrison, 2013). Some consider human actors who interact in the heritage-making process (for example, Harvey, 2008); non-human actors with whom people interact over time (Harrison, 2013); and people's interactions with values, meanings and uses of heritage (Lowenthal, 1985; Smith, 2006). For human actors, Samuel (1994) suggests a democratic change referring to an increasing number of people who are involved in heritage creation contributing to the acknowledgement of multiple conceptualisations of heritage extending narratives from the nation to the local, community and even personal aspects (Smith, 2006: 37). For non-human actors, the wider contexts involving political, economic and social changes affect people's construction of heritage (Harrison, 2013). Moreover, the roles of heritage, seen previously in the narrow context of symbols of national unity and pride, have expanded to include much broader phenomena, contributing to political ideals, economic prosperity, social cohesion and cultural diversity (Clark, 2005).

More importantly, Tunbridge and Ashworth (1996) suggest inevitable dissonance is implied especially as the commercialisation of heritage emanates a wide range of potential conflicts. The discordance lies in the meaning of heritage which is constantly contested in the interpretation of cultural meanings, incompatible uses and management of heritage (Cosgrove, 1993). However, unequal power structures between heritage human actors are recognised when there is dissonance (Harvey, 2008; Thurley, 2013). Smith (2006) argues there is an authorised heritage discourse (AHD) that reflects a heavily Westernised and expert-driven comprehension of heritage, which tends to legitimatise certain cultural values and thus potentially closes other subaltern heritage discourse (Eriksen, 2001; Waterton et al., 2006).

Thus, heritage has undergone an enormous transformation, characterised by the ever-increasing expansion of categories and sites, as well as the number of heritage participants, reflecting their power structures for a wide range of purposes. Heritage follows our perceptions, despite contestation, of what is worthy of heritagisation within broader contextual changes.

In terms of industrial history, some historians discussed industrial activities in the pre-industrial period such as hand production methods (Cipolla, 1976) and three Industrial Revolutions as demarcation points when identifying industrial heritage (Stuart, 2016; Stearns, 2013). Industrial Revolutions, the first one originated in Britain around the eighteenth century, triggered by the invention of power engines and locomotive-generated energy from coal, and then spread to Europe and the United States (Cooper

and Kaplinsky, 2005). These technologies revolutionised several textiles industries, mining, and metallurgy industries, contributing to earlier forms of production with specialisation and coordination split in different regions (More, 2000). The second industrial revolution took place around the turn of the twentieth century, with electrification and new engines generating power from petroleum, contributing to the development of new industries but earlier decay of some traditional industries (Stearns, 2013). New technologies enabled many production sectors in a mechanised and dispersed sense globally (More, 2000). Sizes of factories and firms grew inexorably alongside the number of workers, permitting the expansion of a new working class and middle class, and their social customs (Navarro, 2006). The third industrial revolution after about 1960s brought extensive technological improvements in the fields of internet technology, satellite communication, aviation and automation, which has combined impacts including several prominent ones: globalisation, deindustrialisation of some traditional industries followed by the rising service industry (Rifkin, 2011; Harrison and Schofield, 2010).

Industrialisation implied by industrial revolutions is the transfer of labour and resources from the agrarian to the manufacturing sectors with implications like urbanisation (Kemp, 1989). From an economic historian's perspective, there seems to be a growing consensus that industrialisation has been marked by three decisive stages (Stearns, 2013; Li, 2017). Each major wave of industrialisation quickly spilt over into other societies that were not industrialised outright and this process is still constantly evolving (Kemp, 1989; Weiss, 2004). Within the framework of the national state, the first happened in Western Europe and North America, starting in Britain, followed by

European countries, spanning the eighteenth and nineteenth centuries (Griffin, 2010). A second phase burst on the shores of Russia and Japan, plus Canada and Australia from the late nineteenth century to the mid-twentieth (Stearns, 2013). Both Russia and Japan redefined and accelerated their industrialisation process which is shorter than the first one (Franke and Kalmbach, 2005). Most Western countries deepen their degree of industrialisation and mature in the process of industrialisation after the 1950s, defined by economic experts as industrialised societies, while others are developing ones. Some countries on the Pacific Rim started industrialisation in the 1960s, two decades later, in Turkey, Brazil and other parts of Latin America, followed by India and China by the 1980s, which is marked by the third phase (Stearns, 2013). These countries repeated elements of the original industrialisation with comparative advantages of cheaper and nonunionised labour, which put pressure on many established industrial regions to face unfamiliar challenges including deindustrialisation after the 1970s (Bruland et al., 2019). In the late twentieth century, the entire industrialised world experienced the restructuring of the global economy, and the relocation of industry to areas characterised by low production costs (Loures and Panagopoulos, 2007). By the twenty-first century, over half the world was effectively industrial for the first time or in the process of experiencing one, though some parts had not (Stearns, 2013).

2.2.1 Industrial Ruins to Legacy

It is worth noting that different regions have their unique pace in the development of the industrial past, which inevitably influences their pace of relating to their industrial

past. Though in some Western countries, the second industrial revolution entailed attention for the earlier industrial history to a limited extent, the third one saw a widely increasing societal response concerning the industrial past and its milieus in other parts of the world (Storm, 2008; Stratton, 2005). Western countries became mature earlier than other countries in the process of industrialisation, making the artefacts of earlier phases obsolete and generating sufficient interest in the industrial past of derelict industrial remains (Buchanan, 2000). This implies that the decay of industry and its obsolescence are an essential part of the background for understanding the birth of industrial heritage.

The obsolescence of industry is accompanied by industrial development because industry is mobile with the results of its abandoned habitats (Gross, 1993). The second industrial revolution brought a break in the former traditional industrial sectors generating degradation of industrial landscapes (Sieverts, 2003). Since the nineteenth century, cycles of material replacement have accelerated with industrial wastelands as one of the outcomes partially due to mass production and consumerism (Olsen and Pétursdóttir, 2014). Ruins litter the industrial landscapes of the West in the twentieth century although their prevalence varies enormously (DeSilvey and Edensor, 2012). Particularly after deindustrialisation, there was a widespread process of redundancy of former industrial sites, towns and infrastructure within an uneven geography of capitalist development, which will be discussed in detail later in the part of deindustrialisation (Massey, 1984; Smith and Harvey, 2008).

Earlier industrialised societies were the first batch that reacted to the growth of industrial remnants. Radical clearance and redevelopment of such outdated facilities were common approaches to dealing with facilities that were no longer serving their original production functions around the 1950s (Frenchman, 1976). However, as has been well rehearsed in the industrial heritage literature, an increasing public resistance to the demolition of industrial milieus first appeared in Britain in the 1960s (Falconer, 2005; Cossons, 2000; Palmer et al., 2012; Alfrey and Putnam, 1992). The newly founded subject named industrial archaeology gave rise to recording, or where possible preserving, industrial remains before destruction (Palmer et al., 2012). A proliferation of conservation activities contributed to the impetus for the British government's engagement in seeking national policy for protecting industrial heritage, which then helped to stir up the consciousness of some European countries (Cossons, 2000). Industrial ruins, particularly those dating from the Industrial Revolution, illustrating themes of technological innovations, monumental and architecturally distinguished buildings, were recognised as evidence of a glorious industrial past in some European countries, by statutory protection for monuments of national importance as a part of an expression of national identity (Bodurow, 2003; Airs, 1977).

Nonetheless, Alfrey and Putnam (1992: 9) note that it has often been hard to see industrial culture as heritage at all, because most industrial remains may be too untidy, too poorly designed and built to be deemed to merit retention, while heritage has by convention been defined as relics from a pre-industrial history that are old, grand, and aesthetically pleasing. They further note that though some have been preserved, there has been a tendency to focus on certain residues characterised in circumscribed ways

– as monumental, sublime, old, rare or technologically significant. Yet, along with the proliferation of heritage, one of the heritage arguments for preservation shifted from monument to architecture and environment, enabling industrial buildings and complexes could be recognised as heritage, though they were selected based mostly on their architectural quality and historic significance (Storm, 2008: 37). Industrial remains act as a representation of industrial past, as a reflection of an industrial culture of industrial cities (Li, 2017). Lynch (1972) contends that urban materiality is characterised by the accumulation of overlapping traces from successive periods to which industrial remains contribute a layered reading of a city.

Further, some areas became the centre of social justice movements in defence of local workforces who fight against factory closedowns, threats of unemployment and the demolition of workers' residences (Campagnol, 2011). Though factories have shut down, people who are directly affected by industrial change may powerfully support preserving industrial remains because they contain memories, social relationships, and maybe their pride or emotional attachment (Cossons, 2016: 32). Other movements, such as new museology started from France in the 1970s and dig-where-you-stand phenomenon in Sweden in the 1980s, encouraged the workers to participate in heritage and write their own history of industrial work instead of being dominated by the upper classes or professional historians and museum curators (Vergo, 1987; Storm, 2008). Individual and collective memories and resonance in working-class experiences were advocated to be commemorated, invoking a sense of social identity of the working class (Smith et al., 2011). Moreover, British industrial archaeology in the 1970s not only regarded technology and industrial materiality as

the prime work but also focused on the social dimension (Buchanan, 1972). Their endeavours partially contributed to social awareness about previously forgotten industrial workers and their cultures as heritage.

However, changes in the industry have a complex inter-relation with individual and collective memories, the unpleasant parts of which tend to be forgotten rather than be commemorated (Linkon and Russo, 2002), including negative connotations of industry associated with social problems, pollution and visual and aesthetic unpleasantness (Arnesen, 2006). Debary (2004) argues that heritage is fundamentally more about memorialising the past so that it may be forgotten than remembering the industrial past – particularly complex pasts of class inequality. There also have been desires to forget the brutalities of poor pay and working conditions in dangerous industries in some de-industrialised regions that actively reject the preservation of industrial remains (Barthel 1996). Brower (1999) argues many societies are unable to deal with painful pasts as heritage because it is too problematic, especially for expressions of national identity. Paradoxically, industrial heritage occupies a position at the conceptual forefront with deliberations about dangerous and difficult heritage (Logan and Reeves, 2009; Macdonald 2009).

As the importance of industrial relics was gradually acknowledged after the 1970s, some European experts organised several international conferences focusing on preserving industrial monuments: The First International Conference on the Conservation of Industrial Monuments was hosted at Ironbridge, Britain in 1973; a

second one in Germany in 1976; a third one in Sweden in 1978 with the establishment of The International Committee for the Conservation of Industrial Monuments (TICCIM was renamed as TICCIH later, the word Heritage replaced Monuments) as an advisor to ICOMOS on industrial heritage (Douet, 2016). Followed by the inscription of several European industrial sites as World Heritage in the 1980s, there was a growing recognition of industrial heritage at the international level especially in other industrialised countries like the United States and Australia after experiencing deindustrialisation. The role of international organisations such as UNESCO, ICOMOS and TICCIH intensified a global sense of industrial heritage through their discussions around charters, conventions, and codes of practice relevant to the industrial heritage from the 1980s onwards (Falconer, 2005). The early twenty-first century witnessed a steadily widening interest in industrial heritage worldwide including in developing countries. TICCIH took the lead role in standardising the definition, scope and conservation principles of industrial heritage worldwide after enacting documents: The Nizhny Tagil Charter for The Industrial Heritage in 2003; The Dublin Principles in 2011; Taipei Declaration for Asian Industrial Heritage in 2012, focusing the specificity of adaptive reuse in Asia countries that joined the industrialisation process later.

2.2.2 Types and Values of Industrial Heritage

Since emphasis was gradually placed on the continuity between the archaeology of industry from the prehistoric to the modern period covering all phases of human development, industrial heritage has extended to a huge diversity ranging from agriculture, craft production, extractive industries, manufacturing industries, and utility

industries (Palmer et al., 2012). Some industrial archaeologists argued that a thematic approach according to different types of industry is one of the keyways in classifying industrial remains including several sub-categories: extractive industries; bulk products industries; manufacturing industries; utilities; power sources and prime movers; transportation; communication; bridges, trestles, aqueducts; building technology; specialised structures/objects (Raistrick, 1972; Palmer and Neaverson, 1998, 1995; Cossons, 2000). Further, with the transformations in post-industrial economies, analysis of leisure, fashion, and information technology industries suggest possible new frontiers for future directions (Schofield, 2000; Lally, 2002; Casella and Symonds, 2005). This thesis focuses on the iron and steel production that is related to extractive and manufacturing industries whose development in the case of Hanyang Iron Works will be discussed in chapter three.

Early preservation of industrial heritage focused on a building-specific approach, while by the early 1970s, many conservationists expressed disquiet over the removal of buildings from their original setting, and attention came to focus on industrial sites complex through in situ preservation (Stratton, 2005). Alfrey and Putnam (2003) argue the remains of industrial civilisation that contains a wide range of potential resources including aspects of the industrial life they represent. From a functional and interconnected perspective, Beech and Chadwick (2006) suggest three broad categories: factory buildings, power sources used by industrial machinery and means of transporting materials. Casella (2005) concerns the production, distribution and consumption of commodities to understand industrial remains. Equally important is the interpretation of workers' houses and their facilities that could reflect social relations,

hierarchy, and control power of entrepreneurs, worked out during the process of industrialisation (Palmer and Neaverson, 1995). These connections enable the recognition of an entire landscape, allowing the expansion of the conception of industrial preservation to accommodate recognised patterns of activity in time and place (Meinig, 1979; Hudson, 2014; Hudson, 1979). Palmer and Neaverson (1998) separate four types of industrial landscapes: linear landscapes, metalliferous mining landscapes, landscapes of the textile industries, and townscapes with industrial characters. The vision of preserving the industrial landscape determines the reasons for the location of industrial enterprises; interprets the changes to them through time; and examines their spatial relationship both with each other and with the development pattern of settlements and transport systems (Stuart, 2016).

There are three documents adopted by TICCIH that define the scope of industrial heritage which are recognised internationally: The Nizhny Tagil Charter, The Dublin Principles, and the Taipei Declaration for Asian Industrial Heritage. In terms of material assets, there are movable and immovable ones. Movable ones include objects, artefacts, documents, and machinery related to industrial heritage. Immovable assets are very diversified, changing from the early vision to preserve monuments of the industry to a view of industrialisation as part of the wider historic environment to be valued and managed (Cossons, 2000). It consists of sites, structures, complexes, areas, and landscapes (TICCIH, 2011, 2003). Instead of immovable standing structures, some early industries are excavated sites with underground objects and structures (Palmer et al., 2012). Besides, intangible dimensions in also an important part such as technical know‐how, the organisation of work and workers, and the

complex social and cultural legacy that shaped the life of communities and brought major organisational changes to entire societies and the world in general (TICCIH, 2003). It also can be embodied in the craftsmanship of industrial products or skills transmission, memories and social life of workers and their communities (TICCIH, 2011), teaching measures to promote traditional knowledge and associated genetic resources that form part of a single integrated industrial heritage (UNESCO, 2003, 2005). Based on the summary of the above literature, industrial heritage types can be classified as shown in the following table 2.1.

Table 2.1 Conservation structures of industrial heritage

Classification	**Conservation structures of industrial heritage**	
From a functional and interconnected perspective	factory buildings	
	power sources used by industrial machinery	
	means of transporting materials	
	workers' houses and living facilities	
Tangible assets	**movable**	objects, artefacts, documents, and machinery
	immovable	sites, buildings, structures, complexes, areas, and landscapes
Intangible dimensions	technical know‐how	
	the organisation of work and workers	
	the complex social and cultural legacy	

Source: Organised by the author

Criteria allowed for the conservation of industrial remains are associated with historic associations, technological innovations and production processes, representative of

evidential information, the constructions of famous engineers, and aesthetic values in the early phase (Cossons, 2000; Board, 1974; Alfrey and Putnam, 1992). As the vision of spatial scale has been enlarged to areas and environment, the criteria for protecting factories have incorporated the completeness of the complex and evidence of evolutionary change of industrial landscape including group value, layout and planning interest, the streetscape of specific industries townscape of industrial towns (Palmer et al., 2012). Besides, the preservation of a particular site may be justified in terms of historical and archaeological significance and ranked against others in terms of its rarity and completeness by the accident of survival (Stratton, 2005). As advocated by the Nizhny Tagil Charter, The Dublin Principles, and the Taipei Declaration for Asian Industrial Heritage, industrial heritage should protect the remains of industrial culture that possess historical, technological, social, architectural, and scientific value (TICCIH, 2003, 2011, 2012).

Except for the universal value of engineering, design, and planning in the cases where industrial heritage value lies in the fabrics, components, structures, types of machinery, materials, and sites themselves, the intangible records contained in memories and customs of local communities as well as human skills and knowledge involved in old industrial processes should be considered in the heritage evaluation process (TICCIH, 2011). Industrial heritage is of wider social and cultural significance as part of the record of people's lives including their memories, traditions and customs promoting the recognition of local distinctiveness and community values (Cossons, 2016). Some sites are commemorated and celebrated in terms of what workers' labour represented economically and the positive attributes of heavy industrial labour (Olsen and

Pétursdóttir, 2014). Besides, the flexibility also has been recognised in the conservation of industrial heritage in Asia where intervention and adaptive reuse of industrial heritage are accepted under rapid urban, and utilitarian values and economic values of obsolete industrial play an increasingly important role in achieving multiple purposes towards regeneration and sustainable development (Douet, 2016; Binney et al., 1990; Stratton, 2005; Arnesen, 2006). Usually, new functions and usages for the viability of obsolete industrial remains accompany the production of new economic values and cultural values to a place (Cho and Shin, 2014), and these new values will be discussed later in the next section of this chapter. Another important concept is that heritage significance can function at different scales at local, regional, national, continental, and international scales (Graham et al., 2000) such as industrial heritage nominated as World Heritage and National Industrial Heritage. As mentioned above, industrial heritage type and values can be summarised below (Table 2.2). Instead of technological, architectural, and historic values referred to before in this section, social and cultural values will be considered together as these two types are hard to divide when analysing industrial heritage value (Graham et al., 2000). Negative connotations that affect industrial heritage value evaluation in this thesis are important to consider.

Table 2.2 Industrial heritage value and its negative connotations

Industrial heritage value		**Negative connotations**	
Technological value	technological innovations the constructions of famous engineers production processes	environmental pollution	
Architectural value	rarity and completeness visual quality and aesthetics	poorly designed unpleasantness	radical clearance and redevelopment of outdated facilities rather than conservation

Historic value	the glorious industrial past archaeological significance monumental importance evidential information rarity and completeness	social problems, environmental pollution, class inequality, dangerous heritage	to be forgotten rather than to be commemorated
Social and cultural value	collective memories, traditions, customs working-class history local pride and distinctiveness emotional attachment working-class social identity community values		
Symbolic value	local uniqueness		
Heritage significance functions at different scales		international significance national importance local importance	

Source: Organised by the author

Yet, it is noticeable that many scholars have argued that value is not a static inheritance, and it is constantly constructed and placed on heritage by a variety of interest parties (Carter et al., 2019; Ruggles and Silverman, 2009; Deacon, 2004). Pendlebury (2008) argues object or environment is the bearer of an externally imposed, culturally and historically specific meaning that attracts a value status depending on the dominant frameworks of the value of the time and place. In addition to drawing lessons from industrial heritage values developed in Western countries, to consider industrial heritage values in contemporary China, my thesis needs to analyse industrial

heritage conservation in the context of China as well as the perceptions of a wide range of stakeholders involved in the industrial heritage conservation processes.

2.3 Heritagisation of Industrial Remains after Deindustrialisation

2.3.1 Deindustrialisation and its Implications

For the classification of the economy, most economists divide the economy into three sectors (see, for example, Kjeldsen-Kragh, 2007; Chand, 2006), though others further divide it into four or five (see, for example, Kellerman, 1985; Selstad, 1990). The primary sector involves the extraction and collection of natural resources like farming and mining (Chand, 2006). The secondary sector is the manufacturing industry involving the production of products such as light industry and heavy industry (Clark, 1951). The third sector named service or tertiary sector consists of the production of services instead of end products, such as creative and financial services (Mohanty and Behera, 1996).

Some economists define deindustrialisation as a fall in the share of manufacturing in value-added gross domestic product (GDP). From the 1940s onwards, some sort of shrinkage in the manufacturing sector was hit by closedowns of factories to a large degree without precedence (Weiss and Tribe, 2016; Tregenna, 2009). Most Western countries deepened this phase around the 1970s, particularly evident in the United States and Europe, also apparent in Japan; some developing countries (such as East Asia and Latin American countries) began to suffer in the 1980s; whereas others (such

as Finland, and Sweden) did not follow the de-industrialisation tide (Weiss and Tribe, 2016; Rowthorn and Ramaswamy, 1997; Palma, 2005; Palma, 2008). Empirically, certain branches encounter deindustrialisation earlier such as the textiles, and coal mines, then iron and steel production and automobiles may suffer later (Grabher, 1993; Douet, 2016).

There is a combination of endogenous and exogenous factors that could lead to deindustrialisation. First, some economists suggest it is a trend in the shift from industry to service (Clark, 1951) or knowledge-based economies (Bell, 1973). Second, some suggest deindustrialisation is resulted from and fostered by the relocation of manufacturing industries to a relatively better place to maximise profit considering factors such as raw materials and labour (Blair and Premus, 1987; Dixit and Norman, 1980). From the perspective of capital accumulation, deindustrialisation is considered the destructive face of the orientation of capital that opens new markets or production capacities elsewhere with cheaper inputs (Harvey, 1999). This location displacement of specific industries was accelerated in the global context because transportation and communications technologies strengthened the connection of the world economy (Rautenberg, 2012).

Severe repercussions might be generated, while there are significant differences by country, region, and level of development (Tregenna, 2016). Rowthorn and Wells (1987) introduce positive and negative deindustrialisation: the former is seen as a symptom of economic success through restructuring from an industrial production-

based to a service-based or knowledge-based economy, whereas the latter results from economic failure, with more serious problems of the rise in unemployment accompanied by severe socio-political problems. The key argument lies in whether other activities of the economy would be able to mitigate the decline from the secondary sector to varying degrees (Palma, 2005; Tregenna, 2015). Yet for negative effects, first, deindustrialisation could have a profound effect on a widespread process of redundancy of former industrial sites accompanied by environmental pollution (Massey, 1984; Smith and Harvey, 2008). Second, various authors have drawn attention to economic recessions (Bluestone and Harrison, 1982; Dicken, 2007). Last, social implications due to the raised level of sectoral unemployment are arguably more acutely felt than the decline in manufacturing output (Tregenna, 2009; Ifko, 2016). For the community that suffered deindustrialisation, there can be a concentration of deprivation along with varying forms of broader social effects – for example, social exclusion, crime, income disparities, and inequality (Brady and Wallace, 2001; Cohen, 2001). Deindustrialisation is therefore a complex situation that requires specific analysis of its positive or negative impacts, and the latter one needs to be cautious in terms of three aspects including economic recessions, social problems, and environmental pollution. The next section will specify how industrial heritage fits into the deindustrialisation and regeneration processes.

2.3.2 Heritagisation of Industrial Remains

With accelerating deindustrialisation, an incomparably larger number of abandoned buildings and sites have accumulated in a short period facing an uncertain fate (Douet,

2016). Edensor (2005a: 5) suggests when inward investment is available, derelict structures taking up space might be cleared and reassembled, deterritorialised and reterritorialised, and used for new enterprises. However, when sufficient inward investment to redevelop such sites has not yet succeeded, ruins can last for a long time.

Severcan and Barlas (2007) argue it was not until the 1980s that capitalist approaches viewed wastelands of the industry as unnecessary and economically wasteful to reuse or conserve, which coincided with the widespread destruction of industrial remains. Nonetheless, this large-scale and radical demolition of industrial relics leads to, first, a sense of loss especially in Europe where the structure of the urban fabric was prioritised' (Xie, 2015a: 34). In some cases, there were movements of public resistance to demolition in Europe generating a widespread concern in conserving and repurposing industrial buildings (Balibrea, 2004). Besides, from a social and emotional perspective, Edensor (2005b) argues it is probably a mixture of nostalgia, revulsion against rapid deindustrialisation, and an inchoate desire to return to older values, that lies behind much of the popular appeal of the industrial remains. Furthermore, Zukin (2010) argues the creative mix between the physical distinctiveness of industrial structures and innovative activities in New York transformed former decaying areas into becoming cool and authentic. Zukin further notes this led to an influential turn that appreciates the city's gritty industry as a new fashion rather than darkness and misery, which distinguishes it from standardised buildings. Similarly, Edensor (2005a) argues high-profile international photographers have stimulated a powerful beauty and resonance with industrial ruins, which drew the public's attention to the industrial past,

despite critics of ignoring the economic and social devastation (High and Lewis, 2007; McGraw, 2007; Steinmetz, 2009; Moore, 2010).

More importantly, along with the flourishing heritage industry, influenced by some exemplars that successfully transformed the deindustrialised areas through conservation, the economic viability of industrial heritage has been recognised after the 1980s (Xie, 2015a). The new concept of adaptive reuse became an increasingly hot topic overshadowing issues of heritage conservation particularly of industrial heritage, where the original use is no longer feasible, the priority is to find a new perhaps alien use with increased tolerance to alterations (Fragner, 2016). These shifts led developers and authorities to capitalise on new economic demands through the heritagisation of industrial remains as well as adapting them to ultra-chic for tourism, residential and commercial developments and regeneration to ease the social distress and economic losses associated with deindustrialisation (Smith, 2006).

2.3.3 Industrial Heritage in Post-Industrialism

As Sun (2019) notes conservation of industrial heritage for commodification can promote economic and social development after de-industrialisation, it is worth suggesting a categorisation of industrial heritage and their features, and their compatibility with adaptive reuse in the context of post-industrialism. Some have gone away to commodify the industrial past through tourism (Sieber, 1993); some have transformed declined industrial areas reinserting them into retail, residential and leisure functions (Smith et al., 2012); other cases renovated industrial sites by

converting the haphazardly for private uses following the dynamics of market mechanisms (Severcan and Barlas, 2007: 677).

There are several reasons why tourists are fascinated with industrial heritage: the history of labour, industries, science and technology (Alfrey and Putnam, 1992); the aesthetics of industrial structures in most heavy industries or other grand engineering features (Cossons, 2000); living industry of all types that present vivid production processes such as ceramics, food industries (Buchanan, 2000); industrial heritage with the natural landscape like mining heritage (Timcak et al., 2010); the atmosphere of eerie landscape of industrial abandonment (Okada, 2016). Xie (2015a: 44) argues every item related to the industrial process is part of industrial heritage tourism, from the means of transport to the tools, from ways of extracting raw materials to the conversion of factories. Industrial tourism is seen as a form of compensation designed to smooth economic decline and to offer employment for local community members, however, many cases cannot fully offset economic, and job loss (Conlin and Jolliffe, 2010). Barthel (1996) observed that industrial sites are too confronting to interpret as layers of dirt and grime that violate tourist expectations, and the traumatic, socially uncomfortable or problematic does not make industrial heritage a popular one. In order to attract tourists, sanitisation of the industrial past and removal of dirty for clean destinations are inevitable which came under specific criticism of inauthenticity, at best infotainment', and, at worst, Disneyfication (Smith, 2006).

For more commercial reuse, Dubowitz (2010) argues, in many ways, industrial imagery offering an aesthetic experience has become complicit in the logic of marketing place. Single-purpose production and technical structures are often very visually large and are well used for grabbing attention with an advertising effect, though some of them may be heavily contaminated; examples include power plants, mining buildings and metal-working sites (Fragner, 2016). Universal industrial buildings that suffer less contamination are amenable to multiple types of functions. Multi-storey buildings and warehouses are adaptively converted into flats, offices, studios, catering and entertainment venues and shopping centres by investors which are aimed at quickly obtaining rental returns (Sun et al., 2019). Stratton (2005) suggests the focus is shifting from reusing individual buildings to complexes that could house mixed-use with small new enterprises that can feed off each other, giving them long-term vitality. Culture-oriented reuse as a key scheme prefers industrial buildings with aesthetics and wide interior spaces, housing usually museums, art studios, creative industries, interactive performance and entertainment facilities, which not only attracts visitors but also may provide a means of interpreting the building and its history (Bristow, 2010).

The adaptive reuse is seen to preserve fragments of materials as reminders of the defunct industries (Mısırlısoy and Günçe, 2016). Some appropriate alternations juxtaposing old and new indicate the layers of meanings, styles, experiences and information, reflecting another aesthetic and cultural value with the passage of time and human existence (Douet, 2016). Nonetheless, some cases have received critiques because there are none other than aesthetic criteria to determine the extent of alteration (Alfrey and Putnam, 1992). External appearances may be carefully

restored, but the interior heavily is reworked, and any evidence of machinery is removed (Cantell, 2005). Some developers excessively modify industrial structures, buildings, sites and surroundings by random addition or removal focusing on economic output rather than conservation at the expense of cultural significance (Severcan and Barlas, 2007). Nonetheless, inappropriate, and short-term adaptive reuse might avoid demolition, but these approaches constitute an unfinished dialogue on continuity, long-term viability and the risk of fleeting decisions resulting in a second cycle of decay even demolition (Preite, 2016).

According to the analysis of the above literature, adaptive reuse of industrial remains in post-industrial periods has become a popular reuse functions of industrial heritage are diverse, and the appreciation of industrial heritage is also complex with some not related to industrial heritage. Table 2.3 lists adaptive reuse functions and reasons for appreciating industrial heritage and what needs to be criticised is that industrial heritage is not naturally considered popular. In addition to the reuse of industrial heritage, its other roles in urban regeneration especially the place-making one will be examined in the next section.

Table 2.3 Adaptive reuse and appreciation of industrial remains in Post-industrialism

Adaptive reuse functions	**Appreciation of industrial remains**	
Tourism	Emotional needs	a mixture of nostalgia, revulsion against rapid deindustrialisation and fast-changing industrial landscapes
	Industrial history	the history of labour, industries, science, and technology

retail, residential, leisure functions flats, offices, studios, shopping centres Culture-oriented reuse museums, art studios, creative industries, interactive performance	Industrial production	the living industry that presents vivid production processes
	Natural landscape	industrial heritage with natural landscapes like mining heritage
	Uniqueness	the atmosphere of the eerie landscape of industrial abandonment
	Aesthetics and other architectural qualities	the aesthetics of industrial structures grand engineering features industrial ruins beauty physical distinctiveness from standardised buildings industrial buildings with wide interior spaces
	Unpopular legacies	
	darkness and misery， layers of dirt and grime that violate tourist expectations, the traumatic, socially uncomfortable, or problematic past	

Source: Organised by the author

2.4 Industrial Heritage and Regeneration

Urban regeneration has been gradually acknowledged since the 1980s (Jones and Evans, 2008). Urban relating to towns and cities characterises places that are spatial concentrations of human activities, distinguished from rural places by aspects such as population density (Pacione, 2001: 676). Regeneration suggested by many scholars means reconfiguration of the form and operation of areas in economic, social, cultural, and environmental dimensions (Smith, 2007; Leary and McCarthy, 2013). There is a multiplicity of interchangeable terms, ranging from reconstruction, redevelopment, renewal, revitalisation, and renaissance (Ruming, 2018; Smith, 2007; Tallon, 2013). This article views these terms as precursors or variants to regeneration, though reflect few definitional differences.

Industrial heritage in post-industrialism is gradually seen as a useful means in the regeneration of depressed areas through tourism and other forms of commodification (Carter et al., 2019). This part briefly reviews the development of urban regeneration discussing when industrial heritage started to exert a role, and then concentrating on the complex roles of industrial heritage in urban regeneration in terms of economy, society, and environment. However, as urban regeneration conforms to the wishes of certain corporate, socio-economic, or political interests of different periods, dynamic interactions between a variety of stakeholders are considered including their intents and outcomes that influence industrial heritage.

2.4.1 Industrial Heritage and Regeneration

Urban regeneration is generally associated with several issues debated by scholars: wider policy and processes (for instance, Smith, 2012; Tallon, 2013), fixing urban problems to deliver better cities (Evans and Jones, 2008), resolution for dealing with diverse urban changes (Roberts and Sykes, 2001). Bianchini (1993) describes urban regeneration as a composite concept, encompassing economic, environmental, social, cultural, symbolic, and political dimensions through a range of tools (e.g., property, business, retail, or arts development) to revitalise areas of cities. There are several major themes identified from the history of urban regeneration: economic regeneration, physical and obsolescence and new land and property requirements, social and community issues, housing, environmental quality and sustainable development

(Roberts and Sykes, 2001). Thus, urban regeneration is a complex issue which requires holistic considerations involving multiple aspects.

Scholars identify several contexts in the development of the theory and practice of urban regeneration. First, some suggest the idea of regulating cities emerged to address urban poor due to unregulated capitalism and industrialisation after the 1850s in the UK (for instance, Hall, 2006; Cullingworth et al., 2024). Second, post-war damage and modernisation stimulated for much physical interventions of urban reconstruction in the UK and renewal in the United States in the 1950s and 1960s (Roberts, 2000; Smith, 2007; Kaya, 2020). Deepen forces of de-industrialisation and globalisation marked the third period, stimulating regeneration through a commercial style derived from ideas of the competitive and attractive city under the neo-liberal agenda and entrepreneurial cities in the 1970s and 1980s (Hamnett, 2003; Tallon, 2013). Then, after the 1990s, with the recognition of multiple challenges, changes shifted to more holistic approaches embracing the goals of social inclusion, economic well-being and sustainable development within a framework of well-integrated and co-ordinated locally inclusive governance systems (Leary and McCarthy, 2013: 43).

Urban regeneration and deindustrialisation share common ground after the 1970s (Sassen, 2006; Kaya, 2020). Ruins dominated most inner-city areas in industrialised countries (Stratton, 2005; Kaya, 2020) because the rationale for cities in the nineteenth and early twentieth centuries was industrial production (Herbert, 2000). This situation was exacerbated because the decentralisation or suburbanisation of many

conurbations moved some industries outside the city, leaving outdated industrial facilities in the inner city as devaluated and profitable again to invest in (Brenner, 1998). However, earlier projects focused on the clearance and reconstruction of obsolete industrial areas to newly built offices, modern residentials and other facilities (Matthews, 2010). This method showed its drawbacks in the arrangement of finance, the helplessness of exacerbating social problems, and neglect of the old fabric and heritage of the city, which receives growing criticisms against demolition and modernist planning (Couch et al., 2013). Beginning after the 1980s, attention has been paid to the use of culture as one of the important instruments in the image-building of cities, such as iconic structures, heritage, and mega-events for increasing competitive advantages in attracting footloose investment, tourists, and residents (Marshall, 2001). Industrial cities have experienced a new cycle of transformations which saw abandoned manufacturing sites as opportunities for cities' beautification and adapting to the post-industrial economy by heritagisation of industrial remains (Preite, 2016). Cities all over the world are pursuing their 'renaissance' using the beautification of industrial structures as a cultural instrument while the assessment of this cultural instrument in regeneration is underdeveloped. Most research has contributed to empirical evaluation of cultural impacts in regeneration in most Western countries while in a too general way, and it is urgent to critically assess the impact of this phenomenon. In doing so, the next section outlines the specific role industrial heritage plays in regeneration.

2.4.2 The Role of Industrial Heritage in Urban Regeneration

The first important issue in this thesis is the role of industrial heritage in regeneration. There has been a wealth of literature devoted to cultural regeneration, but few have focused on assessing culture's impact (Smith, 2007; Evans, 2005) specifically on the use of industrial heritage when regenerating obsolete industrial sites. This section summarises previous research that focuses on the contribution of industrial heritage conservation in regeneration, then shifts to current limits and gaps referring to assessing the impacts of industrial heritage in regeneration.

After reviewing extensive literature, this thesis categorises three roles of industrial heritage in regeneration: economic, political, and social roles; though some roles overlap with each other. First, to specifically analyse the economic role of industrial heritage in regeneration, Graham, Ashworth, and Tunbridge (2000) identify four main economic dimensions: first, heritage is an economic activity itself, producing products, profits, and jobs; second, heritage as locations for economic activities; finally, heritage can act as a catalyst promoting place image and stimulating other economic activities. Nonetheless, Stabler (1996) admits while it is possible to regenerate economies that are dominated by heritage, there are few cases where the economic success of heritage largely compensates for economic failure in other sectors and many regeneration programmes in which heritage plays only a minor enhancing role - or none. For industrial heritage, scholars argue tourism, factory tours, locations for other economic activities and multi-functions have become driving forces for regeneration (Zukin, 2010; MENGÜŞOĞLU and BOYACIOĞLU, 2013). Industrial heritage tourism as discussed in the above section 2.3 could promote economic growth, but its role is

hard to evaluate because tourism overlaps with other industries like catering and accommodation (Firth, 2011). The attractiveness, location and other ancillary facilities of industrial heritage also play important roles in affecting the success of regeneration through tourism (Szromek and Herman, 2019). Yet, heritage is often seen as a strategy of last resort when there is nothing else left to sustain their economies (Lim, 1993) and cities may rediscover history and heritage that they would like to have but, in many cases, it is not necessarily industrial ones (Sudjic, 1992). On the contrary, Hewison (1987) argues flourishing heritage industry may contribute to a backwards-looking romanticism that could discourage future economic development. It is not necessarily contradictory to argue that heritage can both stimulate and retard economic development (Graham et al., 2000: 156).

Creative industries located in inner-city industrial districts have become a new orthodoxy in revitalisation however the extent to which industrial heritage as an essential ingredient can deliver economic goals and other social ones is being questioned. Bianchini and Parkinson (1994) argue it is a spatial coincidence involving industrial heritage because low rents act as major incubators of new economic activities. Other relevant economic attributes play major roles including art institutions, creative groups, locations, the wider area in which they are set with the requirements of economic activities and their functional mix (Graham et al., 2000). More importantly, Evans (2005) argues that sustained economic benefits are being questioned particularly because short-term impacts have not shown to be sustainable and social benefits have patently not been achieved.

Cases using industrial heritage in regeneration can on occasion produce a chain reaction inspiring actions in other fields: more usually its effects are catalytic or just amplifying their effects (Evans, 2005) such as flagship projects and mega-events. Flagship projects utilising industrial heritage with eye-catching effects can be useful in initiatory regeneration projects, leading to new opportunities by setting a feasible and profitable picture and securing more funding and public publicity (Preite, 2016). Specifically, art-led projects such as Tate Modern in London have reached great success in economy and publicity, but these effects are not secured elsewhere (Jones, 2000). Besides, cities clamour to host mega events such as the Olympic games using industrial structures alongside waterfront or riverside (Sudjic, 1992), but many projects have failed due to other reasons such as finance (Jones, 2000). For example, the successful case of The Emscher Park started with flagship projects combining regional industrial heritage with the International Building Exhibition (IBA) and achieved more wide-ranging regeneration but Müller and Carr (2008) lament the lack of real economic success of business start-ups in the IBA. More importantly, accompanied by physical and environmental improvements when regenerating obsolete industrial sites, retaining industrial heritage as a cultural feature distinguishing other real estate projects could add speculative value to property selling hence achieving real estate values and fast financial returns (Martínez, 2016).

These kinds of mega events and flagship projects are not simply economy-oriented ones but also related to, second, political objectives referring to place-making. When industrial heritage is constructed for image-building, as Kaya (2020) argues the transformation of Sydney’s industrial historic waterfront, it is essentially politically and

economically constructed paving the way for the consumption of industrial heritage within the proliferation of post-Fordist economic restructuring process in postmodernity. Industrial survivals that have a unique visual architectural vocabulary contribute to placeness and enhance the marketing mix in the context of wider global processes (Ball, 1997). New aesthetics for designed industrial landscapes with alternative uses help the image-building of industrial cities for removing the previous negative iconography associated with industrial decline, especially within cities that have traditionally accommodated port activities in Europe and North America, where regeneration of dockland zones and waterfronts is well incorporated (Ruming, 2018; Smith et al., 2012). Because the visual effect outweighs other considerations, landmark structures are prior to being selected, while most part of industrial remnants might be demolished losing industrial context (Zhang, 2015). However, the specific role of heritage in improving a city's imageability may be wide and vague and it is almost impossible to disentangle from many other related attributes (Bianchini and Schwengat, 1991). Moreover, criticisms focused on placelessness though paradoxically with the aim of presuming a distinctive place (Edwards, 1996), because this successful model has been copied worldwide resulting in the serial reproduction of spatial typologies and architectural forms (Bruttomesso, 2001).

Other political roles of industrial heritage conservation are also closely related to nationalism building, patriotism construction, and the shaping of local identity (Bodurow, 2003). The identity issue is defined by some scholars as related to political and social roles of heritage, which are hard to separate from each other (Graham et al., 2000). For social roles, third, stressing the value of the glorious industrial past

through regeneration by industrial heritage tourism helps to regain valid meaning in contemporary society and thus enhance local forms of patriotism, collective memories, and identities (Bodurow, 2003). This has the potential to contribute to a sense of belonging, psychic equilibrium, local pride, and community cohesion (Carr et al., 1992), overcome the passive acceptance of economic decline and its aftermath (Goodall, 1994), counter public prejudices to dirty industrial history as well as instability brought by the transformation of places (Summerby-Murray, 2002). However, Xie (2015a) suggests little systematic research has been undertaken to understand the implications of industrial heritage tourism on promoting morale across local communities. Firth (2011) argues tourism is less effective and may be contradictory in conserving intangible cultural significance or creating new values behind which a community can unite.

Except for industrial heritage that enables the preservation of the local industrial past, industrial heritage taking adaptive reuse functions can form community renewal through risks with gentrification (Dicks, 2000). New actors who appreciate industrial remains may also help them transform into an economically and socially vital area as well as form new community identities (Olsen and Pétursdóttir, 2014). For example, the 798 Art Zone in Beijing, China where artists eventually formed an arts community in the former factory that benefited from the art galleries pulled together to preserve this creative space. However, some cases showed that cultural producers appreciate and occupy industrial sites but with the rising rent prices and land values, they are evicted by estate speculation on filling up with trendy restaurants, galleries, and shops (Zukin, 2010). The process of forming new community cultures and identities in the

regeneration projects usually could risk the exclusion of the original workers' community, which is defined by much research as gentrification (see for example, Morell, 2011; Shin, 2016). Kaya (2020) analyses tourism-led and consumption-led waterfront regeneration in Sydney and argues the political powers and the governance put an emphasis on urban growth and new forms of entrepreneurialism resulting in the social exclusion of the former working class and the complete loss of the area's industrial identity.

Besides, other public functions should not be ignored. Cases include the regeneration of canals and railway trails into pathways for hiking and recreation (Preite, 2016); factories to park and natural scenery (Bærenholdt et al., 2004); industrial buildings to low-income housing (Xie, 2015a); community centre, culture centre or sports arenas (Jansen-Verbeke, 1995). The constitution of the public realm involved in industrial heritage regeneration is related to the improvement of quality of life (Severcan and Barlas, 2007), and such public functions should not just be attributed to industrial heritage conservation but to relevant physical, environmental and infrastructure improvements within other regeneration objectives.

According to the previous analysis, three main roles of industrial heritage in regeneration can be listed in below table 2.4. While much literature emphasises the positive effects of integrating industrial heritage in regeneration, it is important to note that positive effects are not guaranteed in economic, political, and social aspects.

Sometimes industrial heritage may exert minor or none or even negative effects as Table 2.4 shows.

Table 2.4 The role of industrial heritage conservation in regeneration

	Enhancing role	
Economic roles	catalyst effects	attracting investments
	heritage as locations for economic activities	promotion of multi-functions especially in creative industries
	industrial buildings housing other economic activities	creating new jobs
	speculative value	
	Minor or none or negative effects	
	last resort for sustaining economies	
	economic and job loss are hard to fully offset	
	short-term impacts, unsustainable	
Political roles	place-making	flagship projects
	image branding	mega-events
	eye-catching effects	
	patriotism, nationalism	
	local identities	
	Negative impacts	
	placelessness	
Social roles	social cohesion	local pride
	sense of belonging	improving quality of life
	community identities	overcome the passive acceptance of
	public functions	economic decline and its aftermath,
		counter public prejudices to dirty
		industrial history,
		public publicity,
		recreation,
		green parks,
		community culture centre or sports arenas
	Negative impacts	

	gentrification
	little value to low-income users of city space

Source: Organised by the author

Alongside the different roles of industrial heritage in regeneration, the conflation of the economic, political, and social effects exerted by industrial heritage should be distinguished. Ferilli (2017) summarises three regeneration models: cultural-led regeneration, cultural regeneration, culture and regeneration, in each circumstance where the culture instrument respectively acts as a catalyst, a key strategic driver, and a tactical policy tool. In this thesis, the phenomenon of manipulating industrial heritage as a cultural instrument in regeneration is included in those three regeneration models terming respectively as industrial heritage-led regeneration, regeneration by industrial heritage, and industrial heritage and regeneration. Table 2.5 illustrates different consequences in relevant dimensions among the three regeneration models. The cultural-led model indicates cultural activities including industrial heritage conservation-related practices act as the catalyst and engine of regeneration in economic, political, and social aspects. Industrial remains conserved properly in this circumstance act as the main transformation driver that helps the regeneration maintain a substantial long-term effect. Cultural regeneration indicates that culture is fully integrated into wider regeneration strategies such as creative city, urban design, and cultural planning. Industrial heritage can function synergy between other regeneration objectives while the importance of other physical transformations contributing to environmental improvements can not be ignored such as the land preparation and transport infrastructure. Culture and regeneration mean culture is used with small interventions and culture plays a specific but circumscribed role even just as the retro-fitting or add-on culture rather than an integral part of a scheme. Such

industrial heritage conservations are often small with single cultural facilities or heritage structures tucked away in the corner of a reclaimed industrial site, and the regeneration effects seem to last a short term.

Table 2.5 Industrial heritage and regeneration models

	Culture-led regeneration	**Cultural regeneration**	**Culture and regeneration**
	Industrial Heritage-led regeneration	**Regeneration by industrial heritage**	**Industrial heritage and regeneration**
Role of industrial heritage in regeneration	Catalyst	Key strategic lever	Tactical policy tool
Main impacts	Sense of belonging, environmental, economic, social,	Sense of place, Environmental, economic	Image/branding, Economic
Stakeholders involved in	Top-down + bottom-up	Systematic top-down	Punctual top-down
Legacy	Fair short-term Substantial long-term	Substantial short-term Little long-term	Little, short-term No long-term

Source: the elaboration from Ferilli (2017).

These three models are on the premise that industrial heritage or adaptive reuse of industrial remains is in harmony with the regeneration of the former industrial sites. There are cases in which the reuse and regeneration of industrial sites fail or the regeneration does not rely on industrial heritage or other values attributed to industrial remains. As summarised by Cercleux et al. (2012), the adaptive reuse of industrial heritage in regeneration follows one of three development trajectories: (1) in harmony, where the measures of adaptation are feasible with industrial heritage; (2) in disharmony, where reuse fail; (3) indifferent, the functionality of the building is restored without heritage values. There are chances that industrial heritage could not fit into

regeneration leading to the failure of the whole transformation project of the former industrial sites or that industrial heritage exerts an indifferent role.

To be noticed, the above three regeneration models consider cultural instrument methods, such as industrial heritage conservation strategies, and the degree of public participation in regeneration processes as two criteria for measuring the cultural effects. On the one hand, industrial heritage strategies integrating major cultural projects, activities and flagships imply its great importance otherwise the small one with little heritage conservation strategies implies its less essential status, which to some extent can reflect industrial heritage's importance in regeneration. Industrial heritage intervention approaches should be investigated and according to Stratton (2005), approaches can range from a sliding scale of change — from minimal intervention to fundamental reworking. On the other hand, Ferilli's (2017) three regeneration models consider the degree of public participation as a measuring standard. The great public's participation indicates the culture's catalyst role while the punctual top-down issue implies the limited role of culture in regeneration. Especially social contributions that heritage may generate are indispensable to public interactions (Bristow, 2010).

As can be seen in previous literature, most research has sought out the roles of industrial heritage in regeneration while there is limited literature contributing to its measurement. Evans (2005) concludes that culture-based regeneration tends to be too general in evaluations that are often a time-consuming and difficult process, and the evidence is seldom robust which needs a more grounded assessment of the

cultural elements in regeneration. It is categorised difficulties and rareness in cultural regeneration assessment such as rare longitudinal impact assessment affecting evaluation's efficacy (Oancă, 2024), how far cultural projects contribute to regeneration objectives (Newman et al., 2003, p. 320), how to distinguish heritage's role in regeneration with multi-purpose projects (2000: 169). To make up for the above shortcomings, recent research calls for a shift to draw local experience and longitudinal studies to evaluate cultural regeneration (Coote et al., 2004; Oancă, 2024). With various functions and purposes, the role of industrial heritage chiefly depends on the needs and priorities of its stakeholders and their decisions on the purpose which would meet their needs (Vukosav et al., 2015). In response, this thesis aims to investigate perceptions and experiences from industrial heritage producers and consumers within regeneration projects critically building knowledge in assessing industrial heritage's impacts on regeneration. A longitudinal impact assessment will be brought into the above appraisal process trying to fill the gap of previous research most of which carries out regeneration assessment once time. Specific evidence-based approaches that could be manipulated in evaluating economic, political, and social roles attributed to industrial heritage in regeneration will be introduced in the methodology chapter.

The above literature analysis clarifies the importance of investigating stakeholders' perceptions of industrial heritage in regeneration, which contributes to achieving the overall research aim of this thesis. In the next section, stakeholders involved in industrial heritage and regeneration will be elaborated, including related stakeholders'

identification, cooperation among different stakeholders, and their perceptions of industrial heritage value and regeneration processes.

2.4.3 Stakeholders in Urban Regeneration through Industrial Heritage

Industrial heritage sites are conserved and rehabilitated to reflect the values, motivations, and uses of different stakeholders and their dialectic process (Xie, 2015a). Stakeholders bring different perspectives to the process of heritage conservation and regeneration, which can allow heritage development to be grounded in a more holistic understanding of its potential effects in regeneration. In line with this perspective, this section focuses on the motivations of heritage producers and uses of heritage consumers in regeneration processes as well as their interactions. This is the other key theme in this thesis.

A stakeholder is broadly defined as a person or organisation that can participate in the decision-making process and anyone who is impacted can be involved (Gray, 1989). Though there are multiple theories in the field of stakeholder identification such as instrumental stakeholder theory (Donaldson and Preston, 1995) and descriptive stakeholder theory (Clarkson, 1995), this thesis largely applies the taxonomy of public and private heritage producers (or constructors), and consumers (users or receivers) based on power disparity between these two groups as most researchers have discussed in heritage literature (see for example, Farrelly et al., 2019). This is because the stakeholders involved in my case are dynamic and complex within over ten-year conservation and regeneration processes, and this taxonomy could help simplify the

stakeholders' groups helping to reach the analysis of this thesis' research aim. Heritage producers refer to those individuals and organisations with power, ownership, and resources that can affect heritage production and management adapting to regeneration such as governments, planners, developers, and investors. Heritage customers, users or receivers often refer to those who are mostly not available to participate in the decision-making process without power and most projects are beyond their economic reach (Getz, 1994; Porter and Shaw, 2009), such as local community, tourists, visitors, grassroots organisations, former workers, non-profit voluntary sector organisations. Visitors and tourists are treated as similar groups with tourism activities. Local community is defined as citizens within a geographical area such as residences living near blocks away from industrial heritage sites. The specific classification of stakeholders involved in my study case will be detailed in the method chapter.

The following discussion of the thesis is framed in terms of stakeholders' cooperation in regeneration, producers' motivations, and consumers' uses of industrial heritage. The 1980s period advocated the physical replacement of the age environment and the development of new facilities based on a top-down model (Ruming, 2018; Couch, 1990). After that, neo-liberal policies in Western countries have prioritised economic growth over other concerns, pushing urban regeneration and adapting to the new system of capital accumulation (Weber, 2002). Market-based and property-led regeneration based on cooperation between the government and the private sector was the focus (Stoker and Mossberger, 1995). However, criticism has increased in several aspects including the exclusion of disadvantageous communities (de

Magalhaes, 2015), gentrification (Zukin, 1987), failure to address wider societal problems (Tallon, 2013), and socio-environmental costs (Couch et al., 2013). Local communities and non-governmental organisations were advocated to be involved in delivering regeneration, combining collective activities to solve interrelated social problems (Jones and Evans, 2008).

For stakeholders' cooperation in regeneration, there are varied approaches ranging from a wholly public intervention or a completely private one; in a midway position, coordination between public and private sectors in which companies might achieve master plans and financial assistance, and the public sector achieves infrastructure construction and provide policy support (Turok, 2005; Fragner, 2016). According to the degree of intervention from a range of stakeholders, heritage in regeneration can be affected by privatisation for financial gain or public places (Fragner, 2016). This leads to clarifying the production motivations of industrial heritage as well as its uses.

For heritage producers, first, governments usually play a powerful role in heritage and regeneration because they can become developers, owners, and operators with legal and financial advantages (Xie, 2015a). A number of worldwide grand cultural regeneration cases promoted by local governments using industrial heritage as place-making strategies and identity construction are politically and economically constructed (Evans, 2005). These economic and political aims are explained and listed in the previous section and no further details will be given in this section. Investors are usually motivated more by profit-seeking than any altruistic concern (Cantell, 2005).

Olsen and Pétursdóttir (2014) argue that compared with industrial buildings, land values attracted the attention of municipal authorities and private developers to these sites. In the absence of conservation policies, wholescale clearance is the first choice otherwise only industrial remains granted protection can survive (Stratton, 2005: 2).

Then, owners tend to have divergent views on how to exploit their real estate: most have no interest in the upkeep of their industrial properties nor conservation as heritage because usually, site remediation of contaminants and adaptive reuse can cost more than redevelopment; some wait for the real estate market to pick up; some prefer to demolish and redevelop new functions to maximize their profits (Summerby-Murray, 2002); yet there are some owners who consciously preserve their industrial heritage for tourism development or inheritance of enterprise history (Douet, 2016).

Third, private companies would like to maximise their profits by increasing consumption-oriented spaces and decreasing the social roles of industrial heritage (Severcan and Barlas, 2007). Sun (2019) suggests investors prefer reusing industrial heritage as restaurants, apartments, and offices that offer short-cycle, low-input, and high-return operating models. Private motivations engaging with heritage conservation are mainly entangled with their self-interests at different levels such as (i) financial schemes involving subsidisation of restoration costs; (ii) tax incentives including reduction of land and property taxes; and (iii) recognising the personal and/or individual values that are attached to places (Amar et al., 2017). The above literature highlights the motivations of economic and political purposes of heritage producers,

as mentioned in the last section, but their self-interests attached to heritage should be recognised and distinguished when evaluating industrial heritage's role in regeneration.

Last but not least, for the group of planners, these stakeholders are perceived as having a significant impact on heritage production and management methods (Smtih, 2006). Evidence of cultural regeneration reported from these stakeholders is dominated by aesthetic outcomes, for example, the blue-sky backdrop to a person-free building (Evans, 2005). This kind of evaluation provides no reference to the regeneration context and views from heritage users and local citizens, which is criticised in the urban regeneration research field (Evans, 2005). There is also a risk of failing to meet operational and user requirements, where design form undermines functions (Evans, 2003).

For heritage consumers or users, the importance of the inclusive involvement and commitment of groups from the bottom-up level participating in cultural regeneration to exert social efficacy has been recognised in most literature (see for example, Ferilli 2017). Heritage users, such as visitors and tourists in many cases, consume heritage in the way set by the heritage producers, while certain communities and artistic groups in some cases creatively reuse heritage remains or even in turn produce heritage conservations (Rautenberg, 2012). This thesis focuses more on the former circumstance. Sections 2.2 and 2.3 illustrate how industrial remains can be heritagised or transformed into attractive tourist destinations and other adaptive reuse functions. Most projects' assessments concentrate on user-related outputs such as visitor

numbers and consumer experience to reflect the popularity of heritage consumers and their interactions with heritage producers (Evans, 2005). This kind of assessment usually refers to financial gains and the economic role of heritage in regeneration, while cultural regeneration projects' social roles particularly in flagship events are often criticised and questioned in literature (Ferilli, 2017). Attention needs to be paid to the voices of ordinary citizens who use these regenerated landscapes every day and whose experience would validate or refute the cultural instrument put forward by heritage producers (Hall, 2004). More legitimate social impact indicators need to be evaluated from the heritage users' perspectives such as community identities, brand building, visitors' activities, and perception changes of cultural instruments (Evans, 2005). These social roles are recommended by scholars to be evaluated by the qualitative approaches in terms of heritage consumers' behavioural effects and perceptions (Andra, 1987).

However, as mentioned in the above sections, public responses can be ambiguous because the landscapes of the industrial past are condemned as agents of neighbourhood decay and they are liable to be cleared and replaced by more modern land uses (Summerby-Murray, 2002). Instead of previously mentioned industrial heritage tourism attractions and values appreciated by visitors, other factors such as mega-events, urban spectacles, and artistic combinations with industrial heritage sites should be considered (Porter and Shaw, 2009). Similarly, compared with heritage issues, urban life quality and other practical benefits brought by regeneration are considered more important for the local community (Wang and Aoki, 2019). Cultural regeneration is thus not only about social and economic impacts but also about the

well-being of an area, neighbourhoods' quality of life, and public realm as it is about the buildings themselves and physical improvements (ODPM, 2001). Public realm and urban design in the cultural flagship phenomenon are in the evaluation of regeneration but from the heritage consumers' views not from the producers' perspectives (Evans, 2005). Yet, how far the cultural role such as industrial heritage contributes to the popularity of regeneration projects, public realm, and life quality effects from the bottom-up level is one of the focuses of this study.

From the gaps in the literature and available guidance, there is a need for a comprehensive evaluation model of a major culture-led regeneration scheme which would serve as a practical blueprint for others (Evans, 2005, p 977). The comprehensive evaluation not only should incorporate views from a range of stakeholders but also consider longitudinal assessments gathering evidence at the outset and over time (Leary and Sholes, 2000b). The dynamics of Stakeholders (Windsor, 2010) will be taken into account while their changing motivations and perceptions are paid more attention.

2.5 Conclusion

This chapter reviews the origin of industrial heritage and how industrial heritage adapts to commodification in post-industrialism and regeneration with the summarises of industrial heritage's role in regeneration from economic, political, and social aspects. Gaps in the assessment of industrial heritage's role in regeneration are thus concluded, which indicates that more evidence is needed to on the one hand examine industrial

heritage impacts on regeneration from stakeholders' perspectives. On the other hand, the long-term examination of cultural instruments' role in regeneration is under-researched.

As Olsen and Pétursdóttir (2014) suggest industrial heritage seems like a contradiction because industrial facilities are ephemeral forms in the constant flux of modern industrial capitalism but industrial heritage is placed in the category of the eternal. For example, though some cases were well transformed in regeneration, when the needs of stakeholders can not be met, a second cycle of decay followed accompanied by wholesale demolition (Douet, 2016). There has been limited analysis of the various actors involved in the interlinked processes of de-industrialisation, the conservation and adaptation of industrial heritage, and the wider frame of regeneration. This research limitation legitimates the contribution of my thesis in which the role of industrial heritage in regeneration will be examined from a relatively long-term period. My research takes a case in Wuhan/China where Western-style cultural regeneration sapping industrial heritage as cultural instruments is similarly played out. The next section will illustrate the context in China as well as my research case Hanyang Iron and Stee works.

Chapter 3 Industrial Heritage in China / Wuhan

3.1 Introduction

In this chapter, attention is focused on industrial heritage development in China, and more importantly, the context of my research case, Hanyang Iron Works, will be displayed in detail. It begins with the emergence of industrial heritage in China by reviewing changes in economic and industrial structures and what happened with those obsolete industrial remains in the early 2000s. China's escalating conservation policies and government interventions revolving around industrial heritage and regeneration in the 2010s then are discussed to provide a framework for understanding China's industrial heritage practices. Empirical evidence of stakeholders' interactions, cooperations, motivations, and perceptions of industrial heritage management and practices in China is also examined after reviewing relevant research. At last, the context in Wuhan and the case of Hanyang Iron Works will be illustrated in detail to provide local experience of industrial heritage development in Wuhan within wider regeneration schemes. Examined from previous governmental policies, archives, and academic resources, the industrial history of Hanyang Iron Works, the long-term conservation processes of Hanyang Iron Works's remains, and stakeholders' identification, their interventions, and cooperations are displayed to give a general vision of how industrial remains of Hanyang Iron Works are initially treated as something to be demolished changing to heritage issues adapting to regeneration.

3.2 Industrial Development and Industrial Restructuring in China

The emergence of industrial heritage in China over the last twenty years is closely related to the rapid growth of abandoned industrial landscapes in urban areas where there have been fast-changing industrial development and industrial restructuring processes since the late 1890s. This section gives an introduction to China's recent industrial development history, which also brings out my research case's industrial history. Then complex but fast industrial restructuring processes are illustrated with most factories relocating from urban centres to suburban areas and others experiencing deindustrialisation periods.

3.2.1 Industrial Development

Some key figures, such as Liu and Li (2011) in the field of heritage studies have tended to divide the specific history of Chinese industrialisation into three historical periods, including ancient industry before 1840, the germination of modern industries at the end of feudalism (1840–1911), the development of state capitalism (1912–1948), and the period of socialist industrial development since 1949.

Apart from ancient industry that is not discussed in this thesis, large-scale and modern industrial development of China is suggested by researchers as commenced in late Qing China after the 1840 Opium War with Britain (e.g., Qu, 2016; Liu and Li, 2011). China's self-sufficient economy policy was broken by this war and foreign contacts, as well as some modernised industries, began to be introduced in port cities such as shipyards and the textile industry (Liu, 2012b). As more Western nations that yielded

great technological advances pursued the resources from China, consecutive colonial wars were launched and ended in China's failure (Qu, 2016). With the recognition of Chinese technological disparity with the Western nations, starting from the 1860s, some court factions sought to reform technologies and industrial practices to fend off foreign imperialist interests, which was termed the Self-Strengthening Movement (Glahn, 2016). This reform continued the introduction of Western modernised industry especially military, mining, iron and steel industries, though the results were marked by the failure in the Sino-Japanese War of 1894-1895 (Palm, 2012). The construction of Hanyang Iron Works was developed due to this Self-Strengthening Movement. While followed by political instability and constant warfare, Chinese domestic industries developed rapidly in many other fields including light industries, chemistry, machinery, and electricity until the period of Japanese aggression (1937-45) and civil war (1945-9) (Sun, 2007). During wartime, military-linked activities prompted by state interventions, became the chief driver of industrial development while others were stagnant more or less (Brandt et al., 2017).

After the unification of the People's Republic of China (PRC) in 1949, industrial development recorded rates of output growth according to Chinese socialist production policies from the early 1950s to the late 1970s (O'Rourke and Williamson, 2017). By the end of the 1950s, the old industrial sites built in the nineteenth century were combined or transformed into state-owned enterprises (SOEs) with the elimination of private ownership (Parker and Pan, 1996). Beginning in 1953, Mao introduced a 'Five Year Plan' characterised by intense collectivisation and economic centralisation, which signified the first large-scale campaign towards industrialisation

(MacFarquhar and Fairbank, 1987) with Soviet assistance in undertaking the first plan emphasising heavy industries development (Lardy, 1987). After that, China's industrial development, however, was shortly confined to a fraction of its potential even with temporary shrinking due to political movements such as the Cultural Revolution (1966-1976) (Chen et al., 2016). The changing point started from the fundamental reform of the economic system led by General Secretary Deng Xiaoping, which substantially increased the role of market mechanisms started in 1978, a deep and quick metamorphose of its economic structures, its production system and its society, having in the background a transition process from a mainly rural society to an essentially urban and industrialised one in only 30 years (Berta et al., 2018).

3.2.2 Industrial Restructuring Processes

With in-depth industrialisation processes, industrial restructuring accompanied by a geographical redistribution of manufacturing industries took place starting from the 1990s (Daniels et al., 2012). Because most Chinese cities were the centres of extensive industrialisation until 1978, with the SOEs occupying a large amount of urban lands (Hsing, 2006), many SOEs in urban areas were closed while others moved outside cities due to complex reasons including the reform of SOEs, a decline in traditional manufacturing industries, the need for industrial upgrading, economic restructuring, modernisation movement of urban landscapes, marketisation of urban land, and environmental protection (Yang, 2017). For example, since the 1990s, Beijing's industrial suburbanisation accelerated changing from 'passive' government-led to 'active' market-oriented industrial relocation (Feng et al., 2008). The state-level policy was mapped out to readjust the industrial structure of the entire country by

releasing a guideline called ‘suppress the second industry and develop the third industry the tertiary sector’ in 2001 (Yang, 2017). The need for economic restructuring to foster an economy led by knowledge and skills was intensified particularly after the global financial crisis in 2008 (Lin, 2007), and creative industry development policy is one of the priorities identified for implementation (Daniels et al., 2012). To be noticed, the urgent demand of industrial restructuring started from China’s advanced cities like Beijing and Shanghai in the 2000s, while most inland cities like my research case Wuhan tried to enter post-industrialism with a service-based economic structure in the 2010s facing challenges of transforming the former industrial landscape (Feng and Tang, 2013).

In this thesis, China’s complex industrial development changes are defined as industrial restructuring processes instead of deindustrialisation. This is because compared with post-industrialism in the West where deindustrialisation in the last part of the 20th century abandoned industrial relics giving birth to the conservation and the requalification of industrial heritage, the background of industrial heritage conservation in China is completely different, and somehow even opposite to the Western context (Berta et al., 2018). Daniel (2012) argues the post-industrial model offers a poor fit in many Asia cities like Shanghai because deindustrialisation forms the context for studies of cultural economy described in Western literature that go unrealised in Asian cities. The emergence of new cultural industries within the obsolescent industrial districts and sites of inner cities encompasses facets of ‘urbanism’ as well as ‘urbanisation’ – new narratives of cities in the contemporary Asian context. This is because China is now trying to match the new development of the service industry

and consumption, with a rationalisation of heavy industry, in the general framework of a still fast-growing economy in the 13th five-year plan 2016-2020 (Berta et al., 2018). Berta thus argues a variety of values and requirements acquired by networks of actors and stakeholders in the process of conservation and regeneration of former industrial sites might be mutually contrasting or simply incommensurable with Western countries. Chinese interpretations of former industrial settlements grown within the Chinese urban fabrics concerning the relationship with the physical dimension of history and memory are radically divergent from interpretations in the Western context (Berta et al., 2018). By introducing the emergence of industrial heritage and its multiple adaptive reuse methods fitting in wider regeneration processes, the following sections will deeply explain the difference between China's industrial heritage with those developed in the Western context.

3.3 The Official Promotion of Industrial Heritage Development in China

The rapid accumulation of abandoned industrial landscapes in urban areas brings the problems of how to deal with the ruins. As mentioned in the literature chapter, this circumstance is similar to the Western context where industrial heritage was born accompanied by the growth of industrial ruins. Yet, China's industrial heritage development has its distinguished characteristics when dealing with urban industrial remains.

China's industrial heritage development in recent twenty years can be characterised as, first, the large reliance on official discourses, while there are early initiatives from

the bottom-up level trying to creatively reuse industrial remains and calling for their conservation. Early initiatives adaptively reusing industrial remains started from the 1990s in advanced cities such as Beijing and Shanghai where several creative cluster pioneers were reused by artists like the well-exemplified 798 Art Zone in Beijing and the M50 art district in Shanghai. These cases have raised extensive social and economic influence triggering a discussion about how to deal with obsolete industrial remains in the early 2000s (Niu et al., 2018). At the same time, some professionals in the fields of architecture and urban planning who participated in redevelopment and regeneration projects called for conservation through reuse adapting to urban functions, which was treated as exerting a leading role in the development of industrial heritage in China (Kou, 2007). In addition, the reuse of abandoned industrial buildings has been applied in line with a policy supporting the service and creative industry attracting great public appreciation (Han et al., 2018). These reuse and regeneration initiatives of derelict buildings were regarded as a starting point that gave rise to the conservation of industrial heritage based on the discourse of architectural heritage (Rowe and Kan, 2013).

These initiatives, in turn, on the one hand, affect institutional promotion actively improving awareness of industrial heritage through establishing professional academic organisations and arranging academic annual meetings in the field of architecture (Peng, 2015). On the other hand, the late 2000s witnessed an official push for the implementation of inventory, conservation, and regeneration of industrial sites (Wang, 2008). As a result, from an authorised perspective, there are three official drives promoting industrial remains' conservation as a kind of heritage according to

scholars' analysis and official published documents. The official drives could be marked by three official documents launched at the central government level, namely: the Wuxi Proposal in 2006, Wuhan Suggestions in 2010, and National Industrial Heritage nominations in 2016. First, most scholars suggest that the idea of Chinese industrial heritage was first promulgated in the official document – the Wuxi Proposal – by the State Administration of Cultural Heritage (SACH) in 2006, which heralded the advent of nationwide interest in industrial remains' preservation (Liu, 2012a; Luo et al., 2018). Then the National Inventory started to nominate a wide range of industrial buildings as cultural heritage at a three-level significance: national, provincial, and municipal. Nonetheless, in this period, industrial heritage conservation is in the cultural heritage discourse that is argued as preferring relics from ancient times before the last century (Chen and Hu, 2013). As Kou (2007) argues, that in this period, cultural heritage nomination paid more attention to ancient heritage while neglecting modern ones, and thus notions such as the architectural and historical value are still prevalent in recognising Chinese traditional and ancient industries. Lu (2019) argues that Chinese industrial heritage has developed based on some assumptions that are deeply embedded in the AHD that favours grand, historical, and aesthetic relics. As a result, most industrial remains derived from the modern industrial development are not included in this protection system.

With the process of industrial restructuring generating a lot of recent abandoned industrial remains, increasing attention shifted to modern industrial remains before 1970 (Chen, 2006). Whereas juxtaposed with the context of rapid urban change and industrial transformation, instead of preservation without adaptation, it was seen to be

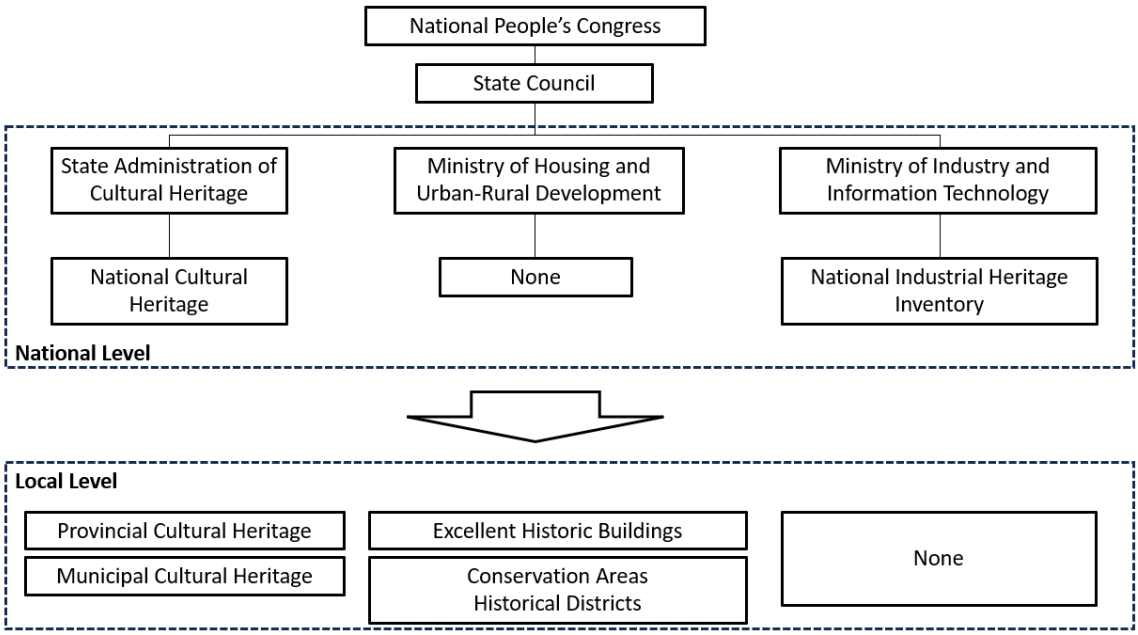
essential to endow the abandoned buildings with new uses considering other economic and social planning practices (Yu, 2016). This trend has contributed to alternative policies and approaches to deal with industrial heritage allowing proper changes such as restoration of the building façades and internal structures (Zhang and Han, 2018). Rather than nominating modern industrial remains as cultural heritage by SACH with strict restrictions of changes, second, most of them are nominated as excellent historic buildings or conservation areas by the Ministry of Housing and Urban-Rural Development (MOHURD) which is more tolerant of changes adapting to urban development (Rowe and Kan, 2013). An official document named ‘Wuhan Suggestions’, led by the Urban Planning Society of China marks this change of nominating industrial complexes as conservation areas renovating and incorporating into different urban functions (UPSC, 2010). Lu (2019) argues this implies an increasing emphasis on the potential of the industrial remains housing different functions especially creative industries to facilitate urban regeneration. Nonetheless, the majority of those industries constructed in recent decades were simply regarded by local authorities and the public as contaminated and dilapidated when they lost their production functions (Kou, 2007). From a practical perspective, because there is a strong relationship between the nomination and management of industrial heritage based on the legal conservation system in China, industrial remains without legal conservation are at high risk of demolition with regard to the interests of the property owners and investors (Liu and Feng, 2009).

More importantly, some scholars argue the new development of industrial heritage in the late 2010s has integrated an agenda of promoting Chinese industrial culture,

technology and entrepreneurship, which is closely interrelated with recent Chinese outstanding achievements in manufacturing industries worldwide (Peng and Yan, 2017; Wang et al., 2018). It is marked by the National Industrial Heritage Inventory led by the Ministry of Industry and Information Technology (MIITPRC) since 2016 (MIITPRC, 2016). This period can be separated from the earlier development of industrial heritage led by the field of architecture and urban planning that focuses on inclusive uses of industrial remains. The construction of the National Industrial Heritage system emphasises its historical significance on nationalism (Ma et al., 2018). As the official document points out: “China has become the world’s largest manufacturing industry ⋯ ⋯ it is needed to shape China’s industrial image enhancing China’s comprehensive competitiveness in the global context” (MIITPRC, 2016).

To summarise, industrial heritage conservation management in China can be divided into three main mutually independent systems at different levels: cultural heritage system, urban planning system, and national industrial heritage system as shown in figure 3.1. In terms of their functional divisions, the cultural heritage system pays more attention to industry developed in ancient times before the last century with little intervention in the preservation of industrial heritage; the urban planning system focuses on the conservation and reuse of modern and recent industrial relics before the 1970s and almost most industrial remains’ conservation at the local level is under management within this scope; the National Industrial Heritage system is more concerned with the construction of national industrial heritage discourse while its local administration is limited (Han, 2019).

Figure 3.1 The Chinese administrative framework of industrial heritage conservation



(Source: by the author)

As such, the acceptance of industrial heritage in China thus has evolved from being ignored to being regarded as a kind of heritage for preservation, then a trendy resource for regeneration, and lastly to recent nationalism discourse construction (Yang, 2017). My research case though was partially governed by the cultural heritage and the National Industrial Heritage systems, it is largely subject to the modernised movement of urban landscapes, industrial restructuring processes and urban development demands, which is more relevant to the urban planning system. The next section then moves the research centre to urban China's industrial ruins and how they are manipulated to fit into wider regeneration schemes.

3.4 The Active Utilisation of Industrial Heritage in Regeneration

This section points out the second characterise of industrial heritage conservation in China where industrial remains have been creatively manipulated as a trendy resource housing creative industries for industrial restructuring, flagship projects and other place-making strategies. However, there has been a developing process initially recognising industrial remains as something to be demolished in the 2000s and then to valuable resources in regeneration in the 2010s, and this section introduces this changing notion.

3.4.1 Radical Demolition and Redevelopment of Industrial Remains

Before industrial remains were officially treated as a kind of heritage to be conserved in the early 2000s, demolition and redevelopment of dilapidated industrial remains especially for those with great locations in urban centres were widely adopted when the investment in the redevelopment was available (Liu et al., 2010). This situation is intensified when industrial sites' transformation in China's urban areas is accompanied by the marketisation of urban landscapes as well as their modernised movement as mentioned in section 3.2. The 1980s saw the modernisation of residential areas and other infrastructures mainly based on physical renewal approaches (Zhang, 2013). Starting from the 1990s, administrative decentralisation, land and housing reform, and the tremendous demands of the property market had a remarkable impact on the formation of property-led redevelopment, which in turn has facilitated large-scale urban redevelopment (Yeh and Wu, 1996). This overall process has affected almost everywhere that was materialised in a radical transformation with rapid urbanisation constructing new towns as well as expanding urban areas at the outset in the 1990s,

but later redeveloping ageing areas in the inner-city in the early 2000s (He and Wu, 2005).

As discussed above, Chinese cities were the centres of socialist extensive industrialisation, with the SOEs occupying a large amount of urban land in proximity to the city centre (Hsing, 2006). Then a series of institutional changes led to a trend of decline in traditional industries of state-owned enterprises resulting in the closure of many small, inessential, or poorly performing SOEs (Chen et al., 2016). From the late 1990s to the early 2000s, driven by a prosperous property-led redevelopment and increasing land value gradient, transferring inner-city lands into high-profile properties such as apartments, office buildings, and commercial facilities, became highly profitable, turning inner-city lands into a hotspot of urban (re)development particularly the industrial settlements (Yang, 2017). Compared with other old urban fabric, most urban industrial settlements have incomparable advantages in the process of redevelopment: clear and simple ownership that is easy to be transferred; great location always alongside the river in inner-city; acquirement of a large area of land (Ning, 2012; Xu and Aoki, 2012). Hence, in the early period, wholesale demolition and redevelopment as commodity housing were common methods applied by progressive developers and government agencies when dealing with abandoned factories, while conservation was not a choice (Liu et al., 2010). Scholars (e.g. Ding and Knaap, 2005; Zheng, 2010; Wu et al., 2006) view this urbanism and redevelopment as a new model of neoliberal approach characterised by an entrepreneurial state and heavy private investment strongly based on a real estate market for economic growth promotion.

3.4.2 Industrial Remains Housing Creative Industries

Since the late 2000s, there has been an escalating official industrial heritage discourse emphasised industrial heritage conservation as well as its adaptive reuse methods. Simultaneously, in response to deepening industrial restructuring, obsolete industrial buildings were advocated to house creative industries rather than radical demolition (Zheng, 2011). However, earlier successful adaptive reuse is unsystematically manipulated by artists' groups. During a period when some artists' communities began to spontaneously occupy abandoned industrial sites in some leading Chinese cities in the late 1990s, the revival of a cultural approach to brownfield regeneration in East China occurred (Chen et al., 2016). Following the trend in international precedent cases, the rehabilitation of abandoned industrial buildings that commanded a small price for a large space and good location through a bottom-up pattern attracted more artists gathering forming viable and energetic communities (Lv, 2007). Moreover, accompanied by the increasing appreciation of disused equipment, drainage pipelines, industrial buildings and structures full of modernist characteristics and nostalgia by professionals as well as the public, some innovative practices have received nationally widespread attention and praise (Chen et al., 2016). Their reuse solutions have become a paragon for other Chinese cities to follow and imitate leading to an active tendency to renovate industrial buildings for innovative reuse functions (Chen and Hu, 2013).

Due to industrial restructuring in the tertiary sector, advanced Chinese cities mostly in the East are experiencing a transformation from places of production to consumption promoting local economic growth (He and Wu, 2009). With the deepening process of industrial restructuring accumulating a wide range of industrial obsolescence in the mid-2000s, as well as the increased emphasis on industrial heritage conservation, the combination of tertiary industry and obsolete industrial sites gave the government much inspiration, particularly under the conditions of land shortage in the city (Zhong 2012). The role of the government was changing from being a leader of heritage preservation to a supporter of planning guidance to develop creative industries clusters through the adaptive reuse of former industrial sites (Wang 2013). A widely applied local governmental policy named ‘three olds regeneration’ (old villages, old urban areas and old factories) enacted in cities like Guangzhou, Shanghai and Beijing has greatly accelerated private participation in the adaptive reuse of industrial buildings housing creative industries because regeneration procedures are largely simplified (Wu, 2018). This organised development stimulated wide-ranging social participation, especially in the private sector driven by this lucrative market differently: an economically workable combination of the creative industry and industrial heritage conservation; policy and financial support in conservation and regeneration (Yao 2014). Since the mid-2000s, thousands of industrial heritage sites have been transformed into ‘creative industrial parks’ in Chinese cities over the past two decades, and culture-themed regeneration projects on old industrial sites under the sponsorship of the entrepreneurial local governments and private capital gained popularity (Zhong, 2016).

However, criticism is in many aspects. First, this cultural-led model contributed to a limited extent to regeneration economically and culturally, especially in inland Chinese cities (Chen and Judd, 2021). In a few cases accumulating artists and successfully regenerating obsolete industrial areas, more government and property developers' involvement forced the artists to move out eventually (Chen and Qu, 2020). Cases such as the 798 Art Zone in Beijing though were seemingly kept well after complex struggles with its original owner who wanted to expel artists and redevelop, it has become an upmarket arts district for art elites (Peng and Yan, 2017). Many cases achieved economic gain through radical reconstruction of internal spaces for other economic uses such as offices, hotels, restaurants or food markets for quick economic return, though many at the expense of the destruction of historic and artistic characteristics (Chen et al., 2016). In contrast to few successful cases in the eastern Chinese cities, the idea of industrial conservation through the housing creative industry has been diluted in the inland Chinese cities with the rapid disappearance of industrial remains on the one hand, and on the other hand, much cultural-led regeneration failed ending with reclosure, a second-time demolition or a dismal rental market (Chen and Judd, 2021).

Moreover, some scholars argue these projects have made a limited contribution to boosting creative industry entrepreneurship because Chinese cities have not experienced the pattern of post-industrialism, but rather the coincidental development of advanced services and industrial production complexes, though some lead city-regions services have supplanted manufacturing as the most rapidly growing elements of the economy (Daniels, Ho and Hutton 2005). In addition, the spontaneous

development creative cluster has disappeared with the replacement of a top-down manner implemented by the government and enterprise development for the maximisation of the land value and economic benefit (Zhou, Chu, and Li 2006; Zhang 2008; Zhao 2010; He 2014). Keane (2009) argues while China was making attempts to modernise and marketise its cultural sector in line with the overall transformation of the economy, the creative industries in China are more appropriately constructed as cultural industries under great government control that is different from the Western context. Since then, it led to the imitation of projects between cities (Wang, 2009), and over-exploitation of the cultural and creative space with a limited contribution towards cultural and social sustainability (Zhong, 2016). Besides, the historical quality of the heritage assets and other heritage values became no longer so important to culture-led regeneration leading consumerism to determine the significance of industrial heritage in the context of urban regeneration (Wu 2008; Wang 2009). In simple words, ‘culture’ is more like a means of promoting urban economic renewal through city marketing though after the involvement of capital and official endorsement, the pursuits of economic interests, in these cases, have brought unsustainable challenges.

3.4.3 Place-Making Strategies and Multiple Uses of Industrial Heritage

In the 2010s, more diverse ways of reuse were applied to show an increasing trend to develop a dynamic understanding of industrial heritage and its role in the process of regeneration (Lu et al., 2019). One is industrial tourism developed through museums, factory visits, natural landscape parks or a combination of those multiple reuse functions (Yu, 2016). For example, many light industries including winemaking, water plants, papermaking and glassworks exhibit live interpretation and performance to

attract customers. Another one is public space like a park for increasing leisure infrastructure. Some large-scale industrial landscapes were radically transformed while leaving a small area as public open spaces. Last, other industrial buildings are transformed into community service facilities, cultural leisure facilities, and educational facilities for universities (Hashimoto and Lu 2007).

Apart from multiple approaches using industrial heritage as tourism resources and public functions, the using of industrial heritage as a strategy for place-making effect in regeneration is a more striking approach. Some Chinese megacities actively participated in holding international or national events utilising professional design for image building and attraction of investment (Chan and Li, 2017, Chen and Qu, 2020). The role of cultural and heritage assets including industrial heritage adapting to modern urban functions in the quest for place-making effects in regeneration has been recognised (Duan, 2021). For example, the Shanghai 2010 World Expo chose the industrial areas along the Huangpu River as the distinguishing venue (Zhang, 2015), and the Beijing 2022 Olympic Winter Games chose the large-scale industrial landscape of a steel corporation (Zhao, 2018).

The significantly eye-catching effect of renovated industrial structures as landmarks in mega-events has been amplified by mass media, while little research contributes to specifically illustrating industrial heritage's impacts on regeneration, and even some criticise the marginalised status of industrial heritage. For the Expo in Shanghai, the context of industrial heritage was lost leaving several individual buildings radically

transformed into expo pavilions and other facilities with few historical explanations (Zhang, 2015). Further, these remains were argued as by-products of negotiation between the government and their owners who did not want to lose its inner-city lands and properties, with few considerations from a heritage perspective (Zhong, 2013). Compared with high-profile business districts of Pudong, industrial heritage contributed to a limited extent in enhancing Shanghai's city image (Leary and McCarthy, 2013). For Beijing Olympic Winter Games innovatively reuses industrial structures and remains based on radical transformation, though attracting some public attention, its effects still need to be evaluated later (Zhao, 2018).

Besides, both in academic and practical fields, almost all attention to the combination of industrial heritage and place-making practices is in Shanghai and Beijing, while limited to other China inland cities that are imitating conserving industrial heritage as a staple element in regeneration (Chen et al., 2016) such as Wuhan. However, not every city can sustain this kind of project exerting positive effects using industrial heritage in regeneration because the same planning ideas, policies, and practices borrowed from elsewhere cannot be easily transferred to China's inland cities. There also has been increasing criticism questioning the long-term sustainability of such regeneration projects in China (Niu et al., 2018). The disparity of industrial heritage conservation outcomes in regeneration across urban China further raises needs more research to be explored.

3.5 Industrial Heritage and Stakeholders in Regeneration

This section examines the role of industrial heritage in regeneration in the context of China by investigating how stakeholders involved in the regeneration and conservation processes manipulate or consume industrial heritage. The literature chapter summarises the economic, political, and social roles of industrial heritage exerted in worldwide regeneration cases. The differences between those cases and Chinese ones will be pointed out.

3.5.1 Speculative Industrial Land Redevelopment

Compared with a relatively long-term accumulation of industrial ruins caused by deindustrialisation, China's abandoned industrial sites have been planned to be transformed in a much faster but orderly way (Yang et al., 2017). This is due to China's heavy-handed government interventions, referring to land management, heritage protection, planning tools, and policymakers, that have a dominant influence on integrating industrial remains into holistic urban economic and political development visions, though private sectors are significant in terms of investment and implementation in this transformation process (Justin and Gu, 2006; Chen and Qu, 2020; Yang et al., 2019). Section 3.4 summarises the official push of creative industry development combined with the reuse of industrial remains and a trend of applying industrial heritage in place-making strategies in Chinese cities. These two approaches are both closely related to the economic aspirations of city governments with the former focusing on industrial restructuring and the latter on nationally or globally competitive cities (Lee and Lim, 2014; Ye, 2011). Niu et al., argue that industrial heritages have been included in government planning and enterprise development so

the reuse of industrial heritage is itself on the way to being industrialised (Niu et al., 2018).

However, apart from other economic roles of industrial heritage as categorised in the literature chapter, the empirical evidence in China shows a more obvious economic demand pursuing speculative profits from real estate and land development (Sun et al., 2019). In other words, China's reuse of industrial heritage in regeneration is largely driven by land and property development demands despite other multi-promotive factors that will be explained later in this section. Much research illustrates the consequences of creative industry parks and place-making regeneration projects using industrial heritage eventually exposed to property-led regeneration mode (Zheng, 2011; Martínez, 2018).

This trend is facilitated by the entrepreneurial government role that emphasises its cooperation with private sectors. Several rounds of land reforms from 1998 especially the land banking system launched in 2007 allowing the industrial land to be transferred from the SOEs greatly accelerated the transformation of abandoned industrial sites through different methods of public-private partnerships (Han, 2019). In China, key stakeholders, defined as industrial heritage producers in this thesis, participating in industrial heritage-related regeneration are summarised: the local state, artist groups, private developers, and the former SOE owners of industrial sites (Zielke and Waibel, 2013). Their four cooperation modes are identified: first, the bottom-up mode where artist communities drive the reuse of industrial buildings and areas, and then the local

government provides support through grant policies; second, the top-down mode where the local state plays multiple roles as the transformer of land-use rights, the investor, and the mediator between the SOEs and the private developers, third, the public-private partnership mode where the local state and private sector usually jointly establish a public-private company to regenerate industrial sites, fourth, private development mode where the private developer finances the major cost of construction and the local government only acts as a project supervisor or supporter.

A number of domestic industrial sites have been regenerated by the public-private partnership, especially for those large-scale industrial sites that require cooperation from multiple forces and great capital investment. The huge land development profits gather stakeholders usually the local government, developers, and SOEs forming a pro-growth coalition. Chen and Judd (2021) analyse industrial lands are transferred by local government agencies from the SOE to property developers generating a considerable financial return from land speculation to those three parties. In this circumstance, industrial heritage is perceived by key stakeholders as a valuable marketing device contributing to potential land and property values.

Private real estate companies in the transformation and regeneration of former industrial lands play a significant role as investors and executors though they are supervised by the local government. Most developers are obsessed with short-term economic interests and the manipulation of industrial heritage especially its distinguished aesthetics are their focus when transforming industrial lands for future

speculative property value (Martínez, 2021). However, usually, the SOEs do not participate in the land redevelopment process as most poorly managed factories tend to sell their industrial facilities and allocate urban centre land use rights maximising financial return rather than leaving industrial properties for heritage conservation (Chen and Judd, 2021). In this case, the speculative value added by industrial site regeneration with heritage does not belong to the SOEs. Many SOEs also actively participated in the regeneration of their obsolete industrial factories as the legacy of the three olds policy mentioned before, because they could act as landlords reusing industrial buildings, and renting to creative industry companies or other commercial and leisure shops.

As such, the role of industrial heritage in regeneration in terms of its speculative ability to increase the land and property value is one of the focus of this research. Because this study also pays attention to the long-term effect exerted by industrial heritage, not only the speculative land regeneration but also possible negative effects as mentioned in the literature chapter will be examined. To be noticed, previous empirical evidence of heritage speculative effect draws more on other heritage types, industrial heritage is being manipulated in China as a new trend in property development, and more creative industry development using industrial buildings will be further discussed.

3.5.2 Creative Industry Development as Another Real Estate Story

Previous sections point out the artists' group as the earliest one discovering industrial remains and regenerating them, and the literature chapter mentioned worldwide

artists' communities' contribution to creative industry development, the formation of new cultural identities, and local vitality. Here China's artists' groups and the development of creative industries based on industrial remains should be discussed.

Similar to the case in the West, in the early 2000s, China's artists spontaneously gather reusing industrial buildings due to their advantaged locations in the city centre, large spaces accommodating artistic activities, and low rents (Gu, 2014). However, this process has gradually evolved into a collective effect of government intervention and the real estate rent market demand (Chen, et al., 2016). In this evolving process, creative entrepreneurs, and elite artists whose cultural production has increasingly linked with urban regeneration led by private developers through capital circulation and conversion of real estate development (Zhong, 2009; 2011). On the one hand, the artists' group is no longer the core heritage producer in industrial heritage and regeneration projects but instead the users' group. Those housing in creative industrial parks are not the socially responsible bohemians of the Western imaginary, and the rising creative classes in Beijing, Shanghai, and Guangzhou have deep pockets, networking capital with the state, and a lifestyle characteristic of the nouveau riche (Wang, 2004). On the other hand, China's creative industries are argued as tightly state-controlled and they have to be good for the economy (Gu, 2014). Instead of cultivating an innovative milieu, the proliferation of cultural districts in big Chinese cities has created urban spectacles with industrial aesthetics cultivating retail and commercial culture (Gu, 2014). There has been a trend of the commercialisation of creative industry parks where creative companies are gradually excluded and retail shops move in bringing gentrification (Niu et al., 2018). As such, it is suggested that

creative industrial parks are almost entirely real estate driven having little concern with social responsibilities (Zhong, 2016).

In this sense, as discussed by many scholars, renovated industrial buildings for creative industry development are hard to act as a cultural instrument exerting significant effects in regeneration, especially in China's inland cities that lack the artists' groups and inadequate development of the tertiary industry. For example, Chen et al. (2016) compare industrial heritage reuse cases in arts and creative districts in Beijing, Shanghai, and Chongqing exploring their regional factors influencing industrial heritage's effects in regeneration. They conclude that the large-scale artistic communities supported by the local government's promotion in Beijing and private developers in creative industries combined with the "creative industry cluster policy" in Shanghai contribute significantly to industrial heritage reuse in cultural regeneration, while industrial heritage in Chongqing, an inland city without vital private participation nor effective cultural policy, perform less outstanding. Sun et al. (2019) examine industrial heritage's catalyst effect by investigating Changzhou Sanbao industrial heritage district housing creative industries, and the conclusion indicates the insignificant role of industrial heritage in the district regeneration in both economic and social aspects. Yet, the transformation of industrial sites to creative industrial parks has been imitated and over-exploited nationally due to the official promotion policies since the late 2000s as well as the active participation of private sectors (Niu et al., 2018). More evidence of the combination of industrial heritage, creative industries, and regeneration in China's inland cities thus needs to be investigated.

3.5.3 Place Identity and Social Effects

Political and social roles of industrial heritage should be examined from the perspective of heritage users rather than the one-sided assessment from heritage producers. As discussed by Evans (2005), more qualitative evaluation is needed particularly in terms of community behaviours, social capital, and visitors' perceptions such as socially constructed heritage. Yet, research focuses more on the economic effects of industrial heritage for place-making strategies while political and social effects associated with identity construction and the public realm are under-researched. This section focuses on how heritage consumers in China appreciate and use industrial heritage and from this perspective evaluates the social and political roles of industrial heritage and regeneration in China.

According to the classification of stakeholders in the literature chapter, heritage consumers are defined as those who cannot involved in decision-making process groups. In China where heritage and regeneration issues are largely in the hands of the local state and powerful private developers, this classification is applied and usually heritage consumers or users refer to tourists, visitors, industrial sites nearby residents as local communities, and sometimes non-government organisations (NGOs) because these grassroots organisations often are under-developed in China (Chen and Qu, 2020).

To be noticed, the transformation of former industrial sites in Chinese city centres always means the relocation of former workers and newly moved residents to

redevelopment sites, with the process often defined as gentrification in Western contexts (Kaya, 2020) while some scholars define this Chinese process as a mode of urbanisation (Tomba, 2017). In Western cases, most empirical focuses were in European and North American cities where the gentrification processes are determined by capital or practices of middle-class consumption-based cultural tastes (Zukin, 1987). However, the state's regulatory power in China over planning and funding of urban regeneration determines the choices of both capitals, gentrifiers, and their cultural predispositions. Hence, a type of urbanity as positive gentrification is produced in tune with the modernising project of the post-socialist city.

In China's positive gentrification process, first, the former workers move out and newly moved residents move in while both groups are excluded from the heritage conservation and regeneration processes in a relatively mild way with less contestation. It is invested by scholars that residents and former workers concern more about personal interests such as daily struggles after unemployment, compensation for relocation, upgrading the value of properties, and public facilities in the resettlement area than industrial heritage issues (Wang and Aoki, 2019). Further, demolition of former industrial sites accompanied by eviction seems to be naturalised as an inevitable part of urban life, and mostly because everyone internalises the faster replacement cycle of urban landscapes, demolition of obsolete industrial remains is the favoured approach over preservation in regeneration scheme (Tomba, 2017: 511).

Second, with the active conservation and marketing of industrial remains for their cultural re-creation and valorisation, renovated industrial remains act more like decorations exerting few social effects in regeneration (Sun et al., 2019). Section 3.4.3 illustrates eye-catching industrial buildings and structures that are conserved as modern and wealthy images in Chinese big cities such as mostly mentioned Beijing and Shanghai. Economic-related aspirations are the focus of heritage producers attracting footless capital and the 'right kind of resident' instead of social roles (Porter and Shaw, 2009), and eye-catching industrial images are hence constructed without industrial culture presentation (Yang, 2017). Besides, most Northeast Chinese industrial cities do not understand the significance of industrial heritage as a role of image reconstruction, and only a single industrial structure or building can be retained and renovated as a museum, exhibition hall, or decorations in a green park (Fan et al., 2012). These heritage facilities are built by the state to commemorate the glorious working-class history or national industrial culture becoming the theme of newly developed gentrified residential areas, (Han, 2019). However, in both circumstances, the social roles of industrial heritage especially identity issues are seldom investigated, and industrial heritage is degraded to tangible aspects serving other urban public functions (Justin and Gu, 2006).

In addition, it is argued that industrial culture associated with glorious working-class history has been eroded along with the rise of consumption culture (Yang, 2017). With more Chinese cities transforming from centres of manufacturing into centres for consumption, appreciation of industrial heritage gradually is evolving from a place with artistic atmospheres to distinguished urban consumption landscapes (Han, 2019).

Industrial heritage hence becomes a form of commodification that is increasingly alienated from either former workers' communities or newly formed artistic communities, but visual appreciation forms that are subject to consumers fast-changing tastes (Han, 2019). This superficial appreciation, on the one hand, may be attributed to the borrowed concept of industrial heritage by domestic professionals in the field of architecture and heritage from Western contexts (Han et al., 2018). On the other hand, the fast development of China's industrialisation and the following industrial restructuring may affect younger industrial heritage users who do not have a chance to experience industrial development and generate social memories and emotional attributes (Han et al., 2018).

As such, according to the previous analysis, industrial heritage in China thus exerts few social roles for heritage users who pay much attention to tangible aspects rather than intangible heritage issues such as industrial culture and working-class history. Recent industrial culture promotion highlights the National Industrial Heritage system led by MIITPRC in the late 2010s with the aim of constructing nationalism, and cities like Wuhan are trying to catch up with the trend using its nominated National Industrial Heritage building city images. More empirical research is needed to explore industrial heritage effects not only the economic and political effects but also social ones to demonstrate a systematic evaluation of industrial heritage and regeneration in China.

3.6 Hanyang Iron Works in Wuhan

3.6.1 Wuhan Industrial Development and Official Industrial Heritage Promotion

In the existing Chinese industrial heritage studies, eastern cities have been paid attention resulting in deficits of industrial heritage development in West China (Chen et al., 2016). This study provides a case in inland China making up for the geographical differences in industrial heritage development. Wuhan in Hubei province has been an important industrial city since the late Qing dynasty due to its location on the navigable Yangtze River. In 1858, Wuhan was forced to serve as a Trading Port, and in the 1890s due to Zhang Zhidong who participated in the Self-Strengthening Movement, a series of modern factories were constructed including Hanyang Iron Works marking the early modernisation and industrialisation development in Wuhan (Yuan, 2014). After the short period of capitalist development and War times, recent industrial development in Wuhan since 1949 in the socialist period has emphasised the heavy industries, especially steel production that was located near the Yangtze River.

The fundamental reform of the economic system started in 1978 (Berta et al., 2018) has accelerated Wuhan's industrialisation process. Yet since the 2000s, drastic urban transitions and economic restructuring processes began with booming real estate development and the suburbanisation of heavy industries (Liu et al., 2010). A large amount of industrial remains was left due to the closure and movement of factories and those obsolete industrial remains did not wait but will be transformed into new properties. Until 2006, following the state call of the Wuxi Proposal, industrial heritage development in Wuhan started in an authorised sense.

Wuhan's industrial heritage development shows its trend following several state calls as mentioned in the previous sections of this Chapter. The timeframes are marked by three national policies and suggestions, from 2006 to 2010, 2010 to 2016, and 2016 to present are vital for industrial heritage debates and their changing directions. First, the Wuxi Proposal in 2006 launched by the SACH drove local authorities in Wuhan to pay attention to the conservation of industrial remains as a kind of heritage. The second one Wuhan Suggestions in 2010 led by the UPSC further escalated local cultural departments - Wuhan Municipal Bureau of Culture and Tourism (WMBCT) and planning departments - Wuhan Municipal Bureau of Natural Resources and Planning (WMBNRP) to nominate industrial buildings and conservation areas. The shift towards adaptive reuse of industrial remains especially by developing creative industries was marked, which was also facilitated by the management mode of the public-private partnership for transforming and conserving industrial sites. In the first half of the 2010s, the cases of multiple reuses of industrial remains in Wuhan soared (Table 3.1). According to Table 3.1, private companies have become the main force in the implementation of industrial remains conservation, characterised by the retention of an iconic individual industrial building for commercial or creative-related functions.

Table 3.1 Industrial remains reused in the early 2010s

Opening Time	Name of Project	Renovation Factory	Executor	Conservation Method	Reuse Function
2010	Vanke Mao Yuan	Wujian Group builds the second factory	Vanke Real Estate Company	Structure conservation and redevelopment of the whole site	A Green Garden
2010	Garden Road Arts District	Zhongnan Auto Repair Factory	Wuhan Garden Road Real Estate Co., Ltd.	Partial Conservation of industrial	Commercial District

				complex	
2011	Gutian Memory High-tech Industrial Park	Wuhan Copper Material Factory	District Government and Wuhan Urban Estate Investment and Development Group Co., Ltd	Partial Conservation of industrial area	Creative Industry Parks
2011	Chutian 181 Cultural and Creative Park	Hubei Daily Media Group Chutian Printing Printing Factory	Hubei Daily Media Group	Partial Conservation of industrial complex	Creative Industry Parks
2012	403 International Art District	Wuhan Boiler Factory	Hubei Jiuge Landscape Culture Media Co., Ltd.	Conservation of an individual building	Creative Industry Parks
2013	Jiangcheng No.1 Creative Industry Park	Wuhan Light Vehicle Manufacturing Plant	District Government and Wuhan Shengbo Fukang Cultural and Creative Development Co., Ltd.	Partial Conservation of an industrial area	Creative Industry Parks

Source: by the author

This circumstance was perceived as an emergent phase of rescuing industrial remains on the verge of demolition in the context of rapid urban transformations as mentioned above. The economic benefit of the reuse of industrial remains plays a significant role in strengthening the participation of private forces. The deficiencies are obvious in this period, such as random renovation methods, over-exploitation and commercialisation, the marginalisation of industrial heritage, and conservation in the form of single structures and buildings (Xia, 2017). In this sense, industrial heritage conservation is not treated as a heritage issue in Wuhan but a byproduct of developing the real estate economy and creative industries. Recent few industrial heritage conservation cases in Wuhan showed a trend of conserving historical industrial environments for a place-

making strategy while this strategic method needs to be discussed further (Xia, 2021).

3.6.2 Hanyang Iron Works as a Disappeared Factory

In terms of Hanyang Iron Works, as mentioned before, this factory was built by Zhang Zhidong in the 1980s due to the Self-Strengthening Movement in the late Qing dynasty. At that time, Zhang Zhidong as the governor of Wuhan in Hubei province actively joined the industrialisation development, and Westernised technologies of iron and steel production were applied to develop and construct the factory of Hanyang Iron Works (Kennedy, 1973). In the early period of factory construction, not only production machines were bought from foreign countries, but also foreign engineers were hired to guide the use of machines, iron and steel production and factory operations (Zuo, 2023). These foreign countries include such as the United Kingdom, Germany, Belgium, and Luxembourg (Yang, 2012; Fang and Qian, 2005). There was an industrial complex constructed along the Hanshui River including mostly famous Hanyang Iron Works and Hanyang Arsenal. An industrial area was formed which is praised by many scholars as contributing to Wuhan's modernisation and urbanisation development (Yuan, 2014). In the past 10 years, Hanyang Iron Works' history is also widely praised by scholars and especially by the local state in Wuhan as China's first and was the largest modern industrial complex in the Far East in the last century (Shen, 2015; Fang et al., 2017).

Apart from those positive reviews of Hanyang Iron Works' history, it has been criticised by some research due to failed site selection by Zhang Zhidong, unsalable products

due to their low quality, poor management, and financial situation since the beginning of the factory construction, and more importantly, the short-term colonial history in the 1910s (see for example, Li, 2012; Shi, 2022). Hanyang Iron Works had been operated poorly by Zhang Zhidong and then private management and investment had to be introduced saving the factory's operation. It formed a company named Hanyeping after merging Tayeh Iron Mine and Pingxiang Colliery in the late 1890s (Hanyeping Digital Museum 2019). However, the poor financial situation was not solved, so foreign capital especially from Japan had to be introduced and in the end, the factory was gradually controlled by Japan becoming its colonial factory in China in the 1900s (Li, 2010). Hanyang Iron Works thus became a colonised foundry producing steel products as well as supplying raw materials for Japanese iron and steel enterprises (Shi, 2022). This period of the industrial past is not treated by some historians as a successful and positive history (Hanyeping Digital Museum 2019).

Hanyang Iron Works experienced a brief period of prosperity during the following civil and international wars in the 1910s because it provided iron and steel products for firearms production in Hanyang Arsenal. It is appraised as one of the largest and oldest modern arsenals in Chinese history. Among all the weapons produced by Hanyang Arsenal, the Hanyang 88 rifle known as 'Hanyang Zao' is one of the famous products due to its support for the Wuchang Uprising of the Xinhai Revolution in 1911. Yet, the prosperity did not last for long and Hanyang Iron Works went out of production in the 1920s. The whole industrial complex constructed by Zhang Zhidong including Hanyang Iron Works and Hanyang Arsenal fell into obsolescence.

However, in the anti-Japanese war from 1938 to 1949, partial facilities of Hanyang Iron Works were moved to Chongqing leaving those unmovable ones blown up avoiding serving Japanese iron and steel production (Li, 1992; Han, 2019). After the funding of the People's Republic of China, Wuhan focused on steel industry production and a new factory named Hanyang Steel Works was constructed near the original site of Hanyang Iron Works. As can be shown in Figure 1.1, Hanyang Steel Works is located on the west side of Hanyang Iron Works' original location, and these two factories have limited relationships in terms of historical inheritance and factory organisational connections (Xiyuqingshan, 2014). Besides, the 824 factory was built on the original site of Hanyang Arsenal in the late twentieth century. Detailed historical information on Hanyang Iron Works is listed in below Table 3.2.

Table 3.2 Industry development history of Hanyang Iron Works

1890-1894	Official Management by Qing Dynasty	Hanyang Iron Works and Hanyang Arsenal as well as a series of factories began to be constructed by Zhang Zhidong. In 1984, steel production was started.
1895-1911	Private Company Management Supervised by the Official State	Private investment and management by the Cooperation that merged Hanyang Iron Works, Tayeh Iron Mine and the Pingxiang Colliery into Hanyehping Coal & Iron Ltd Co. The investment highly relied on Japanese companies and Hanyang Iron Works gradually was controlled by them becoming a colonial factory for Japan.
1911-1919	Private Company	International and domestic wars promoted the development of the steel industry and weapons production: The Qing Dynasty was overthrown; The Republic of China was

	Management	constructed; The outbreak of the First World War
1919-1938		Poor operations until out of production
1938	—	Japan bombs Wuhan A steel dismantling and relocation association by the Republic of China to transport valuable factory machines to Chongqing.
1938-1952	—	Industrial ruins

Source: by the author

3.6.3 Hanyang Iron Works' Conservation and Regeneration Processes

The turning point was in 1994 when several descendants of engineers, who helped the construction and steel production of Hanyang Iron Works, came to Hanyang Steel Works to find their historical connections, which inspired Hanyang Steel Works to focus on its inheritance relationship between Hanyang Iron Works (Long, 2002, 2003). Since then, Hanyang Steel Works began to be recognised by the factory as having some connections related to Hanyang Iron Works. The commemoration of Hanyang Iron Works' past especially the historical figure, Zhang Zhidong, who made great significance in its construction, was further developed by the factory as a historical resource for tourism.

However, Hanyang Iron Works' past and Zhang Zhidong's commemoration have been conserved and presented by Hanyang Steel Works' remains as well as its nearby industrial areas' physical relics since the late 2000s. Specifically, the Hanyang district

government was inspired by the Wuxi Proposal determining the conservation theme of Zhang Zhidong's industrial relics as industrial heritage (Yao and You, 2008). The 824 factory near Hanyang Steel Works was officially renovated as Hanyang Zao Creative Park developing creative industries. Hanyang Steel Works was determined to be partially conserved to commemorate Hanyang Iron Works and Zhang Zhidong. The second industrial heritage development period in the 2010s witnessed the growing of official discourses in the designating industrial buildings and conservation areas of Hanyang Steel Works while most plans were not exerted (Table 3.3).

Table 3.3 Regulations related to the conservation plans of Hanyang Iron Works that were enacted in the early 2010s

Approval Time	Department of Heritage Conservation	The Name of the Planning Project	Regulations of Hanyang Steel Works Conservation
2011	Wuhan Bureau of Cultural Relics	Municipal cultural relics protection unit	The converter workshop as the only individual building is listed as a cultural relic that needs to be strictly preserved without alternation.
2011	Wuhan Municipal Bureau of Culture and Tourism	Listed 39 industrial buildings and structures	Retention of industrial buildings is recommended but with less legal force.
2013	Wuhan Bureau of Urban	The System Planning of Historical and	Conserved as a featured historic district that should be reused as cultural industries driving the development of surrounding areas

	Planning	Cultural Districts in the main urban area of Wuhan	
2013	Wuhan Bureau of Urban Planning	Wuhan Industrial Heritage Conservation and Utilization Planning	Emphasis on the industrial facades and structures, as well as its historical environment; the site is recommended to be regenerated for mixed-use schemes including cultural, commercial, residential, and administrative office land.

Source: By the author

Similar to industrial heritage development in China's context, the changing point in 2006 witnessed the official promotion of Hanyang Zao Creative Parks construction and industrial heritage conservation. The following official push was implemented by local urban planning departments and industrial remains have been actively integrated into urban transformation developing creative industries, and commercial and residential areas. Though industrial remains' conservation has expanded from listed buildings to conservation areas and industrial historical environments, there has been an absence of cultural heritage departments involved, which to some extent reflects the less significant status of the industrial heritage of Hanyang Iron Works in the local heritage conservation agenda. Then the Ministry of Industry and Information Technology of the People's Republic of China (MIITPRC) promoted National Industrial Heritage development in 2016 finally confirming Hanyang Steel Works's conservation of several structures and buildings for developing the industrial culture of the PRC.

Apart from the official promotion of the industrial heritage conservation of Hanyang Iron Works, real estate companies played an important role in its conservation regeneration. This is because the transformation of the whole industrial site of Hanyang Iron Works has been integrated into the urban transformation processes accompanied by industrial restructuring, urbanism and real estate marketisation. Developers with heavy funds and execution capabilities become partners with SOEs and Wuhan's local state to jointly redevelop, conserve and regenerate industrial sites with advantaged locations pursuing property profits. Specifically, the relocation and redevelopment of the Hanyang Steel Works site were planned in 2011 to be implemented primarily by Vanke. However, due to complex reasons, Vanke finally stopped investments and in 2019 Sunac gained the ownership of Hanyang Steel Works site joining its conservation and regeneration as the lead investor and executor. The local state also paid great attention to the conservation of the National Industrial Heritage of Hanyang Iron Works manipulating its heritage and industrial remains for presenting the mega-event of art biannual in 2021. Vanke and Sunac both built flagship projects acting as an engine to start the regeneration and redevelopment of the Hanyang Steel Works site.

As such, the conservation and regeneration processes of Hanyang Iron Works experienced museumification, creative industry development and real estate development combined with flagship projects. The process is complex accompanied by multiple forces including industrial restructuring, real estate marketisation and urbanism. After elucidating policies and plans related to the industrial heritage development of Hanyang Iron Works and contexts in Wuhan, detailed evidence of how

the industrial heritage of Hanyang Iron Works is produced and consumed by different stakeholders should be investigated through other different approaches. The next chapter will give methodology considerations to help the researcher for further analysis.

3.6 Conclusion

This chapter examines the industrial heritage in China and Wuhan. There are several keynotes and topics to be concluded here. First of all, China's industrialisation and deindustrialisation happened at an unprecedently speed in only around 40 years. This fast-changing context forms a basis for understanding industrial heritage construction and consumption in China, and this factor could play a role in influencing the way of conserving industrial remains and treating recent industrial past. Second, the economic structuring process and a range of urban transitions are simultaneously shaping and reshaping industrial remains, and industrial heritage should be understood as a process of adapting to those drastic changes. Global influence recently has affected industrial heritage from a nationalist point of view, and more liberal economic circumstances involved industrial heritage as an instrumental role in place-making strategies. More importantly, China's industrial heritage development is more of a policy-driven mode especially for China's inland cities like Wuhan, though stakeholders from the bottom-up level initiate creatively adaptive reuse of industrial remains.

Wuhan's government interventions follow the state calls integrating to different urban functions especially creative industries. Compared with other cases in Wuhan,

Hanyang Iron Works is a rare one that could be directly supervised by the local authorities. Hanyang Iron Works' past since the 1890s and Zhang Zhidong has been commemorated based on the factory remains of Hanyang Steel Works and the 824 factory. Though Hanyang Iron Works is criticised for its negative part of colonial history, conservation themes of Hanyang Iron Works and Zhang Zhidong have been confirmed by government interventions.

Chapter 4 Methodology

4.1 Introduction

This chapter outlines what methods and why I chose those methods to conduct my research. Choices of research philosophy and paradigm are illustrated first to pave the way for research approaches, concepts and strategies. Detailed research questions are described in line with research approaches in social science guiding data collection and fieldwork observations. Considering my research aims to understand the role of industrial heritage in regeneration by different stakeholders' perceptions in terms of economic and political aspects, semi-structured in-depth interviews, fieldwork observations and document collection are adopted in this study. The research in this study has undertaken fieldwork to sample Hanyang Iron Works conservation sites between September 2021 to January 2022 in Wuhan. Though my fieldwork was seriously affected by the global epidemic COVID-19, my research site was free to access because at that period the restrictions on transportation and public places were shortly cancelled and the fieldwork and interviews were conducted relatively smoothly. The data collected during the pandemic was inevitably restricted, and other combined resources such as those from the Internet were collected to make up for the limited access to tourists' resources.

4.2 Research Philosophy and Paradigm

As most scholars discuss, research philosophy represents what the researcher perceives to be truth, reality, and knowledge, which further outlines the beliefs and values that guide the researcher's way of working within the world (see for example,

Mukherji and Albon, 2015, Johnson and Clark, 2006). Research paradigm is perceived to be underpinned by combinations of philosophical assumptions and principles including several components such as the following: Ontology, Epistemology, Methodology, and Methods (Scotland, 2012). Guba (1990, p.18) argues that "Paradigms ... can be characterised by the way their proponents respond to three basic questions, which can be characterised as the ontological [different ways of understanding the nature of being], the epistemological [one's world view and how this shapes what can be known about the world], and the methodological questions". Paradigms may be positivism, interpretivism, pragmatism, and subjectivism (Creswell and Poth, 2016). This section then outlines my philosophical choices and research paradigms to help guide and justify my research methods conducted in this thesis.

Several dichotomies have been used in the study of social sciences such as positivism versus interpretivism which have historically dominated research paradigms (Kamal, 2019). Positivism has the elements of being reductionistic, logical, empirical, and cause-and-effect oriented with more focus on considering pure data without being affected by human interpretation bias (Creswell and Poth, 2016; Scotland, 2012). In contrast, interpretivism is developed with subjective views concerning factors related to cultures, contexts, and meanings as well as times leading to the development of different social realities instead of universal laws applicable to everyone (Alharahsheh and Pius, 2020).

As put forward in the introduction chapter, this thesis considers heritage conservation

as a social practice with different ways for stakeholders to perceive, value, and use industrial heritage in wider economic, social, and political spheres (Harrison, 2013). I believe that the experiences, perceptions, and attitudes of stakeholders in my study can contribute to knowledge through interpretations and reflection, and my judgments also play a role. Such an explanation concurs with the way I view how knowledge is constructed, which is mainly echoed by interpretivism though the multiplicity of research philosophies is adopted to enrich the understanding of the role of industrial heritage in regeneration.

First, interpretivism (alternatively known as a constructivist paradigm, see Denzin and Lincoln, 2011) perceives relativist ontology and subjective epistemology, which considers reality through intersubjectivity, meanings and understandings of social and experiential aspects, subjective and different perceptions (Saunders et al., 2012). The interpretive approach is also referred to as qualitative research assessing the human-constructed social world by attributes such as language, consciousness, and shared meaning (Pather and Remenyi, 2005). Some variations of interpretivism based on hermeneutics, phenomenology symbolic interactionism, and phenomenology is further chosen because it offers a descriptive and interpretive form of inductive research from which the researcher can discover the lived experience of people (Urcia, 2021). Phenomenology fits my research aim which is to understand industrial heritage's role in regeneration through stakeholders' recollections and interpretations of their experience. The author as a heritage researcher tends to work as an interpretivist aiming to generate richer understandings from the perspectives and experiences of different groups in industrial heritage realities in regeneration. The emphasis thus is

put on the explanation of meaning-making processes within different stakeholders, their assessment of heritage conservation, and the interplay of heritage values (Blaikie, 2009). This means different knowledge types can be considered legitimate including numerical data to textual and visual, from facts to interpretations, and narratives and stories from multidisciplinary contexts (Saunders et al., 2009). However, as complex and profound understandings are based on interpretivism's subjective values and beliefs (Silverman, 2013), this approach entails scepticism about data that cannot detach from researchers' values. By carefully drawing on data from different sources and implementing triangulation procedures, a large part of the bias inherent in researchers can be controlled (Pather and Remenyi, 2005), and specific triangulation procedures implemented in this thesis will be discussed later in this chapter.

Besides, as Cannon et al. (2022) suggest the diversity in philosophical assumptions in research does not counteract an external reality thus the argument should focus on which paradigms can best serve the research aim rather than which one is superior. As mentioned in the introduction chapter, this thesis aims to understand the industrial heritage's role in regeneration over time from stakeholders' perspectives. Instead of leaning towards interpretivism and a phenomenological approach focusing on the subjective interpretation of heritage stakeholders, concerns with objective evaluation indicators such as the economic role of industrial heritage cannot be ignored. This means the application of pluralist philosophy paradigms serves my research aims instead of taking the stand of the extremity of interpretivism. Similarly, discussion within interpretivism also has centred on whether there are fundamental facts (Husserl, 1960) or social laws and generalisations in social sciences across different cases (Salamon, 2018), and the phenomenology privileging subjectivity does not mean the

promotion of a false picture of the self but the subjectivity its confrontation with intersubjectively constituted meanings, the condition of conceiving an objective world (Husserl, 1960). This discussion informs the researcher concerning the meaning and identity of things not only depend on subjective experience, but also other objective and fundamental facts of human experience, structures of shared subjectivity, and historical, geographical, and sociocultural contexts should be taken into consideration.

On the one hand, when assessing the role of industrial heritage in regeneration, objective indicators and evidence in one sense can be compared with scientific proof and should be paid attention to from a positivist perspective. Hence, the ontological assumption is related to the nature of social reality with the identification of basic features of societies and social institutions, which makes claims about what kind of social phenomena can exist, the conditions of their existence, and how they are related (Blaikie, 2009: 92). Discovering observable facts and regularities is epistemologically focused. Data may be analysed to look for causal relationships in data analysis to create law-like generalisations (Gill and Johnson 2010). On the other hand, the role of industrial heritage in regeneration perceived by stakeholders is considered from the constructionist perspective. Whereas in most cases, interpretivism and constructivism are interchangeable (Chen et al., 2011), this thesis emphasises that practices of knowledge are socially constructed. This fits in my research case where the concept of industrial heritage in China has not been taken for granted as a kind of heritage then industrial heritage has been quickly constructed in the past twenty years. Drawing from a constructionist perspective, what is constructed as the real state of affairs, and what is formulated and meanings of phenomena are paid attention to. A critical position also will be applied to review taken-for-granted knowledge, its historical and

cultural specificity, and its tied power relations, which are rooted in a series of philosophical traditions such as post-modernism (Chen et al., 2011).

My concern here also is involved in the realm of politics and how power is used within the industrial heritage construction process, which is working with the postmodernism paradigm that emerged in the late twentieth century. Postmodernist researchers attribute importance to the role of power relations to criticise ways of thinking and hence give voice to marginalised opinions (Calás and Smircich, 1997). Much of the richness of our understanding of power and politics is attributed to the analysis of language that implicitly reflects the order of the social world and ideologies that dominate particular contexts (Foucault, 1991). Other individual differences in experiencing social realities and their meaning-making will be suppressed though they should be given attention. Discourse analysis is representative of this postmodernism paradigm. In Smith's adoption of discourse analysis in heritage research, she focuses on the dominant ideologies and power relations related to heritage production pointing out the existence of AHD, and the alternative or marginalised heritage discourses are suppressed such as industrial heritage (Smith, 2006). This thesis uses this discourse method to help understand the production of industrial heritage and the underlying power relations and structures of involved stakeholders.

Accordingly, philosophical assumptions including interpretive and phenomenological perspectives resulted in the main choice of qualitative research methods to investigate industrial heritage's role in regeneration according to stakeholders' perceptions. These methods are sensitive to contextual relationships that help provide insights into the

interplay of heritage values (Mason and Others, 2002). Less positivism and postmodernism are considered to understand objective indicators, social structures, organisational realities, and power relations behind socially constructed knowledge. As such, qualitative methods have been applied to this study exploring wider contexts when re-evaluating industrial remains in regeneration and analysing the processes of industrial heritage production and consumption. Further choices of multiple research approaches will be discussed in the next section.

4.3 Research Approaches and Strategies

The last section mentioned that this thesis applies interpretive research indicating qualitative methods. Gorman and Clayton (2005: 3) point out qualitative methods as: “a process of enquiry that draws data from the context in which events occur, in an attempt to describe these occurrences … … using induction to derive possible explanations based on observed phenomena”. On the one hand, research approaches in this thesis focus on investigating existence by the study of participants’ live experiences, recollections, interpretations, and other different types of knowledge ranging from numerical, textual, and visual data. Hence, in-depth interviews, fieldwork observations, and document collection are adopted to examine a Chinese case of industrial heritage and regeneration.

On the other hand, qualitative research is largely inductive generating themes by organising the data. Deduction is originated from natural sciences research and researchers build themes that are checked against the data. There is also a third

approach. The analysis process in this study is not limited to theory to data (as in deduction) or data to theory (as in induction), and this is an abductive approach that moves back and forth (Suddaby, 2006).

This thesis mainly applies an abductive approach though deductive and inductive ones are inseparable. Applying an abductive approach means that the obtaining of data could engage us to explore the phenomenon and identity patterns, which then would be integrated explanation from data collection in an overall conceptual framework or revise this framework (Saunders et al., 2009). The deduction and induction complement abduction as logic for testing plausible theories (Van Maanen et al., 2007; Saunders et al., 2009). Specifically, the researcher may use theories as an interpretive tool, which means the researcher keeps many theories in mind constructing a framework at the beginning of the study. The data gathered transforms the researcher's understanding of the studied phenomenon. At last, theories will be modified and determined shaping final study interpretations and conclusions. The framework includes a literature review, a summary of pertinent theory, and an explanation of the research case context and the methodology chosen.

The approach strategies can be described as follows. First, previous wealthy literature reviews provide a conceptual framework for understanding industrial heritage in regeneration in the global context, which is ready to deduction of topics and ideas setting up my later study related to fieldwork and interviews. As categorised in the literature chapter, values attributed to industrial heritage and the roles of industrial

heritage in terms of economic, social, and political aspects have been summarised in Table 2.4 and Table 2.5. Those categories can serve as a theoretical framework that entails my data collection with prior knowledge of my study subject and informed themes about my research design, and the framework further influences which data are collected and analysed, what evidence is collected, and how data is interpreted to deal with my research questions (Saunders et al., 2009). China and Wuhan contexts also provide a base for frames of local practices and governmental interventions by examining policy and planning documents concerning industrial heritage protection and regeneration. Potential stakeholders and their interactions involved in the transformation process of Hanyang Iron Works could be identified for the data collection in the next period.

Second, inductive approaches are largely adopted in analysing my collected data to generate on the one hand the reflections on themes deducted in literature reviews and on the other hand suggestions on new understandings of the relationship between industrial heritage and regeneration. The last section indicates collecting different knowledge types including textual and visual, from facts to interpretations, and narratives and stories (Saunders et al., 2009). The investigation is designed to collect data from three resources: semi-structured in-depth interviews of different stakeholders, document reviews including online resources, and observations in fieldwork. All sources could help to understand what was or is going on, and to make sense of the collected data through analysis based on concepts mentioned in the literature and context chapters.

This study does not focus on multiple cases to exert the abductive approach. Instead, I aim to examine a valid case from the longitude view to provide a deep understanding of industrial heritage evolution processes although making no use of quantification significance. In doing so, a chronological historical perspective is inevitable to analyse the industrial heritage development of Hanyang Iron Works. Because many variables are changing, in the analysis of the long-term development case, the temporal boundaries have been established according to specific events as well as their influence resulting in both qualitative and quantitative changes in industrial heritage development methods. These events are site-specific and will be discussed in the analysis chapter. Besides, cross-sectional analysis at different periods will be discussed referring to interactions and attitudes of stakeholders. Discourse analysis will be adopted to understand the dialogue between the top-down and bottom-up ways of industrial heritage production and the acceptance or rejection of produced industrial heritage methods. Not only the interactions among different stakeholders will be reflected, but also their power relations.

4.4 Research Concepts and Questions

Research concepts provide direction for the study presenting main topics and specific research questions that the study seeks to answer (Blaikie, 2009). To understand industrial heritage's role in regeneration, heritage effects are analysed from heritage producers' motivations and heritage consumers' appreciation. The literature chapter indicates that industrial heritage can exert influence in economic, political, and social aspects generating catalyst, none or even negative effects. Industrial heritage in China's context specifically the case of Hanyang Iron Works points out that heritage

conservation has been integrated into creative industry development for industrial restructuring, place-making strategies, and national industrial heritage culture development for nationalism. Multiple industrial heritage conservation methods are combined for urban transformations including museums, creative industry parks, flagship projects, real estate development of residential and commercial areas, and green parks. Thus, in an economic sense, creative industry development, commercialisation, image-making and flagship projects, and urban transformations are the main concepts to be discussed. In political and social senses, local and national identities, and public functions are centred.

Besides, given the complex roles of industrial heritage and its diverse combinations of conservation methods shown in such a long-term regeneration, this thesis emphasises perceptions of heritage stakeholders as a way to evaluate industrial heritage's role in regeneration. Combined with the main concepts proposed in this research, research questions are further presented: How industrial heritage is produced and consumed in regeneration in terms of economic, political and social aspects?

The study is descriptive in two ways: by understanding the motivations of industrial heritage producers; and by understanding the appreciation of consumers of industrial heritage. The explanatory focus is placed on the one hand the commemoration of the industrial past and the evolution of industrial heritage concepts and conservation methods adapting to a wider regeneration context; on the other hand, the industrial

heritage’s role in regeneration in terms of economic, political, and social concerns. As such, four research questions have been formulated:

a. How do heritage producers use industrial heritage to meet their intentions?

b. How the produced industrial heritage forms are used by heritage consumers or users?

c. How industrial heritage is shaped including interpretations of the industrial past and the conservation methods dealing with tangible industrial remains?

d. What roles of industrial heritage exerted in the generation?

4.5 Data Collection and Fieldwork

As previously stated, the rationale for measuring industrial heritage’s role in regeneration is not sufficiently valued from stakeholders’ views, and there is little evidence of long-term assessment. Quantitative and qualitative evidence is usually measured such as income and expenditure, audience/visitor numbers, direct employment, urban design and quality of life measurement, interview, and participant observation (Rapley, 2001). However, considering the difficulties in collecting social and economic data in such a long-term transformation process of Hanyang Iron Works, for example, a lack of transparency in management and state/funder data collection, this thesis tries to analyse industrial heritage's role in regeneration from the perspectives of heritage stakeholders.

This thesis adopts a single study case to deeply understand the industrial heritage conservation of the Hanyang Iron Works and the regeneration of the Hanyang Steel Works site. An interpretative stance is adopted to understand the motivations, perceptions and meanings stakeholders ascribe to industrial heritage in regeneration, seeking complexity, diversity, and similarities to understand heritage practices (Glesne, 2011). Most data are typically and primarily collected by semi-structured interviews considering participants' points of view – the 'insider view' instead of the 'outsider view' - according to their perceptions, attitudes, and narratives. These data inductively are analysed to explore participants' individual and collective perceptions, reasoning processes, memories, interests, and social norms (Li, 2017).

First, semi-structured interviews were primarily conducted to understand heritage producers' motivations and heritage consumers' perceptions and attitudes. Whether industrial heritage construction meets heritage producers' purposes and whether produced heritage forms are accepted by heritage users are the core of evaluating industrial heritage's role in regeneration. Due to the long-term transformation processes of Hanyang Iron Works since the early 2000s, those who participated in the conservation process and have heavy lived experience witnessing the process are identified as the key interviewees.

According to previous knowledge of my post-graduate research, in this thesis, I use a purposive sampling technique to select stakeholders (Carson et al., 2001). Combined with the analysis of Wuhan/Hanyang Iron Works' contexts and the review of existing

literature and other documental or online resources on stakeholders involved in the long-term transformation of Hanyang Iron Works, the participants of this study were selected among municipal authorities, real estate companies, workers of Hanyang Steel Works, experts of heritage conservation involved in, citizens and tourists. During the fieldwork, these seven types of stakeholders were identified and considered as legitimate ones, which was further confirmed by interviewees. Specifically, they are (1) three former workers of Hanyang Steel Works who were responsible for Hanyang Iron Works heritage conservation and tourism development issues, (2) two local governmental officials in Wuhan who were responsible for industrial heritage conservation in the urban planning system and land development department, (3) one organiser and one volunteer of a non-government heritage conservation organisation named Humanities Wuhan that has dedicated to the conservation of industrial heritage in Wuhan including Hanyang Iron Works, (4) five relevant experts in the fields of history, heritage, urban planning and architects who have a knowledge of Hanyang Iron Works' conservation and transformation, (5) two local tourists in Wuhan who have early experience visiting Hanyang Zao Creative Park and Zhang Zhidong and Wuhan Museum for several times, (6) two local citizens who have live nearby the Hanyang Iron Works site since the early 2000s (see Appendix 1). The focus then turns to interviews with heritage producers and consumers during the fieldwork period. These stakeholders have recent experience related to conservation processes implemented by Sunac since the late 2010s including (1) three sales of the real estate company of Sunac, (2) two newly moved residents near the Hanyang Steel Works site, (3) three visitors, consumers, and tourists who have experiences participating in great events of Wuhan Biennale, visiting Wuhan and Zhang Zhidong Museum and Hanyang Zao Creative Park.

Each interview in a semi-structured form was conducted between September 2021 and January 2022 lasting between 30 and 45 minutes. The interviews were conducted in Chinese, and the data were analysed in Chinese with the results translated into English. Although sixteen face-to-face interviews were conducted, due to the influence of the epidemic COVID-19, eight interviews were taken online through electronic devices and software such as Zoom. All the interviewees agreed to have the interviews recorded. Each interview subject had to complete an informed consent form before the interview.

The script of questions related to Hanyang Iron Works' conservation was the same though conservation can be led by interview subjects. Open questions tend to be asked by the researcher to open the conservation, which helps participants share their views. Expressions of personal opinions and interests are encouraged to be talked about. After engaging in several interviews, modifications of interview questions were adjusted to increase effectiveness in getting information that is helpful to my research questions. The interview structure and themes are provided as a guideline to remind me of points to be covered but without strict orders to talk about listed themes. The following structure and themes were used:

Table 4.1 Interview structure and themes

Section One: Introduction and Interviewee's Background
Heritage producers: position and role within the organisation and main responsibilities in heritage conservation.
Heritage users/consumers: visitors/consumers/residents (internal or external)
Section Two: Knowledge Awareness
development history of Hanyang Iron Works and Hanyang Steel Works
opinions on Hanyang Iron Works' conservation methods
influence on changing conservation methods
Section Three: Attitudes
Economic aspects
competitiveness / inward investment/clusters/trade invisible (e.g. tourism)
corporate involvement in the local cultural sector (financial support)
commercial vitality and creative industry development
increased property values/rents (residential and business)
Political aspects
image-making / nationalism/place identity / symbolic value
distinctiveness/vernacular (at the local, regional and national levels)
urban design using industrial aesthetics
flagship projects and mega events
patriotism and national pride
reuse of redundant buildings— studios, museums/galleries, venues/access and mobility
Social aspects
liveability quality of life / cultural facilities / public functions
a positive change in residents' perceptions of their area
a change in the image or reputation of a place or group of people (facilities and amenities)
operational effectiveness over time

Source: the elaboration from Evans (2005)

The semi-structured interview questions were used for all stakeholders. Though industrial heritage producers and consumers share similar questions (Table 4.1), the

interview emphasis is different. On the one hand, the intentions of heritage producers constructing heritage in regeneration should be explored and actual performance against their intentions should be compared. On the other hand, the evaluation should be measured by heritage consumers or users, those who participate in the heritage activities, who live with these heritage sites every day, and whose experiences would validate or refute heritage construction put forward by others (Hall, 2004). To be noticed, internal users and external users are divided with the former often referring to those who live or work with heritage sites and buildings every day, and the latter referring to visitors and tourists who do not participate in heritage activities daily. The literature chapter and context chapter point out other significant impacts or motivators in cultural regeneration such as capitalism and urban transformation forces driving changes in physical forms, social structures, and daily life experiences (Lefebvre,1991; Preite, 2016; Bristow, 2010). Conservation of industrial heritage is not an absolute objective in urban regeneration while it is conditioned and mediated between other multi-objectives, conforming to the wishes of certain corporate, socio-economic, or political interests of different periods. Heritage can act as a catalyst of regeneration, fully integrated into an area strategy alongside other activities, or as a small-scale inclusion in a bigger scheme, its indispensability has not been developed as an argument of evidence. The point hence is to identify to what extent regeneration can be attributed to industrial heritage conservation.

As Hanyang Steel Works has been transformed since 2002, with dramatic changes in the spatial sense of the factory as well as its nearby areas and the factory operations in terms of changing steel production to processing steel products, most former workers and nearby residents moved out of this area. In addition, an array of key stakeholders who were participating in heritage conservation including such as the

developer Vanke cannot be connected by the researcher.

Data on the attitudes of former residents, workers, developers, tourists, and government officials could rely on stakeholders who have been involved in the conservation of the Hanyang Iron Works. The second-hand data, such as existing academic research, governmental and non-governmental documents, factory archives, annual reports, photographs, documentaries, and newspapers, also could be accessed via the internet and library sources. Instead of the first-hand data collected from interviews, appropriate second-hand data should be analysed to understand historical and contextual information as essential supplement resources. I also gathered social media resources and jotted down key comments making up for the deficit in understanding tourists' opinions because during my fieldwork period, the serious epidemic COVID-19 to some extent reduced tourists' visits whose data was collected limited. Previous tourists' attitudes in the 2000s also are easy to acquire using online resources.

The fieldwork observations were conducted in the later stages between September 2021 and January 2022 including Hanyang Iron Works' flagships, the great art event of Wuhan Biennale in November 2021, Hanyang Zao Creative Park, Zhang Zhidong and Wuhan Museum, and Zhang Zhidong Sports Park. Fieldwork data is combined with the interviews to deeply understand their descriptions of the site. The fieldwork observation was utilised to collect data about the conservation situation of Hanyang Iron Works in 2021. On the one hand, the specific and tangible environment and ambience of how industrial remains are conserved and renovated could give complex

narrative descriptions of how industrial heritage discourse intersects with other different economic and political discourses. Geographical elements and spatiality of industrial heritage sites with other newly built areas could be observed to reflect the status of heritage commemoration within the whole site's transformation. Other spatial characteristics such as symbols of industrial heritage including historical signifiers of gates, tablets, monuments, sculptures, and architectures are focused on helping interpret industrial heritage conservation methods that are described by key stakeholders. Tourist-guide brochures, advertising leaflets and other documents will be collected when visiting Sunac, Zhang Zhidong and Wuhan Museum, and Hanyang Zao Creative Parks.

On the other hand, nonparticipant observations of the site could help understand the informal social structures at work there (Lune et al., 2010); commodification situations, tourists' leisure behaviours, and residents' behaviours at the research site. Participant observations were also undertaken to experience what is going on at the site, which helps to understand and interpret social activities happening in the heritage site from an empathetic point of view. I spent time immersing myself as a visitor personally watching collections in the museum and the flagship project, artistic collections during the Biennale exhibition, walking in the green park, and Hanyang Zao. Some informal interviews and conservations are conducted in a friendly way to get tourists' motivation, appreciation, and rejection of Hanyang Ironwork's industrial heritage projects. Friendly informal conversations and participant observations to get the researcher involved in getting an empathetic understanding.

More importantly, the discussion of triangulation revolves around adding depth to our analysis and increasing the credibility and validity of the research. Purposeful use of two methods reveals a greater understanding of the phenomenon and enhances the trustworthiness of findings by comparison, combination and convergence of data resources (Denzin, 2012). Other triangulation forms include the comparison of data deriving from different phases of fieldwork, different points of respondent validation, and the accounts of different participants involved in the setting (Flick, 2018). As discussed before, data collection in this study using interviews, fieldwork observations, friendly talking to people, being a participant, document collection and online resources. According to the context chapter, the measurement of Hanyang Iron Works conservation in regeneration compares impacts at three points in 2002, 2011 and 2022 mapping perceptions changes of heritage stakeholders and sustained effects of industrial heritage in regeneration. Because longitudinal measurements of industrial heritage and regeneration are highly context-specific, Hanyang Iron Works has been transformed since 2002 with limited heritage consumers' participation. The whole conservation and regeneration process relies more on heritage producers' memories and narratives. Despite the unreliable characteristics of memories, industrial heritage conservations' motivations and perceptions that interviewees attach great importance to are emphasised to be interpreted and analysed. Other accounts of different participants are collected from online newspaper resources and online critiques from tourists to examine early periods of conservation effects. For data collection during fieldwork, interviews and fieldwork observations are combined working as triangulation (Axinn and Pearce, 2006). The credibility and validity of the research also can be confirmed by other data resources such as archives and documents, which also can increase understanding of the research phenomenon.

4.6 Considerations of Ethical Issues

The traditional ethical code is threefold. First, informed consent means researchers should obtain consent from the research participants after the purpose and scope of the study have been truthfully informed. The second private identity of each interview subject is ensured to be protected by the researcher due to the individual's 'right to privacy'. The final ethical concern is 'protection from harm' for participants in terms of their physical, emotional, and other aspects. Other ethical considerations include ensuring the accuracy of research findings though they may not support the assumption of this study. Accuracy, confidentiality, and integrity are maintained in this study, as my research follows the requirements of Practice for Research listed by the University.

Considering the previous ethical code, my ethical application was reviewed and granted by the Humanities and Social Sciences Ethical Review Committee at the University of Birmingham. All interview subjects in this study were clearly informed of my position as a researcher in the University, the research topics and the role of participants, and their freedom to withdraw at any point, and this information can be processed by the Participant Information Sheet and the Informed Consent Form that gave to them. All data are used only for academic research, and the data gathered in this study are confidential and securely stored in accordance with the University of Birmingham's Data Protection Policy. No information about participants' identities will be revealed in this study to safeguard their anonymity, as their names are in abbreviations throughout the study. Other resources collected such as from the

internet are in the public domain and thus subject to the legal terms and conditions as well as the copyright policies of the web space owners or website providers who are acknowledged in the course of research.

4.7 Conclusion

This section provides the basic philosophical considerations of this research, which guides the following research design methods and concepts. Based on an interpretative point of view to analyse a range of data by qualitative methods, fieldwork observations, semi-structured in-depth interviews, and document collections are formed as three main approaches. After elucidating research questions according to various social science research approaches, specific procedures in terms of how to collect data are described, and other ethical considerations are ensured to protect each interview subject. Next chapter, using collected data, the industrial heritage production of Hanyang Iron Works will be analysed.

Chapter 5 Industrial Heritage Construction of Hanyang Iron Works

5.1 Introduction

As outlined in Chapter Two, the regeneration of former industrial sites can take several forms, from the complete emasculation of previous structures and activities to the wholesale museumification of a former plant. Adaptive reuse of a site lies somewhere in the middle of these extremes where certain parts of the site and its structures are deemed to have value as industrial heritage. In Chapter Three, I set out the wider historical and spatial context of Hanyang Steel Works. In this chapter and drawing upon my first-hand observations, interviews and discussions with diverse stakeholders and commentators, I examine in greater detail the processes behind the current and scheduled transformation of the works, considering the various stakeholders involved and the emerging discourses that are shaping the re-use of the large Hanyang site.

The first part of this chapter discusses the different ways in which the site has been preserved and the extent to which this reflects wider concerns of conservation amongst different interest groups. I draw upon Smith's (2006) notion of Authorised Heritage Discourse and how this is manifested in the development of the site. I am interested in how the interests of the industrial heritage of Hanyang have been represented in the development of the site and the degree of influence they have had in shaping its present and future. As I have pointed out in Chapter Three, the 'heritage voice' in the overall debate about the site and its development is the only one among many voices and it is important to recognise the wider political and economic environment that which Hanyang operates.

The second part of this chapter examines the motivations and reasons behind the different stages and spaces of the former steelworks site. In particular, I focus on strategies for maintaining and utilising the remaining industrial heritage of Hanyang and the extent to which this has been integrated into the wider visions for the area. Two related strategies are centred upon the development of the creative industries and the development of tourism, as alternative uses for the site. I am concerned with how both of these new, functional and commercially oriented activities link and work with the heritage components of Hanyang.

5.2 Demolition by Default

As aforementioned in the context chapter, with the intensification of the restructuring of urban industries in the 2000s, most heavy industrial enterprises that were once located in the city centre moved out, leaving a lot of vacant buildings waiting for the transformation in Wuhan. When asked what to do with those abandoned structures, H.Z. Hou, a volunteer from a non-government heritage conservation organisation named Humanities Wuhan, recalled that: "*Most obsolete remains built recently were flattened by bulldozers to an unprecedented scale in the early 2000s, because it was a common perception of the public that old structures should be dismantled and replaced by advanced and modern ones*". This indicates that when dealing with old structures urban conservation was generally not perceived as an option, and their demolition making way for new buildings was the main goal in the context of the modernisation movement.

Specifically, industrial remains as a typical representative of recently built remains used to be demolished by default for developing modern residential areas in the 2000s. For instance, the interviewee B.J. Gu, a former worker of Hanyang Steel Works who experienced and witnessed the whole story of this factory in these decades, stated that: "*In 2005, there was no awareness of protecting industrial remains among the factory owner, the local government, and the public … … the land use right of the northern factory was quickly transferred from the factory owner to developers resulting in wholesale demolition for constructing a high-rise residential area … … while the benefits obtained from the transfer of the land use right were used by the Hanyang district government to preserve the Qintai Cultural Zone."* Notably, Qintai Cultural Zone, just a district near Hanyang Steel Works, was highly regarded by the local district government for preservation to create a cultural image based on an ancient legend of Boya Ziqi in the Spring and Autumn period (a period in Chinese history from approximately 770 to 476 BC) (Liu, 2008). The revenue generated from the land transfer of Hanyang Steelwork's northern factory is partially used for its preservation and redevelopment (Figure 5.1). This indicates the first issue my study points out that the concept of heritage was highly attached to ancient culture rather than recently built factories at the local government level. Moreover, the Guiyuan Buddhist Temple and Qingchuan Pavilion with a history of over 300 years were prioritised for preservation by the Hanyang district government in the 1990s. These two cases are still promoted as the district's cultural images are shown on the front page of its official website (Figure 5.1). The screenshot shows Qingchuan Pavilion as one of three well-known scenic spots in Wuhan, which is naturally considered by the district government to be

more representative of the regional image, and the concept of heritage is more related to traditional culture with time-depth and fame.

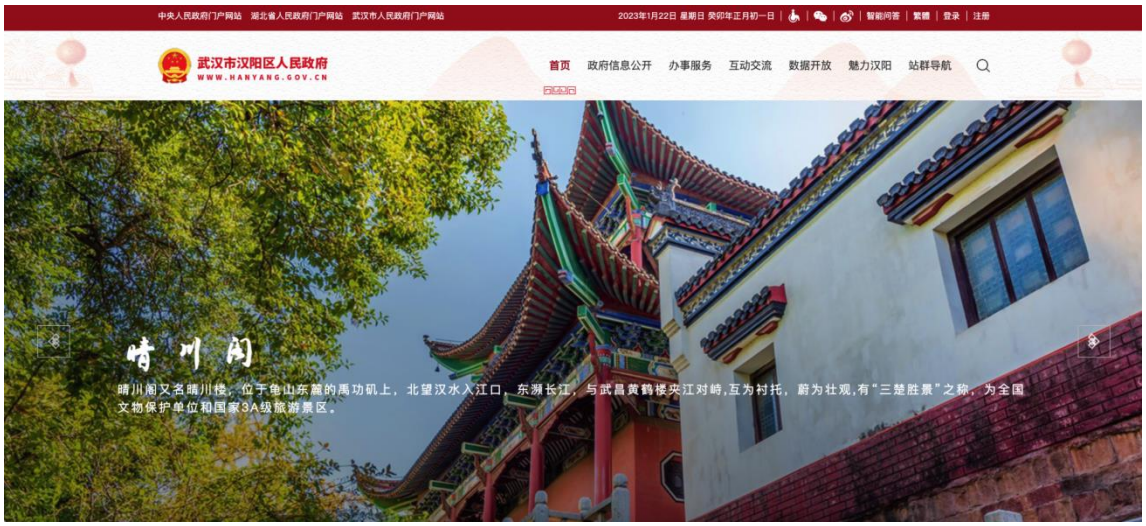


Figure 5.1 The photo of the Qingchuan Pavilion is displayed on the homepage of the Hanyang District Government website

(Source: Screenshot from http://www.hanyang.gov.cn/)

Similarly, the appreciation of the inheritance relationship with Zhang Zhidong and Hanyang Iron Works drove Hanyang Steel Works' early heritage awareness. A former worker who was responsible for the heritage development of Hanyang Steel Works said: "*We did not have the idea of protection … … it is the Luxembourg incident in 1994 that gave us a new understanding of our corporate history as well as our inheritance relationship with Zhang Zhidong and Hanyang Iron Works*". This idea was further motivated by the ambition of developing factory tourism in the context of the deindustrialisation of the factory. As implied by The yearbook of Hanyang Steel Works (Long, 2002, 2003): "*Making use of historical resources and location advantages to develop factory tourism … … through the construction of Zhang Zhidong and Hanyang Iron Works Museum in 2002 … … an antique-style archway with the words Hanyang Iron Works and a gate tower with the words Hanyang Arsenal was built at the two*

entrances of Hanyang Steel Works in 2003 … … to enhance the public awareness of the corporate history with a-hundred-year iron and steel production". Aiming to enter the heritage tourism market, Hanyang Steel Works tried to associate with the historical figure, Zhang Zhidong, Hanyang Iron Works, and Hanyang Arsenal to build a heritage image, which indicates heritage perception of the factory is inseparable from traditional culture. Museumification and factory tours for tourism as a quick-fix solution for industrial restructuring is adopted by the factory which then launched an industrial-themed tour of "How Steel is Made" in 2002. Due to safety concerns, the factory tour was stopped soon though it was highly sought after by tourists, especially primary and middle school students reaching 70,000 to 80,000 tourists a year in the early 2000s (Cai, 2013).

Besides, this conservation theme was also supported by local historians and the official culture department. Growing recognition of the historical value of this great figure was promoted by a group of famous local historians in Wuhan including Tianyu Feng and Mingxiu Pi in the early 2000s. They highly praised Zhang Zhidong as 'the father of Wuhan' due to his contributions to Wuhan's early modernisation in terms of industry and education development and hence supported his commemoration with a great local sense of honour. Thus, largely determined by the factory and supported by the local culture department and historians, it can be reflected that Zhang Zhidong and Hanyang Iron Works are generally perceived as more important and special to commemorate in terms of their ancient history with fame, time-depth, and a sense of honour. When referring to why chose this conservation theme, the former worker Gu said, "*There are steel factories all over the country ... combining Zhang Zhidong and Hanyang Iron Works as a well-known history with our factory can distinguish us*

developing heritage tourism". This further confirms the argument that traditional relics are considered more worthy of protection instead of the recently built factory. Nonetheless, H.Z. Hou, a leader of the volunteer organisation of Humanities Wuhan who participated in the conservation of Hanyang Iron Works mentioned: "*The behaviour of the construction of two gates by Hanyang Steel Works, marking this factory as the original Hanyang Iron Works and Hanyang Arsenal, was questioned by some elderly Wuhan citizens … … as this behaviour would mislead the public's perception*". The issue of heritage authenticity is raised by elderly citizens, but this issue has been largely ignored when the choice of this conservation theme has met the attainable purposes of heritage producers mentioned above mainly the factory of Hanyang Steelworks. The commemoration of Zhang Zhidong as well as his relics is further developed as a consistent conservation theme meeting the new trend of adaptive reuse of industrial remains developing creative industries in the 2010s, which will be discussed in the next section.

In contrast, industrial remains are hardly perceived as something related to heritage, which is the second argument my study indicates. As implied by Gu's interview mentioned above, no one cared about the protection of industrial remains in the early 2000s. This view can be verified by news related to the conservation of Hanyang Steel Works that refers: "*Industrial remains representing pollution, ugliness, and backwardness of outdated technology that needs to be dismantled and transformed into a modernised urban landscape*" (China Landscape 2007). Specifically, the fume and wastewater produced by the steelmaking of Hanyang Steel Works were subject to complaints from surrounding citizens who expected its demolition and relocation in

2005 (Zhang, 2005). Factories were considered harmful and needed to be removed from the city, not to mention their protection. Further, a photographer who prefers the latest trend of ruined aesthetics of Hanyang Steel Works said: "*In the 2000s, few appreciated this ugly industrial complex before … … because those steel structures built for manufacturing are ordinary and even dirty without aesthetics".* His view expressed industrial remains without good-looking appearance were generally treated to be excluded from conservation. Thus, factories as the source of pollution and the representative of ugliness were hardly perceived as heritage by the public.

The large-scale demolition of industrial remains transforming into residential and commercial districts was a prevailing trend in Wuhan aiming to build a modernised city before 2010 (Hu, 2012). There was no awareness of industrial heritage among key stakeholders, and the modernisation movement further accelerated the clearance of redundant industrial sites. Specifically, for the local government, the relocation of heavy industry from urban areas to suburban areas was the goal of industrial restructuring at this stage to solve the problem of environmental pollution. Vacating those abandoned urban industrial lands with geographical advantages helped release the economic value of the land to the greatest extent in a fast and efficient way, which accelerated the process of industrial land transfer by the local government from the factory owner to the developer (Liu et al., 2010). An urban planner suggested: "*The speed of urban redevelopment pursuing economic gains from real estate economy was too fast resulting in massive and rapid demolition of the built industrial environment including the industrial areas around Hanyang Steel Works*". This view verifies that more attention from the local government was paid to the immediate

interests of land finance and the real estate economy, accelerating the clearance of redundant industrial sites. As early as 2005, Hanyang Steel Works was planned to be relocated making room for real estate development.

For the factory owner, deriving monetary value from the transfer of land use rights they occupy to deal with the operational and financial difficulties of many state-owned factories caused by several economic reforms mentioned in Chapter Three has a greater impact. As indicated by the Hanyang Steel Works Yearbook (Zhu and Gao, 1994, 1997; Gao, 2005), around 1994, the entry of private steel companies into the market caused this state-owned steel company to experience severe problems of shrinking production and sales. Coupled with policy requirements for factory suburbanisation from 1997 onwards, integrating valuable resources to develop in the suburbs was emphasised by Wuhan Iron and Steel Corporation (WISCO), the parent company of Hanyang Steel Works. Despite other solutions tried by Hanyang Steel Works including steel processing and warehousing, real estate development, and the museum construction for factory tourism in the early 2000s as mentioned above, WISCO, as the landowner, preferred land reclamation to obtain funds dealing with the problems mentioned above.

Further, the booming real estate economy has facilitated private companies to join the process of urban redevelopment. Because buildings on the land are sold to developers together after the land transfer, unless there are listed buildings, clearance of land for building more properties and pursuing profits is a common choice for developers while heritage protection is not their responsibility. Yuan, a researcher of Wuhan industrial

history, said: "*Nothing can be done for industrial remains that were excluded from the heritage system, though it is a pity that industrial remains as the evidence of the industrial development footprint lost forever".* Recently built industrial remains were excluded from the legal heritage system in the 2000s and demolition was a default option for developers, though their values were appreciated by a few historical researchers. For Hanyang Steel Works, its northern factory's land use right was quickly transferred to China Resources in 2005. All industrial remains of Hanyang Steel Works' northern factory were dismantled constructing a super high-rise residential area as shown in figure 5.2.

Figure 5.2 All industrial remains of Hanyang Steel Works' northern factory were dismantled and a super high-rise residential area has been constructed.
(Source: by the author)

Accordingly, evidence and views highlight the third issue that the default position for industrial heritage protection is the legislation, and if there is no provision for the

recognition of sites like Hangyang, then developers and city authorities have an easier pathway to demolition. This demolition situation was further intensified when the modernisation movement dominated, and the huge economic benefits obtained from land use rights transfer played an important role in urban redevelopment. As referred to the redevelopment of the northern factory of Hanyang Steel Works, Q.Z. Liu, a deputy director of the Wuhan Municipal Bureau of Natural Resources and Planning said: "*It was a hard time for the urban planner who tried to claim industrial heritage protection while few appreciated its historical value, especially under the context of rapid urban modernisation driving from the real estate economy*." This argument verifies that protecting industrial remains whose value has not been widely recognised was hard to be an option for urban redevelopment at that time when the real estate economy was prospering. However, this situation has changed with the trend of creative industry development combined with the adaptive reuse of obsolete industrial remains, which will be discussed in the next section.

5.3 Towards Creative Industry and Conservation Areas

From the mid-2000s onwards, the in-depth transformation of the urban industrial structure continued to generate a large amount of obsolete industrial remains while the large-scale redevelopment method started to be transformed because industrial heritage, as an emergent perception, was largely embedded in its varied adaptive reuse approaches. Inspired by the artists' creative reuse of industrial remains in several Chinese major cities, Chapter Three mentions an active official tendency of several major cities to combine creative industries with obsolete industrial sites showing ambition in the development of the knowledge economy. Meanwhile, the new

ideology, marked by the event that China began celebrating ‘Cultural Heritage Day’ in 2006 (Silverman and Blumenfield, 2013), officially encouraged the preservation of historically valuable sites. Industrial heritage, as a new heritage type, was also promoted by the SACH which published the ‘Wuxi Proposal’ (2006), the first official document on the preservation and reuse of industrial heritage, that legally required local authorities to pay attention to industrial heritage.

Wuhan was affected by these two contexts intending to catch up with the trend of the conservation and adaptive reuse of this new heritage type, and the retention of remains related to Zhang Zhidong is a pioneered example. Early responses were inspired by a batch of academics and members of the Chinese People's Political Consultative Conference (CPPCC) in the Hanyang district in the fields of history, social science, architecture, and urban planning in 2007. As listed below (Table 5.1), academic conferences and governmental symposiums were intensively held by the Hanyang district to discuss the possibility of conserving Zhang Zhidong's industrial heritage. In the next two years, the idea of developing creative industries through the adaptive reuse of Zhang Zhidong’s industrial relics was determined mainly by the district government. This table implies two key motivations driving the local government’s conservation of industrial areas near Hanyang Steel Works. One motivation is related to the appreciation of industrial heritage whose content has been expanded to Wuhan’s modern industrial relics, but this appreciation is still closely related to Zhang Zhidong. The other motivation is the development of the creative industry combined with the conservation of Zhang Zhidong’s relics.

Table 5.1 Conferences and official suggestions for the conservation of relics related to Zhang Zhidong

Time	Organiser	Documents and Conferences
-	the Hanyang District Government	It is urgent to protect Zhang Zhidong's industrial heritage
-	the Hanyang District Government	Suggestions on the Exploitation of Zhang Zhidong Industrial Heritage
2007	the Hanyang District Government	Commemorating the Second Chinese Cultural Heritage Day – The Conservation of Industrial Heritage related to Zhang Zhidong
2007	the Hanyang District Government	Commemorating Zhang Zhidong's 170th Birthday and Symposium on Zhang Zhidong and Wuhan's Modern Industrial Heritage
2008	the Hanyang District Government	Commemorating the centenary of the establishment of "Han Yeping" and the discussion on the conservation and adaptive reuse of Hanyang Zao's modern industrial heritage
2008	the Hanyang District Government	Planning on the construction of the Hanyang Zao art district
2008	the Hanyang District Government	Suggestions for the development of Hanyang Zao Cultural and Creative Industry Park
2009	the Hanyang District Government	Commemorating the 100th Anniversary of Zhang Zhidong’s Death: The plan of constructing Zhang Zhidong and Hanyang Iron Works Museum

(Source: organised by the author)

As mentioned before, the conservation theme of Zhang Zhidong was identified by Hanyang Steel Works in 2002 and later developed by the district government as a consistent conservation theme in the nearby industrial areas due to those symposiums listed in the above table. This conservation theme was called for enlargement by some CPPCC members covering Zhang Zhidong's contributions to Wuhan's early industrial development including Hanyang Arsenal, Hanyang Zao, and Hanyang Iron Works to emphasise the historical importance of Wuhan's early industrial development in China's industrial history (Liu, 2008). For example, a heritage scholar Yuan said: "*Hanyang Iron Works is considered to be the earliest iron and steel factory in Asia, and it is also regarded by some Western countries as a symbol of China's rise in terms of industrial development*". The historical importance of Hanyang Iron Works as a witness to China's early steel production history was appreciated. Moreover, apart from the inheritance relationship between Hanyang Steel Works, Zhang Zhidong and Hanyang Iron Works, as mentioned in section 5.2.1, Hanyang Steel Works called for the retention of the southern factory due to its historical value. As Gu, the former worker pointed out: "*Hanyang Steel Works as the first steel enterprise built in Wuhan is a witness to the development of the local steel industry, making Wuhan one of the birthplaces of New China's steel industry*". The recent history of Hanyang Steel Works and its physical remains are considered by the factory as another reason worthy of preservation in the context of wholesale demolition. Based on the appreciation of the historical value of industrial remains, the method of large-scale demolition is considered inadvisable and their retention as a carrier inheriting the industrial development history of the city is promoted.

As such, different methods were officially proposed by the culture department to conserve industrial areas near Hanyang Steel Works forming cultural tourist attractions with the theme of industrial heritage (Nie, 2007). The plan includes a green park named Zhang Zhidong Commemoration Park in 2008, a creative park in 2009 named Hanyang Zao based on the reuse of the 824-factory constructed after the founding of the People's Republic of China, a creative park in 2010 based on the reuse of Hanyang Steel Works' buildings, a new museum in 2010 named Zhang Zhidong and Wuhan displaying the content of Zhang Zhidong's industrial contributions, and Wuhan's modern industrial development. This plan preliminarily shows a landscape perspective of industrial heritage conservation focusing on the historical linkage between several industrial sites through the commemoration of Zhang Zhidong's industrial contributions.

However, as implied in the context chapter, Zhang Zhidong's original industrial relics were demolished during the Anti-Japanese wartime while the commemoration of his relics is attached to tangible remains built on the original sites of Hanyang Arsenal and Hanyang Gunpowder Factory, now the 824 factory, and Hanyang Steel Works built after the 1950s. The determination of this theme is perceived as based on fame. According to Zeng, a heritage scholar, he indicates that: "*Famous themes related to Zhang Zhidong have been selected to build a cultural brand achieving the purpose of publicity and creating an eyeball effect for the regeneration of Hanyang district*". Similarly, when referred to the discussion on the name of the creative industry park, Hanyang Zao as a well-known rifle brand at home and abroad was quickly determined by the district government (Li, 2020). These views express that pursuing a brand effect

for constructing a cultural symbol of this industrial area was paid more attention in terms of industrial heritage conservation, and the perceived most famous history of this area, in this case, Zhang Zhidong, was exploited to a great extent. Accordingly, industrial heritage conservation appropriates famous history while commemorating through modern buildings, showing that the pursuit of the symbolic value of Zhang Zhidong as well as his industrial contributions become the focus of the authority when conserving this area. Industrial heritage conservation still is highly attached to the historical figure while the recent factory history such as the 824 factory was largely ignored because it’s too unknown to be advertised as a conservation theme.

Notwithstanding, the plan for implementing those conservation proposals was still on paper which reflects the indifferent attitudes of the local government to industrial heritage. For example, in 2007, the same year that the industrial heritage protection plan was proposed, Zhang Zhidong’s heavy industrial system and its relics were chosen by Japan's Shibusawa Eiichi Foundation as one of the exhibition venues in China. Wuhan initially actively participated then was no longer involved due to financial problems, while Nantong in Jiangsu province finally actively participated in becoming the exhibition venue for China. This event shows the appeal for the protection of industrial heritage was still rhetorical and there were difficulties in the governmental implementation of industrial heritage conservation. Further, there were also no substantive implementation plans for the industrial tourism project of Zhang Zhidong’s relics proposed by the culture department. It was also until the introduction of private sectors that conservation programs were stimulated to be implemented on a large scale. Zhang Zhidong Commemoration Park was planned to be constructed by the

real estate company China Resources in 2008 (the one who participated in the wholesale redevelopment of Hanyang Steel Works' northern factory as mentioned in 5.2.1); Hanyang Zao creative park was developed after the introduction of a private company named Zhisheng Culture in 2009; Vanke was introduced to regenerate Hanyang Steel Works to a creative park in 2010; Zhang Zhidong and Wuhan museum was promoted to be invested by the factory owner and other private investors in 2010. Unlike traditional heritage that is conducted by the government, industrial heritage conservation relies heavily on private sectors which could reflect the limited attention the local government of Wuhan pays to industrial heritage.

These private engagements of the commemoration park and museum did not proceed smoothly. It is the arrival of creative industries within mainstream policy discourse in Wuhan that drives quick implementation of industrial heritage conservation, though urban functions such as green space, leisure, and commercial facilities were proposed to help reverse the mainstream idea of wholesale demolition and redevelopment. This is the other motivation my work points out. First, for the southern part of Hanyang Steel Works, at the earlier stage, the adaptive reuse methods met the demand for urban functional transformation, which helped partially reduce the voices of demolition proponents. In 2007, there were disputes over its demolition that was arranged by the urban planning department with the aim of industrial suburbanisation. By analysing some news and interviews, whereas there were still supporters for demolition and redevelopment, the importance of conservation and adaptive reuse pursuing economic value and social value was recognised: off-situ preservation of Hanyang Steel Works with valuable portable relics could be moved to Hanyang Zao area for

unified protection making way for redevelopment (Nie, 2007); an industrial heritage park was proposed that could not only serve the surrounding residents but also could develop industrial tourism (China Landscape, 2007); a creative industrial heritage park was advocated to conserve such a large area of the factory (Chen, a developer); it is a profitable way to integrate the transformation of obsolete industrial remains to other urban functions such as leisure and commercial industries (Hong, an urban planner). Considering that the industrial land is normally too large, the functional transformation of industrial buildings has been valued, but the discussion on demolition and redevelopment has not stopped. These views consider a pragmatic way that means reuse methods making industrial remains alive and profitable are more ideal solutions than wholesale demolition or preservation with only commemorative function. When dealing with abandoned factories, multiple values of industrial remains, relying on the reuse value, economic value, and social value instead of just on a historical figure's commemorative value, were appreciated driving their retention, especially for those cases located in the city centre, such as Hanyang Steel Works.

Moreover, in an interview on China Landscape (China Landscape, 2007) Professor Weijun Yao, Dean of the School of Culture at the Central China Normal University, said bluntly: "*Germany's advanced experience in reusing industrial relics is worth of learning … … compared with other major Chinese cities that have developed innovative conservation methods, such as creative industries and industrial heritage parks, Wuhan is in a backward state*." This indicates to some extent the combination of industrial remains and creative industry reverses the idea that outdated industrial

remains are deemed to be replaced by newly built modernised buildings. Instead, its adaptive reuse methods represent a positive civilised and modernised development.

Though with many discussions of multiple functions' transformation, the retention of Hanyang Steel Works was determined by the plan of creative industry development in 2010 followed by the successful regeneration of Hanyang Zao Creative Park. The previously accumulated artistic atmosphere in the 824 factory, as mentioned in the context chapter, gave this site an innate advantage to be constructed as an advanced demonstration. On the one hand, a batch of news in 2008 reported the determination of the local authority to develop Hanyang Zao as another famous national model like 798, Beijing (see for example, Cnhubei, 2008a, b). In these documents, the construction of Hanyang Zao Creative Park as a cultural landmark representing advanced civilisation in Wuhan and catching up with modern cities has become a frequently mentioned slogan. This means the rush of Wuhan to promote themselves as a modern cosmopolitan inextricably started linking to their ability to develop creative methods combining obsolete industrial remains. On the other hand, intensified economic restructuring has forced the district government to reinvigorate Hanyang's dilapidated manufacturing industry. Promotions of reusing the outdated 824 factory and developing a creative park show great enthusiasm of the district government (Qingchuan subdistrict) pursuing instant economic return: the 824 factory was leased by the authority then introduced a private company named Zhisheng culture responsible for management; policies and fundings from the central government level and local authority, as mentioned in the context chapter, were provided to attract innovative small businesses, especially the advertisement industry to settle in the

Hanyang Zao creative park (Li, 2020). The project consists of two phases of construction, and after its official renovation of the first stage in 2009, visible achievements in terms of tax revenue and social prestige are completed in a fast way as it not only becomes a national advertising industrial park but also an attractive tourist spot in Wuhan in 2012 (Zhang, 2017). Economic benefits generated from the development of the advertisement industry were identified as the main criterion for the success of renovation as most coverage has always uncritically praised that Hanyang Zao gained a high amount of central financial support funds of over 100 million yuan in 2012 and generated an annual turnover of 1.17 billion yuan in 2013 (Press Statement by Hanyang Government, 2014). It can be argued that it is the economic benefits including mainstream policies and financial support from the central government brought by the creative industry play a more essential role in the conservation of industrial heritage.

Hanyang Steel Works was also affected by the climate of creative park-making, and it was planned immediately by the district government retained 60 acres (the whole southern factory occupied 500 acres) developing another creative industry park in 2008 (Liu, 2008) through the introduction of a private company in 2010, the similar implementation method as Hanyang Zao. Despite those discussions mentioned in the upper paragraph revolving around how to conserve Hanyang Steel Works, it was the plan of developing the creative industry that helped gain recognition of the local government who then decided to reverse the plan of demolition. Creative industries combined with the development of waste factories meet the needs of rapid economic transformation, and the benefits they generate also drive private companies to actively

participate in the construction of creative parks. Thus, industrial remains as appreciated great containers for the development of creative industries, which to a greater extent helped drive a wider acceptance of industrial heritage and change the mainstream idea of wholesale demolition and redevelopment.

This section examines two motivations that drive industrial heritage conservation in the Hanyang district. One is related to Zhang Zhidong's commemoration of the local government's practice in the context of industrial heritage promotion from the central government. The other one is the renovation of industrial remains developing creative industry with fiscal and policy supports at the central government level, while later developed by the private company into a commercial space consuming industrial-themed urban setting at the local level. In particular, the combination of industrial remains with creative industries to a large extent reverses the mainstream of wholesale demolition and redevelopment, because its combination can not only become a representative of modern civilisation but also, more importantly, serves the goals of regional and local economic development. This creative method attracting the participation of the private sector also makes it possible to preserve large areas of industrial sites, especially for cases with location advantages in urban centres, heralding a review of the administrative arrangements for the conservation area of industrial heritage.

Notably, the entire process of Hanyang's industrial heritage practice at this stage is led mainly by CPPCC members, the local government, and some academics, then

executed by private companies, whose focus is eyeball effects and economic benefits that industrial heritage may bring to the place. Despite recent moves to recognise the industrial heritage of China as having historical value, as the 'Wuxi Proposal' indicates, Wuhan's practice is on the one hand still dominated by ideas that heritage should be ancient and famous that is attached to Zhang Zhidong. On the other hand, the structures of the recent past are somehow less appreciated than the creative reuse of industrial structures that are received popularly. However, the creative method encountered obstacles, which could be reflected in the twists and turns in the conservation of Hanyang Steel Works. The next section will discuss how the emergence of national industrial heritage as a new authorised discourse in 2017 finally saved Hanyang Steel Works's preservation though its demolition is vigorously debated because of changes in the global steel industry.

5.4 Industrial Heritage and Place-Making in the Context of Neoliberal Urbanisation

The above section mentioned the proposal for creative park renovation helps temporarily reverse the wholesale demolition plan of Hanyang Steel Works. Unlike Hanyang Zao's successful renovation, Hanyang Steel Works scheme goes a devious path. The context chapter mentioned Song Yang, the Secretary of the Municipal Party Committee in 2010, attached great importance to the creative transformation of Hanyang Steel Works trying to make it a key project of Wuhan's cultural development. With the active official introduction, there was a verbal agreement reached between Vanke and WISCO to jointly proceed with this project.

As the main executor, Vanke initially proposed a promising redevelopment vision that highly regards place marketing strategies based on modernised designs. Specifically, the conscious use of the signature architect Daniel Libeskind to create a novel museum as a pioneering flagship acting as an engine of the whole project. For the transformation of the whole factory, Jochem Jourdan was invited to introduce Germany's advanced industrial site transformation experience that focuses on the adaptive reuse of old industrial buildings. After analysing the designs of these companies: a spectacular museum with avant-grand design becomes the visual centre of the site (Figure 5.3 shows a steel façade and boat-shaped museum design); newly built buildings (the white buildings shown in Figure 5.4) take a large proportion of the redevelopment plan while few original structures (red buildings shown in Figure 5.4) with eye-catching elements are selected to be retained for building a distinct place identity (Figure 5.5). Figure 5.5 shows how industrial structures are retained while demolishing façade to highlight visual effects. However, their designs show that industrial relics of Hanyang Steel Works play a limited role in Vanke's strategy of place-making because, on the one hand, industrial heritage interpretation is still highly attached to Zhang Zhidong despite its display as a brand-new flagship museum. On the other hand, adaptive use is limited to a small number of industrial structures' retention with visual aesthetics. Moreover, the regeneration plan aims to build a whole new residence-dominant zone with housing infrastructure including a school, commercial districts, and high-rise office buildings. The branded industrial heritage conservation through the attention-grabbing visual way acts just as a cultural veneer backed up by transnational firms' fame, which is utilised by the developer for housing product differentiation yielding to profit imperatives.

Figure 5.3 Design of Zhang Zhidong and Wuhan Museum

(Source: documents offered by Vanke)

Figure 5.4 The general layout of the conservation of Hanyang Steel Works designed by Vanke

(Source: documents offered by Vanke)

Figure 5.5 Nightscape presentation designed by Vanke

(Source: documents offered by Vanke)

Notably, most listed buildings designated by the Wuhan Culture Bureau in 2011 as mentioned in the context chapter were planned to be dismantled by Vanke, and its regeneration plan relied heavily on avant-garde designs and mixed urban functions. Vanke's strategy successfully attracted the public's attention and more importantly helped get construction permits from the municipal government. As enthusiastic mass media (See for example, Jinchu, 2011) reported the ambition of Hanyang Steel Works' regeneration invested by Vanke and designed by transnational firms: "*By conserving industrial history, a world-class cultural project would be delivered creating a new look of Wuhan with the aim of regeneration*". This news could show the confidence and praises of this project attached great importance to industrial site transformation by a brand-new look while titled industrial heritage conservation. The ambitious plan made by Vanke persuaded municipal decision-makers, then the new museum was quickly approved by the government for construction in 2011, and the transformation of the whole site was accepted by WISCO to provide land use rights and funds to jointly redevelop the project. The method of conserving industrial heritage as an attractive cultural image for place-making while largely relying on property-led redevelopment has been appreciated by key stakeholders that helped reach a consensus among them though it is an informal one without a land transfer agreement, whereas the local culture sector - Wuhan Culture Bureau as the industrial heritage protector – was excluded during the plan-making process. Because the dependence of local governments on private developers escalates, Vanke's values of developing property while deliberately avoiding heritage retainment increasingly interfere with urban planning. The municipal government has executive powers over heritage dismantlement making heritage conservation negotiable with developers.

Nonetheless, the consensus of selling place through the industrial heritage theme among the three key stakeholders was broken at a later stage around 2014. Many news, historical resources and interviews verified that Vanke gave up investing in the museum as well as the whole regeneration project in 2014 because the construction cost and the future operating expenses of the flagship museum are excessively high far exceeding the budget raised from 80 million to 200 million yuan (Fu, 2016). As a profit-oriented company, investing in this public-orient project became a high risk that could hardly generate any profit margin, which made them stop investment. Besides, one interview revealed Vanke's withdrawal was caused by WISCO who stopped their investment first in 2013. As one of WISCO's leaders pointed out earlier (according to an interview with a worker from WISCO): "*Enterprises investing in museums will become poorer*", which indicates the company's negative attitude to heritage investments without financial gain. Especially after the global context of the steel production overcapacity in 2013, the steel production of Hanyang Steel Works was terminated by the central government resulting in serious financial difficulties. Facing this increased pressure, WISCO stopped investment in the new museum. In addition to other valuable assets being sold such as machines, selling lands as the fastest method was re-proposed by the landowner, WISCO, which pushed Hanyang Steel Works back to the risk of wholesale demolition (Cai, 2013).

More importantly, without formal land transfer agreements and approval planning of industrial land transformation, local politicians' volition largely influences protection outcomes. The Secretary, Yang Song, who attached great importance to this project resigned in 2011, while the next secretary seemed disregard to this unpredictable

investment because there was no government funding investment or policy support for this public welfare project (P.Yan, an industrial heritage scholar). It is indicated that the local government was still indifferent to industrial heritage despite an attractive vision that was branded by Vanke before. As the former worker of Hanyang Steel Works, Gu pointed out, "*Industrial heritage conservation was not considered as a promising project, coupled with the limited tenure of government leaders. They were reluctant to do a project with a long and unpredictable investment cycle*". An economic value-oriented government do not pay attention to industrial heritage conservation because it is not perceived as a worthy cultural project to invest in personally, and rapid change in government leadership exacerbates uncertainty for industrial heritage investment.

The cessation of private investments and the government's lack of attention have caused the new museum to be shelved, which also raises questions about private participation in industrial heritage conservation. At the implementation level, these analyses show that: private investors place greater emphasis on economic gains that directly affect implementation; the factory owner considers the efficiency of economic returns, especially in operational difficult times; the local government considers economic benefits and uncertain prospects of industrial heritage, choosing to rely on private sectors in its implementation. Accordingly, the economic return of industrial heritage conservation is highly valued by key stakeholders, and there is a risk that the public-private partnership alliance may not necessarily be able to reach a consensus, which implies difficulties at the implementation level of public-private partnerships when industrial heritage conservation is perceived uncertain prospects.

At the same time, the context chapter mentioned an official push in the urban planning department to escalate the conservation discourse of industrial heritage integrating into urban redevelopment in 2013. This official push contributed to the designation of Hanyang Steel Works as a special historical district developing commercial-related functions based on many constraints including the preservation of buildings, and restrictions on building heights. The strengthening of protection measures as well as the increasing land transfer cost due to the decreasing land resources in the city centre have further made industrial site transformation with heritage a risky project. Hanyang Steel Works has fallen into a state in which no one is interested in its transformation except for the factory itself, and there was one failed land auction in 2019 due to the high land price and harsh development and protection regulations (Jiang, 2019). This means that in a situation when the economic discourse of industrial heritage dominates, legal protection prevents the enthusiasm of private participation.

However, Hanyang Steel Works has been trying to conserve the remains of its factory, from the earliest investment in the construction of the museum in 2002, calling for the protection of the southern factory in 2007. Facing the great pressure of steel overcapacity in 2013, after the cessation of steel production required by the central government, the voices of wholesale demolition including all machines became louder again. In an interview on Hubei Daily (Cai, 2013), Ziheng Xiong, director of the industrial tourism project of Hanyang Steel Works said: "*It is a pity that all electric furnace is required to be dismantled and sold as scrap iron … … it is better to save*

these eliminated machines as an industrial heritage contributing to industrial tourism as well as helping industrial restructuring". It can be implied that achieving enterprise transformation from steel production to tourism has been the main driving force for the factory to conserve industrial heritage since 2002. This point could be verified by P. Yan's words, an industrial heritage scholar who participated in the conservation process of Hanyang Steel Works as a consultant, "*The factory's workers did not want to relocate to the suburbs ⋯ ⋯ they hoped to develop the creative industry by themselves thus continue to work on the original site*". Industrial heritage thus actively called for preservation by the factory is an additional product, accompanied by the main purpose of the factory to develop tertiary industry for their workers' re-employment. Due to this reason, the factory has not given up conservation and has tried many methods including reusing old buildings for exhibition after Vanke's exit (Bao, 2016); looking for artists to develop creative industries (Han, 2019); more importantly, looking for official designation from the central government.

After applying for national industrial heritage, under the background of promoting the development of industrial culture since 2016, a new central heritage discourse as indicated in the context chapter, Hanyang Iron Works was listed as a national industrial heritage in 2017. As one of the first batch of national nominations, this great title prompted the local government to attach importance to the factory's conservation. At the urging of the local government, the new museum finished construction and opened the next year, and a new real estate named Sunac was introduced quickly in 2019 to implement the conservation as well as regeneration. The factory tried to compete for the management rights of industrial heritage conservation, but the investment of such

a large area of the factory's conservation was beyond their economic reach (Gu's interview). It's closing down and merging into China Baowu Steel Group Corporation (CBSGC) further implying a disappearing company responsibility for conservation and interpretation of its industrial history. The factory stepped back and Sunac took over the ownership caring for industrial heritage. Moreover, the local government led the land reclamation and demolition process promoting the resumption of conservation work immediately after the epidemic of Covid-19 in 2020. It is observed that the transition process has been pushed in a rapid manner, which reflects the influence of the national heritage designation drives the local government's quick actions in the conservation of Hanyang Steel Works. This factory was officially determined to be preserved as a testimony to the past that exerts an important cultural part in urban redevelopment.

More importantly, Wuhan has tried to brand the city through endorsements from different authorities such as the 'City of Design' awarded by UNESCO in 2017, and the recognition of national industrial heritage, designated by the central government gave Wuhan a new title, associated with other major urban events to create high profile icons, such as hosting the 2021 Wuhan Design Biennale. According to the official introduction: "*The Biennale exhibition is held at the original sites of Hanyang Iron Works and the Hanyang Arsenal with a history of more than 100 years, one of the birthplaces of modern Chinese industry. The site will be renovated as the largest and most concentrated project in China, and the bar factory, as the main exhibition hall of this event, is currently the largest single industrial building in Asia*". Words such as 'the

largest' and 'the most' are frequently mentioned to brand the site, and the long history of Hanyang Iron Works and Hanyang Arsenal are underlined to make the site's ancient history stand out. However, the City of Design as an international brand is treated as more worthy of place making which has been branded by Wuhan since 2011. After fieldwork of this Biennale, industrial buildings act as a foil to provide a distinctive place for exhibition while the façade is rebuilt with the preservation of the building frame and a few industrial heritage-related information was presented. As can be shown in figure 5.6, only a few photos of the workers are displayed in a conspicuous position on the building façade which is difficult to find. This indicates that though industrial heritage is linked with city marketing, its role is limited to a background displaying other cultural events. The glorious history with gimmicky effects making the place unique is intentionally selected to build a city image.

Figure 5.6 Limited presentation of industrial workers in the Biennale
In the top half of the picture, photos of the workers are displayed in a conspicuous position on the building façade.
(Source: by the author)

This strategy is also well adopted by the real estate Sunac, the main executor of the regeneration project, who intended to brand a grand image through the regeneration of the national industrial heritage. Aiming to build ‘a sample of national industrial heritage area as well as a core area of culture, creativity and commercialisation’ as many media advertised (Li, 2020), on the one hand, the rarity of Hanyang Iron Works with a long history is branded. For example, the project is renamed Suanc · 1890, highlighting its origin from the 19th century over 130 years. Excerpting from exhibition boards in the sales centre of Sunac according to fieldworks in October 2021, Hanyang Iron Works was described using words the largest, rare and the only to distinguish this unique case: it was the largest steel factory in Asia in 1890; it has the largest single industrial building in Asia; the only designated national industrial heritage in Wuhan; a rare industrial heritage cluster transforming to a large-scale commercial one (Figure 5.7). Notably, the ordinary history of Hanyang Steel Works, when it was a decaying manufacturing factory with poor workers, was omitted. The glorious past, in contrast, was much boasted to create a particular kind of sense of honour, giving it a value beyond the ordinary.

On the other hand, by recalling specific historic times, the ambition of creating another cultural landmark incorporating a modern consumerist lifestyle is promoted, which is backed up by famous international firms’ designs. The project started with a spectacular flagship renovated by a well-known architect Zhaoqing Song who reused two original buildings that functioned as a property sales centre while demonstrated as a great national industrial heritage example in 2020 (Figure 5.8). This flagship acts as the investment engine and the first step of capital circulation because commercial

Figure 5.7 Exhibition boards in the sales centre of Sunac
The large red words indicate Hanyang Iron Works was the largest steel factory in Asia in the early 1890s
(Source: by the author)

recruitment began immediately after the completion of the flagship (Zhang, 2020). Moreover, a famous international firm Aedas branded by Sunac as an experienced company is invited to design the whole regeneration project aiming to transform Hanyang Steel Works into a high-profile project like King's Cross station, London, and 798, Beijing, as shown in the exhibition boards in the sales centre according to the fieldwork (Figure 5.9). Moreover, the area is recreated to competitive mixed zoning including a high-end commercial area with dense and tall luxury apartments, a creative industrial area, a high school, a large green park, and other residential infrastructure. The marked slogan "*Design by masters in line with international standards of excellence*" seems to give consumers confidence in buying a property with very high prices (Figure 5.10). As a property sale introduced: "*Luxury shops will be intentionally invited to attract upmarket clientele; international fashion shows and contemporary art*

Figure 5.8 Picture of the flagship project
(Source: offered by Sunac)

Figure 5.9 High-profile regeneration examples shown in the exhibition boards in Sunac · 1890's sales centre such as the King's cross station/London; 798/Beijing
(Source: by the author)

Figure 5.10 Well-known designers hired in the project of Sunac · 1890
The glowing fonts show "Design by masters in line with international standards of excellence" and several famous designers including Keith Griffiths are showed in the exhibition boards in the sales centre
(Source: by the author)

exhibitions would be introduced upgrading the image of the whole area". A promising high-end commercial vision is described as helping outsiders to understand the place in a positive light, accompanied by much news released boasting this ambitious project (Li, 2020), Sunac's methods could be considered as paving the way for achieving the project's popularity and attracting home buyers. As such, selling properties designed by well-known companies is the main purpose of Sunac. Similar to Vanke's method, branding and place marketing using industrial heritage aims at attracting capital to the projects. Planning and design practices leveraging the names of well-known companies act as indispensable vehicles to foster positive expectations for investors and home buyers.

What is slightly different from Vanke's method is that the design adopts a more modest approach to renovating 34 industrial buildings and structures contributing to a conservation area with an industrial landscape. To meet the demand for aesthetic and themed urban settings for consumption, the industrial style has been incorporated into contemporary placemaking instead of cutting-edge designs. Figure 5.11, the sketch of the conservation image, shows that original factory materials such as red bricks are used to adapt to the industrial style while the original appearance is covered by glasses and new walls to show a new luxurious look. The interior has been completely renovated to new features accommodating creative functions, indoor cultural events, and leisure activities. These developments heavily stress distinctive images and concepts, and the practice of place promotion, particularly using visual and symbolic elements of industrial buildings. Further, in an interview with China News Network, Liyong Luo, the manager of Sunac, said: "*The renovation of Hanyang Steel Works*

considers the inheritance of industrial culture incorporating new urban functions and a grand lifestyle". It is revealed that cultural facilities in terms of adaptive reuse of industrial remains are manipulated to conjure up a certain urban good life type and the embrace of consumerism by industrial visual elements aiming to capture homebuyers' and investors' aspirations. The visual elements and a vision of the good life constructed by Sunac through industrial heritage are crucial selling points raising property prices and maximising profits. Industrial cultural value is thus linked to the economic value of industrial site transformation as well as the exchange value of distinctive places (Zukin, 1991). However, the redevelopment erases the everyday life experiences of crowding, noise, and darkness in the original industrial sites constructing a brand new though with an industrial style image.

Figure 5.11 The design sketch of the conservation plan by Sunac
(Source: offered by Sunac)

After examination of the implementation process, the conservation of Hanyang Steel Works represents a shift of downtown redevelopment from an entire teardown approach to selective historical preservation. It can be argued that the conservation of industrial heritage among other culture-themed strategies has become an instrumental force for urban regeneration in Wuhan. The strategy of constructing

industrial heritage as a brand for place-making in neoliberal urbanism has become a favourite means well adopted by the pro-growth coalitions formed by the local government and private developers to meet their various land interests attempting to add to the exchange value of the property. Notably, the implementation of the Hanyang Steel Works project still largely relies on the private developer Sunac who is responsible for holding the Wuhan Design Biennale and the transformation of the whole site. As a real estate consultant of Sunac · 1890 pointed out, "*We are not interested in industrial heritage but there are many preferential policies given for us attracting our participation including land prices and increased floor area ration … … as long as it can help our implementation, the government will provide any policy assistance*". This shows that in the face of large-scale industrial site transformation projects, the local government is in a position that is constrained by private developers. Government-backed urban regeneration has been replaced by privately funded and property-led regeneration aiming to pursue the symbolic real estate value yielding to economic imperatives.

However, the problem is prominent that the withdrawal of real estate companies could directly lead to the cessation of the project. The construction of Zhang Zhidong Commemoration Park relied on China Resources, while it later turned into a dilapidated park. Vanke entered the project in 2010 and then quit in 2014 due to poor investment returns of the museum resulting in a stagnation of conservation of Hanyang Steel Works for nearly 8 years. For Sunac, after completing the pre-selling of most apartments and retail stores, though rough construction of the residential district and the modernised commercial area were finished, the industrial heritage conservation

area’s implementation has been halted again because Sunac has faced a serious financial crisis since 2022 choosing to go bankrupt and liquidate in the downturn context of China’s real estate market.

5.5 Conclusion

This chapter analyses a complex process of industrial heritage production in the case of Hanyang Iron Works. Its industrial past has undergone a gradual transformation shedding its marginal status to be reborn as restored memorials to past industrial prowess while attaching to industrial relics built later including Hanyang Steel Works and the 824-factory. Following deindustrialisation caused by industrial restructuring, their industrial remains started to be disposed of or reinterpreted containing manifold surplus resources with which different stakeholders constructed meaning and practices in the forms of heritage tourism, creative industry and elements of district image construction.

In the first stage, in the early 2000s, the industrial complex, as reminders of deindustrialisation representing backward techniques, sources of pollution, and ordinary even ugly appearance, was hardly perceived as something related to heritage. Accompanied by the prevailing trend of the large-scale demolition and redevelopment of industrial sites in Wuhan aiming to build a modernised city, abandoned industrial remains were deemed to be demolished by default. Hanyang Steel Works’ northern factory was quickly transformed into high-rise residential areas meeting key stakeholders’ demand including the factory owner, local government and developers,

though there was an increasing heritage awareness highly attached to the historical figure Zhang Zhidong and Hanyang Iron Works raised by Hanyang Steel Works with the aim of developing heritage tourism through the method of museumification of a single building.

The late 2000s witnessed the shifting attitude towards industrial heritage, as an emergent perception called from the central government, was largely embedded in varied adaptive reuse approaches, especially in the creative industry at the local level. The conservation theme of Zhang Zhidong's relics was developed by the district government as a consistent one through the adaptive reuse of Hanyang Steel Works and its nearby industrial areas such as the 824 factory. Appreciated as a great container for the development of creative industries, the obsolete 824 factory was renovated as Hanyang Zao Creative Park in 2009 achieving rapid prosperity, which helped to a greater extent drive a wider acceptance of industrial heritage conservation. At the implementation level, the mainstream idea of wholesale demolition and redevelopment of industrial sites has been changed because their adaptive reuse represents a positive civilised and modernised development and more importantly serves the goals of regional and local economic development. It is also regenerated into an industrial-themed environment with aesthetic and artistic installations, peddling stimulated creative industry and commodities as tourists' destinations while industrial heritage is relegated to the naming of Hanyang Zao and as the visible memorialisation and several sculptures transformed from industrial machines.

After being prescribed by the appreciation of the site as a national industrial heritage, redundant relics of Hanyang Steel Works become anchors for regional redevelopment and branding schemes finally stabilising its physical structures. Wuhan has tried to brand the city through the association with national industrial heritage endorsed by the central government and major urban events highlighting the glorious industrial past to make the city a unique place to attract investment, tourists and residents. Developers as the main executor also brand industrial heritage conservation as a cultural landmark while emphasising mixed urban functions' transformation where housing is a major component yielding to profit imperatives. Industrial heritage acting as a cultural veneer has played an instrumental force in property-led urban regeneration, contributing to transforming abandoned industrial sites into vibrant, compact and attractive places mainly focused on economic growth and physical renewal. In the framework of entrepreneurialism, the symbolic value of industrial heritage conservation is greatly emphasised and branded as a modernised post-industrial image depicting a future-oriented transformation in the way of honouring the glorious industrial past.

What has been learned during this study is that a specific historical layer, that of the 1890s and 1900s, the origin of a series of factories constructed by Zhang Zhidong including Hanyang Iron Works and Hanyang Arsenal in the history of the Qing dynasty, has been selected by the local government, the factory owner, and developers as a singular, ideological and legible narrative discourse. The visible memorialisation of industrial heritage is relegated to the naming of these industrial areas such as Zhang Zhidong Sports Park, Zhang Zhidong and Wuhan Museum, Wuhan · 1890, and Hanyang Zao Creative Park, while the recent industrial past of Hanyang Steel Works

and the 824 factory built in the history of the PRC are somehow less appreciated. The industrial past is also highly attached to the only famous contributor Zhang Zhidong while other engineers and the lives of the working class are largely forgotten. The golden years of industrial innovation in the iron and steel industry have been accentuated while negative aspects of the failed industrial revolution, decaying manufacturing factories, and environmental pollution are omitted (Guo, 2016). As such, Hanyang Iron Works' practices reflect the industrial heritage and are perceived as something related to ancient not recent, positive not negative, spectacular not ordinary.

Besides, towards the making of attractive places, intensive theming and visual encoding of industrial atmospheres provide an illusion of historical seamlessness. Industrial remains with visual characters are reappraised to be retained along with newly built buildings searching for references of listed industrial buildings for the continuity of architectural production in historic environments referring to the 'creative paths to abstract inheritance' (Wu, 1991). The container value of some industrial buildings accommodating post-industrial functions serving modernised lifestyles is appreciated and newly built buildings dominate contributing to urban functional transformation. The increased consumption and marketing of industrial heritage thus leads to environmentally clean and economically productive heritage landscapes and it has nothing to do with the former industrial production with ugly industrial buildings, and dirty environments generating pollution, which is eliminated in the heritage discourse of industrial sites' transformation. Historical narrative and industrial heritage conservation are thus not the focus but they are integrated into the official narrative of modernisation and cosmopolitism assuming the Chinese tradition of assemblage in

the production of a new narrative of the modern history of China (González Martínez, 2018). This is part of a wider politics of memory in which who decides what is remembered and what becomes apparent. Hanyang Iron Works' practice can be considered an example of top-down logic that industrial remains are recontextualised and conditionally remembered by experts, local government and developers for middle-class inhabitants, businesses associated with places, shoppers and tourists attempting to generate a mixture of uses, and ultimately producing higher opportunity costs.

More importantly, this case has experienced a long-term transformation since 2002 from preservation, stagnation, regeneration, and back to stagnation again, which is more like an unfinished process of ruins treatment between rejection and disposal instead of heritage transmission (Hetherington, 2004). The whole process of Hanyang Iron Works' conservation reflects Harvey's arguments (Harvey, 2001) that industrial remains are contextualised and industrial past is cannibalised in the present as selective material used to meet the changing contemporary purposes of heritage producers at different stages in terms of creative industry development and place-making of a spectacular post-industrial place. The heritage value of Hanyang Iron Works is not stable but mobilised in a condition that risks frequent recontextualisation. The next chapter will examine how far this case's heritage practices are consumed and received by residents and tourists in terms of the construction of creative industry and an image-driven view of the industrial heritage conservation and regeneration.

Chapter 6 Industrial Heritage Consumption

6.1 Introduction

The last chapter examined how Hanyang Steel Works was transformed through a combination of museumification, the development of the creative industry by the adaptive reuse of the industrial site and a real estate approach aimed at place-making. In this chapter, I look at how these transformation methods are received by different kinds of previous and current users. These stakeholders include the former workers of the site, along with the tourists, artists, shoppers and residents. This chapter discusses the different views among different interest groups toward Hanyang Steel Works' transformation and what are the extensive appreciation and controversies revolving around its transformation. My focus of this part is to what extent these varied and changing views are related to concerns of industrial heritage conservation which is among many other economic and cultural concerns as I pointed out in Chapter Five. The wider interests will be recognised reflecting what aspects of industrial heritage are widely accepted or rejected at different stages of the factory's transformation. More importantly, how long these interests and appreciations could sustain the transformation of different methods of Hanyang Steel Works is examined raising the question of a sustainable development of industrial heritage. I further use the notion of Authorised Heritage Discourse to examine the uses of industrial heritage between producers and consumers. Specifically, their commonalities and differences are centred to reflect assimilated or dissonant processes of industrial heritage discourse.

The first section examines the popularity of museumification as part of the development of the site and explores the elements of museum-making in the context

of shifting agendas of nationalism/patriotism and the commodification of place. Aims have changed from pursuing an industrial-related patriotic theme to a visually appealing visit experience, which reflects shifting agendas of nationalism to placelessness commodification. Then to further discuss the intensified commodification trend, the relationships among industrial heritage, art-led visual consumption and the experiential economy in the case of Hanyang Zao Creative Park and the great event of Wuhan Biennales would be investigated. Last, with almost all workers excluded after 2020 when land reclamation was completed, the third part discusses the uses of industrial remains by new residents and homebuyers who inhabit the former industrial site for production now for contemporary commercial and public functionality. Sign values or symbolic values of Hanyang Iron Works and Zhang Zhidong would be investigated as they are essential in the real estate transformation of the whole site of Hanyang Steel Works as Sunac branded before, while Sunac's bankruptcy and the downturn of the real estate economy have brought the whole project back into stagnation and even unknown fate leaving obsolete industrial structures standing isolated in the ruins.

The wider interests will thus be recognised reflecting what aspects of industrial heritage are widely accepted or rejected behind different stages of the factory's transformation in terms of the generally accepted value: glorious place identity, aesthetics, arts, great events, their integration into urban functions and those perceived hard to be popularly received: pollution, negative memories and working-class identity. More importantly, how long these appreciations could sustain the transformation of different methods of Hanyang Steel Works is examined raising the

question of a sustainable development of industrial heritage. I further use the notion of Authorised Heritage Discourse to examine the uses of industrial heritage between producers and consumers. Specifically, their commonalities and differences are centred to reflect assimilated or dissonant processes of industrial heritage discourse.

6.2 The Role of the Industrial Museum: From Patriotic Tourism to Visually Appealing Experience

Chapter Five discussed the default attitude of the developer, the local government and the factory owner which was of the demolition and redevelopment of Hanyang Steel Works' northern factory in the early 2000s despite the initial effort of Hanyang Steel Works trying to develop industrial-themed tourism through factory tours, two ancient-style archways, and an exhibition hall of Zhang Zhidong and Hanyang Iron Works in 2002. This attitude was controversial as it reflected a desire to reject protecting the industrial heritage, a lack of recognition of Zhang Zhidong's contribution, and Hanyang Steel Works' announcement of its connection with Hanyang Iron Works. This section looks at how these three controversies were ameliorated through the introduction of the exhibition hall in the early 2000s, dedicated to the 'glorious industrial past' that was understood to be linked closely to young tourists' aspirations of pursuing theme of regional and national revival. However, after the update of the exhibition hall to an iconic Zhang Zhidong and Wuhan Museum in 2018, acting as an attractive landmark, the museum experience is increasingly associated with visual consumption. The second part of this section will discuss how the industrial heritage of the site is closely allied to cultural consumption and targeted to middle-class young visitors, mainly seeking a leisure experience.

As outlined in chapter five, the development of industrial tourism based on the heritage of the site and involving a factory tour appears as an idea ahead of time and it was not easy to get recognition for this within the factory in the early 2000s. A former worker recalled that when the factory discussed this idea: "*We were surprised by the concept of developing an exhibition hall ⋯ ⋯ some workers questioned its feasibility ⋯ ⋯ we never had anything worthy of commemoration, especially considering a generally negative impression of the local community*." He went on to say that that this negative impression referred to: "*An outdated factory with no nice buildings was about to be demolished ⋯ ⋯ even causing troubles to nearby residents in terms of noise and smog*." There was a desire within Hanyang Steel Works to reject the idea of commemorating industrial history because, on the one hand, workers' perception was subjected to the authorised heritage discourse that favoured grand, aesthetics and an ageing past can hardly make them recognise a steel factory having any 'heritage'.

Perceptions of the works by residents were founded upon the notion that the plant was a source of pollution, a place of outdated technology and deeply unattractive. Thus, any act that seemed to conserve and commemorate the site was suspected of upholding these negative attributes. Instead, the removal of the site was treated as a positive intervention as it upheld public perceptions. The wholesale dismantling and redevelopment of Hanyang Steel Works'northern factory in 2005 with new residents quickly moving in after 2013 exemplifies to a significant extent residents' wide support for the radical modernisation approach of the area and genuine transformation of the industrial past. A resident reflected on the redevelopment plan of Hanyang Steel

Works: "*We had moved on at that time … … high-rise buildings and a green park serving new residents' needs replaced backward factories*." Moving forward, forgetting the past and pursuing modernity was a widely embedded view among residents.

Doubts over the viability of using the industrial history of the site as the basis of developing tourism were gradually reduced, as the site gained success in attracting visitors. Interviews with managers who were responsible for industrial tourism emphasised that their conservation activities had won great popularity among visitors, especially young students. In an interview with the manager Ziheng Xiong, Hubei Daily (Cai, 2013), said: "*Since 2002, an industrial-themed tour of 'How Steel is Made' for the commemoration of the hardship of steel production had been highly sought after tourists especially primary and middle school students receiving 70,000 to 80,000 tourists a year, though the factory tour was stopped soon due to safety concerns*." These visit figures can to some extent explain the popularity of Hanyang Steel Works' factory tour. The process of steel production could be attractive for students, a group without prejudice and any negative perceptions of Hanyang Steel Works. However, the attempt to develop heritage tourism based on steel production was stopped by the local government, in contrast, supported the exhibition hall in developing a sense of heritage related to Zhang Zhidong and Hanyang Iron Works.

The exhibition hall, taking its cue from one of China's most influential narratives – nationalism was popularly embraced, particularly by students who pursued patriotic themes. Compensating for the lack of conventional heritage artefacts, most items were

found and made by the factory such as a cannon, a model of Hanyang Iron Works, a replica of rifle ‘Hanyang Zao’ and Zhang Zhidong’s manuscripts (Figure 6.1). These constructed objects attempted to connect with the grand history of Hanyang Arsenal, Hanyang Iron Works and the historical figure Zhang Zhidong, but had few related to Hanyang Steel Works. The connection of grand industrial history avoids the controversy of the negative impression of the recent industrial past and more importantly, received the popularity of students in the early 2000s. The regional news in 2003 (Li, 2003) reported a scene showing the enthusiasm of middle school students who looked at a replica cannon produced by Hanyang Iron Works to commemorate Hanyang’s manufacturing history and dedicated it to Wuhan’s future development (Figure 6.2). The honourable industrial history of the steel manufacturing renaissance led by Zhang Zhidong and Hanyang Iron Works as a symbol of the rise of the Chinese nation was admired by young students who were able to experience a sense of honourable national identity.

The bottom-up popularity derived from young visitors’ patriotic feelings was later confirmed by the Wuhan Municipal Bureau of Culture and Tourism (WMBCT) which awarded the exhibition hall the status of being the Hanyang District Youth Education Base in 2005 and a Municipal Tourist Destination in 2008 (Long, 2002). The exhibition hall was also approved to be upgraded to a museum named Zhang Zhidong and Hanyang Iron Works Museum (Peng and Yan, 2017). The award from the local government confirms that Hanyang Steel Works’ conservation activities received public acceptance mainly because tourists aspired to learn national industrial history through Hanyang Iron Works. As such, politicised meanings were constructed at the

Figure 6.1 The exhibition hall of Zhang Zhidong and Hanyang Iron Works

Items are presented showing the long history of steel production. A model of Hanyang Iron Works buildings are displayed in the middle of the picture; diagrams hanging on the walls of both sides introduce the historical development of Hanyang Iron Works; a replica of rifle hanging on the right side illustrating Hanyang Arsenal's production.

(Source: http://www.360doc.com/content/15/0331/17/8102575_459602847.shtml)

Figure 6.2 A group of middle school students visited Zhang Zhidong and Hanyang Iron Works exhibition hall

(Source: http://www.cnhubei.com/200304/ca241516.html)

sites by young audiences who were more willing to commemorate the success part of Hanyang Steel Works' history, especially when it was related to the theme of national revival. It is worth noting that, at that time, the concept of industrial heritage had yet to be recognised by the government and the general public. Commemorations of Hanyang Iron Works as a means of patriotic identity reinforcement were actively pursued by tourists and later the museum was certified by the local government as a destination for patriotic education. The popularity of the museum, as well as the support from the local government and scholars, is beyond the factory's original expectations.

Except for young tourists, the positive aspects of Zhang Zhidong's contribution and their linkage with the glorious rejuvenation of Wuhan and even the country are well received by audiences from local historians and media organisations. Local historians affirmed Zhang Zhidong's industrial contributions by holding an international seminar named Zhang Zhidong and Wuhan's early modernisation in 2002. This seminar ended with a visit to the exhibition hall (Wuhan Univerisity 2002) and reflected on its influence on local scholars though they focused on Zhang Zhidong's industrial, urbanised, and modernised contributions that made Wuhan a second metropolis only to Shang Hai. Further, the industrial theme has been praised by official media organisations that filmed documentaries such as 'China's Steel Industry' and 'The Road to National Rejuvenation' emphasising national identity building in 2007 (Hu and Zhou, 2017). Hanyang Iron Works' revolutionary history of the steel industry presented by the exhibition hall is appreciated as a valuable historical resource promoting the theme of national rejuvenation.

While the advocacy of a national heritage discourse partially reduced doubts over the conservation of the site's industrial history, the key themes of Zhang Zhidong and Hanyang Iron Works sparked controversy amongst the elder citizens of Wuhan. The curator of the exhibition hall, B.J. Gu, mentioned: "*The elder generation of Wuhan citizens may have memories that there was a mixed social evaluation of Zhang Zhidong's contribution to Wuhan … … some strongly opposed the memorial to him while others showed support*." His words implied that Zhang Zhidong was once considered a controversial figure by the public and his commemoration was treated as a questionable matter. Opponents play down Zhang Zhidong's commemoration due to his failed industrial revolution, the poor steel quality produced by Hanyang Iron Works, and the factory's humiliating history as a Japanese colonial steelwork (Li, 2010). B.J. Gu further indicated a reversal of Zhang Zhidong's social reputation, which can be reflected by an endless stream of local visitors coming to their exhibition hall: "*There was an increased appreciation of Zhang Zhidong and his industrial contributions bringing new technology to a feudal country and stimulating the rise of a nation instead of focusing on the humiliating aspects*." Positive aspects of industrial history attached mainly to Wuhan and China's development as such are gradually accepted by students, local scholars, and official media.

A third issue was raised by the elder and original residents who lived near Hanyang Steel Works. They questioned the factory's antique archways that indicate Hanyang Steel Works's site is the original Hanyang Iron Works and Hanyang Arsenal constructed by Zhang Zhidong. This was treated as misleading behaviour as a local

blogger Xiyuqingshan (Xiyuqingshan, 2014) criticised that: "*Hanyang Steel Works has no relationship with Hanyang Iron Works in terms of their different locations, machines and organisations ⋯ ⋯ it is not in line with historical facts*." From the perspective of objective authenticity, a stricter criterion is applied by these people who reject 'contrived' heritage, and the erection of two striking signs is treated inappropriately. But this controversial issue has not received much attention and has been largely ignored, on the other hand, because new residents nearby the factory have moved in and the original ones who witnessed the development of Hanyang Steel Works and have knowledge of it have been excluded. On the other hand, Hanyang Steel Works' heritage presentation of Hanyang Iron Works and Zhang Zhidong has gained a lot of tourists whose concern with authenticity is relatively low. Facilitated further by the local government's support towards the exhibition hall, the authenticity issue of Hanyang Steel Works which branded them as Hanyang Iron Works was gradually blurred.

Controversies gradually ended especially after the legitimation of Hanyang Steel Works as an industrial heritage related to Zhang Zhidong and Hanyang Iron Works by the Hanyang district government in 2007 as noted in section 5.3. Further, the political role of Hanyang Steelwork's industrial heritage is highlighted in Wuhan's diplomacy by hosting visits from ambassadors to China such as Luxembourg and Germany. The German-Chinese counterpart activities were held in Wuhan in 2010 and the conservation of Hanyang Steel Works became a cooperation project demonstrating Sino-German diplomatic friendship (Kuang, 2012). In 2012 Luxembourg's ambassador to China, Ke Yihe, made a special trip to Hanyang Steel Works and left a message (Figure 6.3): "*Congratulations to the museum for creating a witness for the friendly*

cooperation between Luxembourg and China." These events show that the prestige history of Hanyang Iron Works became a gateway of Wuhan and even China's diplomacy with foreign countries, which was then well used by local officials as a tool to enhance Wuhan's industrial profile in the 2010s through Hanyang Iron Works' conservation. The former museum was planned to be replaced by an international one with a cutting-edge design that could show Wuhan's metropolis image providing a platform for the communication between China and Luxembourg. The new museum's name was changed from Zhang Zhidong and Hanyang Iron Works to Zhang Zhidong and Wuhan Museum emphasising the local's industrial history rather than a specific factory.

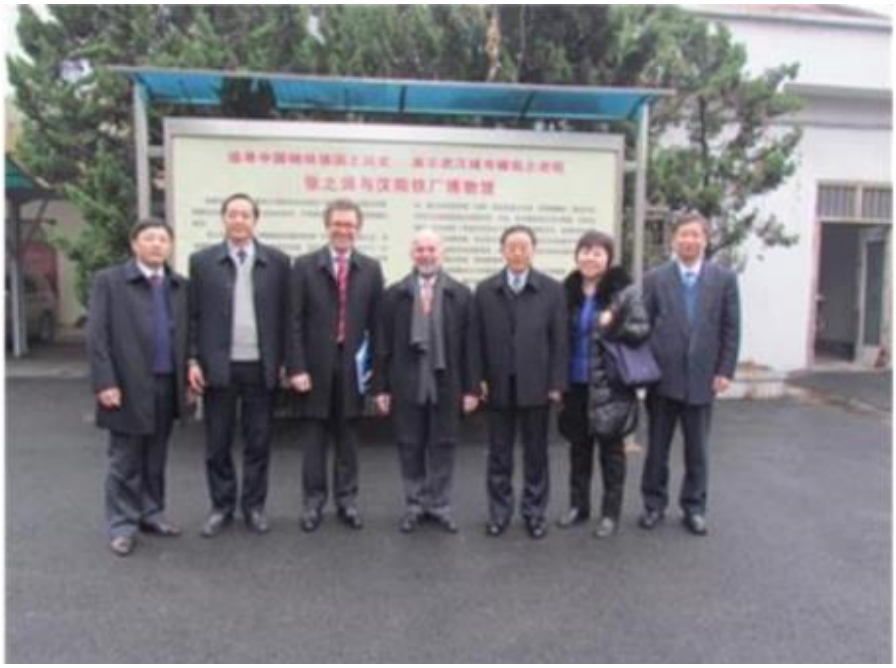


Figure 6.3 Luxembourg officials visited Zhang Zhidong and Hanyang Iron Works Museum in 2012

Mr Yihe Ke, Luxembourg's ambassador to China, and Mr Michel, director of the Luxembourg National Museum of History and Art stand in the centre of the image

(Source: documents offered by Hanyang Steel Works)

Serving as a flagship trying to attract nationwide tourists and investors, the exaggerated visual aesthetic method is vividly applied in this museum embodied in not only the exterior shape of the building but also its interior exhibition decorations. The new museum opened in 2018 and since then has reached great popularity becoming the most prominent of Wuhan's several marked places on social media (Su, 2020). According to the official report, it attracted a great number of tourists reaching a peak of 213,000 in 2019 becoming the top twenty per cent of most visited museums in Wuhan (State Administration of Cultural Heritage 2019b) It gained a new iconic value becoming an architectural logo of this district aiming to put it on the tourist map, and young visitors made up a main group favouring visual approaches when dealing with the museum. Several reflections emerge from this. The first is that the 'new' aesthetic of the site, highlighting the shift from heavy industry to clean, and open modernity has been a key reason for this becoming a popular destination. The view was repeatedly expressed that this museum has been trending online as a novel icon attracting visitors for experiential engagements though more embedded in photographic practices than commemoration. For example, a tourist expressed her desire to visit: "*Encountered in social media, its industrial styles caught my eyes driving my visit intentions for photography… … exaggerated installations such as the blue dome, and the huge installation of a circular rail track spans two floors made my visit completely exceeded expectations*." Visual experiences make the site a popular photo spot on social media driving mass tourist visits, especially for those trend-conscious ones with regular usage of social media. Most posts shared their fantastic pictures shot against beautiful decorations praising the museum as the most distinct one as such raising its online profile and generating publicity.

The new museum represents an intensification of modernised aesthetics while at the same time, it de-privileges the industrial heritage narrative. This in turn disconnects the museum from the former realities of the site and removes it from any sense of place continuity. For those visitors seeking a more conventional museum approach where the collection tells the story of the place, the museum is a disappointment and bears the brunt of criticism that it could be anywhere. As one visitor pointed out: "*This iconic building can be placed anywhere, ⋯ ⋯ its architectural style shows no respect for the surrounding industrial buildings*." Devoid of architectural forms of connections to the industrial past, catering for an alienated but attention-grabbing space mainly for external audiences rather than promoting heritage is treated as a decontextualisation and thus an inappropriate approach. Further revealed from selected displays against eye-catching backgrounds in the museum, photo-taking and sharing have become enthusiastic touristic practices instead of a museum should engage tourists' acts of remembering. An elderly visitor as a history lover expressed his displeasure: "*Young people seem to show no respect for the museum as few of them care about heritage but most for tanking pictures ⋯ ⋯ one even spend a half hour affecting others visit experience*." The tension between the serious role of the museum interpreting history should be perceived by traditionalists, in this case, elder visitors and the active participation embodied in photographic practices of mass young audiences is reflected. More importantly, fancy designs are perceived by traditionalists as a threat that would be posed to heritage quality. The most mentioned tag of this museum is an art hall rather than a museum as a manager of the museum indicated: "*It is more like an artistic destination as most tourists reported ⋯ ⋯ there is a lack of valuable exhibitions and*

the curator initially hope to compensate for this disadvantage using visual and virtual presentations but not for heritage lovers who even accused the quality of the museum." The design of the museum, though attracts young audiences, has been criticised for being far greater than the historical content it should present thus resulting in the discounted value of the Zhang Zhidong and Wuhan Museum.

This criticism assumed tourists' limited engagement of the industrial past, but according to many of my interviewees, they initially anticipated photographic practices and then actively involved in acts of commemorating while visiting. The second argument here is that an interactive experience is invoked by the museum's visually appealing decorations and installations, which contributes to tourists' affection relatedness to the site leading to an improved comprehension of an industrial past related to Zhang Zhidong. First, several tourists pointed out that a cognitive perception process involves the attainment of new insights or information or improved comprehension of Zhang Zhidong's industrial contributions. A tourist was touched by beautiful exhibitions and expressed that: "*While taking photos surprisingly I was touched by Zhang Zhidong's contributions to Wuhan in terms of industrial development, education, and urbanisation, which I previously had no chance to acknowledge*." Aesthetics as a method of attracting tourists to engage past though embodied in the performance of photography partially contributes to the acknowledgement of the significance of Zhang Zhidong in a subtle way.

Second, tourists are deeply involved in the industrial past related to Zhang Zhidong in

an active way through interactive historical scenes and multiple narratives provided by the museum. A young student explained her experience in detail: "*This museum, unlike a traditional one with one-way output form for didactic purposes … … there are narratives of several historians to Zhang Zhidong without an established standard … … benefited from several scenarios created by decorations sometimes I feel like being in the part of history as a student in an ancient school, a newspaper reporter in a kiosk, or even Zhang Zhidong himself as a reformer in Qing Dynasty*." An interactive experience is highlighted by this visitor who prefers an independent and subjective understanding of history instead of the rigid experience of learning history that a traditional museum could provide. Specifically, the experiential learning makes it much more realistic and thought-provoking as this visitor further explained emotions triggered by exhibitions: "*A grateful heart is generated for cherishing and living in the moment because of the sacrifices of Zhang Zhidong's revolutionary acts of industrial development … … a sense of pride being Wuhan citizens as descendants of this great historical figure*." Charged emotionally by interactive decorations, an active engagement with a distant past is enabled. Commemorating Zhang Zhidong becomes the focus of their emotional response to the museum.

One of the most mentioned emotions is synaesthesia, the third point highlighted here. A frequently mentioned interactive scene works directly with visitors' bodies facilitating their involvement. The scene consists of a book on a podium in a huge dark space with only a beam of light hitting the podium. A tourist indicated: "*When I stand alone in the darkness, facing other tourists acting unconsciously as the audience under the stage, I was like being transformed into Zhang Zhidong himself experiencing a sense*

of loneliness just like the sentence written in the book on the podium: the loneliness of a reformer ⋯ ⋯ a feeling of reverence arises spontaneously admiring his pioneering spirits in a hard time". Underlined by the emotion of loneliness, museum narratives about Zhang Zhidong's spirituality as a reformer are mediated by tourists creating their reverence. Physical encounters with an innovative scene help stimulate tourists' affective responses, especially a sense of sympathy for the historical figure and the hard time of steel production. These responses are in line with the exhibition designer Li Degeng who expresses his attempt to capture the 'feel' of a specific historical period engaging tourists with a co-constructed authentic experience by using multiple display methods including creative information boards, audio-visual presentations, exaggerated aesthetic installations and themed simulacra (Li, 2021). Aesthetics and interactive installations act as a vehicle through which visitors' engagement of the past is maximised. A point of this process is that reported from perceived empathy, it is not assimilated with personal experience or collective memories, but the emotion is created by linking the young tourists and the historical figure Zhang Zhidong. This linkage is phenomenological based on visitors' imagination of being part of that historical era specifically the late Qing dynasty.

While this aesthetic and interactive approach provides an alternative account to the traditional narratives of the industrial heritage discourses, the way heritage was used at the museum creatively and emotionally seems dissonant with an authorised industrial heritage discourse at the central government level. Implicit tensions were reflected after central officials' visits who proposed rectifications of the museum's contents in terms of the focus on the seriousness of the museum B.J. Gu pointed out

that: "*Suggestions were expressed by several officials such as Qishan Wang, a former Vice President, who came for visits due to the fame of our new museum ⋯ ⋯ providing more collections making it more like a serious museum ⋯ ⋯ focus on the industrial development after the founding of PRC.*" Tensions are reflected between traditionalists' view of the museum, represented by governmental officials, and between young audiences who showed acceptance of the aesthetic way of presenting heritage content. An innovative and critical engagement with the past seems to exist outside of the confines of the authorised heritage discourse. The museum has been asked to be closed for alternation since 2020 but financial reasons further make the prospect of this museum bleak as its owner Hanyang Steel Works cannot afford its cost of alteration resulting in its failure to reopen after all it is a public museum that does not charge fees.

6.3 The Arts, Events, and the Industrial Aesthetics

This section looks at the combination of arts and the adaptive reuse of industrial remains whose aesthetics are increasingly appreciated while industrial heritage acts as the background context with few chances to be interpreted. First, I will examine the case of Hanyang Zao Creative Park and how dilapidated its industrial remains were revitalised by a small group of grassroots artists, then occupied by many tourists and retailers after official renovation, and finally back to an obsolete state. I argue that commodified functions behind the conserved shell of the industrial complex with artistic and industrial aesthetics were assigned greater value by tourists in the early 2010s. However, the gradually disappearing artistic atmosphere caused by a commercial gentrification trend brought Hanyang Zao Creative Park into a dilapidated

situation again in the early 2020s. Then I focus on the combination of the great art event, Wuhan Biennale, with Hanyang Steel Works' industrial heritage. Similarly, there is a persistent tendency to privilege the industrial aesthetics of industrial structures and the large space for exhibitions with eye-catching artistic decorations.

For Hanyang Zao Creative Park, the artist, Jiang Yi, initiated the reuse of the obsolete 824-factory in 2005 gathering a group of grassroots artists who valued the aesthetics of the industrial quarters, affordable spaces in the city centre and spacious warehouses adapting to artistic activities (Cnhubei, 2008c). After two years of spontaneous accumulation, the abandoned industrial site was brought back to life holding fashion-themed parties and art exhibitions by different kinds of artists (Cnhubei, 2008c). The reuse of abandoned industrial spaces as art containers had been popular. Private executors under the supervision of the district government followed the artists in time whereas was endeavouring to attract well-known cultural enterprises and famous artists because they not only contribute to higher rents but also the social reputation of the park (Zeng, 2013a). Visible achievements in terms of fast economic return including tax revenue and central government funding supporting the development of the creative industry were identified as the main criterion praised by most media while it had little to do with its commercial gentrification trend that was criticised by some scholars (Zeng, 2013a).

Some scholars criticised Hanyang Zao as an image creation and economic-driven project making profits based on real estate development in the pursuit of high rent

levels, and the original intention of developing creative industries as well as preserving industrial heritage is gradually out of their sight(see for example, Zeng, 2013a; Xia, 2017) A journalist(2015) sharply accused Hanyang Zao's operation: "*It is more like a commercial story under the banner of cultural development … …its management was not much different from that of office buildings relying on rent … … photography companies, coffee shops and other leisure-oriented stores displaced the original cultural companies*." A commercial approach was more favoured by Hanyang Zao's managers resulting in a gentrification trend. The average rent of Hanyang Zao increased from 5 yuan per square meter per month in 2007 to 60 in 2015 (Xia, 2017), which further drove earlier grassroots artists away and undermined the development of small creative companies.

Nonetheless, the special artistic and commercial atmosphere of Hanyang Zao has made it a famous tourist destination like a city business card in Wuhan since the early 2010s. A staff (Liu and Dong, 2021) of the park management team said: "*The park was operated through warehouses renting … … It was not expected to be a scenic spot but it was popularly welcomed by young tourists for photography and consumers for leisure-oriented shopping … … around 500,000 every year in the early 201*0s." Hanyang Zao has unexpectedly received the favour of tourists. Based on interviews and observations from fieldwork in 2021, there are two main motivations driving tourist visits despite a recent declining scene. On the one hand, a common observation is that the cultural atmosphere attracts young tourists' attention as the graffiti area gathers most young people to take pictures (Figure 6.4). An interview with a young tourist showed her preference for this site: "*Cultural and creative atmosphere made*

Figure 6.4 The graffiti shows the cultural atmosphere of Hanyang Zao
(Source: photograph by the author)

this place unique such as graffiti, and art installations transformed by machinery." Artistic alternations to industrial buildings and decorations transformed from machines as decorations in Hanyang Zao drive young tourists' visits for photography. The special architectural settings also made Hanyang Zao a popular place for wedding photography. A tourist recalled that: "*It was an artistic and refreshing place with mixed architectural styles including European, modern, artistic and industrial ⋯ ⋯ five years ago, I chose here to take my wedding photos ⋯ ⋯ there were many photography studios but they have been withdrawn from Hanyang Zao."* This indicates the mixed architectural atmosphere conveyed by the renovation of the industrial complex was the reason why tourists came for photography. There was an increased appreciation for industrial aesthetics that was embodied in the act of photography in the mid-2010s, though the appreciation of young tourists was more reflected in artistic renovation and mixed architectural styles.

On the other hand, an industrial-themed environment met the needs of consumers to

pursue a special consuming experience among other standardised urban settings. The special consuming experience, first, can meet the consumption taste of the growing middle class. The news depicted a consumption scene of how the growing middle class enjoyed drinking coffee and wines in Hanyang Zao (2015): "*Hanyang Zao has become a high-end and elegant place for consumers who prefer a sense of petty-bourgeois ‥ ···· the aroma of coffee wafting from the warehouses during the day and bars became protagonists at night.*" Consuming in a unique industrial environment was a fashionable behaviour chased by young consumers, which seems could show their middle-class social status. Second, the streetscape of an industrial complex acquiring a sense of the passage of time attracted consumers who distaste similar aesthetics of modern urban settings. An urban planning researcher commented on the popularity of Hanyang Zao in the early 2010s: "*This case was a kind of nostalgic commercial landmark ⋯ ⋯ the old red brick warehouses contributed to a historic environment that could evoke nostalgia of the recent past, specifically at the end of last century, which standardised modern buildings hardly could contribute to*." In comparison to homogeneous urban environments that were largely developed in the 2000s, an industrial environment evoking a nostalgic sense made it stand out leading to an increased preference for industrial-themed consumption. In this respect, industrial remains suddenly became opportunities for cities' beautification and adaptation to the post-industrial economy that receives active responses.

However, according to the above-mentioned analysis, the increased appreciation for Hanyang Zao has little to do with Zhang Zhidong's industrial heritage, a concept the local district government trying to construct as section 5.3 mentioned. As reflected in

my fieldwork, there is almost no historical information presented in the park, and the only information boards at the gate show past cultural events and settled companies to demonstrate its previous successful transformation (Figure 6.5). An older visitor as

Figure 6.5 Information boards shown in Hanyang Zao

They are shown at the gate of Hanyang Zao creative park emphasing past cultural events and settled cultural companies instead of industrial heritage conservation related information. The picture on the left introduces that Hanyang Zao was successfully transformed from the 824-factory into a cultural and creative park. The picture on the right shows the settled cultural companies.

(Source: by the author)

Figure 6.6 Machines are transformed into sculptures in the shape of a robot and a rhinoceros

(Source: by the author)

an industrial heritage lover signed: "*I thought it is a site for weapons production' history*

because it is titled Hanyang Zao (The famous rifle brand) but there is very little historical information presented on the site ⋯ ⋯ Seen from the random artistic alternations to machines, this place was made for young people to consume and take pictures even with few tourists now." Notably, it is the famous title of Hanyang Zao that attracts these tourists instead of a normal factory – the 824 factory, which means history with fame seems more appealing and the recent past is unknown. Hanyang Zao would disappoint heritage lovers due to its commercialisation exerting less effort in heritage conservation. Besides, this visitor mentioned 'random' alternations to industrial machines, which indicates the destruction of industrial heritage. From the perspective of conservation, artistic transformation is at the expense of heritage authenticity even though industrial heritage is not the main reason why most tourists come to it. Figure 6.6 shows arbitrarily transformed machines that are beyond recognition of cranes losing their original appearances, which is criticised by heritage academics (Zeng, 2013b).

More importantly, Hanyang Zao has gradually lost its popularity becoming an inartistic area as well as showing a dilapidated scene with rare visitors and obsolete warehouses as I observed in two fieldworks (Figure 6.7). The tourist who preferred the artistic atmosphere of Hanyang Zao showed her disappointment for recently visiting: "*There is no such sense of art now⋯ ⋯⋯ depressed scenes everywhere ⋯ ⋯ mottled graffiti, closed shops, and rare visitors showing its outdated scene.*" The disappearance of the artistic atmosphere and commercial vitality made not only tourists lose interest in it, but also new tenants. It is worth noting that my fieldwork encountered a pandemic of Covid-19. This may be one of the reasons for the observed

Figure 6.7 Obsolete industrial buildings with remaining dilapidated signs and decorations indicate previous prosperity

(Source: by the author)

drop in visitor numbers but a far less important one because China's epidemic control had been successfully achieved during my fieldwork period when no restrictions were set on outdoor activities in Whan. The declining scene is also not a recent thing because some scholars have noticed Hanyang Zao's dilapidation since 2013. They argued the declining reason is because of the loss of its uniqueness: commercialisation has displaced the artistic atmosphere of the park (Xia, 2017); more than thirty other creative parks opened in Wuhan in the 2010s imitating the successful model of Hanyang Zao resulting in its homogenisation (Pan, 2017). The private executor acquiring only ten years of management authority focuses on short-term economic gains further impeding the development of the arts which was an essential characteristic that made the park distinct (Liu, 2019). It could thus be speculated that Hanyang Zao has experienced a commercial gentrification trend, which made it lose its unique cultural atmosphere as the determining reason leading to the disinterest of

tourists and consumers. Afterwards, retail stores and photography companies that relied on popularity withdrew their leases one after another, leaving several cultural companies still renting several warehouses as offices.

The tendency of young tourists and consumers who pursue arts instead of industrial heritage makes this site difficult to maintain their long-term interest in Hanyang Zao, which can be further reflected in the big art event. Wuhan Design Biennales have developed into cultural hypes and public welfare for locals since 2011. As noted in section 5.4, the sixth Biennale was organised in Hanyang Steel Works' large bar factory in 2021 as the main venue. This Biennale was reported as the largest one with the highest standards receiving artistic works from twenty-five countries, more than forty cities and a hundred and sixty organisations (Li, 2021), as the extract from the official webpage: "*This cultural event polishes up Wuhan's brand as the 'City of Design' reaching the high level of China's engineering design*." A metropolitan image is constructed by the local government with symbolised cultural and political ambitions.

My fieldwork indicates a lot of visitors coming for this great event but most of them were organised or requested by their university, design companies and government-related agencies and few art lovers were spontaneously motivated for this visit. Locals have doubts about Wuhan's construction of an artistic identity as a local visitor commented on this event: "*Arts are highly subjective … … I suppose we are still far from the cultural image as they branded … … it is hard to cultivate a cultural atmosphere (for small art studios).*" Attributed to outstanding engineering designs of

architecture, most of which are large projects, the eagerness of officials to establish an external artistic image that was awarded by UNESCO but the locals did not actively take it from the perspective of small art studios and grassroots artists.

For the large building providing a stage for this art event, still, a repeated argument that the focus of this event was artistic exhibitions instead of their exhibition backgrounds, a stage with industrial milieus. There is a persistent tendency to privilege the industrial aesthetics of industrial structures and the large space for exhibitions with eye-catching artistic decorations (Figure 6.8). The title of National Industrial Heritage was borrowed to raise the art event's profile enhancing local attendance rather than promoting heritage because only a warehouse was roughly renovated with new exterior walls in half a year acting as a temporary exhibition hall. Other areas of the factory remained in a dilapidated situation that is restrictive of visits, and the Zhang Zhidong and Wuhan Museum have been closed since the early 2021s.

Industrial heritage in this case is far from the focus of the event as well as its visitors who favour arts and special experiences looking out constantly for the next big event. Special industrial structures do impress them, but they are inferior to other essential iconic exhibition halls. A local visitor commented: "*Industrial aesthetics is trending now ⋯ ⋯ Traditionally these events are held in the Wuhan Art Museum*." The spotlight of the city's big event hit briefly on the bar factory of Hanyang Steel Works whose aesthetics though appreciated cannot challenge the local residents' direct association of a better place for art events, in this case, Wuhan Art Museum, an iconic and

Figure 6.8 A bird's view of Hanyang Iron Works

The right side of the upper part of the photo shows that a large area of the site has been demolished, and only a small part has been renovated. The gigantic warehouse with grey roof on the left side of the picture shows the main venue for Wuhan Biennale.

(Source: https://mp.weixin.qq.com/s/2h-dkmc3lHw4jrrF65xWiw)

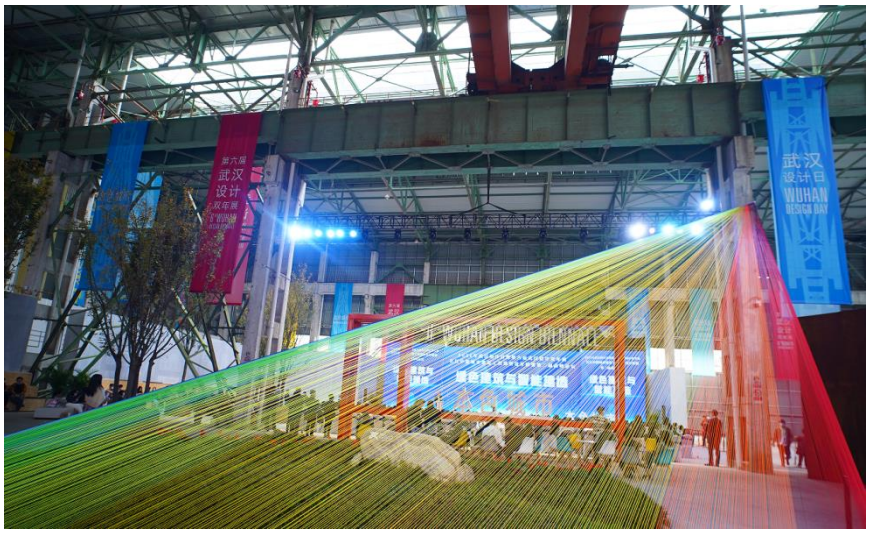


Figure 6.9 Artistic decorations of Biennale

(Source: By the author)

representative historic building with European styles in the famous concession area conserved as a historic district. With the end of the 2021 Biennale, Hanyang Steel Works lost its spotlight and new iconic buildings and events make it less impressive, for example, a new Wuhan Biennale 2022 focusing on contemporary arts held in the

new Wuhan Art Museum in Qintai, several blocks away as noted in section 5.2. Accompanied by the failed operation of Sunac, this site again is back to an obsolete situation including the Zhang Zhidong Museum, Sunac's sales centre and the bar factory. Similarly, Hanyang Zao was used as a venue for large and medium-sized cultural events including automobile shows, concerts, exhibitions, and even the earliest Biennale in Wuhan by the Zhisheng culture company (Yang, 2011). Zhang Zhidong and Wuhan Museum held several cultural events by Sunac branding local heritage as well as marketing its real estate project in 2020. With the withdrawal of the host, none of the three industrial heritage-related projects continued to function internally for the local community, but an external one highly relied on large investments and companies.

6.4 Industrial Remains as Backgrounds

This section firstly focuses on a wide comment from former workers of Hanyang Steel Works, photographers, and scholars with a heritage-related professional platform to Sunac's conservation plans, especially under the context of demolition and wholesale redevelopment. The largely appraised approach in terms of the retention of an industrial complex integrating urban commercial and public functions may be attributed to the threat of a sense of loss of valuable physical witness of industrial history. However, for the main users of this site, nearby residents and homebuyers of Sunac's real estate project, industrial remains just act as special decorations or backgrounds that are far from their daily concerns, and the site becomes a place with few acts of remembering, which devalue a symbolic or signs value as Sunac branded the national industrial heritage conservation.

In previous times when Hanyang Steel Works were on the verge of demolition, the factory owner, managers, and workers were the first group of responders. For people from factory management, calling for conservation with the ambition of developing tourism and creative industry was the main motivation as mentioned several times in previous sectors. Though emotional attachments to the factory have been expressed by some workers since 2013 reaching the peak in 2021, most of them were excluded from the conservation either dismissal moving elsewhere since the early 2000s (Long, 2002) or reassignment by Hanyang Steel Works moving to its suburban factory since 2013 (Zhu, 2013) until 2021 when all workers left the site and the factory was quickly cleaned up by the government preparing for Sunac's development.

In 2013 when all machines were removed and steel production was ceased by the central government, an interview in Hubei Daily (Cai, 2013), 59-year-old Changming Liu, the director of the Party Office of Hanyang Steel Works, said: "*I have worked here for 41 years attaching great feelings for these electric furnaces … … it is a pity that all of them would fall into disuse and dismantled required by the government… … why we cannot retain one even for the memorial after all this site will no longer make steel*" (Figure 6.10). In the narrative of this worker, personal emotions attached to these machines were expressed. Memories of his whole life in steelmaking work drive his need for retaining a machine, and the main concern is the industrial work itself not the factories as part of a larger building complex. This emotion was magnified in 2021 when most industrial buildings and structures were officially cleaned up preparing for

Figure 6.10 Three electric furnaces in Hanyang Steel Works were about to be dismantled, and a worker bid farewell to blast furnaces

(Photo by Yong Gan from http://news.sina.com.cn/o/p/2013-09-25/061028293155.shtml)

Figure 6.11 The picture of the demolition and conservation of Hanyang Steel Works

The top half shows the apartments was almost completed within a year in 2022 while industrial buildings were gutted and their facades were sttipped with skeletons.

(Source: By BinhuWangjiang)

Sunac's development. B.J. Gu sighed: "*Of course, we wanted to conserve every single item of our factory that records steel making process but pipelines, machines, trees and roads that we worked for a lifetime were completely demolished as many other workers expressed ⋯ ⋯ our concept of protection is different from that of real estate companies who dismantle as much as possible to enlarge benefits*." As the group with the deepest affection for the factory, the unwillingness to dismantle any industrial remains that carry their lifetime memories is implied, which is conformity to the principle of preservation, and industrial archaeology by interpreting the site's manufacturing processes.

It is necessary here to mention the demolition degree of Sunac's approach. The figure indicated the process of the project in 2022 when few chimneys and racks were left and almost all buildings had their exterior walls removed only retaining their columns (Figure 6.11). Emotional reluctance to the rough demolition approach was expressed by some workers, however, most workers' opinions were hard to follow as all left the site in 2021 heading to different internal divisions of the large steel corporation of China Baowu Steel Group Corporation (CBSGC). They do not suffer from deindustrialisation but more from the internal transfer of original jobs and working locations. It is not the same as the situation in Europe and North American countries where there was mass unemployment resulting in social conflicts, which could influence the attitudes of workers toward demolition and conservation of industrial remains. Still, most industrial buildings of Hanyang Steel Works were not completely abandoned before 2021 as they were kept used for steel material processing and trading, and after the land vacation, all functions and workers were appropriately rearranged to a new site

(CBSGC, 2021). For such reasons, the point is, that workers are not a prominent force in heritage conservation and may not be concerned with it except for those who were educated like B.J. Gu who acted as a factory's representative having chances to deal with scholars and the officials on the topic of industrial heritage.

Little effective information could be obtained from those excluded workers, especially the dissent opinions seem invisible in the media or my interviews, but another point not lost was expressed by an industrial heritage scholar who interviewed Hanyang Steel Works' former workers when referring to conservation: "*What do you want workers to do? They cannot manage their livelihood! ⋯ ⋯ The Chinese philosophy of dealing with things like this (referring to factory relocation and demolition accompanying workers' dismissals as a factor that may result in social unrest) is to get by ⋯ ⋯ Workers cannot do something related to conservation ⋯ ⋯ Their opinions are largely ignored by decision-makers ⋯ ⋯ As long as they can live on, it is not necessary to resist orderly arrangements decided by the factory and the local government.*" These words imply a lower worker's social status, and this group is restricted to daily struggles and immediate interests, which severely suppressed their demands for the retention of their workplace as industrial heritage, a concept far beyond their cognition. In other words, the conservation concerns of workers are seen as much less significant than their relocation and dismissal conflicts.

In addition to workers, my interviews indicate that those who care about the demolition of industrial remains are heritage lovers, scholars, and photographers. Though the

perceived faster replacement cycle for buildings in China has made demolition an inevitable part of urban life and most people seem to internalise and normalise the faster replacement (Tomba, 2017), melancholic associations with time's passage and the sense of loss are engendered by rapidly disappearing industrial remains. For photographers, since 2014, Guoxian Zhou, one of the few photographers who have been taking photos to record the replacement process of industrial sites in Whan and in this way trying to retain 'The Great Wuhan's industrial memory'. In an interview with Chutian Daily (Xu, 2010), he said: "*Demolitions are quick events ⋯ ⋯ We should record something before that*." Here the point is that a sense of loss stimulates a sense of retention. Similarly, photographers pioneered noticing the ruins of Hanyang Steel Works during the period of land reclamation before Sunac's redevelopment from 2018 to 2020. On the one hand, industrial aesthetics embodied in rough industrial structures made this site a minor internet celebrity. An abandoned locomotive and mottled industrial structures within a barren landscape resonate with the disruptive beauty of niche enthusiasts who ignore contextual economic and social devastation by taking pictures of punk and industrial style (Figure 6.12). On the other hand, it is noticeable that also inspired by physical ruins, photographers showed a sense of awe in the reverence for the centuries-old history of Hanyang Iron Works. When referred to why came to the factory for photography, an interview recalled: "*At that time, the site was about to be demolished for Sunac's development ⋯ ⋯ while industrial styles attracted me to visit personally, it is meaningful to record vestiges of past industrial splendour of Hanyang Iron Works.*" An imaginative sense of great industrial history from a hundred years ago is engendered though by the recently ruined industrial remains of Hanyang Steel Works when they were on the verge of disappearance. The association between Hanyang Steel Works' materiality with Hanyang Iron Works is also based on

the official designation of national industrial heritage and Sunac's propaganda, but the point is this association is partly engendered by the demolition and redevelopment threat.

Figure 6.12 Photographers record mottled scenes of Hanyang Steel Works or shoot portraits against the backdrop of ruins

(Source: RedBook (10 June 2023))

Similarly, a categorical and positive attitude towards Sunac's heritage practice is reflected by scholars and heritage lovers, and these comments are generally based on the perspective that at least something has been retained instead of tearing them all down. An urban planner who visited Hanyang Steel Works in 2019, when it was under a condition of ruination during the transactional vacant period on the verge of renewal by Sunac, said: "*Vestiges of Hanyang Iron Works should be retained otherwise they will disappear forever … … its replacement is irreversible … … from this perspective, Sunac's concept is a leading one in Wuhan as a large part of the factory is planned to be conserved giving respect for original building heights and volumes*." Forged through the feeling of fear that things would be lost forever and the desire to resist the rapidly changing urban landscape, realigning places with the industrial past through the retainment of an industrial complex is a rewarded method that preserves valuable physical evidence of the industrial past.

There is also great tolerance referring to Sunac's modernised and commercial approach to conserving such a large industrial area. Even though this method remained on papers and sketch models, opinions expressed by visitors who came to Sunac's sales centre, also a small exhibition, for industrial heritage highlighted the compliments such as: "*the retention of industrial architectural ambience*", "*a large area of original industrial buildings*", "*low density of newly planned buildings blend with the textures of industrial ones*", "*a great combination with industrial buildings and modern functions*". A verisimilitude of a beautiful industrial environment while covering contemporary commercial functionality is the first advantage this project is praised for, though industrial buildings are merely open to aesthetic and semiotic reappraisal. We

see again industrial aesthetics as a widely accepted value but here the emphasis is the abstraction of original buildings' texture and designs giving respect for the original heights, volumes, and styles but largely combining sanitised and modernised renovation methods, which is an indigenous modernity architectural approach. Selective focus on the visual impact, the rarity of structures and functionality far forgoes historic dimensions while receiving great appreciation from architectural heritage lovers. Figure 6.13 illustrates a model presented at Sunac's sales centre, which shows an almost clear and brand-new district despite its industrial-conscious architectural design.

Figure 6.13 The sketch model of the regeneration of Hanyang Steel Works presented at Sunac's sales centre

The model presents that Hanyang Steel Works will be regenerated as a modernised district with most newly planned high rise buildings showing on upper left of the image, though several low hight warehouses are planned to be retained showing on the and bottom right of the image.

(Source: By the author)

Second, a large conserved industrial area is praised because of its rarity. An urban heritage researcher explained from an urban morphology perspective: "*Industrial heritage conservation should not be limited to a single building or a structure though this is a common approach … … Sunac's method is a rare one in Wuhan's real estate projects retaining such an industrial complex that could help decode valuable historical information such as site selection, and factory layout*." His morphologic view is rarely considered by others, but the scarcity of retaining a large industrial complex under an urban demolition context is a typical view. Previous research and news indicate that there are a lot of industrial sites in Wuhan redeveloped in the 2010s with few structures left as reminders for the public(see for example, Chen, 2020) and this might be the reason why there is a strong sense of appreciation reported by people with a professional and academic platform towards Sunac's approach, albeit the conservation area is only a small part of Hanyang Steel Works. The fast replacement of urban areas has made integrity an impossible thing when considering industrial heritage in the city centre, and the efforts of conserving a relatively small area of the factory can be commended by most heritage lovers and academics. Only the former worker B.J. Gu expressed his disappointment with Sunac's demolition as discussed in the previous paragraphs, but he also admitted that it is a hard job to protect such a large factory in full. The argument to be advanced here is that the rarity and difficulty of conserving an industrial complex contributing to an industrial ambience in the city centre are the determining reasons why Sunac's approach is appreciated by most academics and heritage lovers.

The retention of an industrial complex with aesthetics suiting contemporary needs,

more importantly, is praised for tangible and emblematic reminders that help future generations to inherit Zhang Zhidong and Hanyang Iron Works' industrial history. Hou a heritage volunteer expressed: "*Protecting these relics through commercial ways (though they are not original Hnayang Iron Works) could have made an identity for this former industrial landscape related to Zhang Zhidong as well as grand industrial history instead of being obliterated by similar modern buildings with no history*." Identity construction and symbolic value as this interviewee indicated are his focus albeit at the expense of authenticity. Similar views are expressed by several informed interviewees who are aware of the history of Hanyang Iron Works' disappearance. The authenticity issue is side-lined, and the symbolic value of conservation is prioritised by heritage enthusiasts under the context of demolition: "*It is a compensation for previous large-scale demolition period (Referring to conserving Hanyang Steel Works titled as Hanyang Iron Works)*" (an industrial heritage scholar), "*it is a good case in the city centre to preserve such a large factory showing Zhang Zhidong's footprints in Wuhan*" (a researcher who studied Zhang Zhidong). This shows a compromised view that it is acceptable to appropriate Zhang Zhidong's industrial heritage as a theme to protect recently built industrial sites, making up for the previous loss of industrial tangibility.

The factory worker Gu showed his attitudes to Hanyang Iron Works' conservation through Hanyang Steel Works' tangibility: "*It is an inevitable process accompanied by the construction and demolition of the industrial structures during the evolution of the factory development ⋯ ⋯ the inheritance relationship between Hanyang Steel Works and Zhang Zhidong should be emphasised ⋯ ⋯ just like the famous Yellow Crane Tower in Wuhan, another disappeared heritage case rebuilt later in Wuhan, its*

reconstruction does not affect its commemoration." Hanyang Iron Works' disappearance as a result of constant changes in factory production is considered a normal evolution process, while the transmission of the intangible value of Hanyang Iron Works is considered more important. This worker also tried to rationalise the conservation behaviour of Hanyang Steel Works' protection by citing a famous rebuilt heritage case, which emphasises his view of commemoration through the reminder of tangibility even if it is not original. Overall, for those who are aware of the history of Hanyang Iron Works' disappearance, less contestation would be reflected over the authenticity issue while focusing on the symbolic meaning that the rest vestiges could pass on. This sense of tolerance to industrial heritage conservation I argue is partly because of the fear of loss generated by the faster replacement cycle of urban settings, and the eagerness to rashly retain industrial remains aligning them with the industrial past.

In addition to comments from those people with a professional background, home buyers and nearby residents are the main group using industrial heritage transformed by Hanyang Steel Works. For property buyers, because Sunac had almost finished the pre-sale process of their apartments in the late 2021s during my fieldwork, few sources could be obtained from homebuyers. Drawing on the knowledge of informed sales of Suanc, it is helped to capture that national industrial heritage is not a strong magnet for home buyers compared to other determining factors such as educational and other residential facilities, location of the project and the project's inflation potential. A real estate sale revealed that: "*Few came to buy a property because of industrial culture ⋯ ⋯ Residential facilities dominate the needs of buyers ⋯ ⋯ We have a great*

Wuhan Middle School number 3, a large green space, a high-end commercial district … … We are among few newly built apartments in the city centre." For homebuyers, paying for a project related to industrial conservation is perceived as not promising compared to other residential facilities that guarantee a quality of life. For consumers who treat the property as assets, considering the selling price of this project, industrial culture does not help achieve additional economic value. Fangtianxia's statistics (2022), a professional sales website, show the average price of this project's apartment, 18000 yuan per square meter, in comparison to other nearby residential districts, reports an average even slightly lower price than 20000 yuan per square meter. This price was competitive, which might be another determining reason for the fast selling of all apartments most of which were sold out in one year with several left during my fieldwork period taken in October 2021. Sales of shops converted from industrial buildings' renovation were far below expectations, which further indicates conserving industrial culture has not added to the expected potential for inflation of properties. It can be argued that industrial heritage functions more like the icing on the cake that does not add great speculative value to property selling.

Sunac attempted to brand industrial remains' regeneration as a magnet for external commercial investments and an increasing number of inhabitants. However, in the eyes of many consumers, branding industrial culture is a business trick of real estate companies, "a down lead" and "a fishhook" as some described Hanyang Steel Works's industrial heritage, with the only aim of attracting buyers. Once the pre-sale of real estate is completed, the previously guaranteed cultural facilities then end with low-

quality construction. A good example is Zhang Zhidong Memorial Park which was promised by China Resource who developed Hanyang Steel Works' northern factory claiming to build a high-profile green place in 2008 but ended hastily in 2010 resulting in its future obsolescence (Jin, 2022). National industrial culture does attract some attention, but it is far from the decisive factor in the decision of consumers paying for their apartments. After the bankruptcy of Sunac in 2022, the whole project ceased until 2023 with many home buyers raising complaints for the delay of their apartments' completion (Zhishanzhimei, 2002), while few voices for industrial heritage conservation, a situation where industrial buildings remain dilapidated after the removal of exterior walls. The project was previously escorted by the government exerting a demonstrative effect during the pre-sale period but now risks unfinished on time as predicted in October 2023.

For most residents living nearby, industrial legacy is just the background or accessary of everyday life, which is embodied in machines placed in public parks as special decorations and renaming of the site with few acts related to remembering but leisure purposes. According to my fieldwork, former workers are gradually driven out of this area since the redevelopment of Hanyang Steel Works' northern factory in the early 2010s, and new middle-class residents who do not know the story of Hanyang Steel Works or Hanyang Iron Works well inhabit the former industrial site whose meaning is re-established by the local government and developers. Chapter 5 mentioned that there is a vast sign, indicators of places, and sculptures of Zhang Zhidong are assembled to mark the place and stretch processes of memory across space. Intertextuality between the reference points: memorial archways and gateways with

words Hanyang Iron Works and Hanyang Arsenal respectively erected by Hanyang Steel Works in 2002, a sign named Hanyang Zao erected at the gate of the industrial park, a green park named earlier China Resources · Zhang Zhidong Memorial Park in 2013 later changed to Zhang Zhidong Sports Park after official renovation in 2021, and the real estate project named as Sunac · 1890.

Though the material sign is privileged to define the newly built environment as a historical space related to Hanyang Iron Works, in many responses from residents, the general sentiment is passivity and disinterest in receiving this place identity built from the top down as well as evoking acts of remembering of Zhang Zhidong's industrial contributions. First, most responses from new residents indicate that they have no experience and no special interest in the industrial past neither Hanyang Steel Works nor Hanyang Iron Works. A residence living nearby mentioned that she has only recently noticed this heritage according to news reporting Sunac's conservation: "*My memory of Hanyang Steel Works is vague and fractured ⋯ ⋯ I supposes there is no such sense of inheritance stimulated by the relationship between Hanyang Iron Works and Hanyang Steel Works ⋯ ⋯ this factory has changed too much after the 1980s ⋯ ⋯ in terms of the history of the steel industry, Wuhan Steelworks is more representative of Wuhan than Hanyang Iron Works or Hanyang Steel Works whose*." Discontinued memory of Hanyang Steel Works and its less representative of the local steel industry led to this new resident's lack of a sense of place related to the factory.

Instead, residents' understanding of this site is largely dependent on their

preoccupations or preferences for the site or shifting owners' geographical markers and narratives. For the green park which was transformed from a cooling park of Hanyang Steel Works, it was transformed by China Resources in 2013 which claimed to re-green it contributing to a green lifestyle in the city centre though titled as Zhang Zhidong Memorial Park with no direct historical connections or narratives of Zhang Zhidong (Figure 6.14) (Xiang, 2008). It is commented as a humanistic park for commemorating Zhang Zhidong (Meow Log 2020)a platitude of opinion that is "*We need to protect history for future generations*", while, on the contrary, this park has turned obsolete receiving many complaints from nearby residents and then it has been officially transformed again in 2021 to an advanced sports park (Figure 6.15).

It is a distinct public park for leisure purposes serving residents' living needs rather than a memorial place that could evoke any acts related to the commemoration of Zhang Zhidong or an industrial past. An indifferent attitude towards Zhang Zhidong is apparently as responses reported by these residents. An interviewee said: "*I visit this park on a daily basis ⋯ ⋯ I have no idea of the site's history as well as its relationship with Zhang Zhidong*." The transformation of industrial sites to heritage has less meaning than to a place with living facilities, and residents' place attachment is function and immediate interests instead of heritage. The imagined symbolic value transferred to future generations as those experts imply is hard to find in Zhang Zhidong Sports Park, and the gate titled Zhang Zhidong acts simply as a decoration and background for a public park.

Figure 6.14 ZhangZhidong Memorial Park

The picuture on the left shows the gate of the green park named China Resouces Zhang Zhidong Memorial Park; the picture on the right shows a stele as the only information in this park introducing Zhang Zhidong.

(Source: https://www.sohu.com/a/415763802_120383961)

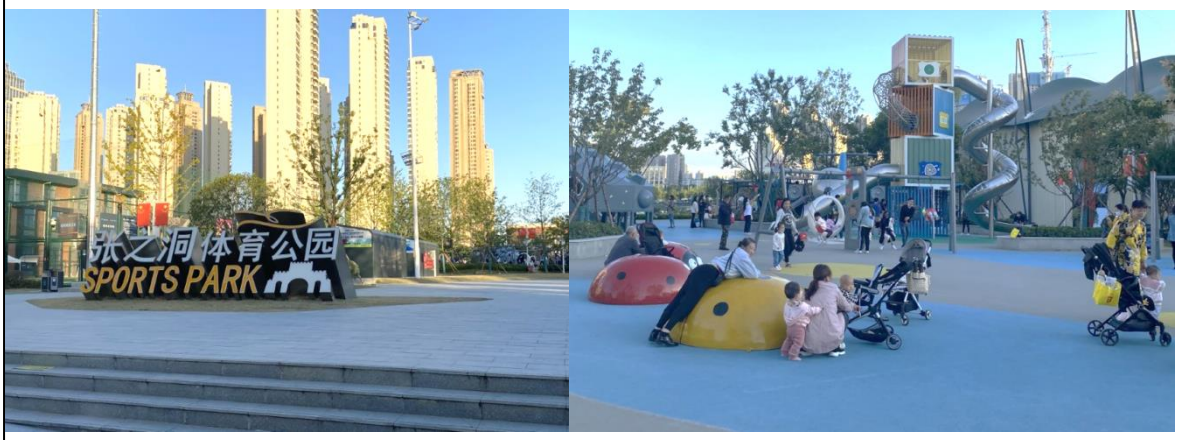


Figure 6.15 Zhang Zhidong Sports Park

After official renovation, Zhang Zhidong park was transformed to a grand sport park as the left picture shows the new gate titled Zhang Zhidong Sports Park, and the right picture shows that there are many nearby residents with children playing sports facilities.

(Source: by the author)

For Sunac's sales centre as well as a small exhibition hall with a public space for diverse public home buyers, cultural visitors, and nearby residents, after visits, they are informed with industrial heritage knowledge about Hanyang Iron Works according to information boards presented by Sunac as section 5.4 mentioned. Because the attitudes of home buyers and cultural visitors are discussed in this section in previous paragraphs, nearby residents as the local community should be discussed here.

Restricted to the accessibility of the site which is isolated by an urban expressway to the north side and a railway to the south side, this site is much less popular than Zhang Zhidong Sports Park. A resident came with his kid and expressed that: "*I suppose this place used to produce weapons (Hanyang Arsenal the gate indicates) … … Now it is called Hanyang Iron Works? … …. I am a little confused … … but these machines (Figure 6.16) seem interested I have never seen before*". His understanding of

Figure 6.16 Industrial machines scatteredly placed as sculptures on the public square next to Sunac's sales centre

(Source: https://baijiahao.baidu.com/s?id=1700331206017148514&wfr=spider&for=pc)

Hanyang Iron Works is solely dependent on Sunac's narratives, reflecting somehow a chaotic place recognition, or in other words an indifferent attitude to industrial heritage. It is not related to his memory or experience but a superficial reconstruction of place recognition informed by simple information boards hence more narrowly defined by the appreciation of this site as Hanyang Iron Works are transmitted through its commemoration is aligned with the site of Hanyang Steel Works whose history is unknown. The machines he indicated are several exemplary ones selected as sculptures and embellishments placed in the public space between Sunac's sales

centre and the new Zhang Zhidong Museum. They are isolated from their fellow objects as well as taken from spaces in which they operate but recontextualised in a clean background for special decorations. After the bankruptcy of Sunac and the closure of Zhang Zhidong Museum, this site has back to an increasingly alienated place for either former workers or new residents or both.

6.5 Conclusion

Industrial heritage in this case is valorised becoming active within mainly political and economic arenas. Evolving intervention methods in terms of museumification, artistic reuse or renovation approaches and commercialisation integrate industrial heritage into contemporary national and local place identity building, experiential economy development and public purposes. This chapter analyses that first, in the early 2000s, controversies over industrial history's commemoration were reduced considering its linkage with theme of regional and national revival, which was pursued by young tourists from a bottom-up manner. Then, approaches of artistic, commercial and eye-catching great events replaced the development of creative industries to reuse industrial remains, which are attributed by young generations to greater value to be projected into the future. Art has the power to bring visibility and public acknowledgement to the forgotten industrial sites surrounding Hanyang Steel Works as well as their industrial aesthetics though it separates the public from the recent industrial history (Cano-Sanchiz, 2022). Last, by re-functionalising industrial remains with all exteriors stripped leaving skeletons, especially for commercial and public purposes, industrial heritage is recontextualised acting as backgrounds of daily interests. The purpose of constructing the industrial site anew with a sanitised and

modernised industrial style to meet present needs is widely accepted by homebuyers and nearby residents.

The generally accepted value of industrial remains' appraisal in terms of aesthetics, signs or symbolic values and glorious historical value has been repeatedly strengthened making Hanyang Steel Works an attractive place for external visitors, consumers and investors instead of for the local community or former workers as heritage. Cultural spheres of industrial heritage are increasingly undermined and marginalised so there is a shift from contemplation to consumption (Miles, 2010). Once the spotlight from the artistic atmosphere, great events and large investments, the industrial site will back to isolated and obsolete spaces, which is reflected in all three cases of Hanyang Zao Creative Park, Zhang Zhidong and Wuhan Museum and the site of Hanyang Steel Works.

Widely discussed topics of the working-class identity, economic recession trauma, nostalgic consumption and negative impressions of pollution are rarely mentioned. The point of view of industrial archaeology is far outside the scope of the discussion, because demolition is still the biggest threat at this stage, and the focus is on the retention of tangibility rather than the intangible connotation of industrial heritage. Though former workers who have worked in the factory for their whole lives show emotional attachments to Hanyang Steel Works as a place of production, collective and personal memory, with their exclusion, the site is open to be reinterpreted by young Chinese most of whom without personal memory or experiences of industrial

production. Instead, they tend to simplify industrial history focusing on the grand part and romanticise industrial remains with a superficial appreciation of industrial aesthetics. This may be a result of the growing middle class who have a vague memory of industrial production actively forgetting the working classes as well as recent industrial history, a period that has been developed so fast for the last twenty years though is still developing. They do not readily accept an industrial identity imposed by the local government, instead, an indifferent attitude that can be reflected in their passive participation in acts related to remembering Zhang Zhidong and Hanyang Iron Works.

Chapter 7 Conclusion

7.1 Introduction

This chapter sets out the overall conclusion from my research. The first half begins with a review of Hanyang Iron Works' industrial heritage production and consumption processes, attempting to provide a logic with a set of concepts for understanding wider references on the uses of industrial heritage in China. Corresponding to the research aims prompted in the introduction chapter, interests and motivations are identified, at the outset, among key stakeholders implying their power relations and China's governance dynamics over industrial heritage. Then discussions shift to changing users of a transformed former industrial site of Hanyang Steel Works, especially their consumption of industrial heritage. Combined with consumption and production opinions reflected by heritage actors I have investigated in chapters five and six, emphasis is placed on the trends in how and why industrial heritage is defined and redefined within shifting interest groups as well as their dynamically changing values towards industrial heritage.

Subsequent discussions in the second half of this chapter include the conclusion of the overarching aim of the relationship between industrial heritage and regeneration within wider contexts referring to economic, social, and political issues, and an evaluation of the theoretical contribution of this study. Heritage is considered a cultural process referring to relationships with the past characterised by an attachment to selected objects, places and practices, which is worked and reworked by the interactions between human and non-human actors with a multitude of economic, political and social aims (Harrison, 2013; Graham, 2000). In response to this statement,

multiple interactions between heritage producers and consumers involved in industrial heritage conservation and regeneration over an extended period are investigated through the empirical case of Hanyang Steel Works' transformation. Insights can be generated in understanding the deficit in industrial heritage's role in regeneration within the larger shifting narratives in the context of post-modernity. Finally, recommendations for sustainable development of industrial heritage and limitations of my study within regeneration and other future directions in research will be set out.

7.2 Framing Industrial Heritage in China

This section concludes the shifting production and consumption trends of industrial heritage within the Chinese context. Unlike the largely uncoordinated and piecemeal rescue and restoration of disused industrial plants across much of Western Europe and North America during the 1970s and 1980s, China would seem to be taking a more long-term strategic approach to its industrial heritage. However, there has been little detailed research on actual cases with regard to how former industrial sites in China are being transformed.

Within a Western context, industrial heritage as the valued remains of former industrial culture is now widely accepted though arguably it has taken some time for it to gain recognition within society and the heritage sector (Berta et al., 2018). In China, the role of industrial heritage in the wider framework of society and economy can be said to still be in a process of uncertain negotiation.

7.2.1 Industrial Heritage Production for Regeneration

My research case involves the transformation of a large-scale industrial site - Hanyang Steel Works – through whose partial remains to commemorate Hanyang Iron Works. This case well exemplified that industrial heritage production is mainly about economic and political concerns instead of a heritage issue as analysed in Chapter 5. Discussions of governance of industrial heritage under economic and political prerequisites conclude a dominant role of local authorities in interpreting and producing industrial heritage though powerful developers can influence the pace of the conservation process.

First and foremost, obsolete industrial remains have shifted from being treated as an obstacle to modernised development to an important instrumental tool for the former industrial site's economic regeneration. Wuhan's practices are characterised as a policy-driven mode meeting multiple central government agencies' changing agendas including emergent industrial heritage conservation discourse in 2006, adaptive reuse of industrial remains for industrial restructuring around 2010, and national identity building through industrial culture in 2016 (Chapter 5). I argue that the intrinsic shift from the wholesale demolition of obsolete industrial sites to industrial heritage conservation in China is on the way to being industrialised for economic restructuring, and a new method of urban modernised development. Specifically, tourism, museumification, commodification, and creative industry development are converging together adaptively reusing partial industrial remains for developing creative and service industries, while a property-led mode of urban regeneration is at its core for transforming such large industrial sites with advantageous locations.

Second, recognised by authorities later than economic uses of industrial heritage, the meaning-making of industrial heritage as well as its symbolic importance was gradually highlighted, integrating into the identity construction agenda in the late 2010s. The latest globalisation challenges of international geopolitics have reshaped China's industrial heritage as a strategy for national identity construction by national industrial heritage designations marking the industrial achievements of the CPC in the international stage over the past four decades. Wuhan manipulated the fame and rarity of Hanyang Iron Works as a National Industrial Heritage to enhance the local industrial identity. In this manner, industrial heritage is favoured as demanding attention to promote images of geographic territories.

The fusion of identity construction and economic restructuring has further made China's industrial heritage construction one of the branding methods adapting to Chinese cities' emerging post-industrial economy compelled to liberalise and globalise. Reconfiguration of the former industrial environment to a form of urban beautification boosting local distinctiveness combined with flagship projects and big art events have become the policies of choice of local officials with the aim of creating a unique investment-friendly environment attracting people and incoming investments. The highly selective industrial aesthetic images attached to the speculative real estate development process in China also pave the way for residential and commercial regeneration of former industrial sites. As such, industrial heritage conservation is in accordance with Pendlebury's (2013) study of constructive conservation, which is repositioned from being regarded as an obstacle to development to an active agent

adapting to the new system of capital accumulation.

What is peculiar about China's industrial heritage development is that it has been officially pushed forward in an orderly way as a strategic method responding to diverse contexts including economic restructuring, burgeoning real estate development, urban transitions, and cultural and heritage policies for nationalism (Niu et al., 2018). As can be seen in the multiple governance systems related to industrial heritage such as SACH for heritage management, the Ministry of Housing and Urban-Rural Development (MOHURD) for urban land management and planning issues, and MIITPRC for economic restructuring, local authorities respond to central government agencies while showing a strong reliance on planning systems governing the transformation of former factories, designations of industrial buildings and sites, and determination of conservation scope and development functions (Yang, 2017). Heritage management administrations play a missing role in the industrial heritage of Hanyang Iron Works. The entrepreneurial turn of cities emphasises the way of public-private coordination in regenerating former industrial areas. Private sectors are granted some authority in the execution and management of industrial environments while they are excluded from heritage interpretations and designations. Employed by developers, international and national architects play an important role in designing and renovating Hanyang Iron Works' appearances of the museum, creative park, flagships and commercial district.

Nonetheless, opposing uses of industrial heritage economically and politically at last

are exposed over time between public and private heritage producers, which verified the dissonant nature of heritage due to conflict and incompatible uses (Graham et al., 2000). From the lessons in Wuhan, private management maximising rental incomes from the reuse of industrial buildings barely serves to foster creative industries and the creative park project ended as commercialisation resulting in short-term prosperity. Developers branded industrial heritage conservation as cultural and residential facilities while ending with real estate development. Conflicts between the private sector and the public are reflected later, as the former focuses more on economic gains and the latter considers public functions of industrial heritage. Private sectors with great investments can powerfully affect development directions, the pace of conservation, and spatial design style, while the local government has difficulty supervising the transformation and conservation processes. Complimentary to a normative perspective on the dominant forces of local government mostly in southwest cities (e.g. Chen and Judd, 2021), the administration of industrial heritage projects is embodied in the land use rights, land leases, and conservation plans instead of the implementation period. The several delays in the Hanyang Iron Works project due to the withdrawals of private capital illustrate the limits of local government in supervising large project implementation. As such, the common goal of pursuing economic gains revolving around industrial heritage conservation has shortly functioned as a bridge to resolve conflicts between local government and developers reaching a balance between industrial heritage conservation and urban development, as Oevermann and Mieg (2015) argued. How to sustainably develop industrial heritage sources is an issue to be discussed in future.

My thesis, related to industrial heritage production in China, provides evidence that industrial heritage production is in line with Smith's statement about AHD. Though with increasingly active and diverse public and private participants dealing with industrial heritage production, there has rising hegemonic role of various administrative and governmental networks in authorising and interpreting industrial heritage, which extremely suppresses other multiple interpretations from the bottom-up level. Yet in the transformation of former factories, the Chinese context, in general, reveals that the state owns land and regulatory powers over the planning and relevant policies hence dominating the determination of industrial styles as a specific type of urbanity, the supply of housing and its cultural predispositions, and the choices of both capital and the gentrifiers (Tomba, 2017). The interpretation and production of industrial heritage are thus firmly in the hands of local governments. Though interest groups such as the factory owner and grassroots artists initiated the conservation theme and methods earlier, they were quickly excluded from the transformation and conservation processes. Notably, heritage experts play a limited role in the interpretation of industrial heritage. Professionals in the field of architecture and urban planning, and a few prestigious local historians are at the forefront of calling for the retention of industrial remains. Architectural features of industrial remains and their contributions as an industrial complex to a type of urban morphology are emphasised. The marginalisation of cultural relics and even the absence of the discipline of industrial archaeology is evident with less comprehensive considerations related to recent industrialisation, the working-class history, and their collective memory related to industrial production.

After examining the production of industrial heritage as well as power relations between interest groups, the next section will conclude how industrial heritage is used, accepted or rejected by different audiences reflecting their response to industrial heritage producers.

7.2.2 Pursuing Spectacles in a Consumption Society

Hanyang Steel Works' transformation has changed over 20 years with the gentrification of working-class neighbourhoods to middle-class residents as well as shifting tourist groups and other heritage users such as artists, shoppers, and cultural companies. This section focuses on how industrial heritage is initially refused then appreciated as related to the patriotic theme, and finally a cultural and artistic commodity. It can be summarised that though there has been an increasingly shallow appreciation of industrial heritage in China by some art lovers and spectacle consumers without an industrial production experience, most other users including local communities and new gentrifiers show an indifferent attitude. I argue that industrial heritage in China, like many other cultural products turning into economic assets, has been degraded in danger of the shallow significance of industrial culture. There is neither support from people with the deepest place attachment to factories nor the younger generation's lasting appreciation contributing to the reproduction of new sets of cultural meanings. Despite the short-term popularity of consuming arts against a spectacular background with industrial aesthetics, former industrial sites are constantly reproduced and finally abandoned resulting in the dissolution of place identity and more importantly unsustainable regeneration.

There has been a prominent consumption trend of industrial heritage or specifically themed industrial environment in the form of tourism and cultural and commercial districts in Chinese consumerism niche markets catering for the rising local middle class with a thirst for a special consumption and leisure experience. In contrast with the monotonous continuity of nearby similar newly built buildings, consumers and tourists with little knowledge of factory production's hardships find industrial settings intriguing (Zukin, 2010). Industrial remains with visual characters are renovated affiliating with the idea of symbolic economy (Bourdieu, 1984) and affective economy (Clough and Halley, 2007) with tourists highlighting performative behaviours embedded in photography. The privileged aesthetic charge of industrial environments is amplified against the Chinese context of rapidly disappearing industrial remains stimulating the sense of loss (Edensor, 2005b), which further legitimises the retention of industrial environments through commercial and artistic renovation methods, even if consumers' gaze is more focused on big events and artistic designs than the backdrop of industrial remains housing those activities. Zhu (Zhu, 2015) analysed that tourists and consumers within China do not directly challenge the elites' production of the dominant narrative yet their responses can be embedded in participation and performance in cultural events and tourism commodities. In this sense, cross-generational Chinese industrial heritage users prefer the combination of arts, spectacles and eye-catching industrial environments as backgrounds, which reflects their active participation mirroring a dialogue between folk popular culture, elite interests, and commodification. Nonetheless, it is noted that industrial aesthetics appreciation is at the forefront, not an authentic version but a sanitised and

romanticised one with intrinsically modernised renovation methods, which risks the superficial concerns of industrial heritage that do not have much of a relation with complex meanings of industrial culture and its specificity of origins. Enthusiastic attitudes of the local populace to industrial heritage highly rely on great investments, and over time, consumers' attention towards industrial environments has decreased together with the retreat of great investments that could create and maintain urban spectacles.

The other conspicuous user group of industrial environments is grassroots artists despite their later exclusion by shoppers and creative companies with power and money because of a collective effect of market demand and government intervention. In contrast with other cases that spontaneously attract the creative class adaptively reusing abandoned factories such as bohemians in America, China's story reflects the official encouragement to promote a creative park model cultivating the rising 'creative class' in fact are big enterprises with money and networking capital (Wang, 2004). With few regional exceptions of Beijing and Shanghai where there are sufficient artist groups and active creative industries' investments respectively, Wuhan's creative parks failed in both aspects leading to a second decline after the official regeneration of Hanyang Zao. This is also caused by the proliferation of creative parks' familiar usages of industrial landscapes between districts and cities, and finally over-exploitation of the cultural spaces evolving into commodification projects with no past and culture (Niu et al., 2018). In Xie's life model of industrial heritage development (Xie, 2015b), the creative park model that needs sprouting artists as new users of derelict factories fails to create a new territorial identity as well as cultural valorisation

to maintain a new form of industrial heritage in which tourism and culture are inseparable. As I inferred before, the adaptive reuse of industrial remains for the creative park model eventually becomes a commodity in Chinese inland cities such as Wuhan where there is a lack of locally rooted artists and creative groups (Wu and Zhu, 2016). Much research has recognised the successful transformation of industrial sites housing creative industries (e.g. Cano-Sanchiz, 2022) my research case gives an example in China's inland cities that it is hard to develop creative industries and intensive policies should be adopted to focus on cultivating 'creative class' instead of just the incubator.

Similar to most economic conceptualisations of heritage that discount other complex heritage values (Sun et al., 2019), industrial heritage is far from being broadly accepted in social meaning aspects. Yet the consumption of industrial heritage has connected the industrial past with broader public audiences. Most of above mentioned mainstream consumers and users of industrial remains are devoid of significance, commemoration, identity and nostalgia, which does not engage in the scope of heritage issues (Chapter 6). This is similar to other user groups including former workers and new residents as gentrifiers who show a widespread indifferent and disinterested attitude to industrial heritage (Chapter 6). Besides, there is evidence showing that there are possibilities of multiple participations from the factory, third-party organisations, and grassroots artists interacting with industrial past or new cultural valorisation of artistic issues, but the potential pluralistic dialogues are closed due to the limited role of participants from the bottom level.

The motto stating that industrial heritage is a heritage of the people for the people (Samuel, 1994) may apply in Britain, but it does not in China, where industrial heritage is being activated without the people but for their consumption (Pozo and González, 2012). The passivity of recognising industrial heritage among wider users can be attributed to three factors. First, several compelling multi-promotive factors in China obscured the issue of conserving industrial remains as a kind of heritage including the unprecedented speed of dramatic changes including industrialisation and economic restructuring, the fast replacement cycle of industrial fabric transformation to urbanism and modernisation development (Ley and Teo, 2013). Though there were memories related to unpleasant production history as indicated by local communities disconnecting them from the idea of industrial heritage, derelict industrial remains especially those with advantageous locations do not wait but have been cleared and redeveloped, and everyone seems to internalise the demolition, redevelopment and eviction as an inevitable part of urban life (Tomba, 2017). Few single industrial structures are left acting as decorations in cities' public areas accessed by new residents on a daily basis but without profound meanings relevant to industrial culture.

Second, in the transition to a socialist market economy, the rise of consumption culture dominates the gradually eroding industrial culture especially the labour and working-class culture that was once revered and leading one before the 1990s (Li and Soyez, 2003). Most Chinese people do not respect industrial heritage from the perspective of the admiration of the working class (Li, 2002), which is different from those Western industrial museum cases where tourists with active and self-conscious in the sense of working-class memories and identity (Smith, 2006). For former workers with the

deepest feelings for their lifetime workplace, most of them are more concerned with livelihood and new jobs rather than heritage-related matters not to mention their negligible voices in heritage production due to their exclusion. This may be because China's general framework of a fast-growing economy indicates a developing manufacturing rather than a dawning crisis and there has been a steady process of industrial restructuring with less contestation, which is in contrast to industrial heritage cases in France and Sweden that are actively initiated by the working class participating in their rights in record industrial history and other social justice issues (Storm, 2008). As such, it is problematic because industrial heritage is a representation of working-class life that is increasingly alienated from workers (Kaya, 2020). The absence of the discipline of industrial archaeology is evident with less comprehensive considerations related to recent industrialisation, industrial trauma, working-class history, and collective memory related to industrial production (Li, 2017).

Third, connections of industrial heritage with memory and identity have been blurred engendering significant generational challenges. My study case is exceptional in highlighting the combination of glorious industrial history related to historical figures and patriotic themes in the early 2000s by the factory unexpectedly attracting young tourists. However, the bottom-up popularity is replaced by the official industrial heritage development discourse that is largely borrowed initially imitating a simplified regeneration approach as quick-fix solutions for only around ten years thereby in a diluted way (Chen and Judd, 2021). Local representative opinions are further ignored and the aforementioned production of industrial heritage is mainly a political issue invested by economic elitists and supported by academic expectations. Economic

concerns dominate followed by recent reflections on China's industrial history promoting industrial achievements of the PRC with the aim of national identity. Industrial heritage has thus not been brought to wider sectors of the population in terms of its political and social role referring to nationalism and place identity, which is quite uncertain under constant negotiation. Like many domestic industrial heritage cases, economically transformed industrial sites can only be superficially remembered by geographical and temporal information such as Sunac · 1890 · Hanyang Iron Works.

Therefore, consumption culture dominates with beautiful industrial environments as background serving mainly commercial functions. Artistic applications, eye-catching flagships, and great events relying on big investments are applied with industrial fabric to make it popular in a post-industrial society. This is in response to industrial heritage produced by the local government and developers, and maybe the audience for industrial heritage and industrial culture is still not developed in China / Wuhan. Combined with different interest groups' attitudes involved in China's industrial heritage production and consumption, in the next section, the discussion will move to the relationship between industrial heritage and regeneration within wider shifting contexts.

7.3 Industrial Heritage and Regeneration

In this section, the emphasis switches to the malleability of industrial heritage fitting in regeneration providing a way to understand the connection between heritage with other social, economic and political issues of our time. It begins with how fast-changing

contexts considering post-modernity shape the conceptualisation of industrial heritage monitoring its uncertainty, continuity, and diversity by tracking the development of Hanyang Iron Works. This involved an understanding of the history of the Hanyang Iron Works from its origins through to its closure but more importantly, my study has focused on the processes relating to the regeneration of the site which is still ongoing. This was the wider context for this study which was driven by the over-arching research question of what is the role of industrial heritage in the regeneration of urban China's former industrial plants. More importantly, the implications of China's practices provide a reference for the transformation of former industrial sites with similar contexts. The long-term transformation is implicit in the process, shedding light on suggestions for the sustainable development of industrial heritage-led regeneration in responding to changing circumstances.

7.3.1 Industrial Heritage Malleability

The transformation process of the former industrial sites could take many years, and in the process, the 'heritage' element gets lost or extended. Other work doesn't focus on the longer-term processes of heritage production but I recognise it is still a work in progress. This supports my argument in this section that industrial heritage is a process as many scholars illustrated(e.g. Harvey, 2001) It is produced in response to economic, social and cultural imperatives resulting in its malleability in terms of physical and functional forms. My thesis proves that industrial heritage malleability is more obvious in a fast-changing society considering more fluid capital accumulation and a rapidly shifting physical environment. The interpretation of industrial heritage relies on AHD combined with China's heritage traits. Both place and nationalism maintain an enduring significance in more fragmented postmodern conceptions of the

world while in danger of dissolution.

From a capital accumulation point of view, industrial heritage is affected by the pace of local industrial and economic progress which can influence conservation methods. The context chapter indicates the theorisation of heritage temporality that implies presentness (Dodgshon, 1999) and the recent heritage issues are related to the condition of post-modernity since the 1970s (McCrone et al., 1995). Among the array of phenomena that portray post-modernity, patterns of production and consumption associated with globalised capital circulation are prominent to mark the late twentieth century (Harrison, 2013). China joined this process later and industrial heritage has become a strategic tool for different methods of capitalism through the imitation of an American regeneration approach but in a diluted way (Chen and Judd, 2021), with their superficial appreciation such as unique aesthetics, flexible warehouses for new functions, and appraisal of industrial sites's city centre locations (e.g. Palmer et al., 2012; Alfrey and Putnam, 1992). This approach was earlier adopted by China's megacities in the 2000s than those inland ones according to local economic development status. My previous examination of a long-term transformation of the Hanyang Steel Works site illustrates that its reconfiguration within the planning process is for space production engaging with the initial local housing market in the 2000s, economic restructuring for the tertiary industry in the early 2010s, and symbolic economy attracting wider national and global capital in the late 2010s. Once industrial heritage conservation is considered not profitable, it could be immediately abandoned by capital that moves to other areas with financial gains. My research case's failure to sustainably maintain the cultural economy and flagship projects further manifests that

importing previous successful foreign models applied in industrial heritage and regeneration may not be suitable in the Chinese context. Contemporary economic conditions thus affect the malleability of industrial heritage in terms of conservation scope and methods while potentially jeopardising it. Resonant with Chen's (2016) research, industrial heritage discourse is subject to economic growth exacerbating the vulnerability of local industrial heritage conservation.

Unlike abandoned brownfields in the Western context with no one wishing to redevelop them, derelict urban industrial sites do not wait and they are quickly transformed into new properties. It is more difficult to retain industrial remains that have disappeared at an unprecedented speed in China (Berta et al., 2018). After industrial fabric's adoption in domestic economic regeneration, industrial heritage representations have shifted from a single structure or a building to conservation areas of partial industrial sites. Conserved buildings are reused, recycled or radically renovated due to their visual potency while most are discarded and replaced by new buildings. Though there has been an increase in preservation scope and humbler renovation methods of industrial remains in China, industrial buildings are often randomly altered to make them profitable. External appearances are carefully restored showing a tendency to be overly romanticised and sanitised as most commentators have suggested (e.g. Summerby-Murray, 2002), but the interior heavily is reworked, and any evidence of machinery is removed (Cantell, 2005), which severely sacrifices cultural and historical significance. Besides, Hanyang Steel Works' practices reflect a more inclusive and pragmatic approach to industrial remains' conservation extending beyond place management and integrating into urban multiple functions and economic restructuring

with the combination of a museum, a green park, a creative and commercial district, and a residential area to meet a wide range of economic, political, social, and cultural considerations. Newly built areas dominate while commemoration areas are located at the corner of the site and scattered industrial structures as urban decorations. Conserved industrial relics in their regulated and modernised appearance are retained as a reminder of the industrial past that is hardly to be traced. Inappropriate adaptive reuses avoid demolition, but long-term viability is a challenge.

All pragmatic ways to deal with industrial remains seem not a heritage issue but a way to deal with industrial waste. However, identity and cultural issues have been strengthened since the beginning of Hanyang Steel Works' transformation. Industrial culture is first manifested by the factory and then solely interpreted by the local authority and recently national authorities despite internal conflicts among them. Subjective interpretation considering their appropriateness in China's context, industrial heritage is favoured initially by the immaterial sense such as spiritual meanings instead of tangibility (Su and Hong, 2017). Spiritually, my research case shows that the place identity is highly attached to a historical figure, Zhang Zhidong as well as his contributions to Hanyang Iron Works. It is noticed that almost all heritage actors appreciate Hanyang Iron Works' values in a stable state referring to its historical significance, temporal periods, and industrial aesthetics with few contestations. This relates to Smith's (Smith, 2006) AHD, but recognition of grand and famous history from the bottom-up level is significant revealing a dialogue between heritage producers and users. Similar to most industrial heritage research that incorporates identity issues, the grand and industrial history is strengthened and the negative parts are erased (Xie,

2015a).

However, public memories of the industrial past are blurred, and the constructed industrial past from the top-down level is not widely recognised. First, the industrial past is separated from the public with industrial history appropriated and created, deprived of consistency (Harvey, 1996). Selected physical entities just need to convey symbolic meanings and do not need to be authentic and integral, which is in contrast with the European context where heritage is traditionally focused on material's eternity bearing limited interventions for maintaining authenticity and integrity (e.g. Zheng, 2011; Ryckmans, 2008). There is a severe college of memory, culture, history, identity and experiences related to industrial production attached to mismatched material objects, buildings and sites, just like the commemoration of Hanyang Iron Works is attached to the remains of 824-factory and Hanyang Steel Works. Second, for wider young audiences, some emotional and cultural responses from the bottom-up level that resonated with the public are largely ignored by authorities such as artistic cultures combined with industrial aesthetics, ruined aesthetics and a sense of loss of demolished industrial relics. These polyvocal cultural identities are suppressed by both place and national ones. As Graham (2000) argued symbolic meanings representing identities are engaged in a constant and contested process of formation. Place and national identity remain enduring significance incorporating or depriving other polyvocal ones. Industrial heritage becomes a political affair accenting patriotism. The depth, significance and diversity of industrial heritage related to complex social dimensions with a public base are lost showing a simplified version (Ren, 2008). Further, the use of industrial heritage as an economic resource neglects the emotional

and popular potential of new identities or connections with the past (Pozo and González, 2012). Combined with China's unprecedently accelerated process of industrialisation and industrial restructuring in only 40 years, complex topics frequently associated with industrial heritage including technological information, working-class history, colonialism, deindustrialisation trauma, and environmental pollution (Literature chapter) are rarely discussed. This may be because of the fast recycling of industrial remains, the steady economic restructuring process, and economic conceptions of industrial heritage, which further blurs public memory and separates the industrial past from the public. More importantly, constantly changing identities marked by other more modernised and artistic projects seem popular and attractive further drowning out the voice of industrial heritage. The time-space compression has partially undermined the industrial place in determining the meaning of belonging.

Accordingly, the survey of industrial heritage in a wider context is outlined suggesting its nature of presentness and malleability in terms of physical and spiritual sense. Physically, industrial remains are subject to capital accumulation rooted in economic restructuring, and spiritually, industrial heritage interpretation relies on local context while place and national identity still are significant. The definitions and practices are unstable and frequently influenced by a panoply of other discourses competing with the interests of conservation (Lu et al., 2019). This risks the loss of consistency, a common phenomenon in fast-changing contexts. Though industrial remains could be retained, industrial culture could not be retained sustainably. Empirically analysing other industrial heritage cases in China's context is needed to not only incorporate multiple values of industrial heritage cultivating industrial culture identity but also new

cultural identity combined with industrial one should be emphasised trying to incorporate a wider audience.

7.3.2 The Limited Role of Industrial Heritage in Regeneration

This section concludes the role of industrial heritage in regeneration. The economic role will be discussed first then moving to the cultural and social aspects. I suggest that industrial heritage is epiphenomenal to urban regeneration, without which construction and economic activities would have been developed. Industrial heritage exerts a limited role in representing a local image and identity. More importantly, though short-term prosperity in the economic and cultural sense is detected, industrial heritage does not directly affect this prosperity and sustainable development of industrial heritage and regeneration is an issue.

Three economic dimensions of industrial heritage can be identified according to the context chapter: an economic activity in itself generating profits; locations for accommodating or repelling other economic activities; promotions of images for stimulating new construction even generating spillover benefits (Graham et al., 2000; Sun et al., 2019). According to the analysis of heritage producers, it is summarised that most financial gains are derived from rent income and property-led redevelopment instead of industrial heritage. First, as tourism and urban spectacle destinations, museums, creative parks, and other exhibition spaces are free-access places that do not make profits. This contributes to the public realm as industrial heritage commemoration spaces could function as parks, cultural centres, and recreational areas in a socialist country. Yet there has been a leading trend of privatising urban

areas including former industrial sites most of which have been transformed into private residential and commercial areas.

Second, there was a short-term prosperity of cultural industries that were attracted to my research case's location in a limited space area, which helped its revitalisation partially making up for the loss of the manufacturing industry. Due to the limited scale of local cultural and creative industries along with the commercial gentrification, the short-term rent-income pursuit was inclined to make more cultural enterprises priced out. Remarkable financial gains are not generated from the cultural economy instead the rent income. Afterwards, over-exploitation of consumption makes industrial heritage sites lose cultural enterprises' appeal and commercial appeal based on the distinct cultural atmosphere. The conservation of the historical physical fabric limits the development of a sustainable local cultural economy (Landorf, 2009). Complimentary to most research that pointed out the economic success of creative industries through the reuse of industrial remains in China (Cano-Sanchiz, 2022), industrial heritage is not the main reason for success in economic aspects.

Last, after a long-term examination of Hanyang Iron Works, industrial heritage seems a strategy of last resort as an economic sector as a direct solution to the decline of manufacturing industries. Private capital investments in a more liberal economic circumstance show a significant role in property-led regeneration that favours wholesale demolition and redevelopment. The claimed industrial heritage is the adoption of an industrial style as a type of urban morphology with the premise that this

style is perceived as beneficial to real estate inflation, which is epiphenomenal to urban transitions. In this manner, industrial heritage manifested in property-led regeneration is a spatial coincidence (Graham et al., 2000). However, there were no marked catalysts or advertising effects because of the failure to attract investments in the regeneration of the whole industrial site. Conversely, industrial heritage conservation could hinder property-led regeneration that would undoubtedly have happened without industrial heritage (Sun et al., 2019). Despite the marketing of flagship projects and great events that help increase local awareness of industrial heritage, neither commercial enterprises nor home buyers had confidence in investing in property with industrial heritage. Great investments could have a chance in a vicious circle resulting in constant abandonment, which brings unsustainable issues (Fouseki and Nicolau, 2018), such as my research case's repeated stagnation and abandonment due to several times' withdrawals of private investments.

Findings indicate that the linkage between industrial heritage and social dimensions is narrow. One issue that proves contentious is gentrification. My research implies that formed middle-class communities thrive replacing the former working class in an orderly way because gentrification is a mode of urbanisation in urban China that simultaneously upgrades people and buildings (Tomba, 2017). Industrial culture is isolated from the new communities as the backdrop to public areas and hence contributes limited to social affairs as the context mentioned such as collective identities and community cohesion. In a seemingly less contested society without severe social crisis caused by industrial restructuring, and a generally still fast-growing economy indicating a developing manufacturing industry, industrial heritage does not

help overcome passive acceptance of economic decline and its aftermath. New community identities are not formed. Artist groups appreciated industrial remains once transforming them into a socially vital area but later official regeneration programme excluded them. The involvement of capital and official endorsement pursuing economic interests, in this case, prove unsustainable challenges in developing industrial heritage in regeneration (Niu et al., 2018).

As such, considering such a large industrial site's transformation, industrial heritage in my research case plays only a minor role in regeneration if it is a property-led one. The integration of tangible remains' aesthetics in physical renewal is compatible while its intangible culture seems not. Industrial aesthetics is more like a cultural veneer that is dispensable in attracting investors, cultural enterprises, and home buyers. Instead, regeneration relies on a holistic vision of strategies, investments and infrastructures such as transportation and policy supports as shown in my case that relates to such a large industrial site. There has been a failure to bring industrial heritage emotionally close to wider sectors of the population, which further limits the possible role of industrial heritage in social arenas. In the circumstance of spontaneous utilisation by an artistic group, industrial warehouses could house flexible functions, which is advantageous for economically and socially viable in short-term and limited space size range. This raises an issue of how to rationally and sustainably reuse industrial heritage in a process that remains the prerogative of the state in China.

7.4 Strengths of the Research and Limitations

By reviewing the research framework and the methodology's practices, strengths and limitations are given in this section providing a series of introspections. Suggestions in terms of current problematic issues and future directions for researching industrial heritage are discussed based on the lessons studied in this research.

7.4.1 Strengths and Future Directions

This research investigates the relationship between industrial heritage and regeneration through reflections on China's context. It integrates attitudes from both heritage producers and consumers to monitor their dialogues giving a comprehensive understanding of industrial heritage conceptualisations and orientational values. The statements developed in this study can be useful in evaluating the continuity and changes of those perceived values. What is more important is the deep understanding of industrial heritage's role in regeneration - an extensive context in China when considering the transformation of former industrial sites and the conservation of industrial heritage. Thesis demonstrates a dynamic perspective in examining industrial heritage production and consumption in a regeneration context, during which the notions of modernity, adaptive reuse, identity, image-making, and post-modernity are revealed. Consequently, findings contribute to industrial heritage governance and sustainable management in the economy and identity arenas.

The overarching aim of this research can be tackled - what role does the concept and practice of industrial heritage play in regeneration that is behind the transformation of

old industrial space and economies to new economies and new spaces? Firstly, China's industrial heritage is directly produced by the convergence of multiple methods including tourism, museumification, commodification, and creative industry development. In a discursive way, a visual consumption-based industrial heritage is widely accepted, which reshapes the nature of how people reimagine industrial culture. Secondly, industrial heritage in China has revolved around economic and political aspects referring to economic restructuring and undernegotiated industrial identity construction. The heritage interpretation, conservation scope and approaches have to be determined by the state. Private partnerships of authorities join as investors and implementors such as factory owners, cultural enterprises, and developers in the sequence of industrial heritage-making of Hanyang Iron Works. Professionals in the field of architecture normally affect the renovation designs for the appearance of industrial heritage sites, buildings and structures. There has been an absent role of local community and preservation groups engaged in the transformation of Hanyang Iron Works. However, facing the closure of such a large industrial site, motivations of speculative land development shortly bridge various public and private stakeholders instead of industrial heritage conservation. This illustrates the third research question. The transformation of the former industrial site is integrated into a strategic development of urbanisation and modernisation movement within the planning system. Industrial heritage in the wider vision of regeneration is a marginalised issue that neither contributes to remarkable economic growth nor extensive social affairs. Commemoration is gathered in the site's corner in a museum focusing on the positive parts of a specific period of industrial history and a historical figure. Other scattered industrial structures and buildings are left as a backdrop for other urban functions.

In terms of the strength of this thesis, few other studies have been engaged in the relatively long transformation processes of an industrial site, and this research helps, first, offer a chance for people to explore how industrial heritage ‘fit’ within the wider economic and social context. Contemporary changing economic and political circumstances are reconfiguring obsolete industrial remains. I conclude that dominant economic pragmatism and the recent rising nationalism are highlighted concerning China’s industrial heritage production. For the uses of industrial heritage in economic aspects that are often ignored in the literature (Graham et al., 2000), this essay provides some evidence that industrial heritage practices in the forms of creative industries and industrial images for property inflation are insufficient to generate remarkable financial returns as expected. Industrial remains are treated as constraints of development, which is modifying variables. Removal and redevelopment are still the preferred methods of enhancing the value of land and properties, especially for industrial sites with geographic advantages. Social and cultural aspects of industrial heritage are underestimated in the regeneration. In response to global geopolitics, China’s recently developing National Industrial Heritage failed to qualify industrial relics for cultural heritage management.

The examination of industrial heritage in wider contexts is not only based on the perspective of producers but also users. Taking the two logics into concern has meant a broader spectrum of previous research to relate to, while many academic disciplines deal with only one of the aspects (Storm, 2008). My research points out that the government's preference for economic methods to drive industrial heritage protection

is difficult to sustain in the long term. The market showed limited confidence in speculative real estate development with industrial heritage sites. The industrial environment contributes vague to attracting cultural and creative enterprises. Direct locational considerations of the former industrial site dominate. However, consuming urban spectacles has become more prominent and popular, which makes industrial environments with special aesthetics a distinct type giving consumers and tourists great consumption and leisure experience. This is a superficial appreciation of industrial heritage appearance eroding cultural and identity aspects of industrial heritage.

Second, my thesis considers the long-term processes of heritage production putting things into a dynamic *economic and political* framework, which other work doesn't really focus on. Cases in the literature tend to see industrial heritage as an issue led by a group of enthusiasts after the factory closure. This is not the case in Wuhan, China. Considering its dynamic contexts in a socialist society that is different from most Western ones, industrial heritage production in the former industrial sites' regeneration is a more strategic decision reflected by stronger government interventions. Industrial heritage development is policy-driven, which is implemented in an orderly way within the land and the planning system. Recent policies integrated industrial heritage into the emerging agendas of nationalism. Nonetheless, identity construction by industrial culture at different geographical levels has been under negotiation. Further, compared to much research investigating industrial heritage cases in Beijing and Shanghai (see for example, Chan and Li, 2017; Currier, 2008), Wuhan's industrial heritage issue, despite its rising discourse in regeneration, remains the marginalised status inferior to

traditional heritage types or things contributing to modernised development. This helps partially make up the cognitive deficits in its qualitative difference of cases in Chinese mega-cities. Besides, the industrial heritage issue in China's rapidly changing contexts also provides a chance to look at the relationship between industrial heritage and post-modernity with its reference to other similar societies that have experienced a sense of time-space compression. Fast-disappearing industrial environments stimulate some people's feelings of a sense of loss promoting their desire to understand the industrial past but most forget this past quickly. Accelerated capital circulation allows industrial sites to be produced and reproduced while risking constant abandonment.

This study is only an exploratory look into the changing features of industrial heritage development for fitting in urban transitions. I conclude with some observations with regard to pressing issues of economic and political concerns with industrial heritage. The long-term examination of Hanyang Iron Works exposed the severe unsustainable issue of the economic uses of industrial heritage that is susceptible to dramatic economic challenges. How to rationally and sustainably use industrial heritage sources is a complex issue worthy of future in-depth exploration in China. Topics could be further explored in terms of diversified and resilient approaches to private-public cooperations and adaptive management in response to dynamic changes.

Other implications of cultural shifts and social influence should be paid attention to in the regeneration process. A cross-disciplinary approach that draws together spatial, social and cultural dynamics seems to be the way forward. On the one hand, in the

cultural sense, as discussed before, China's industrial heritage development in regeneration is at risk of becoming a 'junk space' without geographical depth and complexity. It is a challenge for an expansion of industrial heritage in *a post-industrial younger audience without industry production experience, which should be given more attention in integrating industrial culture into China's* industrial heritage development. My research case indicates that the consumption experience suppressed other affective and artistic interactions of young audiences with industrial remains and their past. I suggest more studies and practices could be attuned to those interactions to involve more people in industrial heritage. On the other hand, different cases of industrial heritage in China could be looked at including comparative studies as opposed to the uses of industrial heritage for leisure and residential spaces to explore different values. Instead of involving more audiences, future directions should focus on acknowledging the importance of opinions from the bottom-up level participating in heritage decision-making processes. This relates to a more democratic process of heritage production respecting alternative perspectives.

7.4.2 Research Limitations

The limitations of my research need to be reflected. There are some practical difficulties in collecting data from stakeholders when considering a long-term transformation of the former factories. First, most local communities and former workers are not available to be investigated due to their displacement in the 2000s. Most data before the 2010s were collected from several key participants in Hanyang Steel Works who were almost involved in the entire transformation process. Though

triangulation is applied in this thesis by verifying key participants' data information from other scholars' voices and documents from news and journals, the explanation of data before the 2010s is more shaped from the factory's perspective. Besides, there are sensitive issues with regard to power relations of industrial heritage production. I felt constrained in asking some questions in terms of governance and management of industrial heritage by the authorities, and aggressive or depressive responses are inevitable when dealing with interviews. The drastic changes in China's real estate market in 2022 have extremely influenced the development of my case to be stopped. I have updated the latest situations and progress as best as I can, while the specific reasons and changing plans of conservation could not be discussed in this thesis.

Besides, the epidemic caused by Covid-19 lasted three years since 2019, which objectively affected my data collection especially when considering opinions from the audience of industrial heritage. During my fieldwork period, I could not investigate many tourists' opinions due to travel restrictions though the epidemic condition in Wuhan was under control without strong restrictions on the opening of public places.

Last but not least, the framework and design of my study as well as the conclusions and interpretations I put forward in this thesis are based on my own worldview and personal experience. This demonstration is one among a range of possible approaches and theories for viewing industrial heritage production and consumption. Future empirical research is needed to investigate my research points in different cases in China.

7.5 Conclusion

This essay attempts to identify key narrative interpretations that may be useful for understanding industrial heritage development and regeneration in China by exemplifying the case of Hanyang Iron Works in Wuhan. I began by discussing an array of values related to industrial heritage and its practices of regeneration to explore a wider and larger scope of interpretations in the global context. These have been observed for constructing an interpretive strategy that helps to refine data collected from fieldwork and interviews.

This survey critically examines the roles of industrial heritage in response to different contextualised economic, social and cultural imperatives, and this can shed light on the processes of change when discussing industrial heritage in China. It is reflected that China's industrial heritage is still in the process of negotiation, which is intersecting with economic restructuring and identity construction. The policy-driven context has repositioned industrial remains that have been easily manipulated from demolition by default to conservation areas. Taking different forms including creative industry parks and consumption districts, as well as their combination of artistic applications, flagships and great events, industrial fabric conservation with new functions show Wuhan's ambitions, as a representative of China's inland cities, not only its integration in urban economic restructuring but also in joining global competition rather than reflecting and preserving their pasts.

The consumption culture has begun to dominate, and other cultural and industrial

heritage issues have been marginalised. The valorisation of industrial heritage in China, over the past two decades, has moved slightly from the marginalised position to a relatively central one, which has been applied in the dominated realm of property-led regeneration. However, the industrial past is fragmentally appropriated with the strengthened positive part and eroding negative one, which is attached to the scattered industrial fabric despite most of which has been demolished. Purposes of excessive short-term profitability are exposed not only dramatically sacrificing the social and historical value of industrial heritage but also bringing unsustainable challenges. How to rationally use industrial heritage resources for regeneration is an issue to be explored in the future.

Appendix: The List of Interviews

Name	Position
Xiong, Z. H.	Director of the industrial tourism project of the Hanyang Steel Works
Liu, C.M	The director of the Party Office of Hanyang Steel Works
Gu, B.J.	The former curator of Zhang Zhidong and Wuhan Museum
Zheng, Y	An official in the Wuhan land development department
Liu, Q. Z.	Director of Wuhan Planning Department
Hou, H. Z.	Head of Humanities Wuhan, a non-government heritage conservation organisation
Liu, T. X.	A volunteer of Humanities Wuhan
Yan, P.	An industrial heritage scholar who participated in the whole conservation process of the Hanyang Steel Works as a consultant
Zeng, L.	A heritage scholar related to Hanyang Iron Works
Yuan, H.	A researcher of Wuhan industrial history
Yao, W.J.	A heritage scholar related to Hanyang Iron Works
Peng, N.	An industrial heritage scholar related to Hanyang Iron Works
Zhao, S.	An urban planning scholar related to Hanyang Iron Works
Xin, Y.	A visitor to Zhang Zhidong and Wuhan Museum
Liu, X.Y.	A visitor to Hanyang Zao
Huang, Z.Y	A local resident living near Hanyang Steel Works for over 20 years
Hu, A	A local resident living near Hanyang Steel Works for over 20 years

Xu, S.Q.	Sunac sales
Zhao, S.	Sunac manager
Liu, X.	Sunac sales
Han, H.	A new resident moved in the 2010s
Liu, Q.	A new resident moved in the 2010s
An	A visitor to the Sunac sales centre
Liu, X	A visitor to Wuhan Biennale and Wuhan and Zhang Zhidong Museum
Xu, F.	A visitor to Hanyang Zao Creative Park

Abbreviation

Abbreviation	Full Name
AHD	Authorised heritage discourse
CBSGC	China Baowu Steel Group Corporation
CPPCC	the Chinese People's Political Consultative Conference
GDP	Gross Domestic Product
ICOMOS	The International Council on Monuments and Sites
MOHURD	the Ministry of Housing and Urban-Rural Development
MIITPRC	Ministry of Industry and Information Technology of the People's Republic of China
NGOs	None Government Organisations
PRC	The People's Republic of China
ROC	The Republic of China
SACH	State Administration of Cultural Heritage
TICCIH	The International Committee for the Conservation of the Industrial Heritage
TICCIM	The International Committee for the Conservation of Industrial Monuments
UNESCO	The United Nations Educational, Scientific and Cultural Organization
UPSC	Urban Planning Society of China
WISCO	Wuhan Iron and Steel Corporation
WMBCT	Wuhan Municipal Bureau of Culture and Tourism
WMBEI	Wuhan Municipal Bureau of Economy and Informatisation
WMBNRP	Wuhan Municipal Bureau of Natural Resources and Planning

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