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Influences of Russian Culture on Harbin's Urban Planning from 1898 to 1931 and Conservation Recommendations

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ABSTRACT

Harbin, located in Northeast China, is the provincial capital of Heilongjiang province, the People's Republic of China. The city was one of the most crucial junction cities on the Chinese Eastern Railway built in the early 1900s, which connected Russia and China. Russian migrants had a significant impact on the rapid urbanisation and industrialisation of Harbin and Russian features can be identified from Harbin's urban planning, which is unique to other major Chinese cities. However, there is limited research on Russian influence on Harbin's urban development during the Russian colonial period from 1898 to 1931, which is the focus of this
(abstract continued next page)

Keywords: Russian colonisation, colonial city urban planning, heritage conservation, garden city, Harbin urban planning

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paper. Field observation, map analysis, and desktop research were conducted to collect qualitative data. This study addresses the importance of Russian colonial impact on Harbin's urban planning and the heritage conservation of the city's historical urban fabric. Findings of this research can help researchers and local authorities understand the uniqueness and value of Russian inspired city planning. It will also be beneficial to the development of appropriate conservation guidelines which are applicable to Harbin and to other Chinese cities previously under colonial influence.

1. INTRODUCTION

Harbin is a north-eastern Chinese city colonised by Russia from 1898 to 1931 prior to the Japanese invasion. Due to the construction of the Chinese Eastern Railway (CER), the city quickly became renowned as an international trading centre in the early 20th century, and the urbanisation process consequently proceeded rapidly ^[1]. The city has a complex and rich cultural background under the sway of various foreign countries. These cultural influences have left a mark in Harbin's city development, which remains a unique and fascinating historical phenomenon. Today, Harbin is still famous for its European-style urban layout and architecture. Although some old buildings in Harbin were demolished throughout the past 100 years, most of the surviving historical buildings have now been declared as national heritage and are well protected ^[2]. This research aims to unveil Russian culture's impact on Harbin's urban fabric from 1898 to 1931. Field observation, map analysis, and desktop research were conducted to collect qualitative data for analysis. The study first reviews Harbin's historical urban development before evaluating European planning theories that have impacted Russian's planning strategy in Harbin. Through analysis and on-site observation, three existing conservation issues are concluded before providing recommendations. By understanding Harbin's urban planning under Russian impact and preservation possibilities, this study aims to facilitate authorities to develop appropriate conservation guidelines. Lessons learnt from the heritage conversation in

Harbin can also be transferable and valuable to other colonial cities in China.

2. METHODS

Through a review of existing literature and archive collections, map analysis and field observation, the authors of this paper conducted a case study of four districts in Harbin, namely *Nangang*, *Daoli*, *Xiangfang*, and *Daowai*. The three research methods provided qualitative data that allowed this study to scrutinise the selected districts insightfully from multiple perspectives. The authors first conducted literature review by accessing numerous existing literature and archive collections. Existing literature facilitated the collection of key information on Harbin's urban development history and the identification of a research gap. Valuable historical photos and maps were found in the Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality's archive collections. Historical maps of each district, found during the review of existing literature and archive collections, were chronographically sorted and evaluated. By doing so, the authors effectively identified the evolvement of Harbin's urban fabric. These maps were also compared with contemporaneous maps of other cities that resemble similar planning strategies. The authors then annotated and labelled the maps to illustrate similarities and differences drawn from the analysis. Field observation was conducted in January 2021 which concentrated on the existing historical urban fabrics in Harbin. *Daowai* district was a key observation site since it recently became a conservation focus of the local government.

Observation points scattered along streets intersected with *Jingyu* Street, where the inherited urban fabric remained mostly untouched. The preservation of historical courtyard houses, the renovation of shopfronts, the demolition of certain areas and replacing buildouts were focal points of the observation. Qualitative data were collected through photographs and field notes taken on site.

3. HISTORY OF HARBIN'S URBANISATION

The urbanisation of Harbin commenced when the construction of the CER started in 1898^[1]. The CER T-shaped system linked Chita and Vladivostok in Russia to Dalian and Port Arthur in China. Three branches of the T-shape intersected at one point, later known as Harbin. The strategic location of Harbin at the confluence of the *Sungari* River (also known as the *Songhua* River) and the CER later made it a convenient international transport and commercial hub. The Russian government therefore assigned administrative team from St. Petersburg to establish the Chinese Eastern Railway Management Bureau (CERMB) as the colony authority in Harbin^[3]. CERMB acted as an administrator of not only the CER but also the urban development of Harbin. Railway engineers, civil engineers, architects, planners, other railway professionals and family members of the team came to Harbin under CERMB's supervision^[4]. Unlike the spontaneous and commercial treaty ports of China, Harbin and Dalian were the first two cities in modern Chinese history that were under a comprehensive urban planning almost from scratch. Factories, telegraph facilities, radio stations, weather stations, hotels, ports and water systems had to be planned to accommodate the influx of migrants. CERMB first established its office buildings in *Tianjiashaoguo* (part of *Xiangfang* district now) and temporarily located there while plotting other parts of Harbin^[5].

From 1898 to 1931, Harbin's initial urban planning was completed under CERMB's supervision. Most of the initial planning was done by a team of Russian

engineers and architects, notably Vladimir Planson, A.K. Levteev and I.I. Oblomievskii, who were already well regarded from projects in Vladivostok, Port Arthur (now Lüshun), Dalny (Dalian), and other waypoints on Russia's eastward march^[6,7]. Studies also show that many Russian architects and planners who participated in Harbin's development received training in Europe^[8]. They explored new modes of urban planning and architectural expression in Harbin on the frontier^[9]. 'True Russian spirits' of the planning and architectural team directly affected the city's urban layout and architectural styles^[3,10]. Harbin's initial plan was determined by a combination of natural and human factors – the navigable *Songhua* River defined the northern boundary to the south of which the two major railway lines congregated. The railway lines cut the city into three uneven wedges, demarcating some of the settlements. On these wedges, four districts, namely *Xiangfang*, *Nangang*, *Daoli*, and *Daowai*, each had different functional purposes and subsequently laid the foundation of the city's urban development.

In addition to basic infrastructure, residential and commercial development, CERMB was also instrumental in setting up and encouraging social, educational, cultural, and religious activities in Harbin. At the start of the urbanisation process, these four districts were developed separately without much connection^[11]. However, as the railway opened, Harbin started to attract migrants and visitors worldwide and became a well-known trading centre between China and the Western world. Consequently, all four districts began to expand and gradually merged together^[4].

3.1 *Xiangfang* District

The first group of Russian representatives to Harbin included government employees and engineers working for the CER project. They first resided in *Tianjiashaoguo* (now *Xiangfang* district) in 1898. This part of Harbin was named by Russians as *Strayi* and often called 'Old Harbin' or 'Old Town,' as it was the first part of Harbin that Russians resided^[5]. A Russian community was

gradually developed in *Xiangfang*, where infrastructures and a number of supportive facilities were built, including a Russo-Chinese bank, the first Eastern orthodox

church in Harbin, social clubs, barber shops, cafés, restaurants, and schools for CER employees' children [Figure 1].

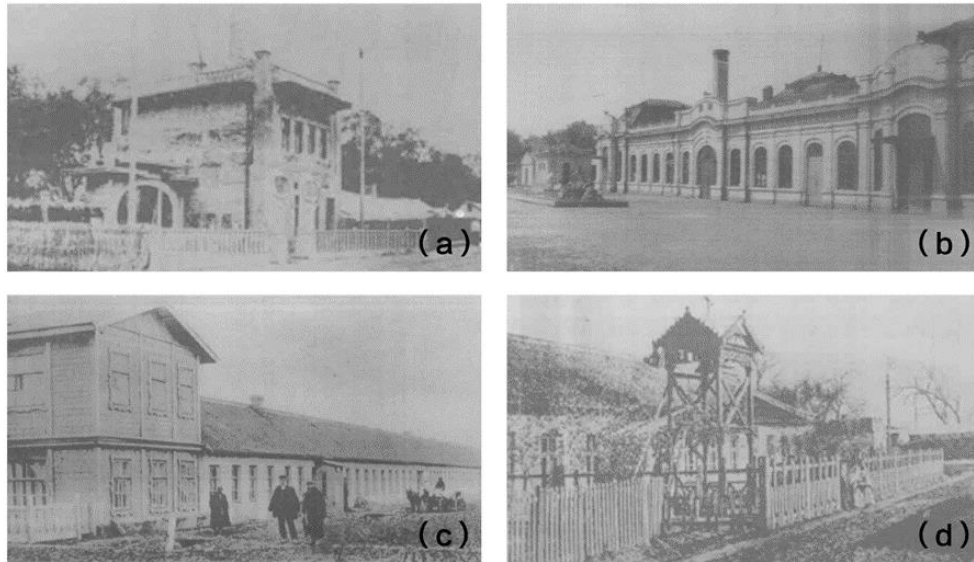


Figure 1. Photos of *Xiangfang* Old Town in 1899. (a) Weather Station in *Xiangfang*. (b) Old Harbin Station. (c) First Official Building of CERMB in *Xiangfang*. (d) First Orthodox Church in Harbin. Source: Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality, 2002

Referring to the Harbin map in 1924 [Figure 2], *Xiangfang* district was carefully planned with a strict grid. Unlike *Nangang* and *Daoli* districts, *Xiangfang* district was not redeveloped again until the Chinese government took back Harbin's administrative rights. Many Russians moved to live in *Nangang* and *Daoli* after they were developed, causing *Xiangfang*'s primacy to gradually fade and it slowly transformed into a basecamp for the Russian army after 1904^[5]. Most of the Russian historical buildings in *Xiangfang* have been demolished during years of redevelopment. The original layout of *Xiangfang* developed in 1898 has also changed significantly, and the initial grid is hardly visible in Harbin's map today^[11].

3.2 *Nangang* District

Nangang and *Daoli* districts are the next two urban districts in Harbin after *Xiangfang*. *Nangang* was named by Russians as Novyi Gorod and was also called 'New Town'. It was planned to be the central administrative district from 1901 due to two

key reasons^[3]. Firstly, part of the main railway line passed through *Nangang*. For the ease of transporting railway construction materials, a new station, named 'Harbin Station' was designed in *Nangang* to accommodate these needs^[12]. The construction of Harbin Station commenced as soon as Russians arrived at *Xiangfang* in 1898 and was completed around 1904 [Figure 3]. The new train station became a prominent landmark of *Nangang*. Secondly, *Nangang* district is located on a hill higher than the rest of Harbin. Due to such attractive topography and its prominent location, CERMB decided to have their administrative offices, related governmental departments and residential developments for their railway employees in *Nangang*^[8]. Subsequently, this district was mainly occupied by Russians who had the administrative power over Harbin. After China took back Harbin's administrative rights in 1946, most government departments, universities, and schools remain in *Nangang*^[13]. *Dazhi* Street and *Chezhan* Street (now

renamed as *Hongjun Street*) are the two main streets in *Nangang* district. These two roads intersect at a square with a church in the middle (original St. Nicholas Church), which served as a critical landmark of *Nangang* district [Figure 3]. These two main streets subdivide *Nangang* into four functional zones [Figure 2]. The north-eastern part was a general residential area, while the south-eastern part of *Nangang* had museums and residential blocks for CERMB employees.

The south-western part, together with *Xiangfang* district, was mostly for the Russian army, whereas the north-western part of *Nangang*, connecting to *Daoli* district, was occupied by many consulates and commercial developments. Zhao et al. (2016) concluded that *Nangang* follows an orthogonal geometry of street grids that collided with radial planning [5]. This urban layout can be observed in Harbin's map in 1910 [Figure 2] and is further discussed in Section 3.

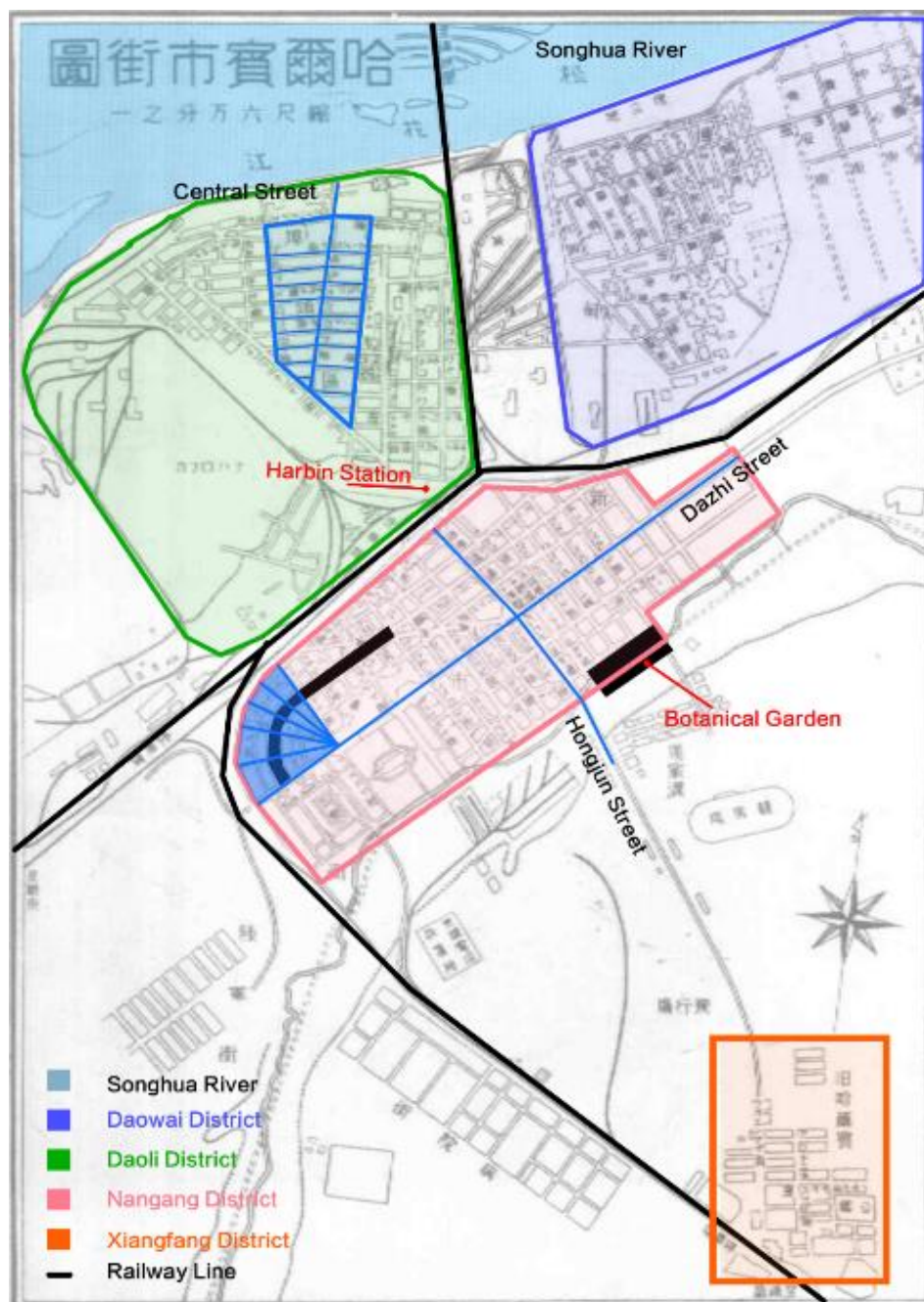


Figure 2. Map of Harbin 1920. Source: Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality, 2002

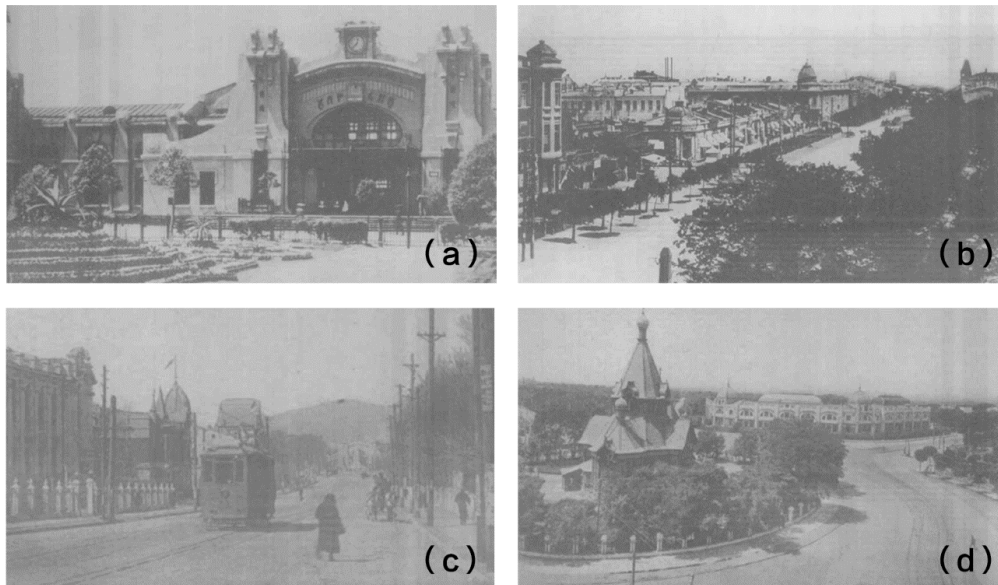


Figure 3. Photos of *Nangang* New Town. (a) New Harbin Station 1904. (b) *Dazhi* Street Scenery. (c) *Hongjun* Street Scenery. (d) Intersection of *Dazhi* and *Hongjun* Street – St. Nicholas Church. Source: Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality, 2002

3.3 Daoli District

While *Nangang* district was being planned and developed by CERMB as the central administrative zone, many railway construction materials and goods for building Harbin were shipped and imported via *Songhua* River^[14]. CERMB constructed dams and storage spaces for goods and construction materials around the riverbank [Figure 4]. Subsequently, *Daoli* district

(known as *Pristan* or the Wharf) began to develop as people gathered at the riverbank for commercial activities and it soon became the centre for trade and commerce^[15]. CERMB planned *Daoli* district predominantly using the grid plan [Figure 4]. In *Daoli* district, the Central Street has been one of Harbin's major commercial streets since it was developed^[16].

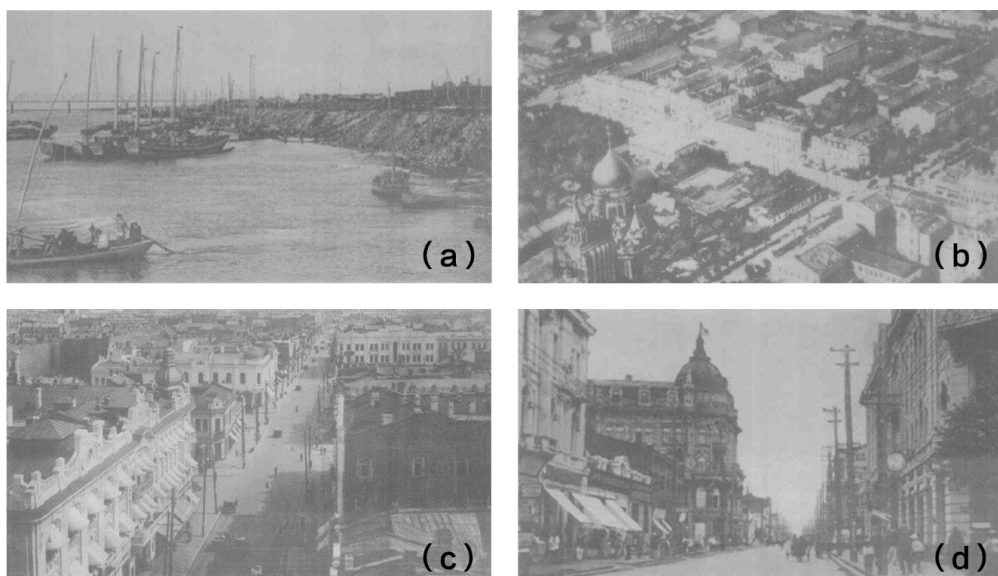


Figure 4. Photos of *Daoli*. (a) *Songhua* Riverbank – Shipping and Distribution Port 1899. (b) Grid Pattern in *Daoli* Bird Eye View in 1920s. (c) Central Street Bird Eye View in 1920s. (d) Central Street Scene in 1920s. Source: Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality, 2002

Daoli district played a different role from *Nangang* district throughout Harbin's development. The new route to Europe has attracted more Chinese and Westerners to visit the city and has accelerated the development of the City. *Daoli* district, as a trading and commercial centre, has accumulated stores, restaurants, taverns, bars, warehouses, and finance agencies, including Harbin Stock Exchange and Commercial Club^[15]. The Russian community opened shops on this street as the CER's construction was completed [Figure 4], and the architectural styles of the Central Street are primarily inspired by Western designs, including Art Nouveau, Baroque, and other eclecticism styles [Figure 4]. The Central Street was approximately 24 m in width, with wide pedestrian walkways and was 1,450 m in length starting from the riverbank. The Central Street had a strong European architectural appeal, and buildings on both sides of the street were between 13 m to 24 m in height^[17].

3.4 *Daowai* District

The construction of CER attracted successive waves of Chinese labourers from neighbouring provinces, namely Shandong and Henan^[3]. Due to the influx of migrants, a new neighbourhood next to *Daoli* – *Fujiadian* (now *Daowai* district) became a hotspot for these new migrants, whereas the other three districts (*Nangang*, *Daoli*, and *Xiangfang*) were predominantly occupied by foreigners. *Zhengyang* Street (now *Jingyu* Street) became the centre of *Daowai* district's commercial activities and studies indicate that *Daowai* district underwent an organic development^[18]. The master plans of Harbin in 1902 and 1917 [Figure 5] indicate that the Russians focused on the urban planning of *Xiangfang*, *Nangang*, and *Daoli*, but not *Daowai*. The lack of official coordination for *Daowai* does not imply that this district was not affected by Russian influence. Contrarily, architecture in *Daowai* was heavily affected by Baroque style, which was a popular style among shops that were designed and built by Russians. Baroque elements such as

decorative columns, parapets and lavish looking ornaments can be observed along *Jingyu* Street in *Daowai* [Figure 6]. A Japanese scholar, Nishizawa first described this eclecticism architecture influenced by Baroque style as 'Chinese Baroque'^[19]. *Daowai* district now has 145 dwellings (with courtyard) of 'Chinese Baroque' style which are listed as heritage protected buildings^[20]. The entire area of 'Chinese Baroque' dwellings is also listed as a historical district in Harbin.

4. EUROPEAN PLANNING STRATEGIES IN HARBIN FROM 1898 TO 1931

Russian authorities applied various planning strategies in Harbin, most of which were inspired by Europeans. Hence, it is vital to understand these strategies before drawing similarities and differences between Harbin and the West. *Daowai* district was not directly planned under Russians, which will be discussed in Section 4.

4.1 Grid pattern in Europe

The grid pattern is a type of city plan formed by streets running perpendicular to each other. Such urban form was found in ancient Greece and Rome^[21]. As seen in the early grid cities such as Olynthus, it is common for these cities to have small blocks with narrow street frontages, which cater for walking and riding^[22]. In 1835, Haussmann proposed to demolish certain parts of Paris to release space for wide avenues and green spaces. Haussmann's planning ideas emphasised the network of avenues, green spaces, the annexation of suburbs and adequate infrastructure, which significantly affected many other cities in the late 19th century^[18]. The Barcelona plan (1858) by Ildefonso Cerda was an example as a prototype of such urban extensions like the new grid city of Paris [Figure 7]. Barcelona is divided into street blocks for providing greenery, sunlight and ventilation. One significant feature of Barcelona's planning was that a few notable wide boulevards formed a diagonal intersection with the centre being a large

green space across the city grid ^[23]. Grid pattern was also the most common planning

strategy in Russia before the Garden City Movement.

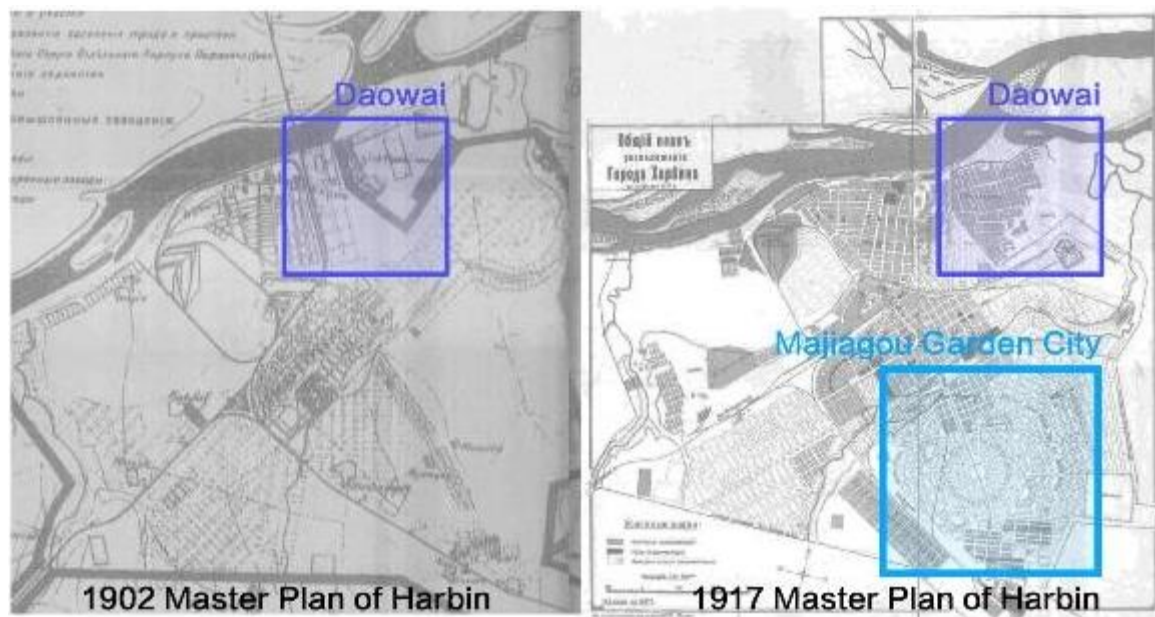


Figure 5. Master Plans of Harbin 1902 and 1917. Source: Kradin et al., *Harbin-An Ideal City of Russian's Dream*, 2007

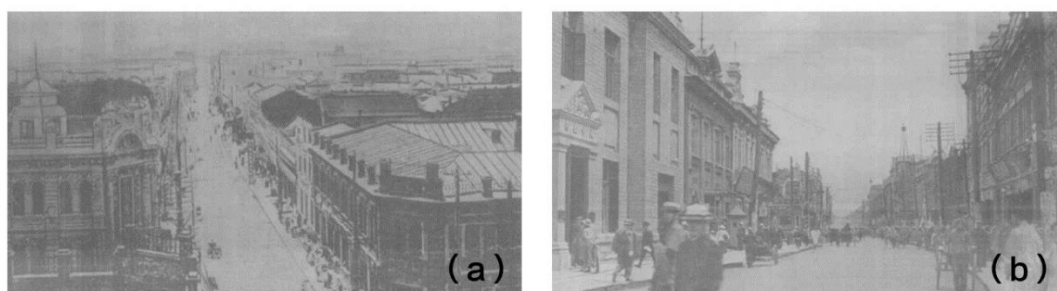


Figure 6. Jingyu Street in Daowai. (a) Bird Eye view in 1920s. (b) Street Scene 1920s. Source: Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality, 2002

4.2 Grid pattern in Harbin

Grid pattern can be observed mainly in *Nangang* District and *Daoli* District. When comparing an early map of Harbin's New Town (*Nangang*) in 1910 and Barcelona's map [Figure 7], many similarities can be observed, including wide boulevards with diagonal and axial relationships, symmetrical balance and emphasis on order. In both cities, streets were arranged in a regular and grid orderly pattern, with a combination of rectangular, diagonal and curved routes converging or radiating from major sites, such

as green spaces or civic buildings, to create a grand and dignified appearance. For instance, two wide boulevards, namely *Dazhi* Street and *Hongjun* Street (now *Zhongshan* Street), are the north-south and east-west axes, and a square with St Nicholas Church was built at the intersection point as *Nangang*'s landmark [Figure 3]. The grandeur of civic buildings was best exemplified by the CERMB Headquarters, which was designed by the St. Petersburg architect, D.A. Kryzhanovsky. CERMB Headquarters stretched 170 m along *Dazhi* Street and annexed 22,300 sqm of

space^[24]. Haussmann's Paris Renovation also reflected similar planning strategy, in which square, fountain, church, and greenery spaces acted as boulevards' intersection^[18].

The grid plan is visible in the east part of Nangang District and in Daoli District

[Figure 8]. For Daoli District, a main concern was to ease the transportation of goods from the river before the railway was constructed^[15]. The Central Street serves as the arterial thoroughfare intersecting with secondary streets on both sides.

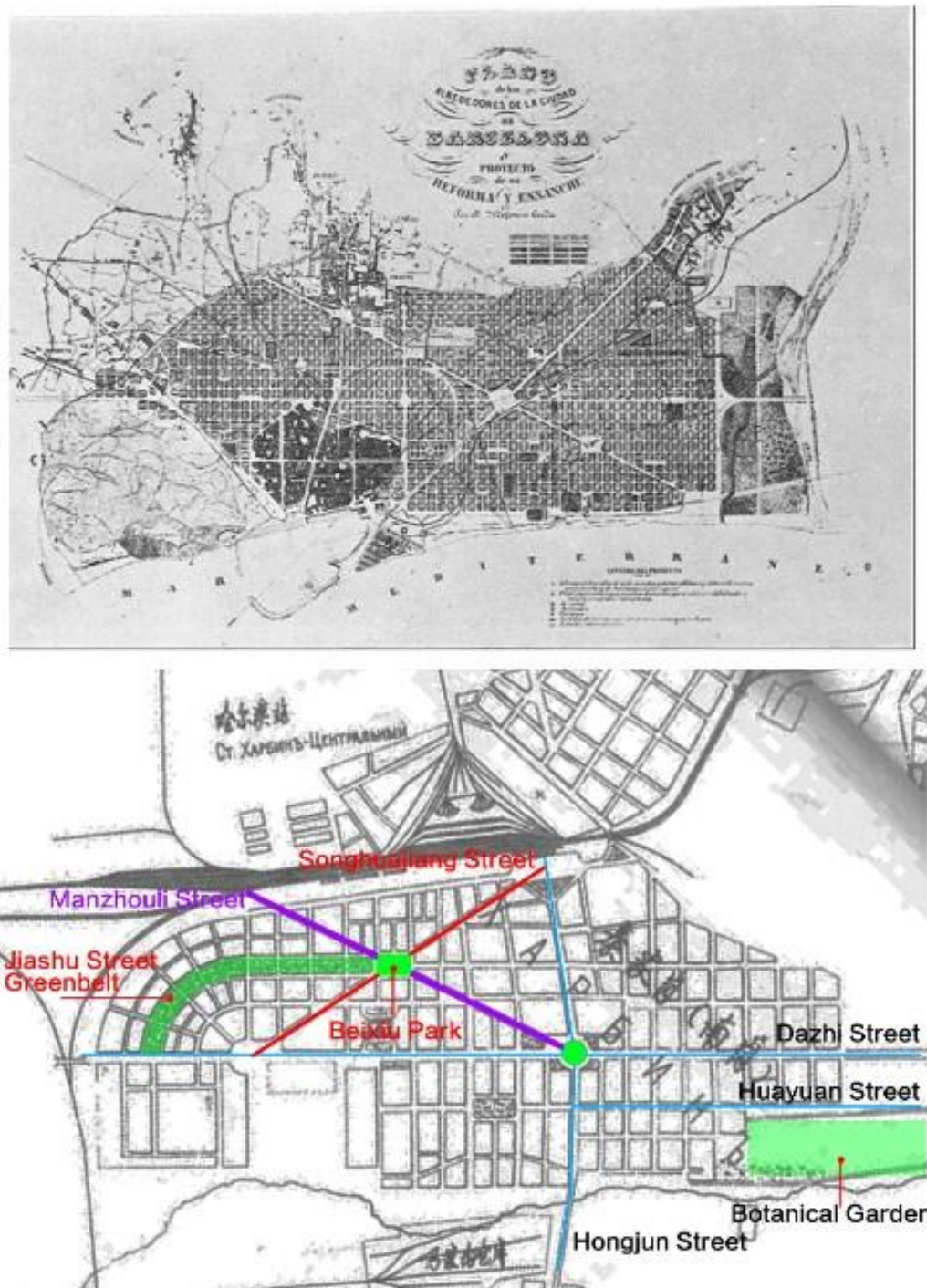


Figure 7. Master Plan of Barcelona by Cerda 1859 and Map of Nangang 1910. Source: Archivo Historico Municipal de Barcelona, 2020 & Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality, 2002

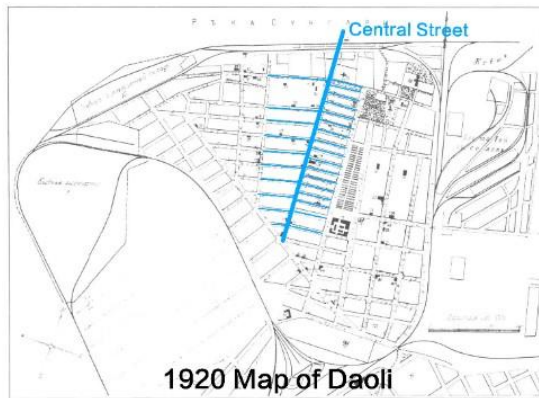


Figure 8. Map of Daoli 1920. Source: Kradin et al., *Harbin-An Ideal City of Russian's Dream*, 2007

4.3 Garden City Movement in Russia

In the Renaissance period, Leon Battista Alberti proposed the concept of the ideal city in his seminal book, *On the Art of Building* [25]. Alberti's ideal city emphasised the careful setting of the size and direction of streets ruled by perfect symmetry to achieve the ideal perfection in geometry and aesthetics. Since then, many planners in Europe, such as Filarete, synthesised the notion of the ideal city by producing their best form of cities, and iterations of similar planning principles were reflected in many city plans [26]. Inspired by the ideal city concept, Ebenezer Howard published the book, *Garden Cities of Tomorrow* which gave rise to the Garden City Movement and became one of the most influential planning theories of the early 20th century [27]. In the book, Howard's critical opinion towards the capitalist society of his time is reflected through the proposal of offering a new socialist way of living, where negative impacts of industrial growth, such as poor air and water quality, are reduced by integrating urban and rural land uses [28]. Greenbelts and greenery are proposed to act as buffers between industrial and residential zones. The garden city would provide cheap housing and large plots of shared greenery while being completely self-sustained and self-governed by its residents [7]. With the proposed limited population in the concentric centre, communities were divided by greenbelts and radial boulevards.

When the garden city idea became well received across European supporters, the

International Federation for Housing and Planning (IFHP) was founded by Howard in 1913 as a knowledge-sharing network to promote the garden city concept [29]. Reports on Early IFHP meetings in *Garden Cities and Town Planning Magazine* indicate that Russian garden city activists represented the second largest national faction in the organisation after Germany [30]. Among all the supporters, Dmitri Protopopov and Alexander Bloch established the *Obschestvo Gorodov-Sadov* (Russian Associate of Garden Cities, referred as RAGC) in St. Petersburg in 1913, which attracted many middle-class activists [29]. With Bloch's translation of Howard's *Garden Cities of Tomorrow* in 1911, the garden city idea became even more widely known and welcomed in Russia. However, during the early 20th century, there was a limited implementation of the garden city concept in Russia, such as a few Moscow-Kazan railway settlements close to Moscow, where engineers and railway staff lived [31]. Prozorovskaya (now named Kratovo), 40 km away from central Moscow, is the first garden city in Russia designed by Vladimir Semyonov, a Russian Architect, urban planner and theorist, from 1912 to 1917 as a residential area for the employees of the Moscow-Kazan railway [32].

Semyonov was driven by the garden city development during his stay in London between 1908 and 1912. Both Semyonov and Protopopov attended the RIBA Town Planning Conference in 1910, which was primarily organised by Raymond Unwin to showcase town planning's emergence under the garden city concept [33]. After his return to Moscow in 1912, Semyonov became a leading member of RAGC [34]. Unwin's influence was apparent in Semyonov's master plan for Prozorovskaya [33]. There is a striking resemblance between Prozorovskaya's first master plan in 1912 and two of Unwin's plans, namely Letchworth's Garden City in 1904 and Hampstead Garden Suburbs in 1912 [Figure 9]. In Letchworth's Garden City plan, radials extend from the central square with clusters of civic buildings demonstrating the

transposition from Howard's diagram. The relationship between the grand axis and the central square is similar to that of the Prozorovskaya plan. The Hampstead Garden Suburb in 1912, a more direct similarity between it and the Prozorovskaya plan can be observed [Figure 9]. Also, at the kite's apex, Unwin later proposed a formal square, which converging radials of the perimeter roads led. Like Unwin's plan of Letchworth and Hampstead, Semyonov's plan of

Prozorovskaya [Figure 9] shows the convergence of three key streets on a large public open space^[9]. The three key streets, as compositional axes, were wide, tree-lined boulevards. Due to the increased cost of building materials and labour, the construction of the Garden City of Prozorovskaya was paused and finally stopped completely after the outbreak of the First World War in 1914.

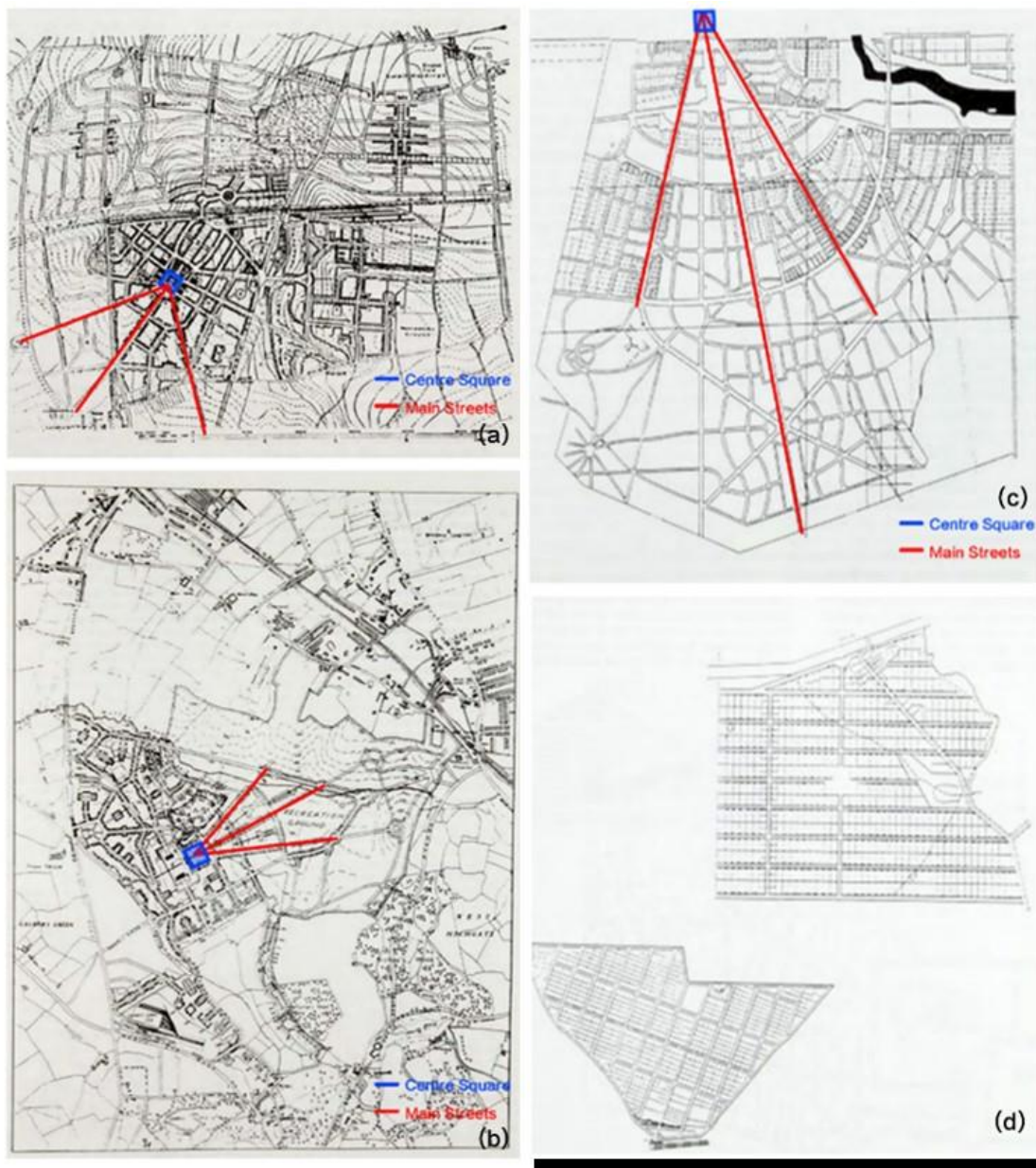


Figure 9. Unwin and Semyonov's plans under garden city influence. (a) Plan for Letchworth's Garden City 1904 by Unwin. (b) Plan for Hampstead Garden Suburbs 1912 by Unwin. (c) Plan of Prozorovskaya 1912 by Semyonov. (d) Plans of some grid pattern settlements in the suburbs of Moscow at the end of nineteenth century. Source: (a) Purdom, *The Garden City: A Study in the Development of Modern Town*, 1913; (b) *The Record*, *The Record-Hampstead Garden Suburb*, Vol. 1 No. 1, 1912; (c,d) Belousov, Vladimir Nicolaevich Semenov, 1980

The Civil War period between 1917 and 1922 resulted in the disbandment of RAGC and the discontinuation of the realisation of the garden city in Russia [29]. Consequently, large-scale construction of new Garden Cities slowed down during this period, while the concept was still popular and widely discussed in Russia. For instance, Russian architects designed various versions of their ideal Moscow masterplan according to garden city principles [Figure 10], while it was rare for any planning proposal to be realised [31]. Although RAGC was reformed under governmental auspices shortly after 1922, the concept itself was soon dismissed as a mere utopian fantasy of petit-bourgeois intellectuals, which was incompatible with the vision of the new socialist way of life under Stalin's first Five Year Plan (1928-1933). This period was different from the previous one when intensive industrialisation began, and existing cities did not have the capacity for the huge influx of workers from rural areas. New industrial centres and plans with high practicality were needed. The garden city utopia was no longer suited as it is incapable of providing a real solution to the industrialisation consequences in Moscow. After the dismissal of the garden city approach in Russia, a new concept called 'green city' emerged. 'Green city' in Moscow did inherit the idea of providing a healthy and green living condition from garden city but was primarily focusing on creating industrial centres and residential settlements on the outer skirt of central Moscow, instead of creating greenbelts [31]. Russia subsequently initiated a symposium on the socialist's city in 1928-1931, inviting overseas planners and architects, such as Le Corbusier, to contribute to the design of the new, exemplary socialist town of Moscow [35,36]. In 1935, Semyonov was appointed as the Chief Architect of Moscow by Stalin and was one of the leading architects for developing the 1935 Master Plan of Moscow. The Master Plan of Moscow reflected the idea of the green city, which emphasised the importance of green spaces, but the utopian perfect radial plans of

Howard's original garden city concept had been dismissed by then [31].

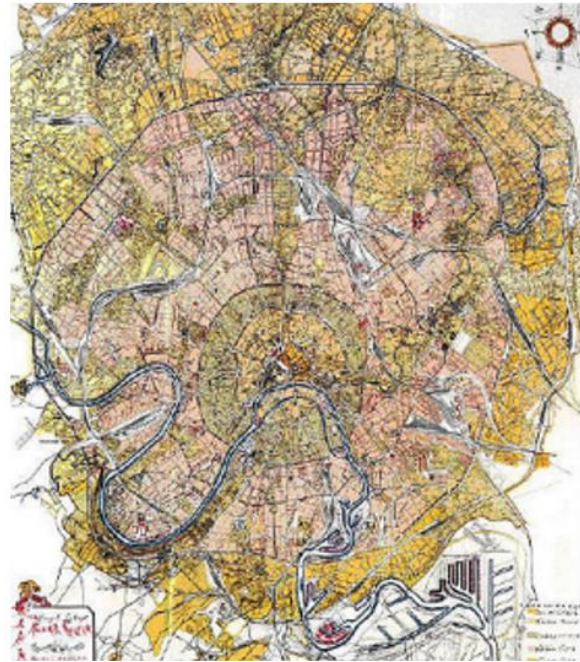


Figure 10. Conceptual plans of Moscow under garden city influence - 'New Moscow' by Alexery Shchusev and Ivan Zholtovsky 1923. Source: Savchenko, Continuity in Change-400 Years of Urban Planning for Moscow, 2013

4.4 Garden City Movement in Harbin

(1) 1898-1917

The early urbanisation stage of Harbin encountered the publication of Howard's *Garden Cities of Tomorrow*. The master plan of Harbin in 1902 [Figure 5] prepared by Russian planners indicates that the western part of the New Town was already designed under the aftermath of the garden city idea. Interestingly, the development of *Nangang* in 1901 was three years after the publication of Howard's Garden City in 1898 and 11 years prior to Semyonov's design of Prozorovskaya, which is often referred as the first garden city town in Russia [37]. However, evidence shows that Russian planners applied the garden city concept to Harbin since 1901. In Figure 9, a substantial contrast can be observed in Harbin's early plans and some settlements around Moscow at the end of the 19th century when most of the suburban expansion near Moscow was still using a rigid grid pattern [9]. Harbin's urban development seemed to

premeditate the popularity of the garden city. By comparing Howard's diagram and the overall planning of *Nangang*, it is clear that the garden city concept was implemented in Harbin ^[38]. In *Nangang*, Russia started to design residential buildings by uniform styles and blended with the natural environments. Central boulevards and street blocks in the *Nangang* District, centred around the square and radiating in all directions, while the CERMB built residential areas and administrative and business areas between the roads [Figure 7]. As seen in the map, the intersection of *Jiaohua* Street and *Dazhi* Street was the concentric point of the radial plan. One layer of this radial section, namely on *Jiashu* Street [Figure 7], was designed and used as a green belt connecting to *Beixiu* Park in the centre of the diagonal intersection. In the map of Harbin in 1910 [Figure 7], the greenbelt on *Jiashu* Street and *Beixiu* Park were used as greenery spaces. Road design in *Nangang* also reflects the garden city concept ^[13]. For instance, *Dazhi* Street was a 106metre wide with four motor lanes to accommodate Harbin's increasing traffic when more migrants settled in the city ^[39]. These roads constructed during the early stage

of Harbin's urbanisation are mostly still in use and often incorporate wide pedestrian walkways on each side with vegetations.

The garden city planning strategy is especially notable in *Huayuan* Street area with flourishing greenery scenes [Figure 11] *Huayuan* Street area was a residential district for CERMB employees with a large public park at the centre [Figure 7]. The boulevards in the *Huayuan* Street area had wide pedestrian walkways with greeneries on both sides ^[31]. Due to its historical and cultural significance, the landscape and urban design of the *Huayuan* Street area should be carefully preserved ^[40].

(2) 1917-1931

Under the inspiration of the garden city, Russian planners, led by A.K. Levteev, produced the Majiagou Garden City diagram in 1916 [Figure 12] ^[8]. Maps of Harbin in 1925 and 1933 [Figure 13] show that the layout of the Majiagou Garden City became more noticeable in the city's urban fabric. The map of Harbin 1925 shows the full realisation of the Majiagou Garden City [Figure 13].

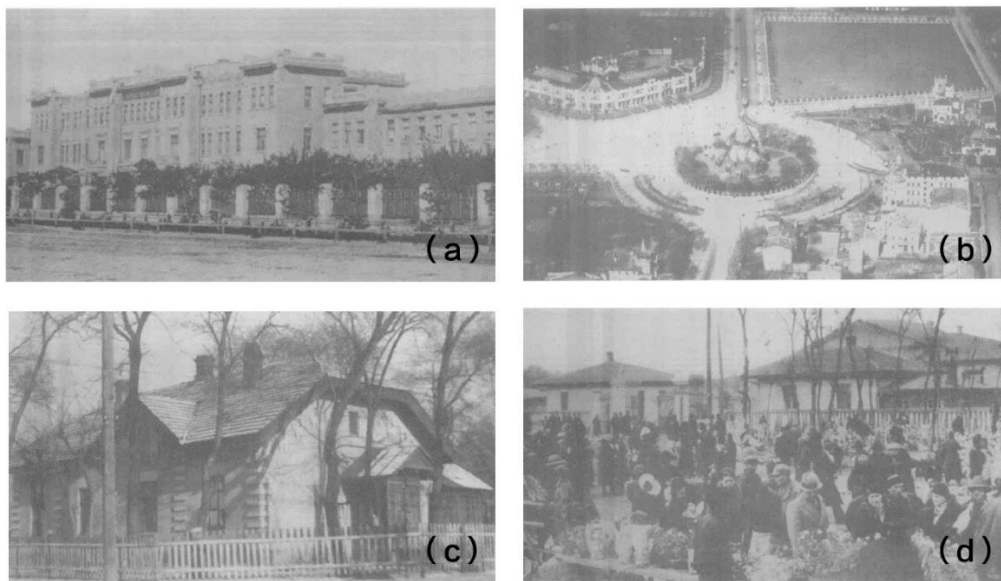


Figure 11. (a) Official Building of CERMB in *Nangang* on *Dazhi* Street. (b) Intersection of *Dazhi* and *Hongjun* Street. (c) CERMB residential dwellings in *Huayuan* area. (d) CERMB gathering in *Huayuan* area. Source: Urban Planning Bureau of Harbin Municipality and Urban Planning Society of Harbin Municipality, 2002

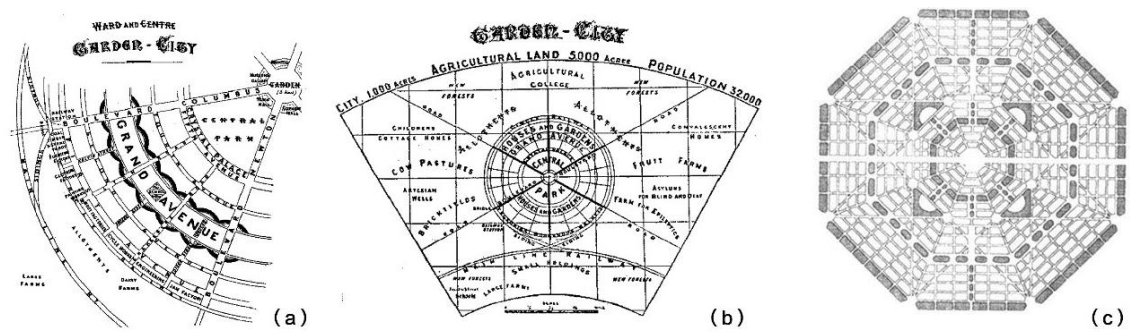


Figure 12. (a, b) Howard's Garden City diagram 1898. (c) *Majiagou* Garden City diagram in 1916. Source: (a,b) Howard, *Garden Cities of Tomorrow*, 1898; (c) Kradin et al., *Harbin-An Ideal City of Russian's Dream*, 2007

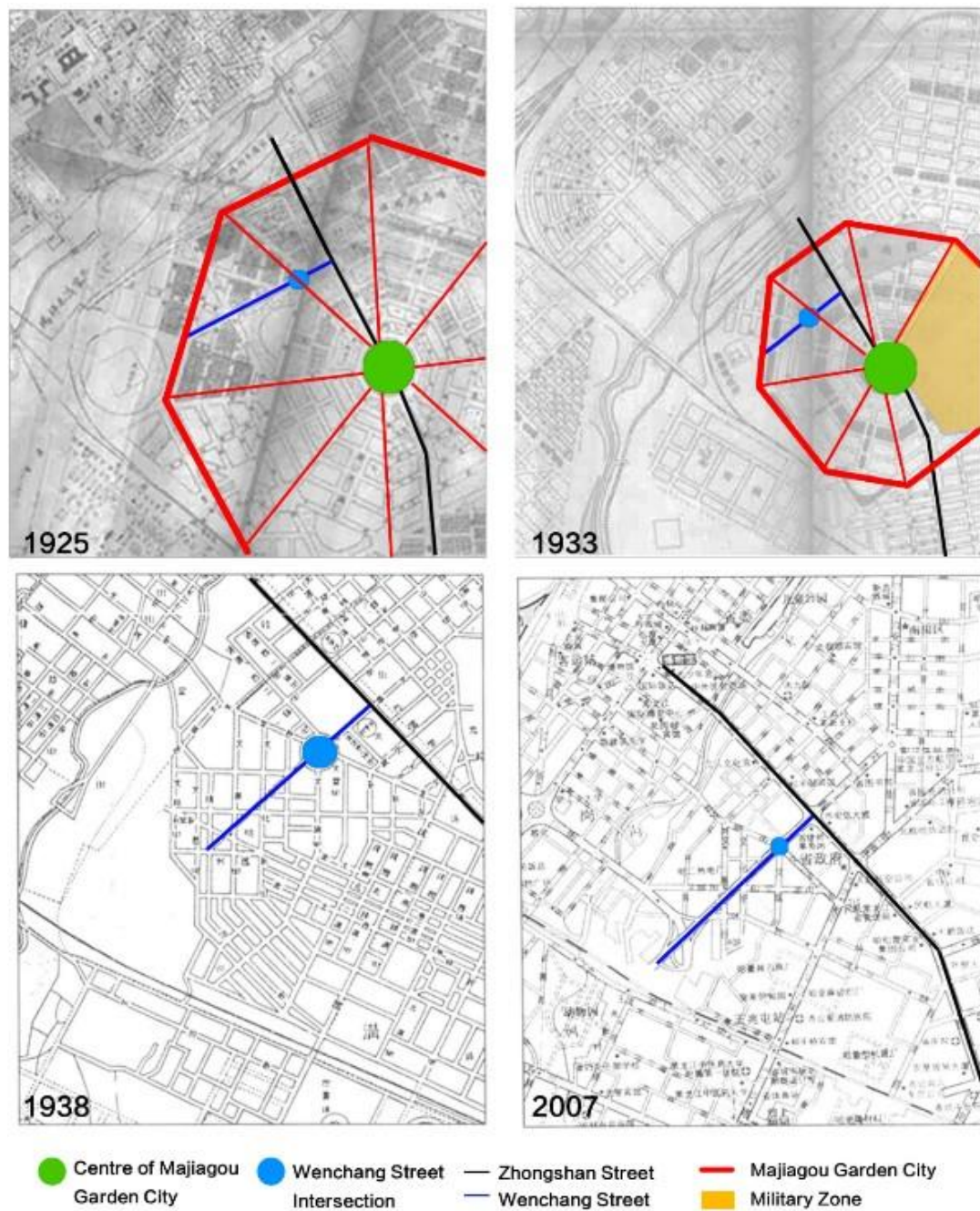


Figure 13. *Majiagou* Garden City 1925 to 2007. Source: Kradin et al., *Harbin-An Ideal City of Russian's Dream*, 2007

Many architectural historians have claimed that Harbin's *Majiagou* Garden City layout was based on Moscow's urban layout [5]. However, as discussed above, Moscow as a city was never fully developed under the garden city concept except for a few small nearby railway towns [31]. Leading European-trained planners and architects in Harbin at the time, such as Planson and Levteev, were interested in applying frontier urban and architectural theories in Harbin, including Howard's Garden City concept. This explains why *Majiagou*'s Garden City diagram is strikingly similar to Howard's original diagram. Although the implementation of garden city was limited in Moscow due to the chaos caused by the Russian Civil War, it was realised to a certain extent in the comparatively empty experimental land of Harbin.

Like Harbin, Prozorovskaya was also a railway town built under the garden city concept, which was also designed from scratch. Some similarities can be drawn between the urban planning of Harbin and Prozorovskaya. For instance, the intersection of the three boulevards at an open space are located at the northern part of Prozorovskaya's plan, while Zhongshan Street intersection in *Majiagou* resembles the same layout [Figure 9 and Figure 13]. However, differences between the two are more apparent; *Majiagou*'s approach was a complete radial layout [Figure 13], a direct placement of Howard's diagram, whereas Prozorovskaya's plan was a combination of radial and kite forms [Figure 9].

Prozorovskaya was a pioneer model for subsequent garden city development in Russia which were sometimes adopted in a simplified form and realised as abundantly landscaped towns with low-rise buildings [32]. Comparatively, Harbin is unique among Russian cities in many ways.

The influence of Howard's original garden city concept in *Majiagou* is more visible than other garden cities in Russia. Many planned garden cities in Russia were never realised. In 1932, the Japanese army invaded Manchuria, and large blocks of land

were demarcated as military zones. During the Manchurian period under Japanese invasion, the *Majiagou* Garden City planning began to be demolished and redesigned slowly [8]. As seen in the map in 1933, part of *Majiagou*'s Garden City plan was demolished and used as special military zones. With the increasing population and the military needs, Japanese planners, led by Toshihisa Sato, came up with a development plan called the 'Plan of Great Harbin' [8]. They decided to redesign the garden city plan in *Majiagou* [13]. As the map shows, by 1938, the original garden city layout became almost unnoticeable with radical planning changes around *Majiagou* area. Although the large radial plot can no longer be seen, a small radial layout around *Wenchang* Street close to *Zhongshan* Street has been kept today [Figure 13]. Although some historic areas have been reconstructed, the combination of grid planning and garden city has culminated in a city with a variegated urban layout formed by a series of differently scaled open spaces, boulevards, streets, and laneways.

5. RUSSIAN INFLUENCE ON THE URBAN DEVELOPMENT OF DAOWAI

Compared with the planning of *Xiangfang*, *Nangang*, and *Daoli*, *Daowai* District mostly went through spontaneous development and the interference of Russian culture is less apparent than other districts in Harbin [13,15,41-43]. However, *Daowai*'s 'Chinese Baroque' architecture was formed largely under the influence of Russia's eclectic Baroque architecture in Harbin [20,41,42,44].

There are several factors to explain the formation of 'Chinese Baroque' architecture in *Daowai*. Western countries dominated most of the capital in Harbin before the 1920s, but since the 1920s, more Chinese investors and migrants have moved to Harbin for business [3]. Due to the increase of Chinese residents and economic prosperity of commercial activities, residents in *Daowai* would like to announce their rising statues in this city that was mainly dominated by Russian power [45]. Hence more and more

'Chinese Baroque' buildings were developed to declare the uprising of Chinese residents and their business. 'Chinese Baroque' architecture started to flourish organically after the 1920s [17, 46]. The master plan of Harbin in 1917 [Figure 5] indicates that *Daowai* was already undergoing development by then. The map in 1924 [Figure 14] shows that *Daowai* district had already formed its block pattern. Another critical reason for the emergence of 'Chinese Baroque' was similar to the popularity of eclecticism Baroque in *Daoli* and *Nangang*. Due to its lavishness, Baroque style was used in many commercial developments to resemble wealth [2,45,46]. Chinese residents were stimulated by the Baroque architecture which Russians introduced to Harbin.

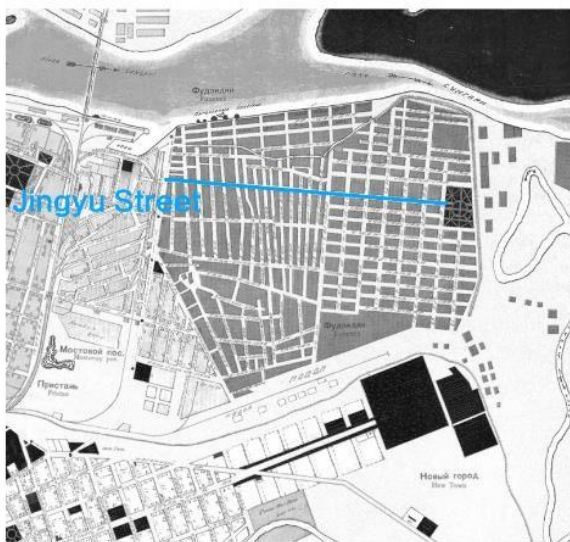


Figure 14. Map of *Daowai* in 1924. Source: Kradin et al., *Harbin-An Ideal City of Russian's Dream*, 2007

Many studies argue that the key features of 'Chinese Baroque' architecture had direct impact on the urban layout of *Daowai* [20,43,47,48]. A 'Chinese Baroque' style building is often multi-functional with a courtyard at the back for residential purpose and the front of the dwelling caters for commercial needs [44]. The front façade of these dwellings is full of ornaments that resemble the Baroque style, while the courtyard is often in Chinese vernacular style with traditional wooden parapets and railings

[20]. As shown on the aerial photo in 1966 [Figure 15], the buildings near *Jingyu* Street were mostly using courtyard typology. Compared with the grid development directly supervised by Russian planners in *Daoli* District, the grid development in *Daowai* is much denser with smaller block size. A case study on *Daowai*'s 'Chinese Baroque' architecture shows one typical block in this area is divided by 23 courtyards [Figure 15] [47]. The courtyards maximise the width of shop fronts on four sides of the block, which are all street-facing and there are narrow laneways in-between the courtyards. Nowadays, the layout of this 'Chinese Baroque' area in *Daowai* has mostly been kept to its original form, whilst some 'Chinese Baroque' dwellings have been renovated. Some 'Chinese Baroque' buildings on *Nanerdao* Street have been demolished and redeveloped for tourism purpose.

Under Russians' introduction of eclectic Baroque architecture in Harbin and the local needs for multi-functional architecture, 'Chinese Baroque' was the key architectural style in *Daowai* prior to 1931 [42]. In the case of *Daowai*, Russia influenced the architecture style first, and the building typology contributed to the organic formation of the urban layout.

6. CONSERVATION POSSIBILITIES

This section discusses existing issues and conservation possibilities of existing historic areas in Harbin that were developed under Russian influence. From the analysis above, Russian guided planning strategies in the early stage of Harbin's urban development have been found. Many changes have been made since 1931 on Harbin's urban layout, however, traces of grid pattern, garden city and Russian impact on *Daowai* have survived throughout the development. The study aims to raise authorities and researchers' attention to these heritage areas and develop conservation guidelines. Three existing issues can be identified from the map analysis above and on-site observation before providing five recommendations.



Figure 15. Courtyard layout of ‘Chinese Baroque’ in *Daowai* District near *Jingyu* Street. Source: www.map.baidu.com

6.1 Fire safety and poor condition

During an on-site observation in *Daowai*, many buildings were in poor condition due to the lack of maintenance and illegal constructions that did not comply with statutory guidelines. Liu asserted that in *Daowai*, buildings were illegally constructed within courtyards, which destroyed the block's original design, and insufficient open spaces are provided because of illegal excavation and construction ^[49]. Seen in Figure 16, some of these courtyards have narrow alleyways between them that are not wide enough for fire engines to pass through ^[43]. With the lack of planning and logic of illegal constructions, some original *Daowai* courtyards face severe fire safety issues.

Surviving precincts, developed before 1931 by Russians with open spaces and broad streets, provide sufficient space for fire safety. However, the lack of maintenance is a concern in these areas, such as *Huayuan* Street area. Service facilities and environment have worsened in the area.

Wang and Xu affirmed that lower-income and vulnerable social groups now occupy most of these original residential houses built before 1931 for CER employees in *Huayuan* District ^[50]. They also argue that with the government and residents' limited consciousness, *Huayuan*'s development is in a vicious circle. Despite its poor living condition, *Huayuan* historical block has been carefully preserved by Harbin Municipal Government. Twenty-two precincts in Harbin, including *Huayuan* Street, Central Street and ‘Chinese Baroque’ area in *Daowai* are listed as protected sites. However, as Liu insinuates, some parts of these areas are still used for residential purposes. It is hard to provide detailed and practical planning instruments to guide these residents to protect and improve the conditions of these historical areas ^[49].

6.2 Lack of guidelines for heritage protection of historical blocks

As seen in the analysis of the maps, some parts of the historical blocks have been demolished with only a small portion



Figure 16. (a) Renovated new 'Chinese Baroque' area. (b) Original 'Chinese Baroque' dwellings with narrow entrance alley. (c) Original 'Chinese Baroque' with brick construction. Source: Photos by Tian Wang, January 2021

surviving today. For instance, as of the date this paper was published, the *Majiagou* Garden City plan has been mostly removed with only traces left at the *Wenchang* Street and *Zhongshan* Street intersection. Research by Liu (2001) argues that researchers need to acknowledge that some buildings in these older blocks are no longer usable, although it is essential to recognise the historic and cultural value of these blocks, some parts of the blocks must be demolished and rebuilt to accommodate more residents. Therefore, it is critical to draw a line between demolition and conservation^[51]. Since 1984, Harbin Municipal Government has provided lists of heritage buildings and historical areas. Strict rules such as the prohibition of demolition have been applied to the buildings and areas on the list since then. However, just drawing the boundary between destruction and conservation is far from enough. How to renovate or restore the protected buildings so that the heritage precinct can be well preserved and presented as a whole picture is also critical. As seen in *Daowai*, parts of the 'Chinese Baroque' area have been demolished, while other conserved parts have been renovated or restored. Once the buildings are prohibited from demolition, it is not clear which preservation strategy should be applied. Whether the original façade should be renovated like new or carefully restored to look like the original should be identified. At the moment, there is a lack of consistency as both strategies can be seen in *Daowai*.

The Central Street block in *Daoli* is a successful example of protecting a historical block. Central Street itself has mostly been

kept to its original form with restorations that aimed to look like the 'old.' However, the *Daowai* historical block renovation has received controversial reviews, as *Daowai* constructed an entirely new 'Chinese Baroque' street near *Nanerdao* Street [Figure 16]. The newly built 'Chinese Baroque' street looks quite different from the original 'Chinese Baroque.' A study by Igor described the newly constructed street as 'new historical.' Demolishing the original dwellings and replacing them with new buildings that mimic the original characteristics of 'Chinese Baroque' is a questionable solution. The renovation outcomes of the Central Street area and the *Daowai*'s 'Chinese Baroque' area are very different. A clear heritage protection policy is required for better conservation of these valuable heritage blocks.

6.3 Understand the critical characters of early planning strategies

Section 3 and 4 identify the critical characteristics of a grid plan, garden city and 'Chinese Baroque' style, which prompted the early stage of Russians' urban planning in Harbin. Studies indicate that there is a lack of understanding of crucial urban strategies used in Harbin historical areas, which sometimes led to unsatisfied restoration^[49, 52]. Therefore, this study identifies the key characteristics of strategies used in Harbin to avoid any restoration or reconstruction with inappropriate techniques. For a grid plan, the combination of diagonal boulevards and grid pattern in *Nangang*, or a square and greenery as the intersection of different boulevards and the grid pattern that extends from the Central

Street in *Daoli*, reflect key characteristics of Russians' grid planning strategy in Harbin. Therefore, these critical planning elements of Harbin should be carefully preserved. For garden city, the *Huayuan* historic block and the remains of the *Majiagou* Garden City are essential for safeguarding the Garden City Movement in the history of Harbin. For the *Daowai* historic block, the most important thing is acknowledging the impact of 'Chinese Baroque' courtyards in the district's urban development. The focus of conservation should lie primarily on impacts

of courtyard layout and how it extends to the main streets. As stated by Igor [Figure 17], a large area of *Daowai* courtyard houses was demolished to build a square with Chinese zodiac animal sculptures which look anachronistic and have no relationship to the 'Chinese Baroque' style [17]. When looking at *Daowai*'s protection, the characteristics of the courtyard are essential. Constructing new developments that do not reflect 'Chinese Baroque' style and demolishing the original courtyards should be avoided.



Figure 17. (a) Renovated 'Chinese Baroque' courtyard. (b) Chinese zodiac animal sculptures. Source: Photos by Tian Wang, January 2021

7. SUGGESTIONS ON FUTURE CONSERVATION

Based on the understanding of current issues and possibilities, this section provides five suggestions on how best to conserve Harbin's urban precincts moving forward.

(1) When making decisions on demolition, the precincts' historical and cultural value should be carefully considered. For example, due to fire safety reasons and the restoration of the original urban fabric, the illegal construction within the 'Chinese Baroque' courtyards could be demolished. However, the demolition of large areas of these courtyards and replacing them with new residential buildings or squares that do not reflect the characters of 'Chinese Baroque' should be avoided.

(2) The disrepair of some historical areas may not be ideal for residential purposes, but a change of function could be considered. Research demonstrates that some of the *Huayuan* historical blocks are no longer

liveable due to their dilapidation [53]. However, from the analysis above, demolition is not the only solution. As seen in the Central Street area, the original buildings are no longer used for residential purpose but have been converted to commercial and cultural uses [16]. Another example is the St. Sophia Church, the church is now used as a gallery to present the orthodox church's history in Harbin [54]. Without demolishing these heritage buildings, the change of function provides them with new purposes suited to the current need while attracting tourists and locals to visit and raise attention and awareness to heritage protection.

(3) Understanding the key characteristics of the historical precincts is vital before making conservation decisions. Different historic areas reflect different urban planning strategies, which should be the focus of conservation. For example, the 'Chinese Baroque' courtyards in *Daowai* District, contribute to the historic precinct's urban fabric. When preserving *Daowai* District, the

courtyard houses and the blocks should be the critical focus. Building new developments that look historical but do not reflect the 'Chinese Baroque' planning and architectural ideas should be avoided. Also, the grid plan and garden city are vital principles that have historical value behind the design of *Nangang*. Grid patterns developed before 1931 that survived until today should be carefully preserved. *Dazhi* and *Huayuan* Street that reflect the garden city idea should have a focus on maintaining the area with its signature wide pedestrian walkways with greenery. The square and park at the crossover points of diagonal intersecting streets are also a key element of urban conservation, as they are symbols of the unique fabric in Harbin. Some of the original greenbelts, such as the one in the west part of *Nangang* near *Jiashu* Street could be restored as greenery, while more green spaces should be incorporated in Harbin's urban planning.

(4) Historical blocks should aim to restore the original features and not rebuild buildings and dwellings to look new. *Daoli* District provides examples of successful restoration. For example, the restoration of the Central Street and St Sophia Church. Liu hinted that restoring its original look whilst conserving the historical developments should be the focus and not rebuilding the façades to make it look new^[55]. The same restoration idea could be used in conserving *Daowai* District. Instead of demolishing and building an entirely new street with 'Chinese Baroque' architecture, restoring some historical buildings could help the neighbourhood showcase its cultural value while maintaining its true form.

(5) Conservation guidelines on an urban scale should be developed to help protect Harbin's unique urban fabric. As discussed above, conservation guidelines and heritage protection lists have been developed by Harbin Municipal Government. Heritage buildings and areas on the list are well-protected against demolition. Likewise, authorities should also put more thought and effort into protecting historical blocks. A

conservation guideline of historical areas focusing on restoration techniques could help monitor the protection of Harbin's urban fabric.

8. TRANSFERABILITY OF THE RESULTS

Heritage conservation discussions of colonial cities in China are often contested due to a mix of reasons such as conflicting interests of various stakeholders, the cultural acceptance of colonial history and the lucrativeness of urban land. Among those colonial cities, many unique urban fabrics that once possessed high conservation values often resulted in dilapidation and demolition due to the lack of feasible solutions. However, in recent years, the decision-makers of these colonial cities are seemingly paying more attention to heritage conservation.

In cities like Harbin, the protection of historical areas has been accelerated due to an increasing recognition by authorities and the demand for heritage tourism. As seen in cities such as Qingdao, Guangzhou and Macau, tourism and its profitable nature can facilitate post-colonial heritage conservation. However, there is also a debate as to what degree of tourism is considered over-tourism that can potentially accelerate the degradation of dwellings and harm their conservations. Zang (2017) criticised that Macau's over-tourism is hindering heritage protection and liveability for locals^[56]. Based on the recommendations drawn from this study, a functional change of unsuitable residential dwellings and spatial segregation between protected sites and residential areas can potentially foster a sustainable balance between tourism, conservation and the quality of life of local inhabitants.

One important issue discussed in this paper is the significance of stylistic and contextual understanding of key characteristics of historical precincts in conservation. Many colonial cities in China were consecutively or simultaneously developed under multiple colonisers, making it vital to scrutinise different cultural impacts on the urban fabric. For instance, Qingdao,

once colonised by Germany then Japan, retains historical precincts and dwellings under both cultures' influences^[57]. For cities like Qingdao, it is a challenging necessity for researchers to identify manifold styles and contexts under which the urban fabric was developed. A study by Yang et al. (2020) also discussed the conservation possibilities around Dalian's *Dongguan* Street historical area^[58]. They suggested that as many buildings near *Dongguan* Street are in a dilapidated stage, 'conservation is suggested to focus more on the buildings with high preservation value to achieve a win-win balance between financial value and heritage value.' Similarly, transferable results from this study suggest that with the connotation of critical characteristics, relevant policy makers can integrate historical preservation into heritage conservation depending on site conditions.

9. CONCLUSION

In conclusion, by studying the history of Harbin's urbanisation from 1898 to 1931, this paper identifies the impact of Russian urban architects' use of European planning strategies in the city's development. From the analysis of historical maps of Harbin, the study concludes that the use of grid pattern and the garden city concept are reflected in Harbin's urban fabric. The combination of diagonal boulevards, intersecting at open spaces and greeneries, and the ancient grid pattern can be seen in *Nangang*, while *Daoli* had a more rigid grid pattern. The garden city idea is widely reflected across Harbin, notably in the *Majiagou* Garden City plan developed around the same time as the Russian Civil War. Some researchers suggest that the planning of Harbin was inspired by Moscow, however, garden city's realisation in Moscow was interrupted by the Russian Civil War and was never fully put to practice again. Many of the garden city inspired towns near Moscow only partially implemented Howard's concept such as Semyonov's master plan for Prozorovskaya, but the *Majiagou* Garden City plan is strikingly identical to the one of Howard. The Russian

attempt to use Harbin to channel these historic urban planning ideas resulted in a bold experimental field and melting pot of leading European planning and architectural trends at the time. Unfortunately, most of *Majiagou* Garden City plan in 1917 have been redesigned slowly since the Manchuria period, and as a result have left a minimal mark on Harbin's urban layout today. However, the garden city ideas implemented in the west part of New Town, such as the *Huayuan* Street area, have determined Harbin's urban layout and remain visible today. It is rare to see landmarks such as church, square, and park acting as key referencing points and a concentric point in traditional Chinese city planning. Russian influenced architecture also impacts Harbin's urban layout, namely it's 'Chinese Baroque' courtyard and its impact on the formation of the historical block of *Daowai*. Three key issues in the current conservation efforts including fire safety (or lack thereof), poor understanding of the underlying European urban strategies, and lack of official guidance in urban fabric conservation are recognised. One key issue underpinning these problems is the lack of understanding of the critical characteristics of European urban planning strategies in Harbin. Five recommendations are offered at the end of this study, including (1) when making decisions on demolition, the historical and cultural value of historical precincts should be carefully considered; (2) change of function could help these precincts be protected while attracting the public to visit and raise attention in heritage conservation; (3) understanding the key characters of these historical precincts is vital before making conservation decisions; (4) historical blocks should aim to restore the original features but not be renovated to look new; and finally (5) conservation guidelines on an urban scale should be produced to help preserve Harbin's unique urban fabric. Recommendations from this study can also be transferable and valuable to other colonial cities in China that are facing heritage conservation issues.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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AUTHOR CONTRIBUTIONS

S.G. designed the study and was responsible for data collection, data analysis, and original manuscript writing. H-W.C. guided the research overall, reviewed and revised the drafts. T.W. conducted field observation and collected data on-site. S.Y. participated in data analysis, image editing and preliminary draft revisions.

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