



Characteristics of spatial configurations in Pyongyang, North Korea



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ABSTRACT

This study examines how North Korea's socio-economic conditions have influenced Pyongyang's spatial configurations over time, using space syntax methodology—a proven methodology for analyzing the relationships between urban spaces, and deriving their functional and social properties. After dividing the target period for the analysis of Pyongyang's spatial configuration into three periods—the 1930s, the 1970s, and beginning in 2010—the city's spatial configurations in each period were analyzed.

In the 1930s, Pyongyang was configured to accommodate various commercial business activities and Japanese military activities. In contrast, after the city's reconstruction, during the 1970s and beginning in 2010, streets and squares were constructed and extended to form axes, with the objective of using the new spatial configurations to draw the public's attention to political and symbolic functions flaunting the superiority of the regime, rather than to commercial business functions.

As these changes have been made to Pyongyang's spatial configuration, city's identity based on history and symbolism should be restored in an existing capitalist city lost its identity due to indiscriminate development that focused on commercial functions.

Besides, since the 1930s, some of the street axes that had been extended from railways or bridges had played important roles in enhancing access to Pyongyang.

Balanced urban development modeled on the micro-district plan implemented in Pyongyang offers a remedy for solving urban problems such as urban sprawl, urban overexpansion, and traffic congestion, and for planning more comfortable and sustainable urban spaces.

By reviewing Pyongyang's changing spatial configurations, it was found that although Pyongyang is economically vulnerable, the city is considered a developing city with many advantages and possibilities.

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Introduction

During the 20th century, the world experienced the Cold War confrontation between capitalism and socialism. In 1948, under the administration of the United States and the Soviet Union, Korea was divided into South Korea (the Republic of Korea) and North Korea (the Democratic People's Republic of Korea). Ideological conflicts soon arose, marking the beginning of the Cold War, and leading to the Korean War, from 1950 to 1953. After the war, South Korea and North Korea developed under different political and economic ideologies. Seoul and Pyongyang have remained the capital cities of South Korea and North Korea, respectively, until the present time.

North Korea has not adopted a free market system based on capitalism, and has instead adhered to the socialist system that began to collapse in Eastern Europe and the Soviet Union in the late 1980s. Unlike other socialist countries, such as China and Vietnam, which have attempted to make changes by taking advantage of global economic opportunities, North Korea has pursued a 'closed door policy,' premised on maintaining a self-sufficient economic system, consistent with the '*Juche* (independence or self-reliance)' ideology. *Juche* is a unique philosophy formed by Kim Il-Sung, combined with Stalinism—Marxism doctrines, which encourages the self-reliance and complete independence of North Korean people (Armstrong, 2009; Chen & Lee, 2007).

The political and economic situation in this country would have formed a distinctive spatial configuration in Pyongyang, North Korea's capital city, which is representative of other cities. The various spatial configurations in a city have formed to accommodate continuing changes in the physical and social environments. Since North Korea's tourism sector has been very limited and

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controlled (Kim, Kim, & Lee, 2007; Kim, Timothy, & Han, 2007), and media information about Pyongyang has mainly focused on political issues, there is a lack of understanding of its spatial configurations.

This study examines how North Korea's socio-economic conditions have influenced Pyongyang's spatial configurations over time, using space syntax methodology (Hillier & Hanson, 1984)—a proven methodology for analyzing the relationships between urban spaces, and deriving their functional and social properties.

Review of North Korea and Pyongyang

The socio-economy of North Korea

When Korea was liberated from Japan in 1945, the Soviet Union occupied and administered northern Korea from Pyongyang, and also introduced socialism theories to North Korea. In 1948, the Democratic People's Republic of Korea was founded in North Korea, headed by Kim Il-Sung as premier (Springer, 2003). From 1945 to 1950, North Korea maintained a firm satellite relationship with the Soviet Union, which was able to control the political system because of the occupation by Soviet military forces in North Korea. However, after the Korean War, the North Korean regime tried to build a self-sufficient economy, and armed forces to withdraw from the Soviet Union's orbit of control (Kim, 1970). The Korean War from 1950 to 1953 led to the destruction of many buildings and facilities in North Korea. The reconstruction of North Korea began after the war, with the assistance of socialist countries (Springer, 2003).

From the 1950s to the 1960s, North Korea's policy of a self-sufficient economy brought strong economic growth, because of a massive mobilization of production mechanisms that took advantage of workers' patriotism and voluntary participation. Over time, however, this policy restricted capital and technology imports from developed countries, and led to the stagnation of exports (Jo & Adler, 2002a).

Beginning in the 1970s, economic growth began to decline, as a result of the cumulative effects of North Korea's closed-door policy, exceptional growth in the country's military forces and the expenditures associated with that growth, and an excessive dependence on the heavy industrial development needed to support military-related industries. These investments in unproductive military industries discouraged the development of light industry and agriculture (Jang, 1998). In the early 1980s, North Korea's previously growing labor inputs began slowing down. This slowdown directly affected labor productivity, and further contributed to the country's economic stagnation (B.Y. Kim et al., 2007; S.S. Kim et al., 2007). More specifically, the development of very expensive weapons such as missiles and nuclear bombs led to economic deterioration, and threatened the international community. In addition, both the end of the Cold War and the collapse of socialist economic networks further contributed to a rapid deterioration of the country's economic stability. In response, North Korea announced a new economic policy on July 1, 2002. The new policy led to the adoption of various reform measures, including a readjustment of the price of goods, and the introduction of an exchange market (Cho, 2003).

North Korea also carefully began promoting an open-market economic development policy, which included the designation of special economic, industrial, and tourism zones such as Gaesong City and Mount Gumgang (Hong, 2003; Timothy, 2001).

After the death of Kim Jong-Il in 2011, Kim Jong-Un, the third generation of Kims, became the supreme leader of North Korea. He would undoubtedly have realized the need for economic reforms. However, the North Korean system had reached a stalemate, caused

by the structural vulnerabilities imposed on it by political, economic, and social constraints (Lee, 2013).

History of Pyongyang

The Pyongyang's railway was constructed as part of Japanese military activities aimed at pushing into Manchuria during the Japanese colonial period from 1910 to 1945. New industries, which relied on nearby coal mines and agricultural products from the hinterland, were developed along the railway.

In order to modernize Pyongyang, the Japanese Imperial Government built the infrastructure needed to allow them to construct many new buildings in the city. The government also sent many Japanese people to Korea to replace Korea's ruling class. Most of them were employed in industry, commerce, communications, and public services. In 1914, about 17.5% of the Pyongyang's 62,775 inhabitants were Japanese. In 1925, that percentage had risen to 21% of city's urban population of 102,274 (Schinz & Dege, 1990: p. 26). Besides, at that time, Japanese army infantry divisions used the city as a military hub (Haggard, Kang, & Moon, 1997; Schinz & Dege, 1990).

After liberation from Japanese rule, Pyongyang became the capital of North Korea, the Democratic People's Republic of Korea in 1948. Pyongyang was largely destroyed by air attacks during the Korean War from 1950 to 1953 (Springer, 2003). This destruction ultimately provided an opportunity for the city's reconstruction, in the form of the planned development of new structures and infrastructure. After the war, with financial and technical assistance from Communist countries including the Soviet Union and the German Democratic Republic, the city was rebuilt as a new city, according to ideas, standards, and methods of planning and construction that had been strongly influenced by Soviet models. This reconstruction made Pyongyang one of the most striking examples of socialist cities (Schinz & Dege, 1990).

To re-energize North Korea, which had been enervated during the Korean War, Chollima Movement (named after a legendary winged horse) was launched in 1956. By stimulating more, cheaper and especially faster production, this movement led to a large increase in industrial production, and the speedy development of built environments (Corfield, 2013; Schinz & Dege, 1990). As an aftermath to the movement, massive apartment blocks were constructed to resettle many homeless people in Pyongyang during the 1960s, when the city was being rebuilt after the war (French, 2007). At the same time, main streets such as Moranbong Street (completed in the mid-1960s), Chollima Street (completed in the early 1970s), and Ragwon Street (completed in the mid-1970s), were also being constructed (Lee, 1989). During the 1980s, there was another building "boom" in Pyongyang, which resulted in more apartment blocks being built. This led to the construction of Changgwang Street (completed in 1985), An Sang Taek Street (completed in 1987), Tongil Street (completed in 1993), and others (Corfield, 2013).

The famine of the mid-1990s triggered a profound "marketization from below" of the North Korean economy (Haggard & Noland, 2007). In 2008, North Korean authorities permitted permanent markets to be open only once every ten days and to trade only in supplementary foodstuffs. Thus, farmers' markets were set up in Pyongyang (Haggard & Noland, 2010).

Methods

Space syntax was the primary research tool used to analyze urban spatial configurations in Pyongyang. Space syntax, a methodology developed by Hillier and Hanson (1984), is a set of analytical techniques used for describing and quantifying spatial configurations in cities or buildings, for purposes of urban and architectural planning.

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