Productive Pyongyang: A Research on its Recent Urban Transformation
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Introduction: Objectives & Methodologies

There has been a significant level of urban and infrastructure development in the DPRK over the past six years. This includes the construction of new streets in Pyongyang to new thematic zones in other parts of the country—Tourism Zone in Wonsan, Research Zone in Unjong Park, Gateway City in Sinuiju, etc. In addition to new construction, there has been a significant amount of urban regeneration, including the rehabilitation of Taedong River. Apart from physical development, the planning departments are drafting a city-wide sustainable and regeneration plan.

The increased interest in development has led Choson Exchange to conduct several design and urban policy workshops over the past four years. These workshops exposed selected North Korean policy makers to an integrated approach—combining economic and physical planning—towards policy making. Building on Choson Exchange’s training program and on-the-ground interactions, this urban economic research was carried out to track Pyongyang’s urban transformation over the past few years in a data-driven and quantitative way. It aims to establish an understanding of the socio-economic value of these developments, and the correlation between space and business activities. More importantly, this research aims to assist policy planners and potential foreign investors to understand the key projects for Pyongyang’s future development.

Research findings have been generated through the following methods:
- Local interactions through Choson Exchange training program
- Constructing a digital Pyongyang Map, Cartographic mapping and data simulation
- Questionnaire interviews with local stakeholders

The Choson Exchange training programs provide an opportunity to understand current urban development projects and directions in Pyongyang, while exposing participants to best practices in development. Various local and overseas training programs have been conducted over the years, including the most recent real estate focused workshop in Pyongyang and the Future Cities Summit in China and Hong Kong in August 2018.

The cartographic mapping used information from GIS (Global Information System) and aerial maps to analyse and draw conclusions from the following factors: plot ratio, proximity to transportation nodes, social amenities, commercial spaces, public spaces, etc. In addition, a simulation which measures urban connectivity was also used in the cartographic analysis. Given the incomplete data available online, a digital Pyongyang map, building upon existing available information, was created in order to run the various analysis.
The questionnaire surveys and interview with local stakeholders offered an overview of the current strength of the urban environment in Pyongyang and its development priorities. Each questionnaire comprised of 38 factors relating to the following categories: transportation, energy & environment, educational infrastructure, convenience facilities, public spaces, production spaces and healthcare infrastructure. These factors and categories were selected after an extensive literature review of key factors that impacted the livelihood of Pyongyang residents. Participants were asked to rank 0 to 10 the current strength and development priorities respectively. In addition, they are to respond in relation to the city as a whole, the location of their home and their workplace. Approximately 60 local participants took part in the survey. The responses obtained from the questionnaires provided a series of indicators that support the cartographic analysis and ideas for key projects for future development.
Recent Urban Transformation

There recent urban transformation in Pyongyang has been very significant and reported by various international media. New districts such as Mirae Scientist Street, Ryomyong Street and Changjon Street have been redefining the skyline of Pyongyang over the past six years.

Evolution of Pyongyang’s Urban Form

Tracing the evolution of urban growth in Pyongyang, it has evolved from a model planned ‘socialist city’ to one that is developed in accordance to local political and economic context. In the immediate years after the end of the Korean War, the main task of the state was to provide adequate housing for its population in addition to building up its industrial production capabilities. Together with the assistance of financial and technical support from other member states of the communist bloc, Pyongyang was master planned in the mould of a model ‘socialist city’.

The 1953 master plan reveals the polycentric development of Pyongyang, characterised by a series of distributed districts, all of which are self-sufficient in their functions. Each district would have their own industrial facilities, public amenities and agricultural land. Within each district would be a large urban block, measuring 300m x 300m. Each urban block would also be self-sufficient, containing offices, light industries, kindergarten, schools, clinic and other amenities. Such a system of programmatic distribution is typical in other socialist cities.

However, the polycentric development was not fully developed and most of the urban areas are located within the city centre. The second major wave of urban transformation came in the 1980s, where key monuments and landmarks were distributed throughout the city and major boulevards were introduced to create monumental visual axis within the city. Gradually, the urban form of Pyongyang transformed from self-contained urban blocks to urban streets. This is particularly evident in the construction of Kwangbok Street and Tongil Street residential areas in 1989 and 1993 respectively. While it can be argued that the development of those two areas reflected expansion of Pyongyang beyond the city centre, these two areas do not follow the polycentric nature of the 1953 masterplan. The result is the creation of two large districts that are disconnected from the dense urban core.

Byungjin: Urban Expansion as a Manifestation of Economic Development

Urban expansion in Pyongyang halted after the mid-1990s humanitarian crisis and only began picking up in the mid-2000s. The rapid acceleration in urban development coincided with the start of Kim Jong Un’s leadership. Byungjin—concurrently pursing military and economic development—
An infographic showing the correlation between military and urban development from 1984 to 2017. Missile test data obtained from Centre for Strategic & International Studies as of July 2017.

<table>
<thead>
<tr>
<th>MILITARY DEVELOPMENT</th>
<th>URBAN DEVELOPMENT</th>
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<tbody>
<tr>
<td>1984</td>
<td>1984 Kaesong Youth Park</td>
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<td>1986</td>
<td>1986 Ryanggangdo International Hotel</td>
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<td>1988</td>
<td>1988</td>
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<tr>
<td>1989</td>
<td>1989 Rungra May Day Stadium, Chongchon Sports Street, Central Youth Hall, Mangyongdae Children's Palace</td>
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<td>1994</td>
<td>1994 Koryo Hotel</td>
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<td>1995</td>
<td>1996 Yanggangdo International Hotel</td>
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<tr>
<td>2010</td>
<td>2011 Munsu Doll Apartment, Munsu Doll People's Theatre, Rungra People's Pleasure Ground, Changjon Street Apartments,</td>
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<tr>
<td>2011</td>
<td>2012 Unha Scientists Street, Masu Water Park, Masikryong Pass Ski Resort,</td>
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<tr>
<td>2012</td>
<td>2013 Kim Cheol Apartment, Wisong Scientists Street</td>
</tr>
<tr>
<td>2013</td>
<td>2014 Mirae Scientists Street, New Yalu River Bridge, Sunan Airport, Science and Technology Center, KALMA Airport, Pyongyang International Airport, T2,</td>
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<tr>
<td>2014</td>
<td>2015 Pyongyang International Airport Terminal 1,</td>
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<tr>
<td>2015</td>
<td>2016 Ryomyong Condominium, Ryomyong Street</td>
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<td>2016</td>
<td>2017</td>
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<tr>
<td>2017</td>
<td>2018</td>
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is one of the central tenets of Chairman Kim's leadership. Tracking the evolution of military development and urban development from the 1980s to 2018, it is evident that there is a correlation between the accelerated military and urban development from 2012 onwards.

The infographic reveals **Pyongyang's rapid urban growth is as a physical reflection of the leadership's domestic policy and a manifestation of the country's pursuit in economic development.** With landmark projects sprouting out in Pyongyang, it paints an image of a developing country both domestically and internationally. In particular, construction of the new streets have been given equal importance to military development. Also, the rapid rate of construction has given rise to various terms such as 'ryomyong-speed' replacing the usual 'chollima-speed.' The construction of Ryomyong street, a street lined with 50 storey high-rise residential towers was completed within 16 months.

The completion of this street is more powerful than 100 nuclear warheads. © Premier Pak Pong-ju, 2017

2.3

**Fundamental shift from Formal Symbolism to Land Use Efficiency**

Noted for their expressive forms and use of pastel colours, these newly constructed streets—Mirae Scientist Street and Ryomyong Street—have been widely covered by various international media. Apart from observing the iconic aesthetic of these new streets, it is important to note the fundamental
shift in the conception of these streets from formalistic symbolism to one that is based on land use efficiency.

Residential districts designed with long monumental vistas and boulevards have in place since the construction of Kwangbok Street and Tongil Street. However, there is a fundamental difference between the streets built in the 1980s and present. For Kwangbok and Tongil, the high-rise buildings are spaced relatively far apart to provide perspectival composition that accentuates the visual monumentality of the streetscape. Despite the presence of the high-rise buildings, the plot ratio when calculated is similar or even lower that the urban density in the city centre. This is a result of the socialist planning logic, where there isn’t a land taxation system nor real estate value to ensure that the land use is more efficient and dense. In addition, the effect of dispersing high rise residential towers over a large area and having a major thoroughfare cutting through the urban block, decreases the walkability and pedestrian friendliness.

In contrast, high-rise residential towers along Mirae and Ryomyong Street have been laid out in a more compact manner with narrower spacing between each tower. In terms of streetscape, it creates a more concentrated boulevard visual axis as compared to its predecessors. In terms of urban density, they are 3 to 4 times as dense as Kwangbok and Tongil Street. A plot ratio of 3.5 to 4.0 is very typical in dense urban centres in developed cities, and it deviates from the norm in Pyongyang. The basic unit of each district in Pyong-

<table>
<thead>
<tr>
<th>District</th>
<th>Plot Ratio</th>
<th>Built Area</th>
<th>Land Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwangbok Street</td>
<td>0.44</td>
<td>465ha</td>
<td>1044ha</td>
</tr>
<tr>
<td>Pettonggang District</td>
<td>0.80</td>
<td>914ha</td>
<td>1131ha</td>
</tr>
<tr>
<td>Tongil Street District</td>
<td>0.87</td>
<td>729ha</td>
<td>836ha</td>
</tr>
<tr>
<td>Taedong District</td>
<td>1.01</td>
<td>990ha</td>
<td>983ha</td>
</tr>
<tr>
<td>Ryomyong District</td>
<td>1.30</td>
<td>630ha</td>
<td>698ha</td>
</tr>
<tr>
<td>Central District</td>
<td>1.64</td>
<td>1071ha</td>
<td>699ha</td>
</tr>
</tbody>
</table>
yang is comprised of around 4000 to 7500 residents with 2000 to 2400 apartment units within a land area of around 15 to 30 hectares. This is the equivalent of around 1.2 in terms of plot ratio. The high concentrated plot ratio of the new streets have also doubled the average plot ratio of the overall district where the streets are located in. This reveals the fundamental shift towards a more efficient and intensified land use in the city.

One can speculate that such a shift is attributed to better understanding on the importance of land use and the state’s focus on experimenting with new urban forms and typologies. For example, sky gardens have been introduced at upper levels in the high-rise residential towers in Ryomyong Street. While sky gardens are increasingly popular in tropical cities, it is rarely seen in temperate cities. While it is debatable whether such gardens are suitable for Pyongyang’s climate, it nonetheless demonstrate the state’s interest in testing new ideas for the built environment.

To a large extent, Mirae and Ryomyong Street can be considered as pilot projects to test new forms of urban environments, that thrive on compactness and density, a deviation from its past urban model. Complementing the development of these major streets are urban infills within the existing urban blocks. Twenty to thirty storey apartment towers have been constructed over the past four years, increasing the housing stock in the city.

The current intensification of land use can potentially provide the justification for urban regeneration rather than urban expansion—building new districts away from the city centre. By focusing development within the existing urban fabric, it allows economic activities to flourish, reducing the distance travelled between home and work place. Three major urban projects for Pyongyang have been identified in Chapter 4, building upon the existing land intensification trend in the city.
Current Strengths and Development Priorities

3.1 Physical Assets

The cartographic analysis offer some key observations on the current strengths and weaknesses in the urban environment of Pyongyang.

Firstly, there is an even distribution of essential public facilities—including education, healthcare, commercial spaces—throughout the city embedded within the residential neighbourhoods. This is the legacy of the city's planning policy and it also evident in the survey result.

Second, the city is naturally divided along the Taedong River, with the western side of the river more connected than the east. This is evident in the public transportation map and the tourist routes. This is a result of the way residential districts have been developed over the years. In addition, given high construction costs, it is challenging for the metro system to be expanded to the eastern part of the river.

Third, the development of Kwangbok and Tongil Street residential area were conceived in isolation. The connectivity simulation reveals the lack of connectivity in those areas compared to the rest of the urban areas of Pyongyang.

The surveys provide a perceptual understanding of the current strengths of Pyongyang’s urban environment and areas which are important for future development. The survey is divided into three parts, in relation to the living area,
working area and the city of Pyongyang as a whole. For the living district, educational and healthcare facilities are perceived to be key components of excellence. Key areas of improvement include improving electricity supply, lowering pollution levels, providing more green spaces and educational facilities. These indicators point to the aspiration of a quality living environment that go beyond basic public facilities, with a focus on well-being.

For the working district, stable provision of electricity, presence of education and healthcare facilities are perceived to be key components of excellence. Similar to the living district, the perceived strength in the amount of education and healthcare facilities corresponds to the cartographic analysis that shows a relatively even distribution of such facilities throughout the city. The key areas of improvements correspond to the existing strengths. This reinforces the planning priorities of working districts in Pyongyang and they should be further enhanced.

In relation to Pyongyang city as a whole, key areas of excellence include good public transportation connectivity, the availability of commercial stores and restaurants, while the areas of improvement include the further enhancement of public transportation connectivity, improving environmental quality through reducing pollution and the use of sustainable equipment in the city.
### NO. SURVEY FACTORS

#### TRANSPORTATION
- 01. Public Transport (Metro) convenience (지하철)
- 02. Public Transport (Bus) [number stop, transfer points, frequency]
- 03. Public Transport (Train) [regularity, frequency]
- 04. Public Transport (Cycling Route) [availability, distance]
- 05. Road for private car [accessibility, parking]
- 06. Taxi Stand [availability, frequency]
- 07. Bus Interchange [frequency, transfer points]
- 08. Car park [availability, distance]
- 09. Tourist Routes [availability]
- 10. Symbolic Spaces / Monuments [availability, distance]
- 11. Pedestrian Permeability [connectivity, distance]
- 12. Recent Developments [recent developments, distance]

#### ENERGY & ENVIRONMENT
- Sustainable Equipments (solar panel, wind turbines, etc.) [availability, distance]
- Level of Pollution [availability, distance]
- Electric Power [availability, distance]
- Water Resources [availability, distance]
- Ecological Corridors [availability, distance]
- Green Spaces [availability, distance]
- Plaza [availability, distance]

#### PUBLIC SPACES
- Parks [availability, distance]
- Amusement Parks [availability, distance]
- Cultural Facilities [availability, distance]
- Hills & mountains [availability, distance]
- Water Landscape [availability, distance]
- Ecological Corridors [availability, distance]
- Green Spaces [availability, distance]
- Plaza [availability, distance]

#### EDUCATION INFRASTRUCTURE
- Educational Facilities (Elementary, High School) [availability, distance]
- Educational Facilities (Universities) [availability, distance]

#### CONVENIENT FACILITIES
- Restaurants [availability, distance]
- Cafes [availability, distance]
- Hotels [availability, distance]
- Department Stores [availability, distance]
- Stores [availability, distance]
- Market [availability, distance]
- Banks [availability, distance]

#### PRODUCTION SPACES
- Commercial Spaces [availability, distance]
- Industrial Areas [availability, distance]
- Offices [availability, distance]

#### HEALTHCARE INFRASTRUCTURE
- Healthcare Facilities [availability, distance]

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In summary, some major observations can be made in the survey results. First, agricultural fields and industrial areas are outlier categories that are perceived to be neither strong nor important for further development. This indicates a departure from the original socialist urban planning policy that emphasizes a good distribution of agricultural and industrial facilities within urban areas.

Second, there is a positive correlation between categories that are performing well and the need for further improvements. This is particularly clear in the good provision and distribution of educational and healthcare facilities throughout the city, a legacy of the urban planning logic of Pyongyang over the past decades.

Third, therefore it is not surprising that new residential street projects have been built in association with existing higher education facilities. Mira Street apartments were built for educators at Kim Chaek University while Ryomyong Street for educators at Kim Il Sung University. Going beyond providing residential apartments in close proximity—5 minutes walking distance—to the respective universities, the next step would be to create a series of innovation nodes and clusters throughout the city—which would be further explained in the following chapter.
SURVEY CATEGORIES (IN RELATION TO PYONGYANG CITY)

CURRENT STRENGTH

--- Key Performing Categories
01 Public Transport (Metro)
02 Public Transport (Bus)
03 Restaurants
04 Electricity
05 Parks
06 Healthcare Facilities (Clinics)

--- Key Development Priorities
12 Electricity
13 Sustainable Equipments
01 Public Transport (Metro)

--- Low Performing Categories
04 Agricultural Fields
05 Industrial Areas

--- Recent Developments
07 Bus Interchange
08 Tourist Routes
09 Pedestrian Permeability
10 Recent Developments

--- Energy & Environment
11 Electricity (전기)
12 Sustainable Equipments
13 Level of Pollution
14 Availability of solar panel

--- Education Infrastructure
15 Educational Facilities (Elementary, High School)
16 Educational Facilities (Universities)

--- Public Spaces
17 Sports Facilities
18 Parks
19 Amusement Parks
20 Cultural Facilities
21 Hills & mountains
22 Water Landscape
23 Ecological Corridors
24 Green Spaces
25 Plaza

--- Conveniences
16 Restaurants
17 Cafes
18 Hotels
19 Department Stores
20 Stores
21 Market
22 Banks

--- Production Spaces
33 Commercial Spaces (상업지역)
34 Agricultural Fields
35 Industrial Areas
36 Offices

--- Healthcare Infrastructure
37 Healthcare Facilities (Clinics)
38 Healthcare Facilities (Hospitals)
Human Capital: Institutional Strength, Design Capabilities & Training Programs

Apart from analysing the current strengths and weaknesses of the built environment, it is equally important to assess the institutional strength and design capabilities of DPRK policy makers and professionals in instituting positive transformation to the built environment.

Within the DPRK, design and planning is embedded within key state organs. The State Design Corporation (SDC) is an institution that is under the State Affairs Commission. This provides SDC with a significant decision making power to enact changes to the urban environment. The role of SDC is to ensure the design of significant new urban and architectural projects are in line with the overall socio-economic and political agenda of the state. In addition, various design institutions and research institutes also play an active role in shaping the built environment. At the policy planning level, various urban related institutions are developing a sustainability plan and guideline for Pyongyang. In addition, a conservation plan for the conservation of monumental streets is currently under consideration.

At the project delivery level, design institutions are capable in providing a full range of services, from urban, architecture, landscape to interior design. More importantly, they are equipping themselves with Building Information Modelling (BIM) capabilities through the setting up of BIM teams within the institution. BIM is a platform that offers smooth coordination between all the different consultants through various project stages, from design to construction. While BIM is increasingly embedded within construction processes in mature construction industries, it is relatively absent in emerging economies. Therefore, it is encouraging for design institutions in the DPRK to have BIM capabilities. However, it is important to note that while BIM capabilities exist within design institutions, it is unclear whether the capabilities have been transferred to construction teams, which are the true beneficiaries of BIM as it can improve site coordination, track progress and consequently reduce hazards. If the capabilities are not transferred to the construction teams, a gap will exist between the design and construction phase of the project. The BIM capabilities can best serve foreign firms looking to outsource their BIM modelling and scheduling work.

While design institutions have made great strides in improving their capabilities, further improvements can be made in integrating the planning, design and construction industries. This is particularly important for turning economic zones, such as Wonsan and Unjong Park, from a physical infrastructure to an ecosystem of tourism and entrepreneurship activities.

Since 2014, Choson Exchange has been conducting various training programs relating to real estate, urban planning and design. Through in-country workshops and overseas study trips, these training programs aim to boost the capabilities of DPRK design professionals in translating the state’s larger socio-economic objectives into a physical environment.

In 2014, Choson Exchange concluded an urban development and real estate workshop in Singapore and Vietnam in October 2014 for 10 North Koreans. The participants included policy makers from the Wonsan SEZ management team and other national planning bodies. The topics that include property rights in land development, market institutions for
determining land prices, real estate development, urban infrastructure planning and design—were essential for the crafting of various planning policies. In particular, the clarification on foreign ownership of land in the 2016 Special Economic Zones regulations.

In August 2015 and August 2016, two architectural design workshops were conducted, focusing on the regeneration of a main thoroughfare and urban infill sites in central Pyongyang. The workshops provided an overview of the capabilities of the architecture and planning industry in the DPRK. Topics discussed included the sustainable rehabilitation of these existing sites.

More recently in August 2018, Choson Exchange brought three DPRK participants to the Future City Summit in Hong Kong and Guangzhou, where one of the leading urban planner in the DPRK presented on the importance of creating human-centered cities in the DPRK.

Moving forward, the real estate and urban planning sector continues to be an important area of focus for Choson Exchange. Cities in the DPRK play an important role in the overall economic development. In addition, there is also a significant interest in Singapore’s urban planning and land use model following the US-DPRK Summit in Singapore in June 2018. Leveraging on the interest from DPRK partners, more training programs related to the built environment have been planned for the coming year.
Future Development Projects

In addition to the construction of new streets and districts, regeneration is likely to play an important role in the future development of Pyongyang. Based on our cartographic analysis and ground research, three key projects have been identified: Kwangbok—Tongil Regeneration, Southern Tae-dong District and Pyongyang Innovation Nodes.

4.1 Kwangbok—Tongil Regeneration

Built in the late 1980s and early 1990s, Kwangbok Street and Tongil Street were the first major urban expansions outside the city centre. Similar to other districts, they are designed as self-contained entities with their own set of industries, commercial and public facilities. In addition, the district is also defined by a monumental ten-lane boulevard with dedicated vehicular lanes, tram route, cycling and pedestrian path and flanked by monumental 30-storey residential slab blocks.

However, it is important to note that despite the monumental residential structure, the urban density is relatively similar to other parts of Pyongyang with a plot ratio hovering between 1.0 to 1.2. This means that in comparison to the more compact low-rise blocks in the centre of the city, the high-rise buildings in Kwangbok and Tongil are further spread out. This results in a less walkable environment. In addition, with the large boulevard dividing the district into two parts, it makes the urban block less pedestrian friendly and disconnected. Therefore, for any business activities that thrive on pedestrian circulation, these two districts pale in comparison to other more centrally located districts.

Adhering to the polycentric growth of socialist cities, Kwangbok and Tongil districts are separated from other parts of Pyongyang through a landscape of greenery. Connected only by a metro line for Kwangbok Street and buses for Tongil Street, both districts are relatively inaccessible. According to discussions with locals, the result is a flight of younger residents moving to more accessible parts of the city, leaving behind a greying population.

Therefore, the regeneration of these two iconic districts would be important for the growth of the city. Apart from improving public transportation connection, including increasing metro stations and bus lines to those districts, several other urban strategies can be introduced.

Within the urban blocks defined by the boundary of the main roads, urban density can be increased within the blocks, to provide a more compact urban and walkable environment. The increased usable floor area will also provide opportunities for the establishment of new businesses and other commercial and public facilities. Given the large spacing between the high-rise residential towers, there is ample space for land intensification without altering the overall character of the streetscape.
While the concept of conservation is relatively new for Pyongyang, which was entirely built from scratch after the Korean War, a city-wide conservation strategy is currently being studied by a local planning institution. The conservation strategy includes the preservation of the character of monumental streets. It will be important to balance the need to preserve the street scape while adding urban density and porosity.

In addition, transversal connection across the wide boulevards can be provided to improve pedestrian connectivity and accessibility across the urban blocks. The design of the connection could potentially be designed as a landscaped over-ground or underground crossing that would not diminish the visual impact of the boulevards.

However, all these urban design strategies can only be possible if there is demand for new production and commercial spaces in these districts, rather than an artificial increase in the supply. Therefore, it will be crucial to design catalytic urban projects that could stimulate demand for spaces in these districts.

4.2 South Taedonggang Loop

The South Taedonggang Loop (STL) is envisioned as a new urban centre that can potentially activate the southern part of Taedong River and the regeneration of Tongil Street district. The STL is a loop connecting Pyongchon-Kangan Street, Chungsong-dong Street, Suksom and Yanggakdo via the Chungsung Bridge and Yanggak Bridge.
There are several existing key landmarks within this 600 hectare area. Namely the Mirae Street Apartments, Yanggakdo Hotel for tourists, Sci-Tech Complex on Ssuk-som and Tongil Market. Tapping on the existing programmatic functions in the area, it would be strategic to densify development on the southern side of Taedong River.

There is a new paved road providing access to Tongil Market and a new commercial distribution centre. This road complements the existing access from the main Tongil Street. In addition, there is a 1km long stretch of by the river front of developable land. The depth of this land is 150m which is a suitable length for mixed-use commercial development. By encouraging the development of South Taedonggang Loop as a new urban centre, the increase urban activities could potentially activate the rest of the Tongil street district.

4.3 Pyongyang Innovation Nodes & Incubator Spaces

In addition to district-level regeneration, urban infills of different functions—ranging from production facilities, offices, public amenities—could be introduced to support the large-scale regeneration projects. Inherently to the planning logic of Pyongyang as a ‘socialist city’, spaces of production are typically embedded within the city’s masterplan. Each neighbourhood block is conceived as self-sufficient entities, comprising of light industrial factories, schools and other public amenities.

However, many of these new urban infills tend to focus largely on residential developments instead. Although the increase in the number of residential buildings reflect the rising demand of housing, complementing major developments along Ryomyong Street and Mirae Street, they are potentially mono-functional. It is critical to include other flexible building types and functions that support emerging economic activities of the city.

As mentioned in the chapter above, there is a strong emphasis in the provision and distribution of educational facilities throughout the city and new residential areas have been created for educations in the various universities. Such a strategy can be further expanded to create research and innovation nodes and clusters where educators, researchers and entrepreneurs can work, live and research in close proximity.

Building upon Choson Exchange’s entrepreneurship training program, the development of innovation nodes and incubator spaces aims to support an entrepreneurship ecosystem in Pyongyang. Such spaces would formalise business networks and catalyse the development of new business ideas amongst local entrepreneurs. In fact, the importance of a physical space in facilitating business networks has been tested out by one of our Women-in-Business workshop participants. A restaurant owner, implemented the idea of organizing networking dinners proposed by a workshop leader. Therefore, the incubator space aims to take this pilot
Secondly, facilities within the incubator space should be women-friendly. This includes the provision of non-smoking area, breastfeeding room, open work areas and transparent meeting rooms. The openness of the space is an important factor to reduce the ‘official’, ‘domineering’ and ‘hierarchical’ characteristics of typical offices in Pyongyang. In addition, the design of an integrated kitchen, dining area could potentially act as a ‘salon space’ which will allow networking dinner to take place on a larger scale.

Thirdly, we envision the incubator space as an entity that evolves over time through the co-creation and co-design by resident women entrepreneurs. Design plays an important role in starting and operating a business. We have been conducting workshops for women on design thinking, branding and marketing.
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Profile

Choson Exchange supports entrepreneurs and business-minded individuals in North Korea through workshops, internships, mentorships and scholarships inside and outside of the DPRK. Since 2010, Choson Exchange has trained over 2600 North Korean professionals and brought over hundred of them for overseas training programs.

Calvin Chua is the Head of Urban Innovation Program for Choson Exchange, leading training programs and research on real estate, urban and infrastructure development. An architect by training, Calvin runs the design firm Spatial Anatomy, and serves as an Adjunct Assistant Professor at the Singapore University of Technology and Design.

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