The effect of place image on the uses of public space: 
the Cheonggye Stream case 

By 
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Submitted to the Department of Urban Studies and Planning 
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at the 

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Chair, MCP Committee 
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Abstract

This thesis tries to add knowledge to the planning new public space amid existing urban fabrics. It uses the redesigned Cheonggye Stream in Seoul as a case study. By elucidating the interrelationship with the surrounding areas’ land uses and urban forms, some implications are drawn from the Cheonggye Stream case to increase physical and psychological accessibility. Several points can be drawn from the findings in the Cheonggye Stream case in terms of physical accessibility.

First, even a minor barrier or level change might reduce the number of visitors. Second, establishing comfortable connections with other transit modes such as the subway and the bus plays an important role in providing better physical accessibility. Lastly, walking condition is significantly affected by the clean and well-defined path network, but varied and interesting land uses such as traditional food restaurants and bars can also encourage people to walk. The case also reveals the following psychological accessibility lessons. First, recognizable buildings and landmarks increase the imageability of the place and therefore the level of familiarity. By contrast, a lack of landmarks, similar skylines, and complicated paths enforce the disconnected feeling, and hence people feel that those areas’ paths are very long and tiring, while the same distances in a highly imageable place are felt as very short. Second, the surrounding areas’ land uses determine the place’s atmosphere, friendly and comfortable or undesirable and directly, influence visitors’ psychological accessibility levels.

In summary, this thesis attempts to provide some direction how we can increase the physical and psychological accessibility by means of desirable paths, physical forms, and land uses. The hope is that it would help to increase the positive interrelationships between newly developed public space and the surrounding areas along the Cheonggye Stream.
ACKNOWLEDGMENTS

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I would like to express my gratitude to Professor Dennis Frenchman, who helped me to experience many invaluable opportunities; working in Singapore and winning a Spaulding fellowship. I am also grateful to many friends in DUSP and Architecture for their support and encouragement. Lastly, to my mom, dad, and brother, I love you.

Hankyul Kim
May 2010
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CHAPTER 1. INTRODUCTION

A public space paradigm shift: The Cheonggye Stream

What do we know about people's use of urban public space? For instance, what factors affect people's use of these spaces? How does the neighborhood environment of urban public space influence user behavior? In Asia, post-industrial cities have increasingly planned new public spaces to make more human-oriented and environmentally-friendly cities. The Choenggye Stream project in Seoul, Korea, is one example of such paradigm shift. Increased demand for public space led to the removal of an elevated highway and the rehabilitation of the stream as a public space in May 2005 (Fig. 1). After restoration of the stream, it has attracted over 40 million people between 2005 and 2006 and initiated changes in Seoul's urban fabric, land use, and life style (Seoul, 2006:13-14).

According to Seoul Government's study, the restoration of the historical stream brought about a number of positive effects such as restoring an ecological environment, establishing a cultural center, and recovering a long-forgotten landmark of Seoul's history (Seoul, 2008: 15-17). However, the rapid transformation from an highway area to a stream also caused a discontinuity in physical form, and land use between the old city and the new public space. This thesis explores how the new design interventions affected both people's place images and uses of public spaces. In order to find the interrelationships between the surrounding areas and people's behavior next to the stream, the thesis focuses on why some areas of the Cheonggye Stream attract people and other areas do not,
and how the characteristics of surrounding areas, such as the land use and urban form, affect people’s use of the stream.

**Historical Background**

The Cheonggye Stream was one of the most important natural resources that historically defined the urban fabric of Seoul and the daily lives of its citizens. As early human settlements corresponded to topography, the stream’s branches generated the organic configuration of adjacent streets (Fig. 2). Both districts and buildings conformed to this natural shape of the land. The Japanese colonial period (1910 - 1945) and the Korean War (1950 - 1953) destroyed many buildings and much infrastructure, but the overall urban layout, which corresponds to the stream, remained and shaped the modern city form of Seoul (Kim, 1996:42-43).

The Cheonggye Stream also played an important role as a public space that facilitates integrated activities of different social groups. Many merchants settled near the stream and small retail businesses such as shops and restaurants followed (Fig. 3). As a working healthy stream it also provided opportunities for recreation and play to the surrounding neighborhoods. (Lee, 2004:31-41). Through these activities, the stream served as an important space of interaction that gathered various classes together.
After the Korean War, the condition of the Cheonggye Stream greatly deteriorated due to the lack of proper maintenance. Garbage and sand accumulated in the stream, and dirty water from informal refugee settlements rapidly polluted the water. In the mid-1950s, the area became a slum, illustrating the economic crisis of Seoul after the war. To rehabilitate this area, the government constructed an elevated highway over the stream (Lee, 2004:54-56). As such, this area lost its role as a public space. Instead, the Cheonggye highway districts became an automobile-dominated space (Fig. 4). Sidewalks were too narrow to accommodate street activities and the elevated highway degraded the environmental condition of surrounding areas (Seoul, 2003:23-25).

In 2004, demand for a more aesthetically pleasing environment led to removal of the elevated highway and restored the Cheonggye Stream as a public space. To achieve it Mayor Myung-bak Lee presented an aesthetic green stream: the restoration of Cheonggye Stream (Fig. 5). Despite some opposition of displaced merchants, an overwhelming majority of Seoul residents supported the project. According to a survey by the city government, 79.1 percent of the residents supported this plan (Seoul, 2003:43).
Three major reasons motivated restoration: physical, social/cultural, and economic. Firstly, given that more than 168 thousand cars used the Cheonggye highway in a single day, serious repairs were needed for infrastructure maintenance. Despite repair projects undertaken in 1992, the long-term stability of the structure could not be ensured any longer (Fig. 6). Under these circumstances, the restoration project was proposed to solve the fundamental stability and safety problems (Seoul, 2003:62-63).

Secondly, Seoul underwent a paradigm shift encouraging more environmentally-friendly and cultural city planning. The removal of the highway and restoration of the stream was hailed as a potential turning point for increasing Seoul’s international reputation as a beautiful city and rediscovering Seoul’s historical roots. Moreover, construction projects discovered a valuable part of the historic heritage of the Joseon period, the ancient dynasty of Korea, under the roads (Fig. 7). This excavation of historic heritage helped to revive the pride of Korean people in their 600-year old city (Seoul, 2008:19).

Lastly, the project was expected to stimulate the redevelopment of unsanitary areas of Seoul. The neighborhood around the stream lagged behind in development, compared to the other parts of the city. The restoration project would revitalize adjacent areas and attract population and important industries. This project was also seen as a catalyst to make Seoul an international center of
Northeast Asia (Fig. 8). The historical background of the project serves as a representation of the city’s development shift. The stream played an important role in reviving the mental attachment of citizens to Seoul and restoring an historical public space.

**Planning Process**

The Seoul Metropolitan Government implemented the entire project, which includes establishing a budget and assembling staff members (Seoul, 2008:21). In one of the city’s most ambitious ecological projects, the government spent more than $350 million during construction (Seoul, 2008:22-23). Each step involved various stakeholders, and the participation of citizens significantly enhanced the planning process. The restored areas stretch from east to west and cover many different districts, consisting of 6,026 buildings and 200,000 merchants (Seoul, 2008:104) (Fig. 9).

Successful project implementation depended upon two critical issues: persuading the affected people and relocating merchants. The mayor sat down with merchants many times and finally entered into an agreement before breaking ground on July 1, 2003 (Seoul, 2008:20). After starting construction, major work involved dismantling the elevated highway, removing the concrete structure, and covering the stream with several
bridges (Fig. 10). Because the restoration project included the central business district (CBD) of Seoul, main issues included maintaining roadways on either side of waterway and decreasing traffic congestion. Rather than widening roads, the Seoul government encouraged people to use public transportation. Renovation of the bus system made public transportation a feasible alternative. The city established an exclusive bus lane and improved connections with other transits (Seoul, 2006:78-80).

Additionally, the master plan’s concept focused on making a green space with a waterfront. In order to reflect various opinions and attract citizens’ interests, the Seoul Government opened several design competitions. The awarded design of Cheonggye Stream blended opinions of the citizens and professional architects (Seoul, 2005:26). The planted waterfront created natural scenery and restricted access in some areas to create natural habitats for insects and birds. Moreover, reservoirs allowed fish to move and served as habitats for plants and animals (Fig. 11).

The restoration of the historical stream affected Seoul in three important ways. Firstly, the newly developed public space enhanced the city’s vitality. Cheonggye Stream became a vibrant public space, attracting over 40 million people between 2005 and 2006 (Seoul, 2006:13-14), and Seoul has emerged as one of the most exciting spots in Asia for tourists (Fig. 12). Secondly, the ecological environment has improved. According to the research of the Korea Ecology Council, 140 different...
species are found in and around Cheonggye stream (Seoul 2006:62-65). The waterfront has also been created as an ecological park where the citizenry can enjoy rest, and a pedestrian-friendly design reduces noise levels and air pollution (Seoul 2008:266-268). Lastly, the rejuvenated stream positively affects Seoul’s economic conditions. The sales of surrounding areas’ stores improved by an average 148% according to Korean Market Survey (Seoul 2008:51-55). Future plans will redevelop the area into a center of international finance and business districts that heighten Seoul’s economic competitiveness.

**The importance of user behavior**

Such benefits, however, were also accompanied by political, environmental and social concerns that include the lack of stakeholders’ engagement, the insufficient preservation of the historical heritage, and the large operating costs due to the artificial supply of water. As the government is beginning plans to implement a similar urban renewal project in Seoul, a post-occupancy analysis of how people use the stream is now timely (Seoul, 2008:79-81). An exploration to people’s uses of the stream area would provide some guidance for improving public space amid the adjacent existing urban fabrics. By studying the interrelationship of the surrounding areas’ land uses and urban forms to the stream, this thesis seeks to provide information for future decision making which could create appealing synergies between form and use and attract more people.
CHAPTER 2. LITERATURE REVIEW

Environment-behavior Study

The environment-behavior study provides the source of valuable information for how people use, enjoy, and simply behave in given environments (Moudon, 1992:339-340). Previous behavioral studies about public space provide how people use the public space and which factors affect their behaviors. In the book, *Life between building: using public space*, Jan Gehl (1987) demonstrated that physical planning has a great effect on the character of outdoor activities. He focused on Copenhagen and other cities in Denmark and illustrated that improved physical conditions resulted in increasing number of pedestrians and the average time spent outdoors. By asking why people go outside and what they do, he made several recommendations about public spaces. In particular, he stressed that people’s interaction with the environment is based on several key activities such as walking, standing, sitting, and talking. His study gives us important lessons that we should think of how people recognize the place’s atmosphere and how we can improve it. His research demonstrated that various activities and interaction between people facilitate comfort and friendly public spaces (Gehl 1987).

Mark Francis (1992) extended the scope of such findings in the public space by analyzing three types of access -- physical access, social access, and visual access -- that are important prerequisites to improving the quality of public space (Francis, 1992:164-165). The first access, which he considers, is the direct physical access to a plaza or park, and he provides recommendations for removing barriers such as locked gates of parks for easier physical access. Another form of access is social: how a space may be open to different classes or categories of users. For example, changing the public art to a child’s scale can enhance social access, enabling diverse users to enjoy the public space. A third type of access is visual: the ability to see into a park or plaza. Lowering fences can enlarge the openness of place. Francis’s concepts of access provide clues for examining the
interrelationship between surrounding areas and the Cheonggye stream in terms of both physical and psychological aspects (Francis 1992).

William H. Whyte (2001), in *The Social Life of Small Urban Spaces*, also shows the close connection between qualities of city space and activities by describing how simple physical changes can noticeably improve the use of city space. His research group mounted time-lapse cameras overlooking the plazas and recorded daily patterns. He found that the best-used plazas are social places with similar characteristics such as having many sitting spaces and retail stores that attract people’s visits. He investigated the principal factors such as sitting space, sun, wind, trees, water, food, and the street that make a place work and provided several implications for making convivial plazas amid urban spaces. His work provides what factors such as the street and retail stores are related to the physical and psychological effects of surrounding areas (Whyte 2001).

**Place Image Study**
Place image studies are also closely related to the environment behavior studies, because people’s behavior is the result of psychological processes. Kevin Lynch’s *The Image of City* (1960) has enormously influenced the place image studies by providing a people-oriented perspective and illustrating how people perceive the urban space. His research analyzed the idea of what forms make for strong images with regard to the central areas of three American cities: Boston, Jersey City, and Los Angeles. Lengthy interviews, including description to the destinations and sketches, illustrate people’s place images of those particular cities. Even though his methodology has some weaknesses, such as insufficient sample sizes and the lack of random distribution, it provides the realistic possibility of investigating how people respond to a physical reality, not through quantitative facts but through the perception and evaluation of observers (Lynch 1960).
Vikas Mehta (2009), in *Look Closely and You Will See, Listen Carefully and You Will Hear: Urban Design and Social Interaction on Streets*, focused on social interaction on streets that are a significant part of the public space. He emphasized the need for researchers to view the experience of the street especially from the users’ perspective. The study areas cover three major commercial streets: Massachusetts Avenue in Central Square, Harvard Street in Brookline, and Elm Street in Somerville, all in the greater Boston area. Through extensive behavior mapping and user interviews, he identified the specific characteristics that support social interaction on neighborhood commercial streets. His work operationalizes the elusive concept - liveliness, which means the stationary, sustained and lingering activities on the street, by measuring the duration of stay. Then, he evaluated the streets’ characteristics such as the number of public seats, the width of sidewalk, the percent shade, and the number of independent stores with regard to the block segment. After running a regression model, he suggests specific physical and land-use characteristics on neighborhood commercial streets based on quantitative data and its analysis. This study provides an example of how to operationalize the more elusive concepts such as the walking condition or street liveliness by analyzing quantitative data (Mehta, 2009).

Sepe (2009) suggested an interesting place image mapping method, which investigates the place image by visualizing the survey data in *PlaceMaker Method: Planning ‘Walkability’ by Mapping Place Identity*. His study proposed a complex map to identify the urban elements that support sustainable urban identity. The study area is the pedestrian street in the Ramblas in Barcelona and research methods include data from preliminary analyses such as sketch and photograph.
graphical survey, and video survey. The surveys of how people perceive the place by measuring smell, visual sensations, and overall perception provide the example of measuring people’s place images. To accumulate these various dimension of information, he visualized the survey data by pinpointing some significant elements with diverse symbols. Different sizes of symbols indicate the degree of place impressions from high to low (Fig. 13). His study method allows us to identify the critical point in terms of the place image by using the image mapping (Sepe 2009).

**Cheonggye Stream Study**

Previous research about Cheonggye Stream also plays an important role in exploring how surrounding areas’ characteristics affect people’s uses of stream areas. The Seoul Government (2008) provided the basic information of surrounding areas such as the number of visitors and the land uses, which are key factors of this research along with maps and diagrams (Seoul 2008).
This research is about public spaces, why some areas along the stream attract many people and others do not. As seen in Table 1, the number of visitors to each stream areas on any given day is extremely varied (Seoul, 2008:90-91). The Cheonggye Stream’s own characteristics such as sitting areas and landscaping might lead to people’s differential preferences about districts and their visits. In The Social Life of Small Urban Spaces, William H. Whyte indicated that the most popular plazas tend to have considerably more sitting space than the less well-used ones (Whyte, 1980:24-30). Clare Cooper Marcus also explained that diverse factors, such as sunshine, busy locations, diverse use zones, abundant seating, and entertainment events, encourage people to visit the plaza (Marcus, 1990:25-44). However, since the whole master plan of Cheonggye stream defined and controlled the physical features such as landscaping, the width of sidewalks, and sitting areas, they are consistent all along the stream.

In this context, the degree of accessibility and the variation of surrounding areas could strongly affect people’s uses of the Cheonggye Stream. The Cheonggye stream’s location extends through 5.8km of Seoul’s CBD and the surrounding areas show different land uses such as commercial, residential, and business, as well as different physical forms in terms of the density and height (Fig. 14 Surrounding areas show diverse land uses and physical forms.)
Moreover, while this area underwent the rapid transformation from the highway to the stream, surrounding areas kept their own urban fabrics and land uses. As a result, there is a contextual, physical, and land use discontinuity between the old city fabric and the new public spaces, which could physically and psychologically prohibit people from access and use of the stream.

Because some surrounding areas consist of industrial and commercial areas that have high-density buildings and complicated paths, the access to the stream is not desirable in terms of both the walking condition and the availability of public transportation. In addition, the stream’s lower level prohibits people from convenient access to the stream itself (Fig. 15). Along with the difficulty of physical accessibility, psychological discontinuity might also discourage people’s access to the stream. People usually decide their visits or uses of the place based on the series of psychological mechanisms; where the place is, what the characteristics of place are, and what the purpose of the visit is. Due to the rapid transformation of place and the lack of interrelationship with surrounding areas, people might have difficulty making clear psychological images of where the stream is and how they could use it. This psychological barrier might lead to creating the people’s different spatial preference. To investigate how the accessibility and characteristics of surrounding areas along the Cheonggye Stream might impact people’s use, this thesis asks the following two questions:

1. How does the physical accessibility of surrounding areas along the Cheonggye stream affect people’s visits to the stream?
2. How do people’s perception and image of areas influence their spatial preferences of the stream?
**Hypotheses: Physical Accessibility and Psychological Accessibility**

To answer these questions, two alternative hypotheses are examined. First, hypothesis is that the physical accessibility, which includes the number of stairs, the walking condition of surrounding areas, and the availability of public transit, affects the number of people present. Empirically, the effect of easier access is to increase the number of users in public space. For example, some surrounding districts that have comfortable public transportation or better walking conditions encourage people to visit the stream, while the insufficient stairs discourage people from going down to the stream areas. However, it is likely that people from other locations not only choose the district they will visit by how easily they can get there, but also by how they perceive the place. People’s behavior is the result of psychological processes, and hence their usage of the stream is determined by how they perceive the place and surrounding areas, how they differently recognize the psychological distances and obstacles, and how they make the clear image of place.

Therefore, the second hypothesis is that psychological accessibility, driven by how people perceive the distance, the obstacles, and the quality of the place, influence the visitors’ spatial preferences and the use patterns. For example, a high-rise building or high density might discourage people from approaching the public space, because of a psychological barrier such as feeling disconnected from the Cheonggye Stream. By contrast, if there is a concentrated cultural zone, including restaurants or theaters, this cultural infrastructure attracts more people by creating recreational focus. In other words, interactive activities increase psychological accessibility and attract more purposeful visits. By testing these hypotheses, I explore the motivation underlying people’s visits to the specific district and gain insight into the design and land use policy.
Research Process

The research areas from the starting point of stream near Gyeong-bok Palace to the residential area near Sinsul-dong station, extending through 4.5 km, then I divided the surrounding areas of stream into nine districts. Each district has its own characteristics by the agglomeration of similar uses, and analyses were therefore made for each district (Fig. 16). The main purpose of this study is to examine how people recognize and interact with the physical environments and to learn what makes for strong and positive images of places that attract many people. As a pilot study and due to limited time and budget conditions, this study mainly depends on the interviews and informal conversations to identify people’s spatial preferences among stream areas by asking them sets of questions:

- Which stream area do you like the most among nine districts based on these maps?
- If you don’t have spatial preference, please indicate which district are you familiar with?
- Why do you like those districts compared to others?

To explore the interrelationship between physical environments and people’s uses of stream, I adopted two concepts, physical and psychological accessibility. The research process is organized into three stages. In the first stage, I analyzed the surrounding areas’ characteristics and categorize them with respect to the land uses and physical forms based on the analysis of data and observation. Second stage was carried through street interviews. Seoul Government’s previous research provided the basic information of land use, and I obtained the physical characteristic data such as the average
heights of buildings and the average building-to-land ratio by using GIS and Auto Cad files, that complement the qualitative resources such as my own observation and people’s responses. The physical accessibility is measured by various factors such as the number of stairs, the walking condition, and the availability of transportation. Then, I examined how the number of visitors is correlated with each variable. While the number of stairs, the number of subway stations, and the distances from subway stations to the stream are easily measured by Google Maps, the walking condition is difficult to estimate because it depends on how each person perceives it. Therefore, I measured each district’s walking conditions based on people’s interview, informal conversations, and my observation.

In contrast with physical accessibility, place images and their effects are difficult to identify because people decide their behavioral patterns by means of complicated psychological processes and the direction of influence cannot be asserted due to unobserved variables and vague causality. For example, people might not recognize what specific factors make them go to the specific districts because many factors are intertwined with each other; some district’s high density might deter people from approaching the stream but, at the same time, their commercial land use make people overcome the physical shortcoming. The interview and informal conversations with various people enables us to know the underlying reasons behind people’s different spatial preferences. Neutrality is difficult to maintain during interviews because interviewers tend to focus on whatever they want to know, rather than maintaining an objective perspective. However, interview and informal conversations can reveal an interviewee’s deeper perspectives, and consistent interaction, between interviewer and interviewee, leads to discovering unrecognized reasons for different spatial preferences.
Kevin Lynch (1960) investigated the image of city, interviewing citizens about their images of the environments. He asked people to sketch a map of the city based on their images of it along with detailed descriptions (Lynch 1960). Lynch’s research suggests possible interview questions for understanding how people perceive a place or path in their daily lives. Image mapping, which he introduced, is also used for understanding the generalized result of impressions that describe how people put physical elements together, and what makes for strong identity in a city. Based on Lynch’s study, I have also asked these following questions:

- How do you get to the stream?
- Can you give a quick description of the way for a stranger by drawing a rough sketch, covering all the main features?
- How long will it take me to walk there?
- What factors of this district do you think are most distinctive and why?

Districts are categorized, depending on similar land uses and physical forms such as A, B, (C and D), (E, F, and G), (H and I). I designated five points, which are the border line of each district and twenty five people, (five people per one point), participated in drawing the quick sketches and quickly answered those questions on 14 and 21 February.

In the third stage, I analyzed these qualitative data, the result of interviews and drawings, to examine what factors such as visibility and imageability lead to different psychological distances and place images. Then, I explored their effects on people’s visitations of the stream. Admittedly, my study is limited by the imperfections inherent in operationalizing such elusive concepts as visibility and imageability of place. The small size of samples, the lack of random distribution, and people’s biases (both those of the interviewer and interviewees) also interfere with public images, which define psychological accessibility. However, several points can be drawn from the findings pertaining to the relationship between psychological effects and people’s spatial preferences. This
research will be an important testing ground for showing how supportive transit infrastructure and street condition might influence the use of public space. In addition, the findings provide critical information for future decisions regarding the surrounding area’s land use and urban form, which can create appealing synergies and draw increased visitation.
CHAPTER 4. DIVERSE SURROUNDING AREAS AND VISITORS

Characteristics of Surrounding Areas

![Image: Various land uses of surrounding areas (Seoul, 2008:106)]

Table 1. The basic information of data

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<th>D</th>
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<tr>
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<td>485</td>
<td>458</td>
<td>1,927</td>
<td>3,168</td>
<td>1,501</td>
<td>118</td>
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<tr>
<td>Sun.</td>
<td>14,559</td>
<td>4,440</td>
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<tr>
<td>Sat.</td>
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<td>3,195</td>
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<td>4,722</td>
<td>3,153</td>
<td>4,242</td>
<td>1,693</td>
<td>1,245</td>
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<tr>
<td>Other</td>
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<td>2,253</td>
<td>1,296</td>
<td>1,464</td>
<td>894</td>
<td>1,695</td>
<td></td>
</tr>
</tbody>
</table>

- **Variables of urban form:** Average stories of buildings (A-Height), building-to-land ratio (B to L) - Autocad and GIS file from Seoul Government (http://gis.seoul.go.kr).
- **Variables of land use:** The proportion commercial landuse (Com.), the proportion of industrial good stores (Indu.) - (Seoul Government Research Center, 2008:107-108).
- **Variables of access:** The number of stairs (N-Stairs), the number of subway stations (N-Sub), the distance from subway station to the stream (D-Sub) - Google map (http://maps.google.com).
- **Variables of visitors:** Population flow in main streets, either sides of districts (Pop-F), The number of visitors on Sunday (Sun), The number of visitors on Saturday (Sat), The number of visitors on Weekdays (Other) - (Seoul Government Research Center, 2008:90-91).

As mentioned before, the stream areas are divided into nine districts from A to I, and each district has similar land uses and physical forms (Fig. 17). The west section of the stream mainly comprises an office zone with relatively large buildings. In the central section of the stream, small retail stores such as machinery and hardware shops previously existed, and the organic fabric remains. The east of the stream is mainly composed of apartment complexes and retail stores serving residents. These various land uses have led to different physical forms in terms of density and skylines, which might
affect people's visits to the stream. Before examining the physical and psychological accessibility
of each district, I described them based on my observations and the quantitative data from Seoul
Government to provide basic information for each district.

*Description of Districts*

**District A**

This district is the starting point of the stream. The stream flows from an axis point that originated
from the Gyeongbok Palace (Fig. 18), which is the main and largest palace of the Joseon Dynasty.
The Seoul government created a public plaza (Fig. 19) in the middle of the roadway to preserve the
historic area. The stream started from this point to commemorate the historical heritage of Seoul
(Seoul 2008:20-21). Many culturally oriented buildings are located there, such as Sejong Cultural
Center and Ilmin Museum of Art, which not only strengthen the district’s identity but also attract
tourists. High-rise office buildings, from twenty to thirty stories, define the district’s physical form
(Fig. 20), while the inside of the district has traditional food complexes with small buildings, not larger than five stories. Many tourists who visit historical Seoul are concentrated in district A.

**District B**

This district is the central commercial area, Jong-ro. Many people visit the district’s diverse retail stores and restaurants. While district A has newly developed buildings, the age of buildings in District B is old so that they are dilapidated and shabby conditions. However, since those stores have operated for a long time, they have established their own customer networks that attract many people from other areas. In addition, this district has an advantage as a buffer zone between the most famous scenic spots in Seoul: Insa-dong (Fig. 21) and Myung-dong (Fig. 22). The Myung-dong area is known as a famous shopping district with varied small clothing stores and department stores that attract many tourists and customers. The Insa-dong area’s traditional restaurants and teahouses make it one of the main places for experiencing Korean culture. Because District B’s
stream is located between these two districts, interactive activities, such as passing over the stream or stopping there to take a rest after shopping in Myung-dong or Insa-dong, are possible. A wide variety of stores and buildings, from three to ten stories, create a dynamic skyline and façade in District B (Fig. 23).

**Districts C and D**

Districts C and D contain similar land use characteristics due to the presence of electronic goods and machinery stores (Fig. 24). These stores represent Seoul’s economic development pathway, which served as a key component in Korean’s manufacturing development. For a long time, merchants have been running stores that made existing infrastructures and organic interaction. These are strong resources of Districts C and D despite their unsanitary conditions. The urban fabric shows dense and complicated layers, and narrow sidewalks discourage tourists from visiting this district (Fig. 25). To improve the undesirable sidewalk conditions, Seoul government has a plan to
create a green park (Fig. 26) from south to north by removing the Sae-hoon shopping center, which currently has dull big box building appearance (Seoul, 2005:45-47). This change will lead to the vivid redevelopment of surrounding areas and Districts C and D will become a sightseeing destination as well as a junction of the Cheonggye Stream and green axis. Other than the Sae-hoon shopping center, the height of buildings are not larger than five stories, but the high density of building configuration creates disconnect from other districts to the stream.

District E, F, and G

Main industries of Districts E, F, and G consist of wholesale clothing and textile goods. While District E (Fig. 27) has small textile good stores with low-rise buildings, district F (Fig. 28) has assembled clothing stores in big-box building types. The reason for this is that district E is mainly used by regular customers who prefer small shops and are not deterred by complicated paths. In contrast, District F’s big-box building type provides desirable conditions for customers to compare
clothing goods with others. In the future, these districts will be distinctive fashion and sightseeing that enhances strong pedestrian flows. The government is currently planning to redevelop the Dongdae-mun stadium in District G as a public park for people (Fig. 29), to be designed by Zaha Hadid. In addition, District F is already an established shopping area due to Doo-ta shopping center (Fig. 30), which leads to the agglomeration of other fashion businesses.

**Districts H and I**

Newly developed apartment complexes and other supporting retail stores create desirable conditions for living in Districts H and I (Fig. 31). Apartment complexes are planned according to the landscape value of Cheonggye Stream and in response to the high land price (Fig. 32). Almost all areas consist of residential land uses, and in contrast with other districts, predominately only local residents use the stream. Tourism is negligible so that these districts have lower visitors to the stream than others. However, redevelopment of apartment complexes will improve the district’s
spatial conditions such as better walking accessibility through clean paths with beautiful landscaping. In the northern part, the historical sites such as the Tomb of The General, consistently attract people from other areas (Fig. 33). These potentials lead us to anticipate a more enjoyable stream in the future. Other than apartment complex, overall buildings' heights are pedestrian-scaled from two to three stories with low density.

**Dependent variable: the number of visitors and their uses of the stream**

![Figure 34](image_url) The number of visitors on Sunday, April 2008 (Seoul 2008)

<table>
<thead>
<tr>
<th>Table 2</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
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<tbody>
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<td>Visitors Pop-F</td>
<td>Sun.</td>
<td>14,559</td>
<td>4,440</td>
<td>2,535</td>
<td>4,059</td>
<td>4,680</td>
<td>3,384</td>
<td>2,430</td>
<td>1,077</td>
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<td>10,122</td>
<td>3,195</td>
<td>2,892</td>
<td>4,722</td>
<td>3,153</td>
<td>4,242</td>
<td>1,893</td>
<td>1,245</td>
</tr>
<tr>
<td></td>
<td>Other</td>
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<td>2,970</td>
<td>1,983</td>
<td>2,694</td>
<td>2,253</td>
<td>1,296</td>
<td>1,464</td>
<td>894</td>
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<td></td>
<td>Pop-F</td>
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<td>485</td>
<td>458</td>
<td>1927</td>
<td>3168</td>
<td>1501</td>
</tr>
</tbody>
</table>

**Table 2. Variables of visitors:** Population flow in main streets, either sides of districts (Pop-F), The number of visitors on Sunday (Sun), The number of visitors on Saturday (Sat), The number of visitors on Weekdays (Other) - (Seoul Government Research Center 2008:90-91).

Fig. 34 shows the number of visitors on Sunday by different line’s thickness and Table 2 provides the specific numbers of visitors during weekdays and weekends. The Seoul Government Research Center gathered this data in 2008. The thick lines in Fig. 34 demonstrate the concentration of visitors. Naturally, they are connected with each other. District A has the highest number of visitors who connect to the Myeongdong commercial area, creating a strong pedestrian flow between Districts A and B. Districts B and C seem to absorb people from the Insa-dong traditional commercial area because the upper side of Districts B and C have strong pedestrian flows and they
are connected to Insa-dong’s pedestrian flow. Between Districts G and F, a large population flow exists that might lead to increasing the number of visitors to both areas. Compared to other districts, Districts H and I’s Sunday visitors are similar in number with those on weekdays, which means that these residential areas’ streams are mainly used by local people (Table 2).

By analyzing the number of visitors and their connection with other areas’ pedestrian flows, we can recognize the strong relationship between the surrounding areas and the stream’s pedestrian flow. However, those quantitative data do not show the direction of influence. For example, the stream might attract people, and then visitors could spread out to other surrounding areas; the opposite scenario is also possible. Another issue is how we can explain the existence of visitors’ spatial preference among districts. For example, although Districts A (1,079/day) and B (1,129/day) have similar population flows on either sides of districts, the number of visitors in District A is more than twice District B’s visitors. Similarly, pedestrian flow from the Insa-dong seems to be differently distributed between District B and C that leads to a differing number of visitors between the two districts. Moreover, although the main street between Districts G and F has a strong pedestrian flow, those districts’ number of visitors are significantly lower than the Districts A and B’s.

We can assume that different physical accessibility among districts leads to the varied number of visitors over the stream. Hence, I explore the physical accessibility of nine districts, which is operationalized by the stairs, the subway stations, and the walking conditions in Chapter 5. However, the physical accessibility does not explain the effects of people’s place images concerning the surrounding areas -- safety, friendly, messy, and complicated. This should affect people’s decision-making for where they choose to visit. Therefore, I explore these place images by using the concept of psychological accessibility, driven by how people perceive the distance, the quality of paths, and the places’ atmosphere based on my interviews in Chapter 6.
CHAPTER 5. PHYSICAL ACCESSIBILITY

Public space is supposed to be used by all people. Therefore, it must be perceived as a distinct place for everyone and be functionally accessible to passersby. Kevin Lynch (1986) stressed that accessibility of public space is the key factor because the delight of a place lies in how one gets to it (Lynch, 1986:193-195). Mark Francis also indicated that the exposure to adjacent sidewalks is essential; a successful space has one or preferably two sides exposed to public rights of way (Francis, 1992:30-31). In other words, the more readily that the passerby perceives the public space as being an extension of that sidewalk, the more likely that he or she feels invited into it. Thus, a passerby may feel that they are already in public space because of visual consistency by similar planting or design. By contrast, even a minor barrier or level change might considerably reduce the number of passersby who enter and use a public space.

In this perspective, the Cheonggye Stream's accessibility is not satisfactory as a public space. Because the stream's level is lower than the ground level, people have difficulty in not only recognizing the stream but also going down to it. Surrounding areas next to the main sidewalks, which comprise machinery, electronics, and textile goods stores detract from a smooth transition between the surrounding areas and the stream. Moreover, since the vehicular street breaks into small spaces between districts and sidewalks (Fig. 35), the main sidewalk at the ground level is narrow and dangerous.

In contrast to the upper part, the lower part of the stream provides safe and desirable walking conditions, which are isolated from both heavy traffic and unsanitary stores.
As a result, rather than walking along the upper level’s sidewalk, people prefer going down to the lower level and enjoying the stream. Another problem of accessibility originates from some district’s complicated path network and high-density buildings. These physical environments of districts discourage people from not only walking to the stream but also connecting with public transportation, because people have to pass by surrounding districts to get to the stream. In order to investigate how the Cheonggye Stream’s physical accessibility affects people’s visits, I examine these factors -- the stairway, the availability of public transportation, and the walking condition of surrounding areas, which impact the physical accessibility.

**Stairways**

As mentioned before, the sidewalks of stream consist of two parts: the upper and lower levels. Due to traffic congestion and the unsanitary condition of the upper sidewalk, people prefer going down to the stream area by using stairs. In this situation, the insufficient number of stairs might be a significant problem for convenient access to the stream (Fig. 36). Because people usually visit the stream for recreational purposes or just to pass through, their entering and leaving should not be restricted by the environmental context. However in the Cheonggye Stream area, people have to

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Fig. 36 Insufficient stairs are a significant problem for access.

Fig. 37 The Distribution of Stairs (Cheonggye Stream Official Site - [http://www.cheonggyecheon.or.kr](http://www.cheonggyecheon.or.kr))
keep walking until they find a stairway for exiting. Considering the long length of the stream, 4.5 km, thirty-three stairways are insufficient for convenient access. Moreover, they are not equally distributed; while some districts have three or four stairways, others have only one or two (Fig. 37).

Table 3. Variables of visitors: Population flow in main streets, either sides of districts (Pop-F), The number of visitors on Sunday (Sun), The number of visitors on Saturday (Sat), The number of visitors on Weekdays (Other) - (Seoul Government Research Center, 2008:90-91).

<table>
<thead>
<tr>
<th>Variable of Stairs: The number of stairs in each district (Cheonggye Stream Official Site - <a href="http://www.cheonggyecheon.or.kr">http://www.cheonggyecheon.or.kr</a>)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitors</td>
</tr>
<tr>
<td>Visitors</td>
</tr>
<tr>
<td>Visitors</td>
</tr>
</tbody>
</table>

However, in contrast with our expectation, there is no correlation between stairways and visitors in Table 3. Although the number of visitors is concentrated in District A, it has just one stairway. Districts F and G have the most number of stairways, but their numbers of visitors is significantly lower than Districts A and B. Surely, this result does not necessarily mean that the stairways has nothing to do with people’s visits. According to the survey of Seoul Government in 2005, about 82% of people agreed that the stream’s insufficient stairway is a significant physical barrier (Seoul 2005:62).

Nevertheless, why do the number of stairways and their locations not affect people’s visits? In interviews and informal conversations, it was found that people pay more attention to various amenities that create interactive activities, such things as drinking and eating after visiting the stream. The kinds of amenities people use are a more important factor for their spatial choice. Another reason is that convenient public transportation is also a more critical factor for people’s visits than the stairs. In other words, other important factors overcome the effect of unevenly distributed stairs. Thus, I extended the scope of discussion about the physical accessibility by investigating the availability of public transportation.
Subway station

Due to the population density of Seoul, traffic congestion is a significant problem, and hence people mainly use the subway to move in Seoul. In the survey (Seoul, 2008:239), more than 60% of people chose the subway for their main transit mode to access the stream (Chart 1). Hence the location of the subway station plays an important role in defining the district’s physical accessibility. As indicated in Table 4 and Fig. 38, Districts from A to G have well-distributed subway stations with similar distance from the stream, even though Districts from F to I have longer distances from the subways stations to the stream. Districts G, H, and I’s small number of visitors might be correlated with long distance from the

![Subway station](http://www.cheonggyecheon.or.kr)

**Fig. 38** The subway stations and main streets (Cheonggye Stream Offical Site - [http://www.cheonggyecheon.or.kr](http://www.cheonggyecheon.or.kr))

<table>
<thead>
<tr>
<th>Table 4</th>
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<th>C</th>
<th>D</th>
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<th>G</th>
<th>H</th>
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<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
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<td></td>
<td>D-Sub(m)</td>
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<td>235</td>
<td>210</td>
<td>220</td>
<td>190</td>
<td>365</td>
<td>333</td>
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<td>458</td>
<td>1,927</td>
<td>3,168</td>
<td>1,501</td>
<td>118</td>
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<td>14,559</td>
<td>4,440</td>
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<td>3,384</td>
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<tr>
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<td>Sat.</td>
<td>10,122</td>
<td>3,195</td>
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<tr>
<td></td>
<td>Other</td>
<td>5,742</td>
<td>2,970</td>
<td>1,983</td>
<td>2,694</td>
<td>2,253</td>
<td>1,296</td>
<td>1,464</td>
<td>894</td>
<td>1,695</td>
</tr>
</tbody>
</table>

**Table 4.** Variables of visitors: Population flow in main streets, either sides of districts (Pop-F), The number of visitors on Sunday (Sun), The number of visitors on Saturday (Sat), The number of visitors on Weekdays (Other) - (Seoul Government Research Center 2008:90-91).

**Variables of access:** The number of subways stations (N-Sub), the average distance from subway station to the stream (D-Sub) - Google map ([http://maps.google.com](http://maps.google.com)).
subway stations to the stream, but it does not explain why people differentially recognize the accessibility of subway stations, despite similar numbers and distance of stations from Districts A to E. The possible reason is that people have to walk from the subway station to the stream by passing through districts' paths. Because the walking conditions of surrounding areas vary, depending on their different land uses and physical characteristics, people can differently perceive the accessibility. Another possible reason is that people might recognize the similar distance differentially due to different place images -- friendly, comfortable, undesirable, and busy -- that might lead to people's different psychological distances. To uncover the underlying reason for this, it is necessary to investigate the walking conditions of surrounding areas and different psychological distances, driven by place images.

**Walking condition of surrounding areas**

Walking condition is the extent to which the built environment supports and encourages walking by providing for pedestrian comfort and safety. A highly walkable environment invites walking by means of a richly connected path network that provides access to the places people want to go. A walkable place has several of the following important attributes: connectivity, linkage with other modes, and good quality of path (Southworth, 2005:247-248). Connectivity of the path network is determined by the presence of sidewalks and other pedestrian paths, and by the degree of path continuity and the absence of significant barriers. A high density of intersections and small block sizes correlates with a high degree of connectivity, but the quality of the path itself is, of course, essential to walking condition (Southworth 2005).

In addition, tolerances and demands for space vary a great deal from person to person and from situation to situation. For example, certain spaces are too narrow for some people to walk, yet still wide enough for others. Therefore, it is very difficult to objectively estimate the degree of walking
condition by considering all these factors. The most important issue of this research is how people perceive the physical environments, and hence I focused on the interpretation of the interview and informal conversations.

<table>
<thead>
<tr>
<th>Table 5</th>
<th>District</th>
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<td>2.7</td>
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<td>BtoL(%)</td>
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<td>63.1</td>
<td>76.9</td>
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<td>59.4</td>
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</tr>
</tbody>
</table>

- **Variables of visitors**: Population flow in main streets, either sides of districts (Pop-F), The number of visitors on Sunday (Sun), The number of visitors on Saturday (Sat), The number of visitors on Weekdays (Other) - (Seoul Government Research Center 2008: 90-91).

Quantitative data (Table 5) such as land-to-building ratio and the average stories of buildings complement the analysis of the interviews. The building-to-land ratio of a district provides the proportion of building areas compared to land areas. Therefore, we can assume that higher building-to-land ratio indicates higher district density, which is closely related to the narrow paths and the lack of public spaces. However, even though the quantitative data make it possible to imagine the approximate condition of paths, it does not explain aspects such as a path’s quality or the landscape design of sidewalks. Therefore, the interviews and my observations are critical resources to examine the quality of walking conditions and their effects on people’s uses of stream.

District A has many high-rise buildings, which occupy smaller areas and insure wide sidewalks for people (Fig. 39). This is supported by Table 5; District A has the smallest building-to-land ratio (39.7%) and the highest average stories of buildings (16 floors). Some buildings are old and ramshackle, but most of them are newly developed so that they can establish attractive and clean

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37
walking conditions. The inside of the district has differently scaled and older buildings, which comprise small and traditional Korean restaurants. These small restaurants and dynamic paths establish an enjoyable path network in District A.

District B is the example of where varied and attractive land use patterns improve the walking condition. This district’s paths are narrow and the neighboring buildings are old. However, an interviewee, who worked for a long time in District B, pointed out that many stores of this district have loyal customers (Fig. 40). As a result, rather than being deterred by the sidewalks’ narrowness, customers become accustomed to the district’s complicated paths. In spite of inferior path’s own quality, the perceived walking condition is heightened.

In both A and B districts, desirable walking conditions encourage people to easily get access to other transit modes, which is positively correlated with the number of visitors. Thus, Districts A and B have strong pedestrian flows and host more visitors than other districts.

In Districts C and D, while the average building of stories is between four and five, the building-to-land ratio is extremely high from 63% to 77%. This is largely because Districts C and D consist of old buildings with less height, which are packed together creating extremely high density. This urban context leads to narrow and complicated sidewalks. As seen in Fig. 41,
the path is flanked by disparate unsightly items in front of assorted machinery stores. For these reasons, people feel disconnected from the Choenggye Stream. Due to undesirable and complicated paths, the connectivity to the subway station is also inconvenient, and hence the number of visitors are significantly lower than Districts A and B.

Similarly, Districts E, F, and G have less buildings heights between two to four stories, packed with high density (Fig. 42). In addition, there are big box buildings that discourage pedestrian pass through and also contribute to feeling disconnected between the subway stations and the stream. Along with these inferior walking conditions, interviewees indicated that people, who visit these districts' small shops for textile goods and clothing stores, do not have an interest in visiting the stream, because of their specific purpose: buying and selling textile goods. As a result, the perceived walking conditions are unsatisfactory and the districts' number of visitors is as low as Districts C and D.

By contrast, Districts H and I provide for hospitable pedestrian with comfort and safe (Fig. 43). As shown in the data (Table 5), building sizes are pedestrian-scaled from two to three stories and the building-to-land ratio is lower than previous districts, which ensure the wide sidewalks and public spaces. This urban context allows people to sense the social and natural life of the stream through sight lines. However, beyond providing an internally well-connected pedestrian network,
convenient links to other transit modes are also important factor for physical accessibility. Thus, long distances to the subway stations, compared to others, lead to the lowest number of visitors despite desirable walking conditions.

By analyzing walking conditions in each district and their effects on the uses of the stream, we realize that desirable walking conditions and the convenient connectivity to public transit are critical factors inducing more visitors to the stream. However, it was found that the distinctive characteristics of a district can overcome inferior walking condition in District B. To investigate this mechanism in detail, I introduce the psychological accessibility, considering how the districts’ distinctive characteristics such as land uses and physical forms affect place images. For example, a high-rise building might discourage people from access to the stream, while the cultural zone attracts more people by encouraging diverse activities. By examining the psychological accessibility and its effect on visitations, we can understand what makes for a strong identity of place and how those place images affect people’s visits to the stream areas.
CHAPTER 6. PSYCHOLOGICAL ACCESSIBILITY

Psychological accessibility is an elusive concept to define. However, we can easily recognize its effects in many places. For example, sometimes, we differently recognize similar distances or places due to diverse place atmosphere, which is affected by different social activities. To understand the role of place images and their effects on human behavior, it is necessary for us to look carefully at the place and to talk with people. By comparing image with visual reality, we can learn what forms make for strong images. Kevin Lynch (1960) investigated the city image by interviewing citizens. He asked people to sketch a map of the city based on their image along with the detailed oral description. Lynch’s research suggests possible interview questions for understanding how people perceive a place or path in their daily lives. For example, he asked people to provide complete and explicit directions for the trip that they normally took going from home to work and to describe any particular emotions arising during their trips along with image mapping (Lynch, 1960:141-143).

Based on Lynch’s study, interviews were conducted to evoke people’s place images of each district. Due to the small number of interviewers, I selected five sites based on different physical characteristics and land uses: A, B, (C and D), (E, F, and G), (H and I). For each site, five people participated in drawing the way to the stream and answered the following questions:

- How do you get to the stream? Can you give a quick description of the way to a stranger by a rough sketch, covering all the main features?
- How long will it take me to walk there?
- What factors of this district you think are most distinctive and why?
- How do you think about the effect of place’s density and height? Do you think that density or height is desirable for the surrounding areas of stream?
Obviously, the sample of people is too small, which did not cover all districts and the selected interviewees were not randomized, but the results are only intended to provide glimpses to planning possibilities. By analyzing interviewees’ place images based on drawing and psychological distances, we can find the generalized image of place, which reflect districts’ different characteristics, and understand what makes for strong place images by pinpointing the places in common that people recognized. If there exist common points that people can easily see in the mind’s eyes, that district should be a more imageable place where people repeatedly visit or have a clearer place image.

*Imageability and Visibility*

This study looks for physical qualities, which relate to the attributes of place images. Lynch (1960) defined “imageability” as a quality in a physical object that gives a strong image for people (Lynch, 1960: 9-10). The imageability corresponds highly to the visibility of a place, which means whether or not people can see something directly, without obstruction. The shape, color, or arrangement of the city can facilitate the mental images of the environment as well as heighten the sense of where objects are not only able to be seen, but are presented sharply and intensely to the senses. A highly imageable place seems well formed, distinct, and remarkable and it is found that the surrounding areas’ different land uses and physical forms decide the different degree of imageability.

Because District A is positioned at the center of Seoul and urban fabrics are defined by high-rise buildings around 16 stories, sight lines are blocked from the district to the stream. If people cannot see a space, they will be reluctant to use it, because not only do people have difficulty in finding the destination, but they have no idea what to expect might be happening there. However, District A was the most recognizable district of all the districts mentioned in the interviews. As seen in Fig. 47, the drawings show that people similarly recognize landmarks such as the President Hotel and
Samsung building, which are big buildings in the District A. Interviewees clearly indicate which corner they should turn on the path to access the stream. They added that District A is near historical sites, full of high-rise buildings, yet contains some old structures in the interior of the district along with traditional food restaurants.

Since image development is a two-way process between the observer and the observed, it is possible to strengthen the place images through repeated visits and advertisements. The Cheonggye cultural festival, which features traditional music performances and exciting old-fashioned games, advertised the District A as the starting point of the stream. In addition, concentrated historical heritages and traditional food restaurants attract many people. Repeated visits and exposure by the mass media encourage people to make a clearer image of the District A that leads to a decrease in the psychological distance and attracts the highest number of visitors.

In interviews, people illustrated District B as having a strong place identity of main sightseeing spots with various facilities such as coffee shops and restaurants. People described that District B’s
narrow streets and beer bars are congested with a wide variety of people, but the lively atmosphere provided by varied commercial enterprises make it a favorite and exciting place. Whyte (2001) stated that a good public space should have a brisk social life (Whyte, 2001: 57-59). Activities such as talking, waiting, and watching in the public space demonstrate the lively atmosphere. Many people indicated that diverse retail stores in District B are key features for creating social interaction and attracting people’s attention. As seen in Table 6, District B has the highest proportion of commercial land use as a 54.13%, which makes an attractive place for tourists, having various commercial stores and restaurants.

<table>
<thead>
<tr>
<th>Table 6</th>
<th>District</th>
<th>Com.(%)</th>
<th>Indu.(%)</th>
<th>Pop-F</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land use</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
</tr>
<tr>
<td>Com.(%)</td>
<td>21.47</td>
<td>54.13</td>
<td>17.37</td>
<td>12.33</td>
<td>11.26</td>
</tr>
<tr>
<td>Indu.(%)</td>
<td>3.25</td>
<td>2.51</td>
<td>58.1</td>
<td>84.19</td>
<td>57.32</td>
</tr>
<tr>
<td>Visitors</td>
<td>Pop-F</td>
<td>1,079</td>
<td>1,129</td>
<td>884</td>
<td>485</td>
</tr>
<tr>
<td></td>
<td>Visits</td>
<td>14,559</td>
<td>4,440</td>
<td>2,535</td>
<td>4,059</td>
</tr>
</tbody>
</table>

- **Variables of land use**: The proportion of commercial landuse (Com.), the proportion of industrial goods stores (Indu.) - Seoul Government Research Center 2008.
- **Variables of visitors**: Population flow in main streets, either sides of districts (Pop-F), The number of visitors on Sunday (Sun), The number of visitors on Saturday (Sat), The number of visitors on Weekdays (Other) - Seoul Government Research Center 2008.

However, in contrast with District A, people cannot remember a specific path to get to the stream because there are various pathways. If they know the approximate direction, they would not lose their way in District B. Therefore, when I asked people to draw the way to the stream, they just pointed out the direction, rather than explaining the specific way. As a result, in spite of a larger number of visitors, the drawings are so simple that only one cosmetic store is recognized in common. This fact indicates that the imageability is also influenced by the characteristics of physical environments. If there is no recognizable landmarks or places, people have difficulty in making a place image.

In both Districts A and B, which have many visitors, people seem to feel the distance to the stream is less than in other districts. In order to compare, across districts, the perceived amount of time to
Table 7. Perceived amount of time: how much time will be taken from the point to the stream.

<table>
<thead>
<tr>
<th>Table 7 Perceived amount of time</th>
<th>District</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>F</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance from the point to the stream (m)</td>
<td>290m</td>
<td>190m</td>
<td>190m</td>
<td>350m</td>
<td>260m</td>
<td></td>
</tr>
<tr>
<td>The average perceived time for how much time will be taken from the point to the stream</td>
<td>5.6</td>
<td>4.6</td>
<td>11.8</td>
<td>18</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>(Perceived time/Distance from the point to the stream)*100</td>
<td>1.9</td>
<td>2.4</td>
<td>6.2</td>
<td>5.14</td>
<td>3.8</td>
<td></td>
</tr>
</tbody>
</table>

Travel from each point to the stream, I divided each perceived amount of time by each distance from the point to the stream, and then multiply 100 to make same distance as 100 m (Table 7). The perceived amount of time might vary depending on various factors such as peoples’ age and whether they are visitors or locals. Though the results of Table 7 have inherent limitations because the sample does not represent the general population, the results suggest that similar distances might be differently perceived due to various surrounding areas. In District A, it was 1.9 minutes and District B was 2.4 minutes, while others ranged from 3 to 6 minutes. These results could be caused by more friendly land uses such as many restaurants and commercial stores in Districts A and B, which attract many people repeatedly and decrease the psychological distances.
While desirable land uses encourage people’s visits in District A and B, the opposite mechanism was found in Districts C and D. In the interviews, people indicated that Districts C and D’s land uses such as having industrial goods stores discouraged people’s access to the stream. People are reluctant to pass by these kinds of stores, which make noise and dirty dust. As seen in Table 6, Districts C and D have the highest proportion of industrial use from 58% to 84%. In addition, although Districts C and D have lower skylines compared to the previous districts, it has extremely densely populated buildings and consists of narrow and complicated sidewalks. Other than local workers who are already accustomed to the complicated paths, people from other areas have difficulty in finding the way to the stream.

As a result, people felt Districts C and D’s paths are very long and tiring (6.2 minutes), while the same lengths in District A and B experienced a very short distance (2 minutes), when people walked for same distance: 100m (Table 6). In addition, in Districts C and D, interviewees answered that they have difficulty in explaining the way to the stream area, and hence they draw only the one way, which uses the main street between Districts B and C, rather than passing through districts. Complicated urban fabrics and undesirable land uses increase the psychological distances, which reduces the number of visitors.
The strong pedestrian flow draws many visitors to the stream. However, Districts E, F, and G show that people’s purpose of the visit can change this phenomenon. Interviewees indicated that many people, who visit Districts E, F, and G, do not pay attention to visiting the stream because they have specific purposes such as selling and buying textile and clothing goods. As a result, despite strong pedestrian flows, these districts have less visitors.

However, people drew specific places such as Dondae-mun stadium and Doo-ta shopping center commonly in the surveys. This means that even though the imageability of a place is an important factor for a strong pedestrian flow, it does not necessarily ensure a high number of visitors to the stream. Instead, a district’s land use influences the purpose of visitors, which affect the number of visitors to the stream area. In Table 6, the lower proportion (around 10%) of commercial land uses, compared to previous districts, also support attractive land uses such as restaurants and commercial stores as very important in attracting visitors.
Districts H and I illustrate that brisk social activities decrease the psychological distance. Near the stream, there are many local residents who exercise and have more opportunity to see, hear, and meet others, which are important attractions in public space. In the residential streets, social activities in public spaces quite often arise from common interests due to sharing similar interests and backgrounds. This has led people to be familiar not only with other people who live nearby but also with the way to the stream. As a result, even though these districts do not have specific landmarks and consist of narrow paths, the psychological distance (3.8 minutes) was shorter than others, except A and B. Because Districts H and I do not have any attractive spots such as commercial stores and restaurants, indicated by the lowest proportion of commercial land uses as around 5% (Table 6), these districts recorded the smallest number of visitors among districts.
CHAPTER 7. CONCLUSION

Many public spaces are emerging in Asia’s fast-developing countries. The rapid urbanization has created complicated urban fabrics and high density in Asia’s major cities. In this context, making public space without considering surrounding areas could result in discontinuity between new public spaces and the old city fabric. This thesis explored how we can mitigate for discontinuity between new public space and the surrounding areas by examining the significance of physical and psychological accessibility. The Cheonggye Stream will be a catalyst for the redevelopment of surrounding areas, which will determine the new identity of the northern area in Seoul. There are many opinions about how those surrounding areas should be redeveloped in terms of land uses and city forms. This thesis tried to provide some implications, when considering the development of surrounding areas, based on how people interact with a given environment.

Physical accessibility

Because many people use public space, it should be freely accessible to passersby. By examining the relationship between the degree of accessibility and the number of visitors, it was found that convenient access to the stream is related to attracting many people. Several points can be drawn from the findings in the Cheonggye Stream case in terms of physical accessibility. First, even a minor barrier or level change might reduce the number of visitors. Even though there was no correlation between the stairs and the number of visitors, many people complained about the insufficient stairs and the level change necessary for getting to the stream. Therefore, newly developed public space in the future should allow people to freely enter and leave by removing barriers such as a level change or fence between public space and the surrounding areas.

Another lesson is that establishing comfortable connections with other transit modes such as the subway and the bus plays an important role in providing better physical accessibility. Due to traffic
congestion and the lack of parking space, people in Seoul prefer taking the subway to visiting the stream, rather than using their own cars. Even though the number of visitors was not highly correlated with both the number of subway stations and their locations, in the interviews, people indicated that the availability of convenient public transportation is a significant factor, when they choose to visit a particular stream area. Therefore, well-distributed and established subway stations are a critical factor for convenient accessibility in the public space.

Lastly, the analysis of pedestrian network and path conditions provided the clue for explaining why people differently perceive the availability of public transportation in spite of similar numbers and distributions. Because people have to pass through each district, which has a different condition for walking, they feel the degree of accessibility of the subway stations differentially. In the investigation, the walking condition was significantly affected by the clean and well-defined path network, but varied and interesting land uses such as traditional food restaurants and bars can also encourage people to walk. By contrast, extremely high density of buildings and complicated path networks lead to an undesirable walking condition that discourages people from visiting the public space. Therefore, the surrounding areas’ walking conditions should be addressed to attract more visitors.

**Psychological accessibility**

Psychological accessibility is introduced to explain the interesting phenomenon that one’s place image differently defines the place’s accessibility. Because the psychological accessibility is decided by how people perceive the place, it is very difficult to identify. By investigating what forms make for a strong and desirable place image, we can understand the people’s perception of given environments and interrelationship with surrounding areas. Firstly, recognizable buildings and landmarks increase the imageability of a place and the psychological accessibility. For example,
if a destination can be recognize well by a distinctive landmark, one might have a view it as easily accessible compared to a place that can not be seen. By contrast, a lack of landmarks, similar skylines, and complicated paths enforce the disconnected feeling, and hence people might feel that those areas’ paths are very long and tiring, while the same distances in a highly imageable place are felt as very short. Therefore, to increase psychological accessibility, the surrounding areas of public space should be well-formed, with distinct paths and buildings.

At the same time, findings from this thesis provide information regarding the surrounding area’s land uses, which can create appealing synergies and draw increased visitation. The surrounding areas’ land uses determine the place’s atmosphere: friendly and comfortable or undesirable. Because people have to pass by the surrounding areas to access the public space, desirable land uses, such as commercial stores and restaurants, play an important role in attracting many people to the stream areas. In contrast, surrounding areas that consist of industrial goods stores discourage people from approaching the stream area. Therefore, in order to make a lively public space, diverse commercial land uses, which lead to social interaction, should be encouraged.

Lastly, another way to strengthen the place image for people is repeated exposure, obtainable by holding cultural festivals and offering diverse performances. Because the image development is an interactive process between the observer and the observed, advertisements for such events have an effect not only on increasing the imageability of place but also on increasing psychological accessibility through people’s repeated visits. The more readily people perceive the public space as an exciting and dynamic place, the more likely people are to feel like repeatedly visiting the public space; thus, offering a wide variety of events will induce more visitors from other areas.
The future development of surrounding areas.

This thesis tries to add knowledge to the planning new public space amid existing urban fabrics. By elucidating the interrelationship with the surrounding areas’ land uses and urban forms, some implications are drawn from the Cheonggye Stream case to increase physical and psychological accessibility. Some areas of Seoul have been redeveloped as high-rise office buildings, while others have undergone a change from unsanitary industrial uses into green space for the public. In this process, the decision making about which areas should be redeveloped or left unchanged is seriously difficult, because it involves many people’s diverse interests and lives.

Some people agree that to compensate the redevelopment cost and correspond to the high land price, the surrounding areas of Cheonggye Stream should be redeveloped as high-rise buildings, packed together with high density. However, these developments, depending on market forces, might reduce the value of Cheonggye Stream by discouraging people from visiting there. Since many Seoul citizens and merchants, who are displaced by the restoration of stream, were willing to share the inconvenience and disadvantages to establish the green space amid Seoul’s CBD areas, we should think about how we can make this newly developed public space to be used by many people.

To adjust the present temp of building, the redevelopment should be guided by the City Government’s recommendations and controls which would be concerned with visual form on the urban scale. The preparation of such a plan might begin with an analysis of the existing form and public image of the area. As one contribution, I have sought to investigate the effects of surrounding areas on the uses of stream and illustrate the public images. Surely, it would be impossible to redevelop the surrounding areas as identical land uses and physical forms, but this thesis provides some direction how we can increase the physical and psychological accessibility by means of desirable paths, dynamic physical forms, and varied commercial land uses. To heighten the visitor’s
attention and enrich his experience, not only the physical reshaping of surrounding areas, but also the increasing quality of an place image should be encouraged. These endeavors will lead to convivial public space and I hope that this thesis provides some direction to increase the positive interrelationships between newly developed public space and the surrounding areas.
Appendix A: Interview Questions

As a pilot study, this thesis has many unsolved problems such as insufficient interview samples and the lack of random distribution. Twenty five people’s drawings and interviews are impossible to generalize the public image. In addition, the sample was quite unbalanced as to class, occupation, and hometown, which might result in a strong bias. Therefore, in the future study, the interviews should be made with a larger sample and more representative of the general population with a random distribution. Main interview questions are as following:

- Which stream area do you like the most among nine districts based on these maps?
- If you don’t have spatial preference, please indicate which district are you familiar with?
- Why do you like those districts compared to others?
- How do you get to the stream?
- Can you give a quick description of the way for a stranger by drawing a rough sketch, covering all the main features?
- How long will it take me to walk there?
- What factors of this district do you think are most distinctive and why?
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