

Cheonggyecheon restoration : A process of paradigm shift in urban environment of Seoul

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GDCI Webinar

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Contents



I. Seoul and Cheonggyecheon

II. Steps of restoration

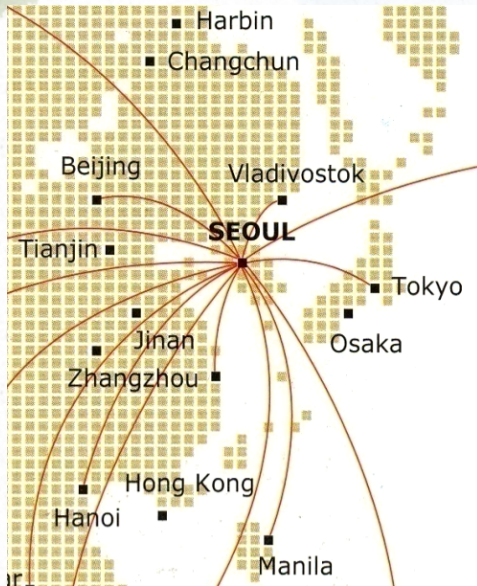
III. After restoration

IV. The future of Cheonggyecheon

The background features a close-up of water ripples in shades of blue. Three green leaves hang from the top corners. A large, semi-transparent green circle is positioned on the right side, containing the text.

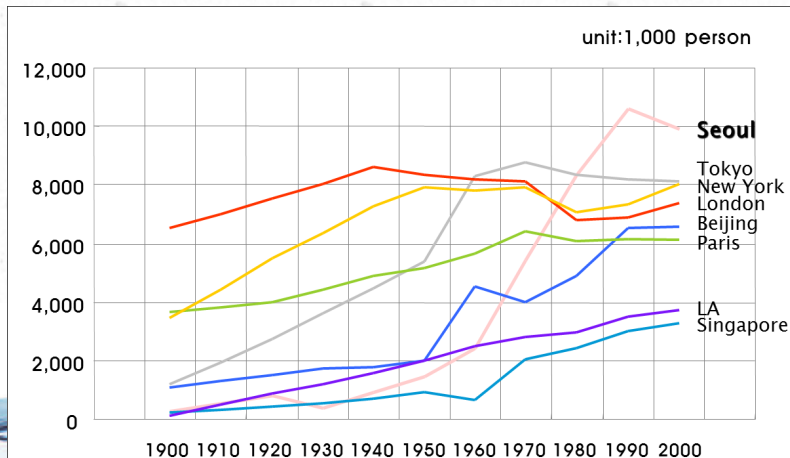
Seoul and Cheonggyecheon

About Seoul



With a population of 10 millions in Seoul.

It occupies 605 square kilometers or 0.6 % of the nation's territory.



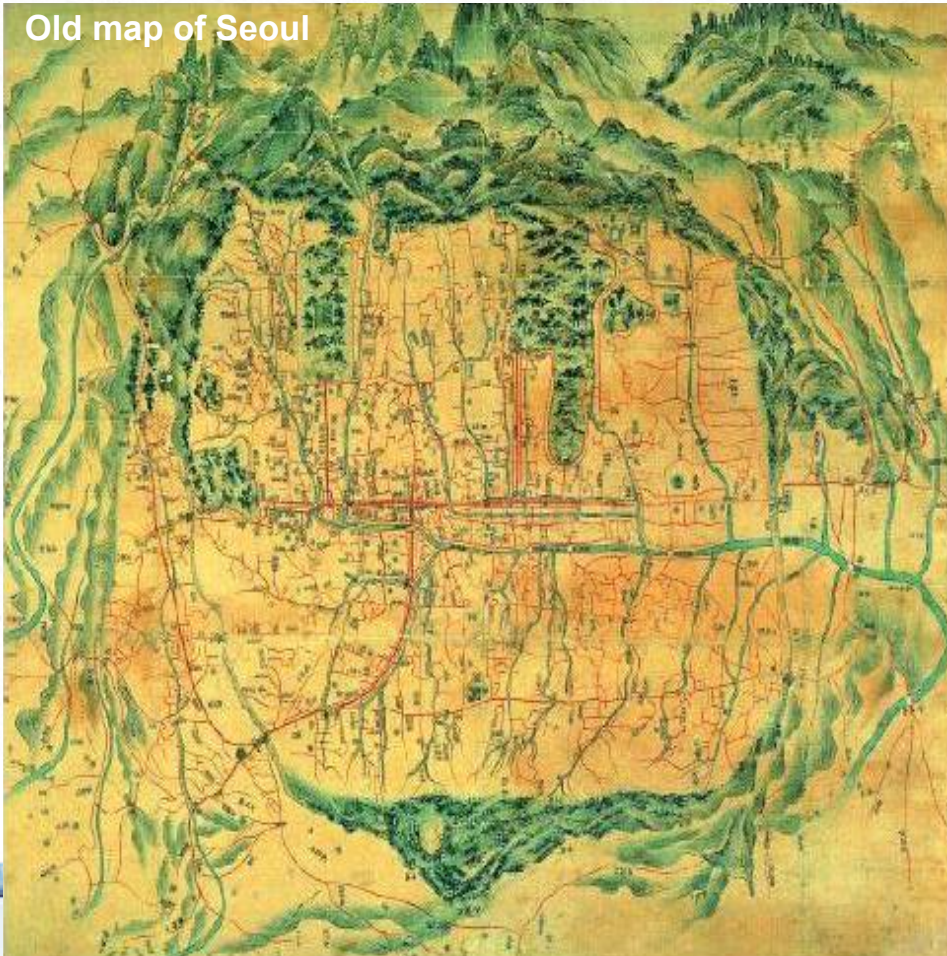
Basic Statistics (2014)

Population	10.3 million
Foreign Residents	274 thousand
Area	605.2 km ²
GRDP	285.6 billion USD
Companies	812,798
Park area	170 km ²

Cheonggyecheon (cheon means stream)

Cheonggyecheon was opened by king Taejong, the third king of Chosun dynasty, to cross the heart of busy city, emptying into the Han-river in the form of natural stream 10.92 km in total length.

Old map of Seoul



Cheonggyecheon



Place for washing in early 20 century



After Korean War :
urban squatter until 1970's



After the construction of elevated highway

The background features a close-up of water ripples in shades of blue. Three green leaves hang from the top corners. A large, semi-transparent green sphere is positioned on the right side, containing the text.

Step of restoration



The beginning of restoration



- 1991 Casual conversation between an engineer (Prof. Noh Soo Hong) and a historian (Prof. Lee Hee Duck) of Yonsei university
- 1998 A famous Korean novelist (Pak Kyung Li) got involved
- **2000 Cheonggyecheon restoration research group was founded by Prof. Noh**
- 2002 Became the major election issue for Seoul Mayor and Mr. Lee Myung Bak adopted the restoration plan and won the election (33rd Seoul Mayor)
- 2003 Restoration began
- **2004 Seoul policy grand prize granted to Cheonggyecheon restoration research group**



Paradigm shift



- Restore the cultural and historical heritages of downtown Seoul
- Bring back the ecosystem to the heart of the city
- Public-transit and pedestrian friendly transportation policies
- Balanced development of old and new city sections



Restoration step



1. Landscape Plan
2. Demolition Plan
3. River Plan
4. Sewage Improvement
5. Water Supply Plan
6. Bridge Plan
7. Adjacent Roads Plan
8. Heritage Restoration

Site location



Plan of Restoring the Upper Stream and the Lower stream of Cheonggyecheon

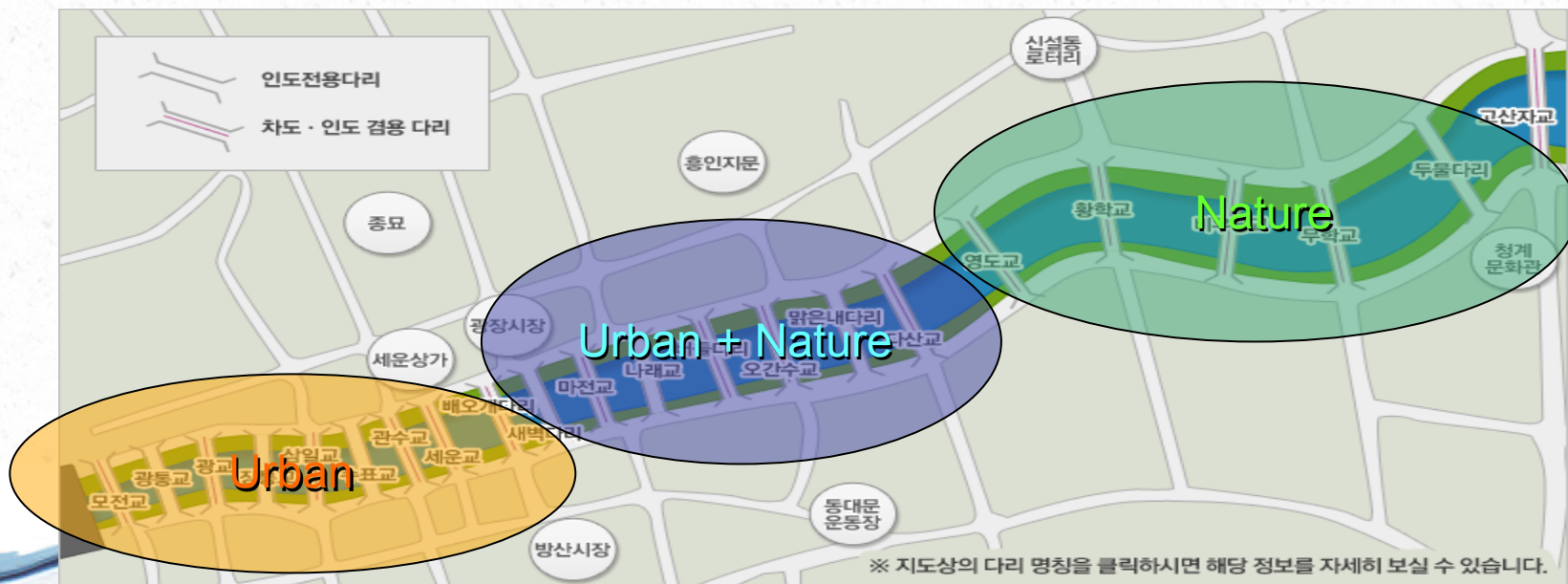
- **Upper stream** (Baegundongcheon~Junghakcheon) : Restoration planned for long run
- **Lower stream** (Shindab Bridge~Jungrangcheon) : Launching improvement plan in 2003

1. Landscape plan

Fundamental Concepts

- Gradual transformation from urban landscape to one incorporating nature
 - Section A : Bridge treading, Supyoseok (water gauge)
 - Section B : Ecological area, Rest Area, Deck, Stepping stones
 - Section C : Deck, Larger ecological parkland, Direct interactive with nature

Segmentation diagram



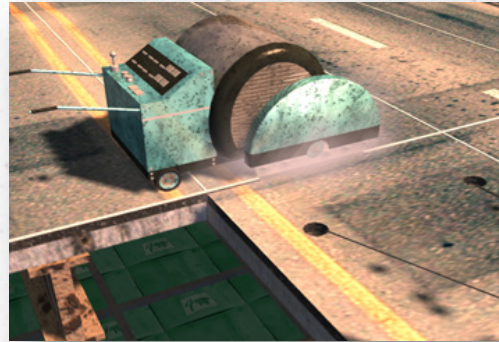
2. Demolition plan

Process of demolition

- Step 1



- Step 2



- Step 3



- Step 4



- Step 5

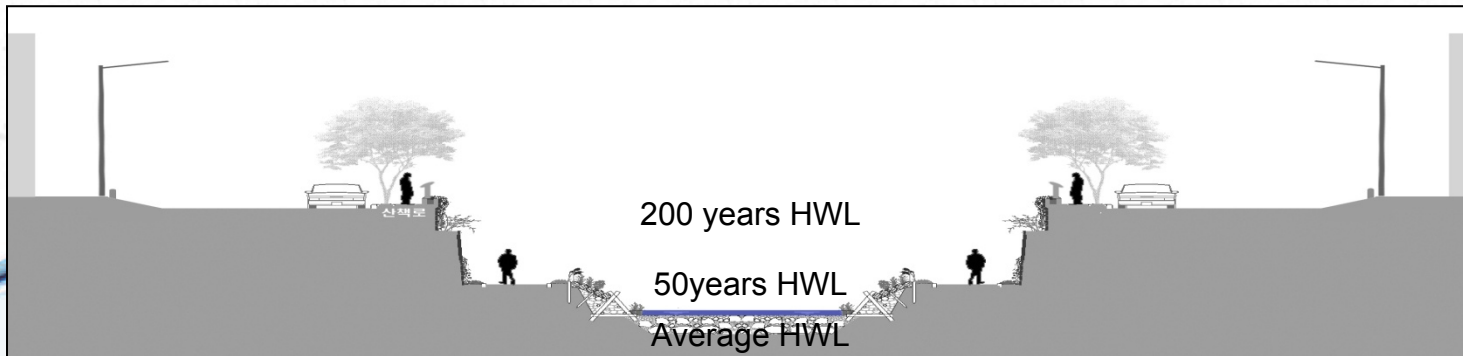
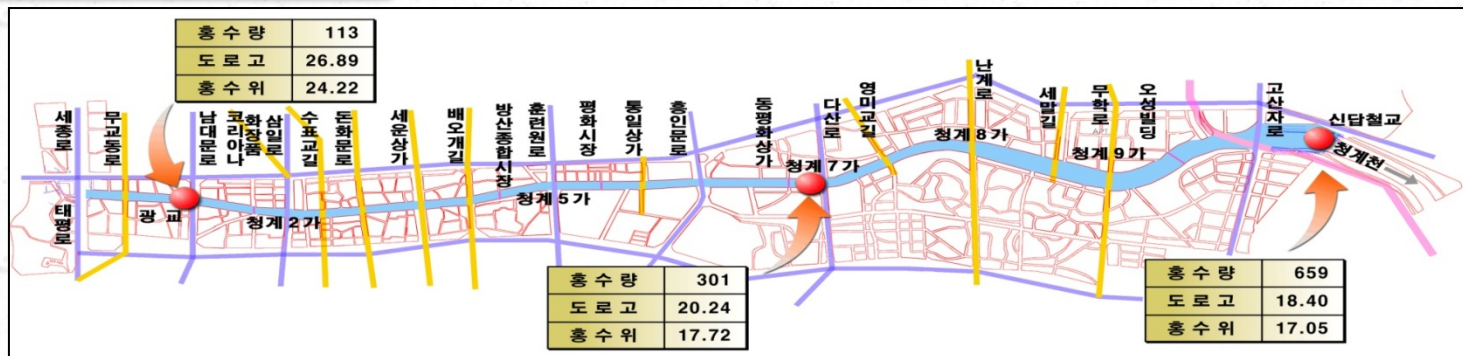


3. River plan

Design Criteria

- Satisfy with the 2nd grade local river standard
- Secure flood section for 200 years frequency rainfall

Flood water level

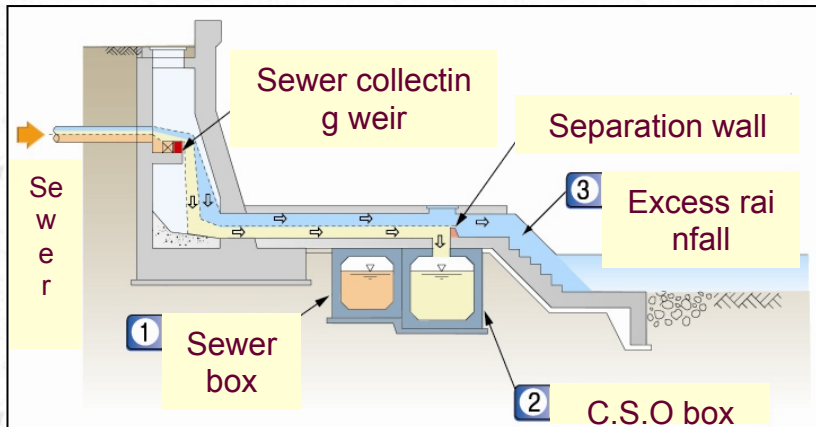


4. Sewage improvement

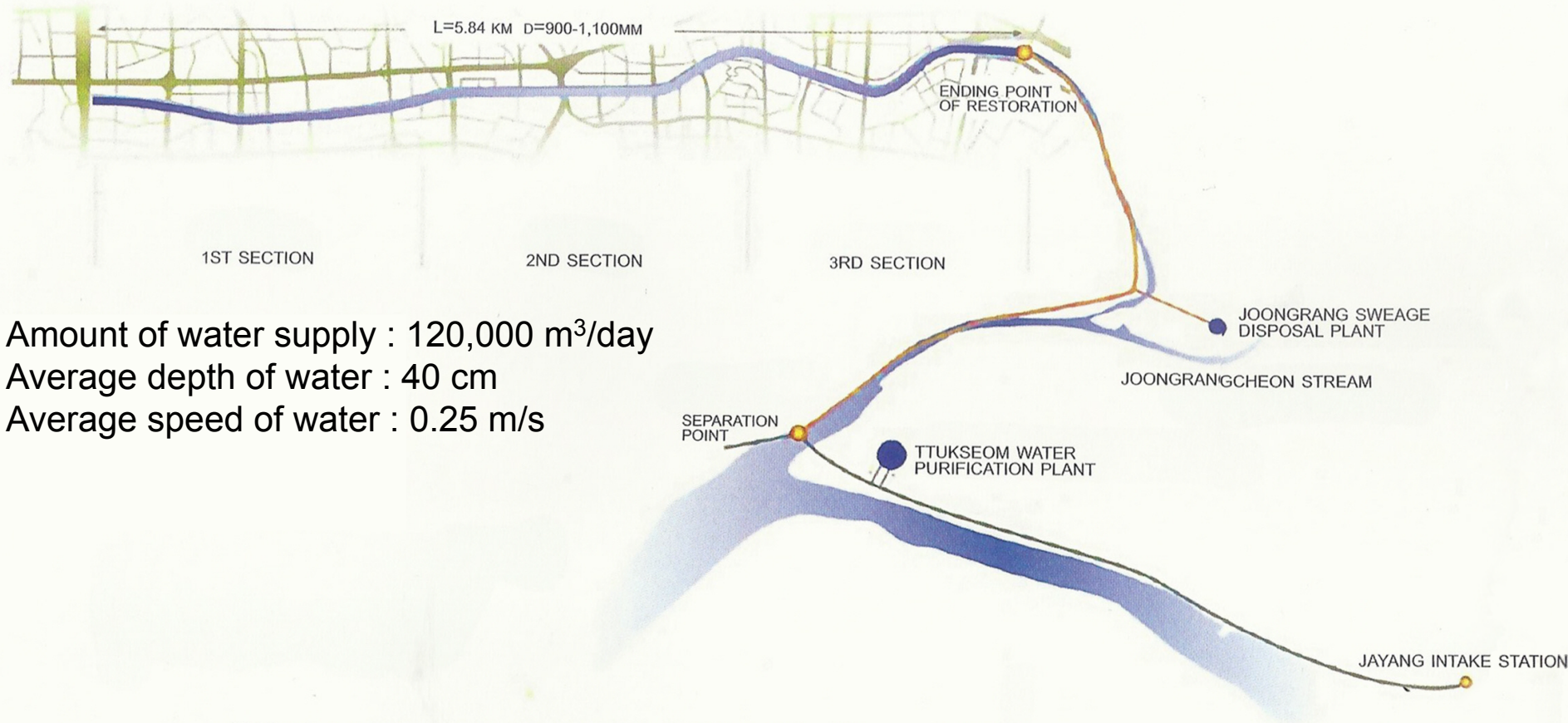
Design Criteria

- Combined sewage system for rainfall and waste water
- Capacity : 3 times of planed sewer

Combined sewer system



5. Water supply plan



Amount of water supply : 120,000 m³/day
Average depth of water : 40 cm
Average speed of water : 0.25 m/s

Water is pumped from the Han-river to the head of the Cheonggyecheon to ensure even flow year-round and optimize the experiential quality of the river.

6. Bridge plan

Access point to stream



Stairs

Slope way

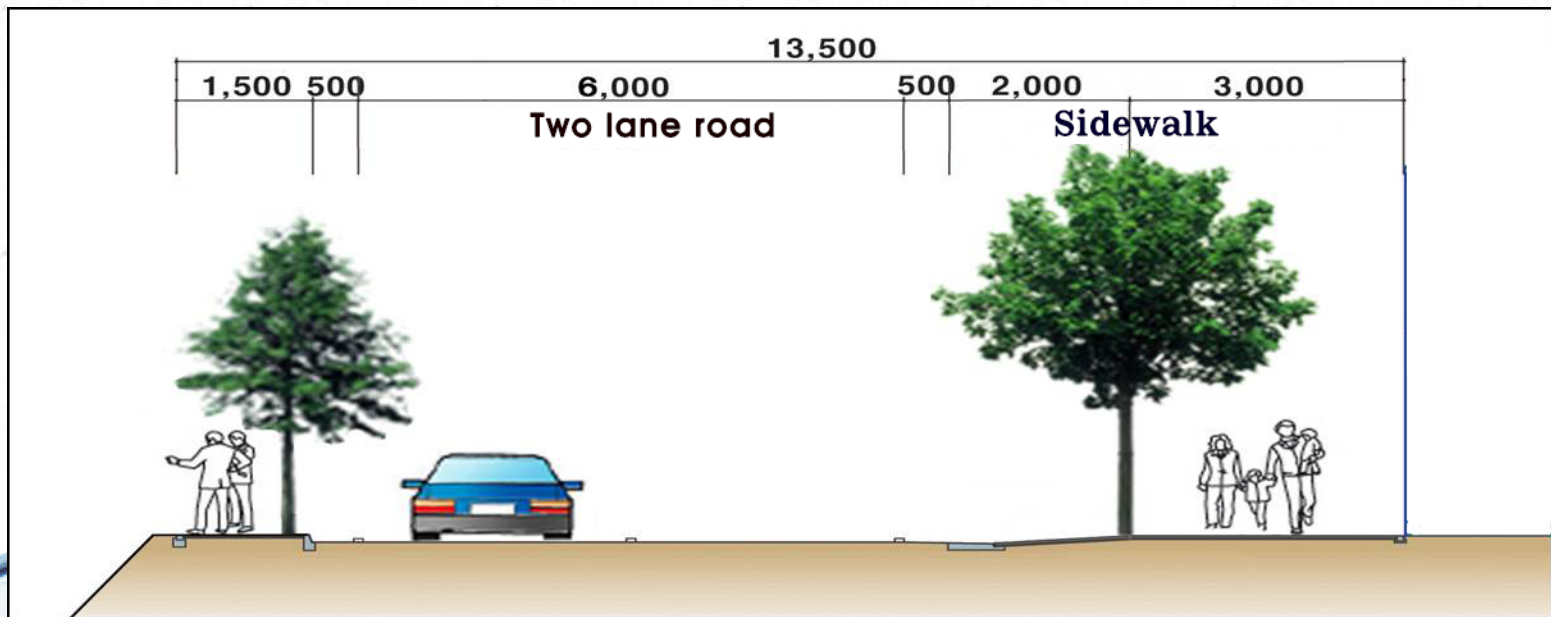
7. Adjacent embankment road plan

Design criteria

- Allowing 2 lanes per each side of restored riverbank to allow easy access to the stream
- Designate Parking Area for business in crowded areas
- Adhere to road design standard (speed : 60 km/hr, R = 240 m)
- Allow pedestrian convenience for latter development of area

Section plan

Unit : mm

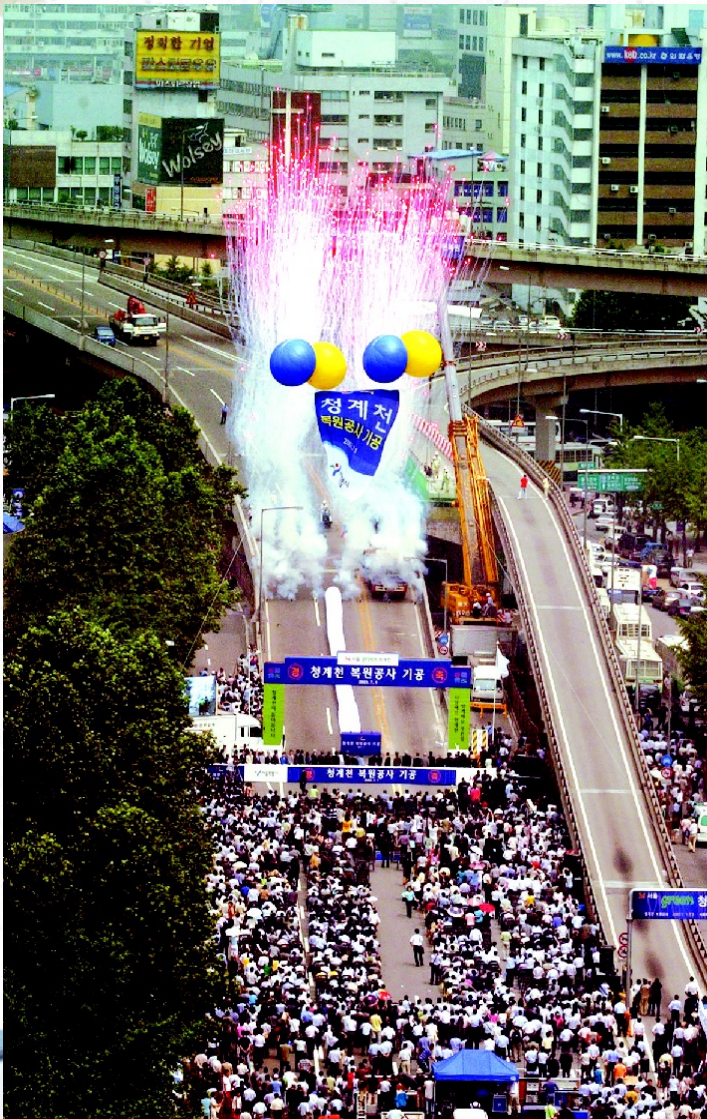


8. Heritage restoration



Restored Gwang Tong Gyo (廣通橋)

Starting the work (July 1st 2003)



Cheonggye and Samil elevated highway

in History

Progress of construction



Before (2004. 7)

After
(2003. 7 ~ 2003.10)



Progress of construction



Upstream



Midstream



Downstream

After construction



Before restoration



After restoration

After construction

Thematic places

Traces of the past Cheonggyeche



Willow marsh



Stone plate for clothes wash



Resting place



The background is a vibrant blue with soft, out-of-focus green leaves at the top corners. Three clear water droplets are arranged vertically in the center-left. The bottom droplet is just above a series of concentric ripples on a water surface. A large, semi-transparent green circle is positioned on the right side of the image.

**After
restoration**

New attraction for citizens

Since 2005 opening, more than **200 million** people visited Cheonggyecheon until February 2016.



Lantern festival



Attracting investment



- Delegates from abroad visit to carry out case-studies
- Influx of people attracts more investments.



Culture along the stream

Historically

- Cheonggyecheon was not only geographical but also symbolic boundary in politics, society, and culture, dividing Seoul into the north and south.
- Bridges and the vicinity provided places for the people of lower classes to enjoy diverse cultural entertainment.



Of Lower class, more practical scholars gathered along the stream.



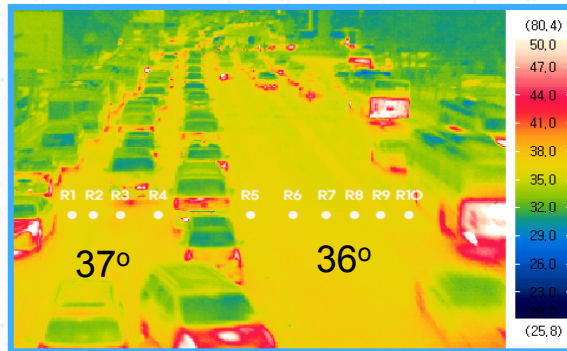
Dapkyonori on Supyogyu bridge



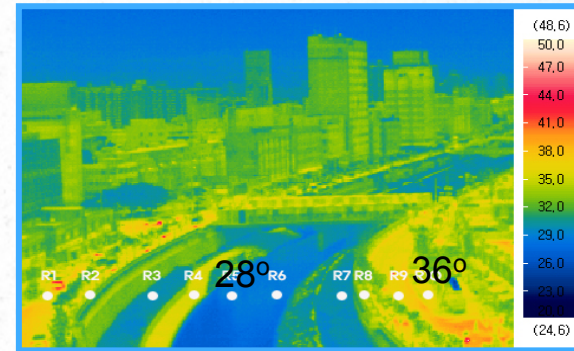
The great master, mad painter Jang SungEup drew pictures under the bridges.

Environmental & ecological improvement

- The stream declines 10~13% of temperature and reduces 7.1% of dust.
- Wind blows faster along the stream cooling down the heat-islands
- Recovering ecosystem in the heart of city refreshes citizens,



Average 36.3°C
Nearby street



Average 32.7°C
Cheonggyecheon

Increase of species after restoration

Year Species	Before restoration	'06	'07	'08	'09	'10
Total No. of species	98	421	573	626	788	864
Plants	62	268	312	308	314	300
Fish	4	23	19	25	27	25
Birds	6	33	29	36	34	37
Water insects	5	39	26	53	39	29
Land insects	15	46	174	192	206	248
Mammals	2	4	4	4	4	6
amphibians	4	8	9	8	7	9

Transportation improvement

plans	Main contents
Plans for cars passing cheonggye elevated highway and cheonggyecheon road	<ul style="list-style-type: none"> - Improvement of traffic system around cheonggyecheon road - Measures for bypass and dispersion
Increase capacity of public transit	<ul style="list-style-type: none"> - Increase carrying capacity of subway - Designate bus-only lanes. - Downtown shuttle bus service
Management of downtown traffic demands	<ul style="list-style-type: none"> - Crackdown on illegal parking - Increase the parking rate in downtown - Citizen participation for public transportation utilization
Traffic measures for cheonggyecheon mall customers	<ul style="list-style-type: none"> - Four lanes in Cheonggyecheon road during restoration - Parking lots for trucks in Cheonggyecheon road - 1 hour free parking for visitors in Cheonggyecheon mall

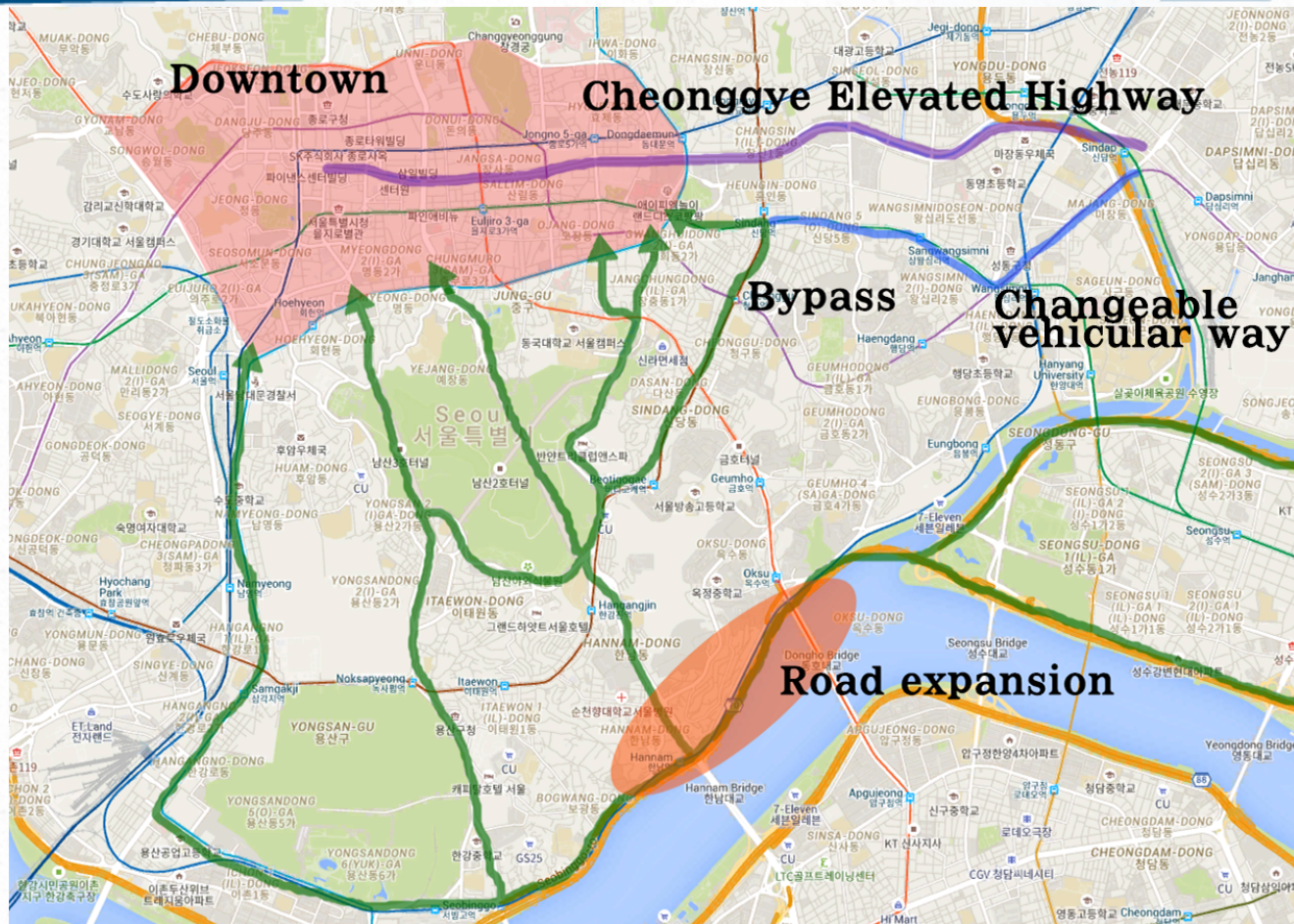


No driving day system



Bus-only lane in Seoul

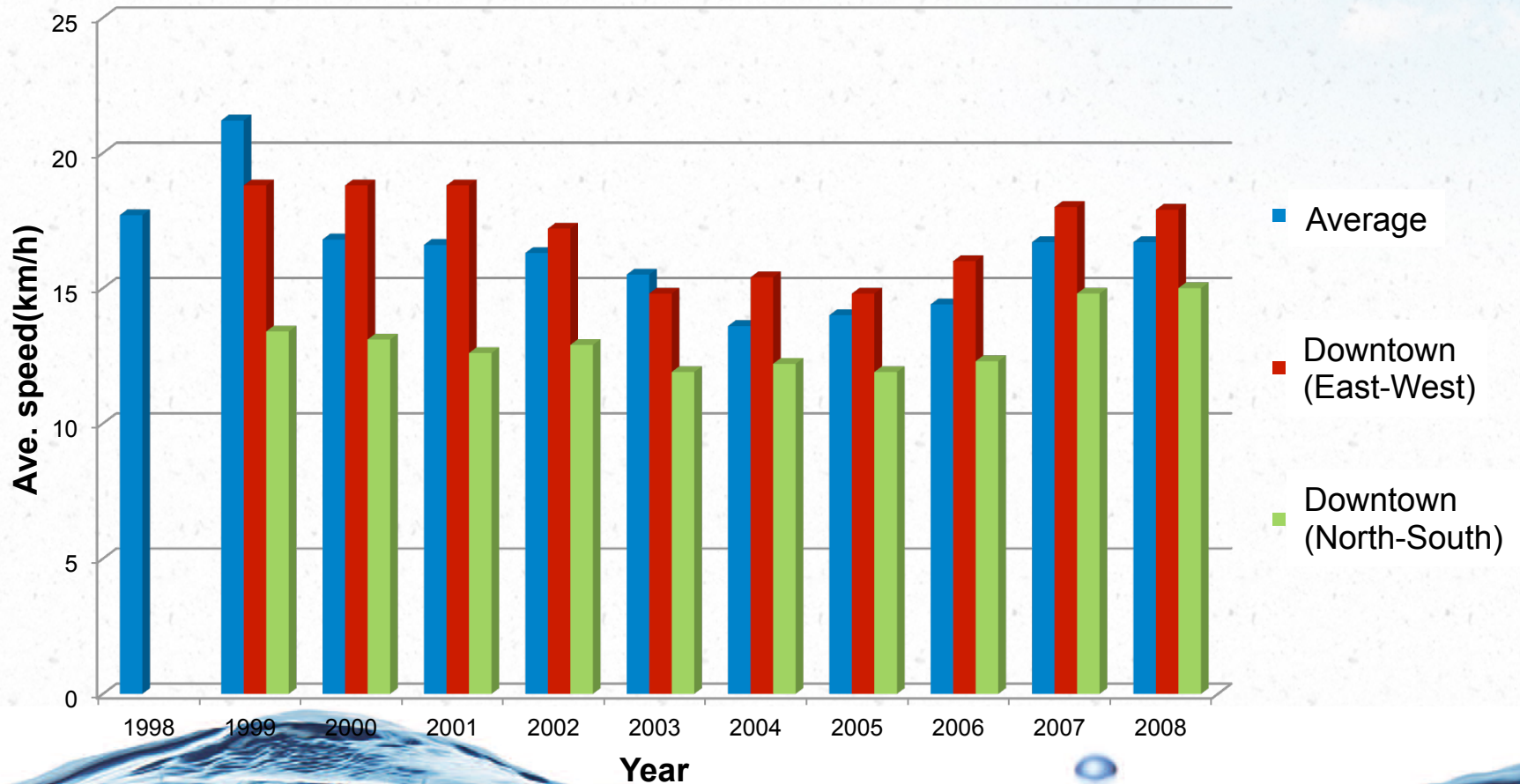
Transportation improvement



Plans for bypass and dispersion

Transportation improvement

Change of average vehicle speeds before and after restoration in downtown Seoul





The future of Cheonggyecheon



The future of Cheonggyecheon



Restoration of up-streams

Restoration of historical stone bridges

Eco-friendly supply of maintenance water

Sharing of Cheonggyecheon experience

Restoration of up-streams

- Baegundongcheon and Junghakcheon are upstreams of Cheonggyecheon and were also covered.
- These two streams will be restored by 2030 according to Cheonggyecheon 2050 Master plan.

Baegundongcheon



Restoration of historical stone bridge

- Supyogyo is one of the bridges across the Cheonggyecheon and was built in 1420.
- Water level of Cheonggyecheon can be estimated by the stones near Supyogyo.
- Supyogyo relocated to Jangchungdan park during restoration.



Supyogyo in Cheonggyecheon before relocation

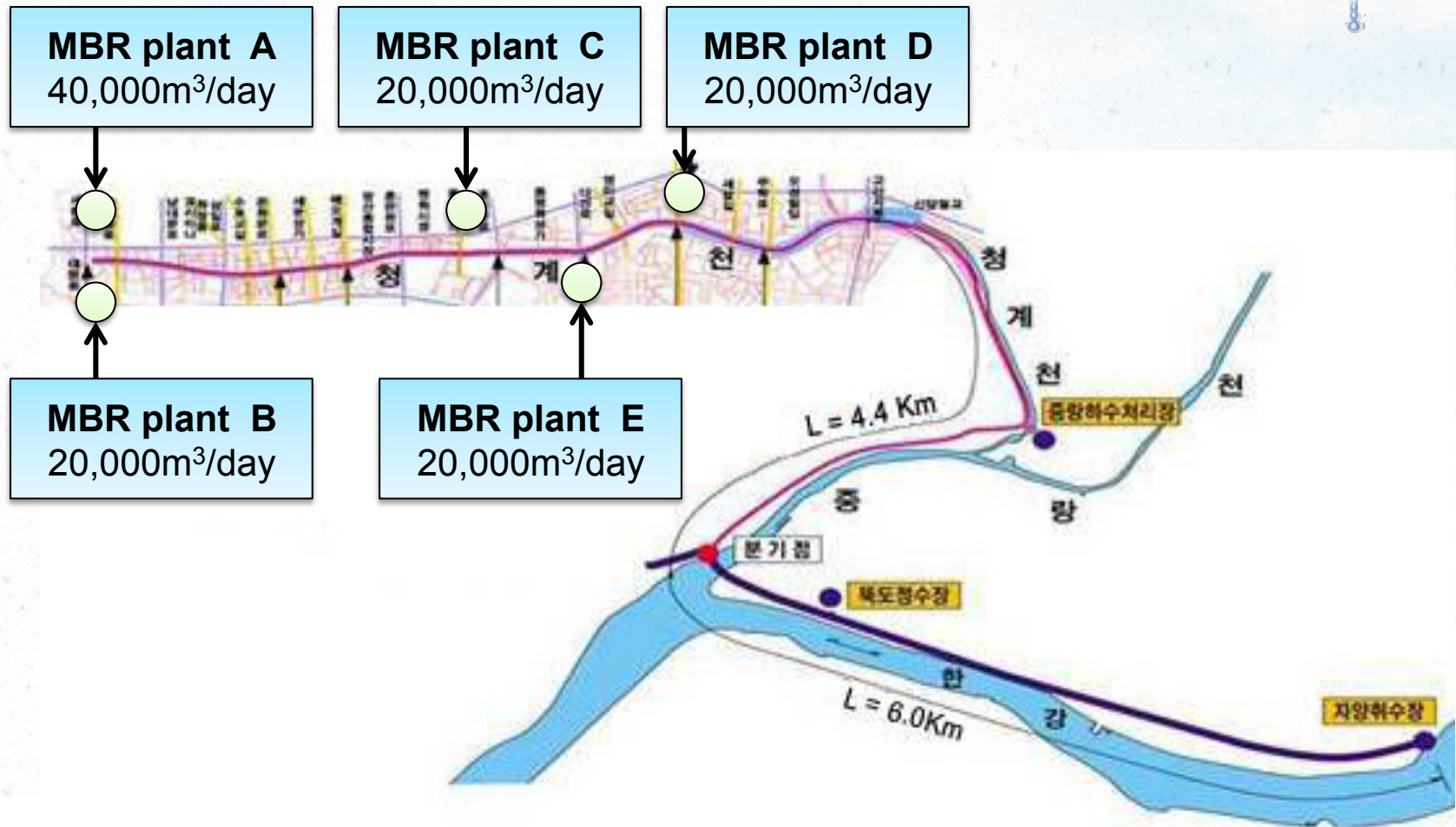


Temporary wood Supyogyo in Cheonggyecheon

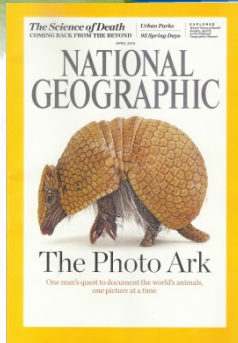


Supyogyo in Jangchungdan park

Eco-friendly supply of maintenance water



Sharing of Cheonggyecheon experience



at remains of Lake Texcoco. By the breadth of innovation the passion people bring to explore them, what became a parks aren't a substitute for often remote parks that project forests and mountains serve a different purpose, the both.

LAST AFTERNOON, I set off to the length of Cheonggyecheon, of water that unfurls with quiet through the heart of Seoul. Industrial years, the stream courted and women gathered Seoul's boom after the Korean industrial years, the stream and me an eyesore. In 1988 a road an elevated highway, finished the entombment. Cheonggyecheon might have stayed, if by and politics. Throughout the vop that included academics right to uncover the waterway, how to manage the stream's mitigate the traffic snarl that are the highway and the road below, which carried more than 170,000 vehicles a day, were removed. "I didn't think the money was the problem," said Noh Soo-hong, a professor of environmental engineering at Yonsei University and one of the project's first supporters. "I thought it was the will."

The missing component was a leader with clout. That person arrived in the form of Lee Myung-bak, a former construction executive whose company had been the principal contractor in building the highway. He made the stream's restoration a key issue in his successful campaign for mayor of Seoul in 2002. (Five years later, he was elected president of South Korea.) "It was a very dangerous idea," said Hwang Kee-yeon, a transportation engineer who helped develop the master plan. "Lee Myung-bak decided 'I built it. It's time for me

Work on the \$372 million project, a reclamation job of mammoth proportions, began in 2003. First the elevated highway was torn down. Then the surface road was ripped up, again exposing the stream. Like many restorations, this one is not entirely faithful to the past. The stream was intermittent, barely trickling in the dry months and surging during the summer monsoon. Thanks to pumping stations that deliver more than 30 million gallons a day from the Han River, the stream now bubbles reliably.

"People criticize this as a man-made river or fish tank," Lee In-keun, a wiry and animated man, told me as we strolled the upper portion of Cheonggyecheon. The paths by the stream were crowded with people enjoying the water and pointing with delight at carp idling in the deeper pools. Research shows it provides a cooling effect during Seoul's steamy summers. Lee overrode the restoration project and agrees that Cheonggyecheon is artificial. But that distinction doesn't matter to him; he finds the presence of nature as vital as in a truly natural setting. "It's a jewel of the city. You can hear the water flow in the central area of ten million people. It's unbelievable. We made that intentional."

Cheonggyecheon begins in the financial district, within a canyon of office buildings. The stream flows east, the banks wide, the concrete gives way to thickets of reeds and glades of trees. It moves past gritty shopping areas and tired-looking wholesale districts and gigantic apartment complexes that rise up like fortresses. At one point a pair of concrete abutments appears in the stream. Part of the old highway, they are reminders of the past and the impermanence of our engineering. Many Seoul residents find it hard to remember a time when the stream was covered, when buses didn't wade gingerly in the water hunting for fish, when it wasn't an inviting place.

I was near the end of Cheonggyecheon when I heard the singer I followed her voice to a small stage under a bridge where a band was playing a Korean "tree" some the honk-tonk sound mix-

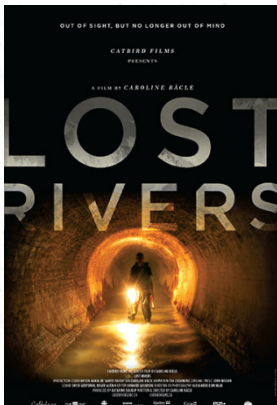


DECONSTRUCTION / CONSTRUCTION
THE CHEONGGYECHON RESTORATION PROJECT IN SEOUL
Edited by Joan Buquet

Deconstruction./Construction,
Harvard university graduated school of design 2011



Landscape Architecture China,
The restoration of Cheonggyecheon in Seoul, 2011



PBS, Lost rivers (Movie),
2012



Discovery, Man made Marvels,
Seoul searching, 2005



PBS, e2 series Seoul : The Stream of consciousness, 2008

And so many articles and books

Ref : <https://www.youtube.com/watch?v=ZYCfMpiXU5w>, http://www.amazon.com/Deconstruction-Construction-Cheonggyecheon-Restoration-Project/dp/1934510319/ref=sr_1_1?ie=UTF8&qid=1460961076&sr=8-1&keywords=deconstruction+%2F+construction



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Cheonggyecheon Nature, History and Culture

Thank you