

Innovative Policy and Strategy for Water Environment City in Seoul: Past, Present and Future

2018. 08.

A high-speed photograph of a water splash against a white background. The water is captured in mid-air, forming a complex, symmetrical shape. A thin, dark semi-circle is superimposed over the upper part of the splash, framing the number '1'.

1

Introduction



Population of Seoul

Population increased by 4.1 times compared to 1960 (2.44 mil.)



Houses in Seoul

About 0.44 mil. → 3.78 mil. households



Land of Seoul

30% of city area re-developed



Lives of Seoul Citizens

Rapid increase in number of households due to nuclearization of families

※ Comparison between 1962 and 2015

Rapid growth of impervious surfaces induced by urbanization in the past 60 years has caused lots of changes in water environment conditions.



1960s



1970s

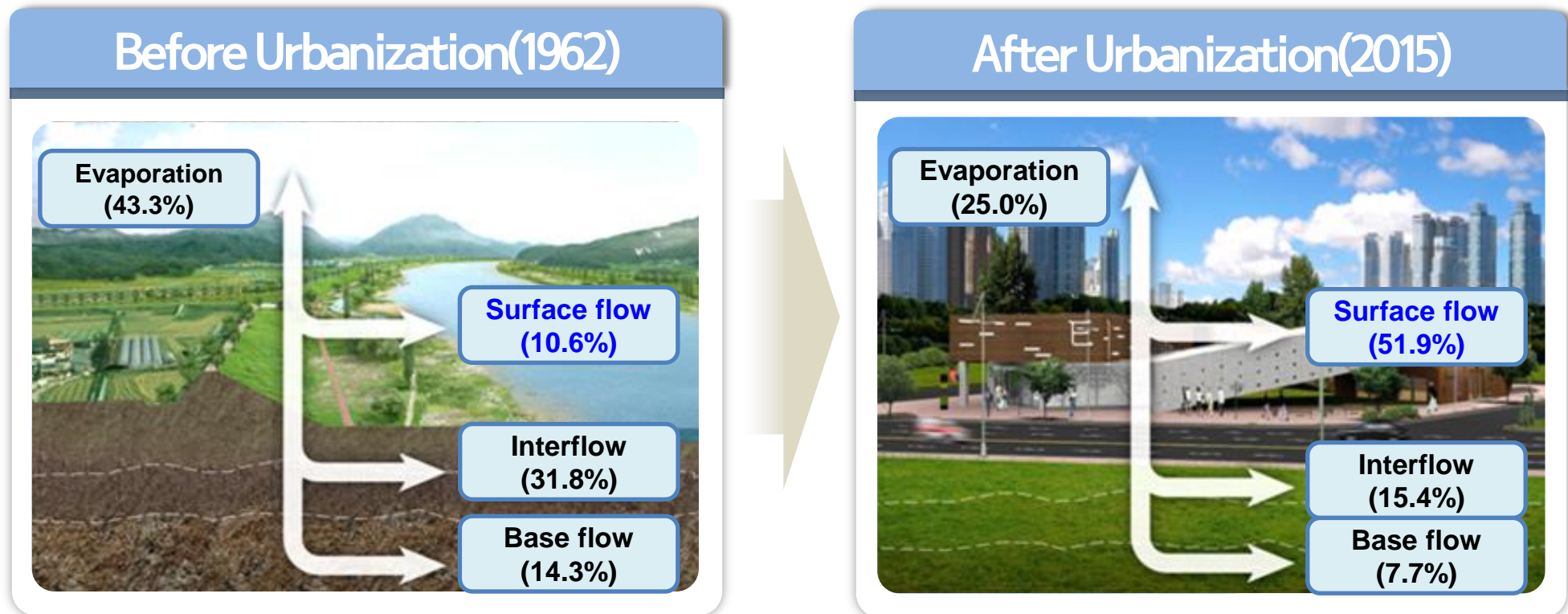


1980s



2015

➤ Comparison Before and After Urbanization



↓ Decrease : Evaporation, Infiltration
↑ Increase : Surface flow

➤ Difficult Conditions to Manage Rainwater

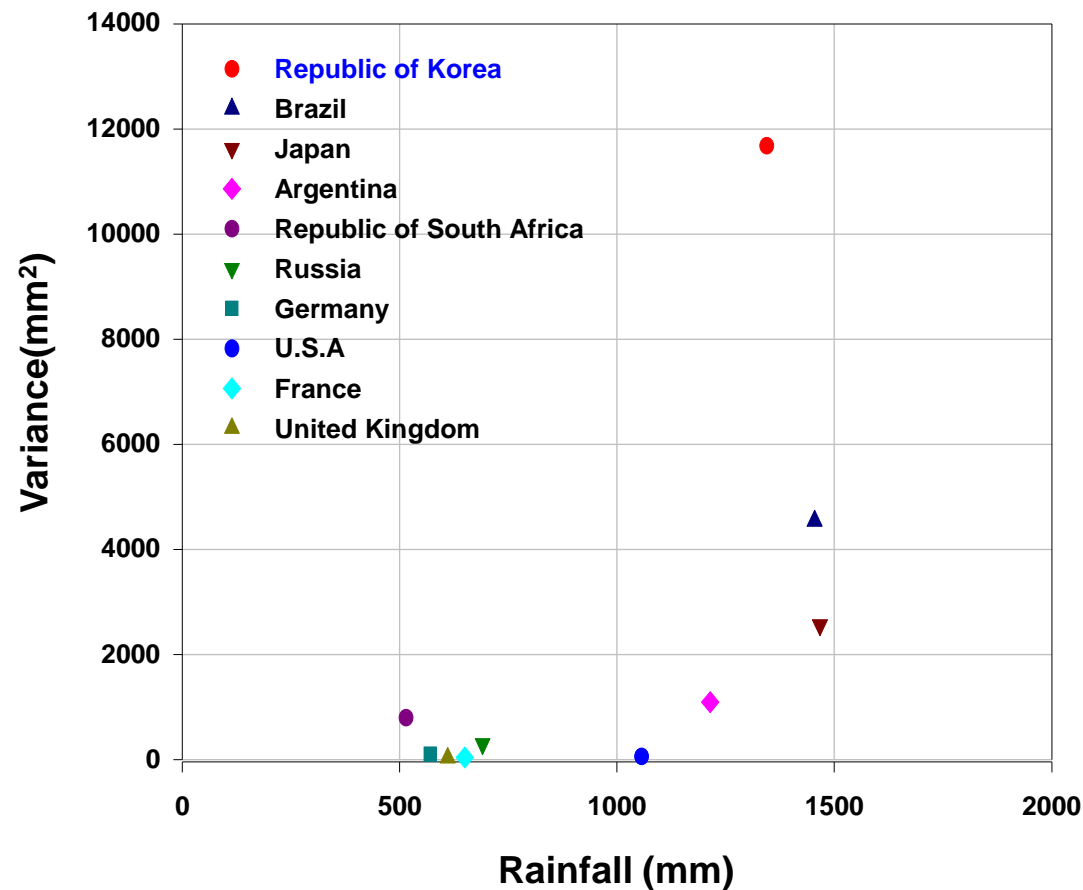


Figure 1. Comparison of Annual Rainfall and Dispersion for Selected Countries

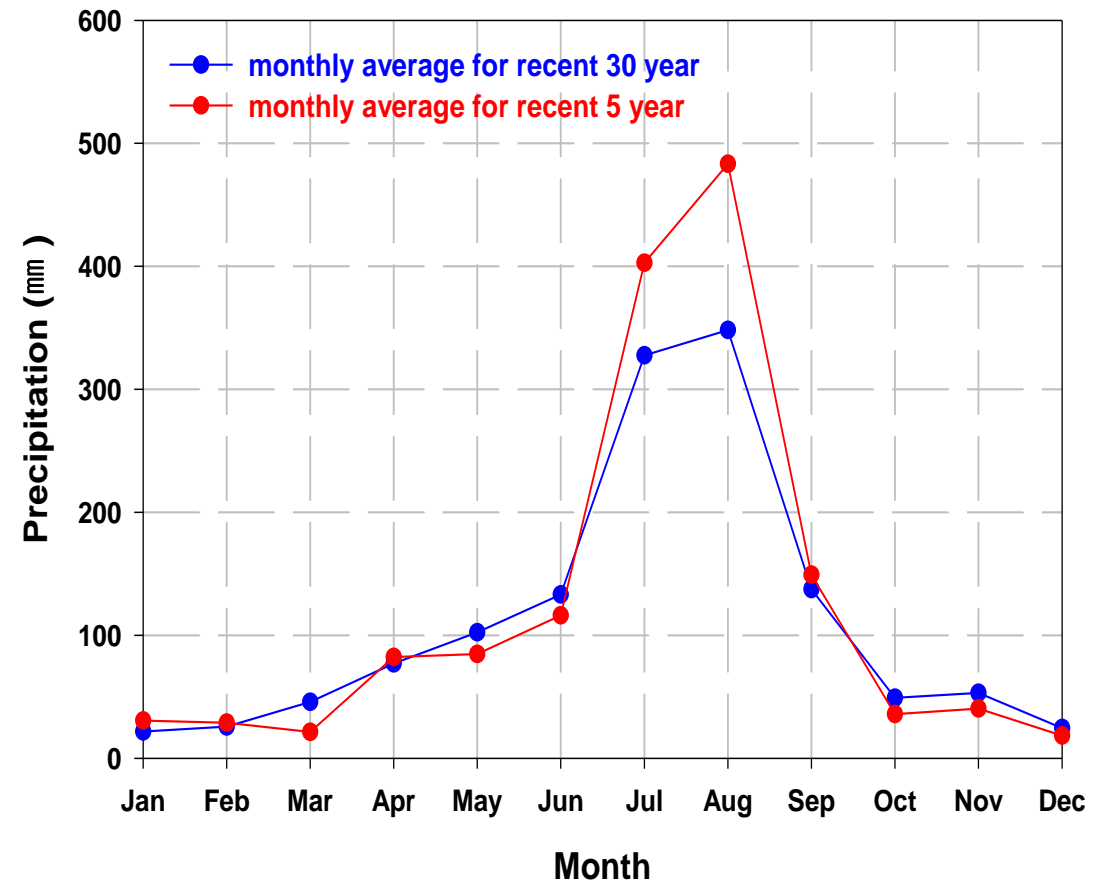


Figure 2. The Change of Annual Rainfall in Seoul

A dynamic background image of a water splash, with a thin brown semi-circle graphic centered behind the number 2.

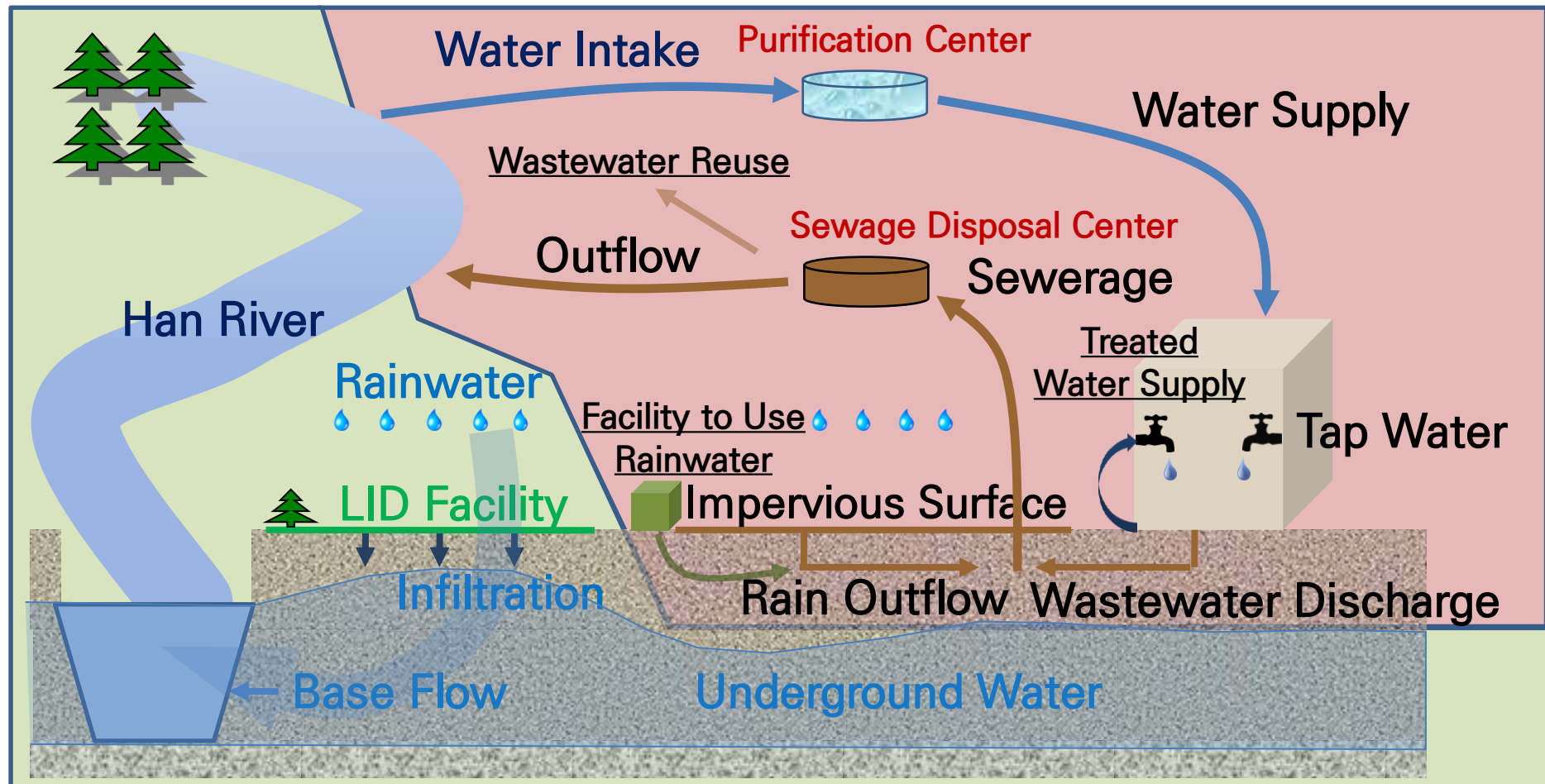
2

Water Circulation & Low Impact Development

Definition: Water Circulation

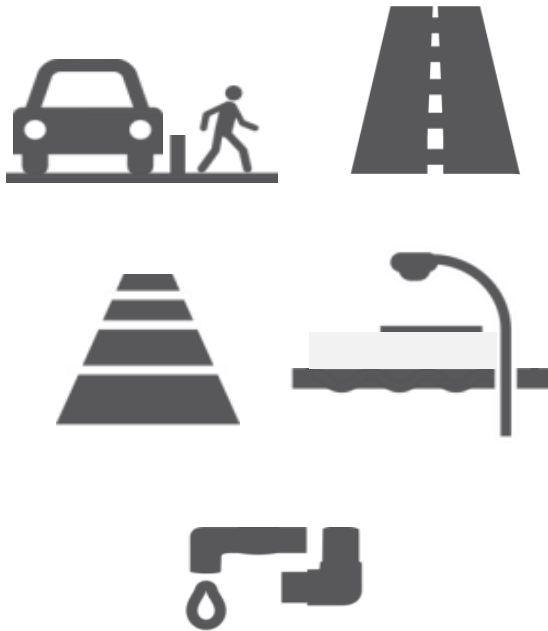
2. Water Circulation & LID

- Evaporated water becomes rainwater, used in ground water or rivers and then returns to the sea: **Natural Water Circulation**
- Processes caused by the effects of artificial facilities such as water supply and drainage: **Artificial Water Circulation**



➤ Replace Grey with Green Infrastructure

Grey Infrastructure



Green Infrastructure

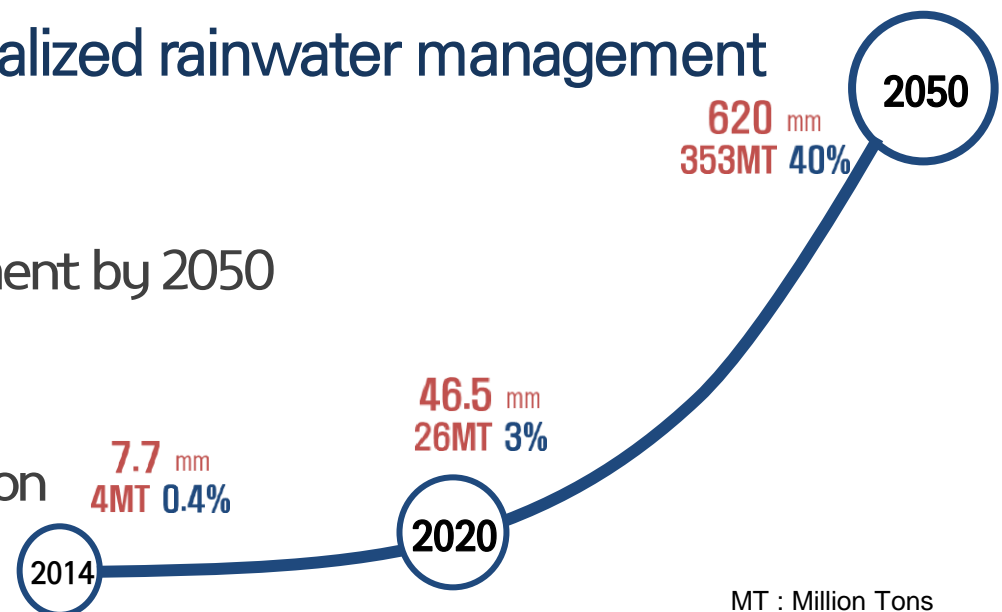


1 Public Sector: Leading Water Circulation Recovery

Establishment of **Institutional Foundations** for water circulation recovery

Establishment of Basic plan for Rainwater Management in Seoul (’13)

- Basic plan for recovering water circulation to pre-urbanization level
- Setting a long-term goal of decentralized rainwater management by 2050
 - Annual 620mm surface runoff management by 2050
- Basic plan for achieving the goal
 - Rainwater management facility expansion
 - Prior consultant of LID



1 Public Sector: Leading Water Circulation Recovery

Establishment of **Institutional Foundations** for water circulation recovery

Basic Ordinance for the Recovery of Water Circulation and LID in Seoul ('14)

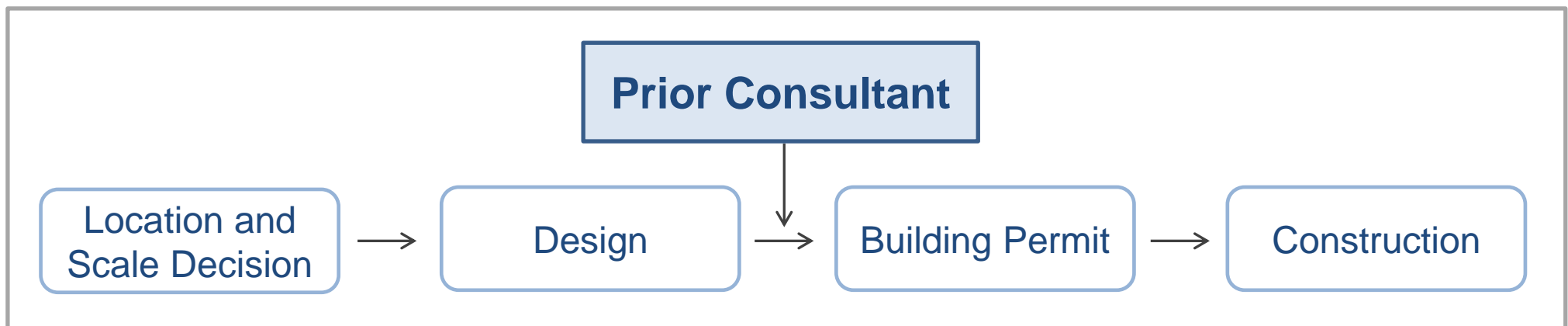
- Basic ordinance for the recovery of water circulation and low impact development: **First in Korea**
- Basis for the operation of the “**Prior Consultant of Low Impact Development**”
- Background of “**Basic Plan for Rainwater Management**”

2 Application of LID Method to Development Projects

Expansion and management of Green Infrastructures(LID Facilities)

What is the “Prior Consultant of Low Impact Development” ?

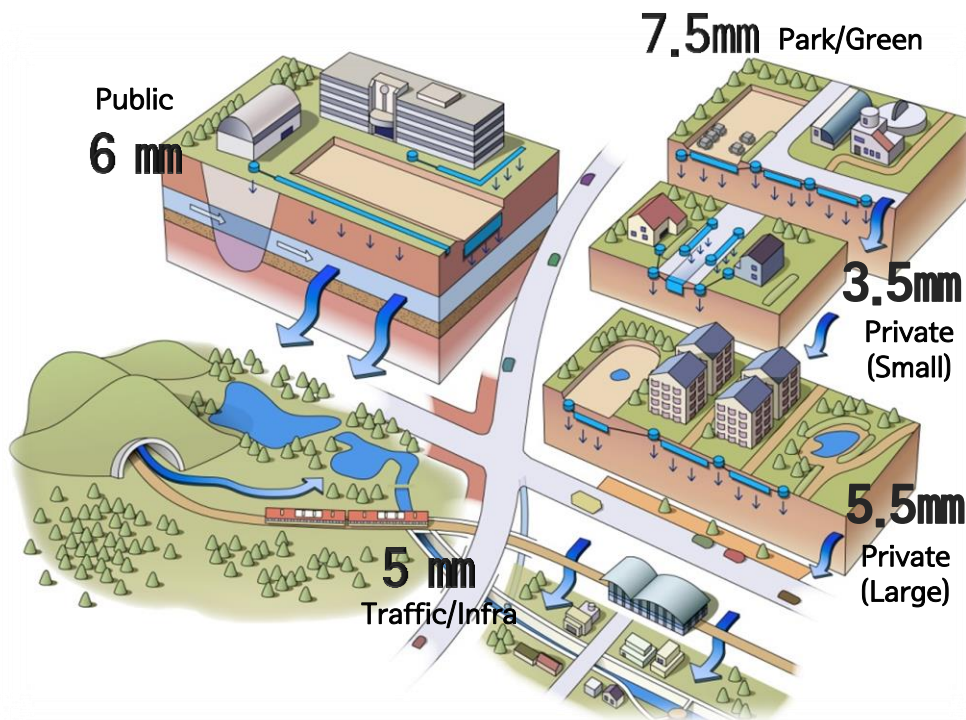
- Low impact development plans such as surface runoff minimizing prior to construction in various development projects
- Procedure for prior consultant of low impact development



2 Application of LID Method to Development Projects

Expansion and management of Green Infrastructures(LID Facilities)

Expansion of Private Sector through Prior Consultant of Low Impact Development



- Land Area: 1,000 m² or more
- Allocate the amount of rainwater to 41 kinds of development projects
- Obligation to consult on rainwater management and facilities

2 Application of LID Method to Development Projects

Expansion and management of Green Infrastructures(LID Facilities)

Installation of LID Facilities through Public Demonstration Projects



Permeable Pavement



Green Band



Penetration Trench

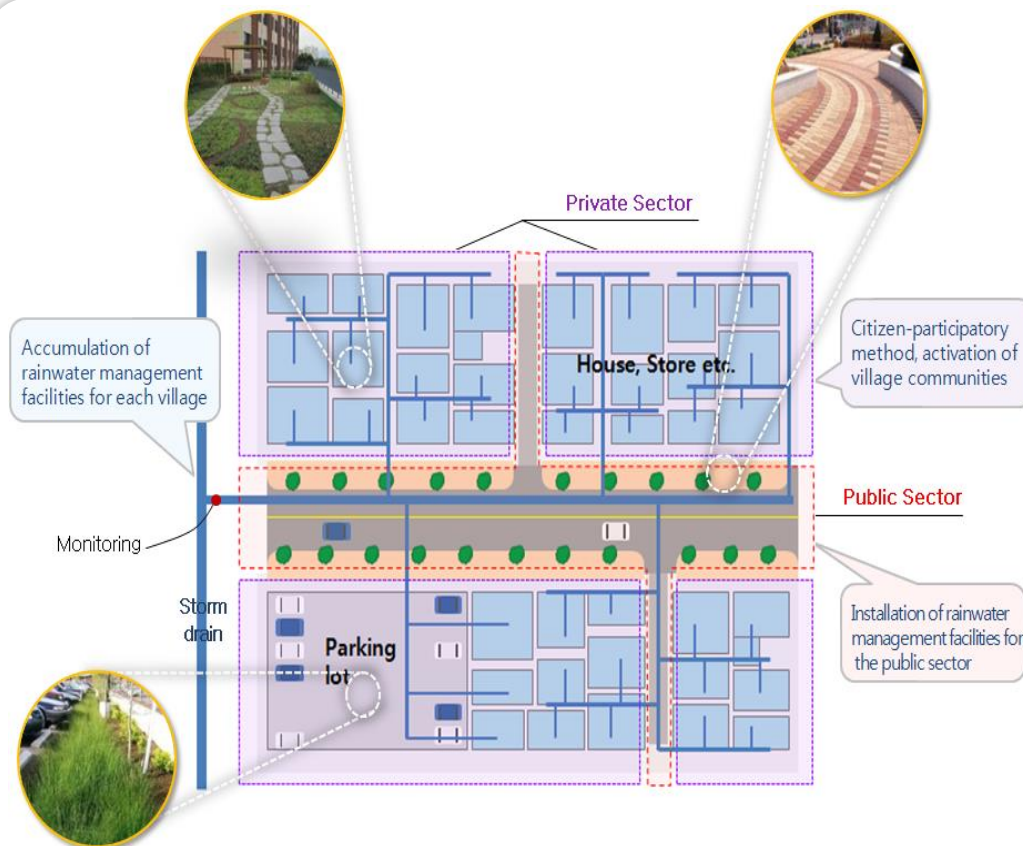


Rain Garden

2 Application of LID Method to Development Projects

Expansion and management of Green Infrastructures(LID Facilities)

Rainwater Village Development Projects



- A village with various LID facilities
 - Composing a village community
 - Intensive installation LID facilities
 - Consistent monitoring for effect verification
- 10 villages are constructed('16~'18)
 - Total cost : 4million USD

3 Making a Water Circulation City with Citizens

Policies driven by the active Participation of Citizens

Building a Cooperation with the Public–Private–Academia

- Water Circulation Citizen Committee & Rainwater Festival at Seoul Plaza



A high-speed photograph of a water splash against a white background. The water is captured in mid-air, forming a complex, symmetrical shape with many small droplets and bubbles. A thin, dark semi-circular line is drawn over the upper part of the splash, framing the number 3.

3

Conclusion

➤ Vision of the Future

First

2007~2012

〈 Introduction of Rainwater Management 〉

- Rainwater Management Basic Plan ('07)
- Rainwater Congestion Project ('08)

Second

2013~2017

〈 Establishment and Operation of the Institution 〉

- Rainwater Management Basic Plan (Upgraded) ('13)
- Comprehensive Plan for Healthy Water Circulation City ('13)

Third

2018~

〈 Cooperation with Other Various Fields 〉

- Water circulation policy for sustainable development including sewerage, river, green space, etc.
- Enhancing institutional approach such as urban planning, improving system

➤ Conclusion

Master plan for water environment recovery

- Applying LID to Seoul
- Utilization of underground runoff, treated water etc.

Recovery of natural water circulation

- Minimization of impervious surfaces
- Expansion of rainwater management facilities

Sustainable Water Circulation City

Harmony with other multi-fields

- Consideration of LID in urban planning
- Cooperation with civil engineering, architecture, landscaping etc.

Thank you