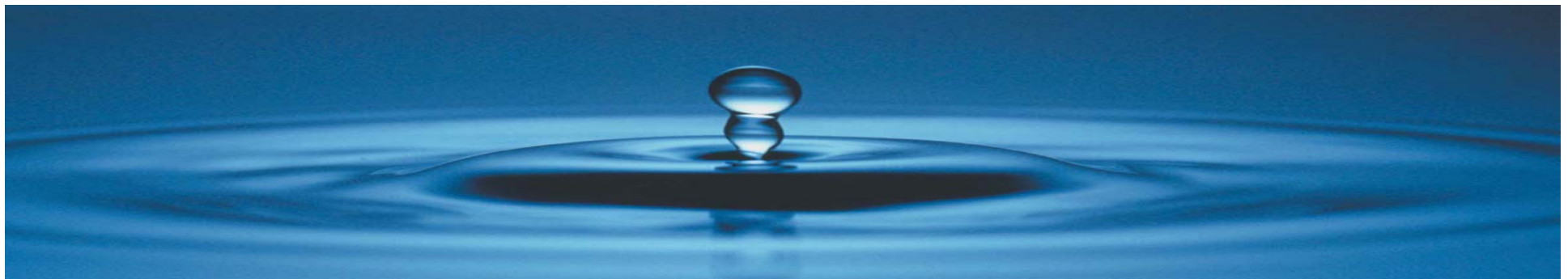


# ***River Restoration in Korea***

*-The past, the present and the future -*

***Kim Sukhyun. Director  
River Planning Division of MOCT. S.Korea***





# ***CONTENTS***

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- ◆ ***The Situation of Rivers in Korea***
- ◆ ***Examples of Restoration projects***
- ◆ ***Conclusion***
- ◆ ***Video (3minutes)***



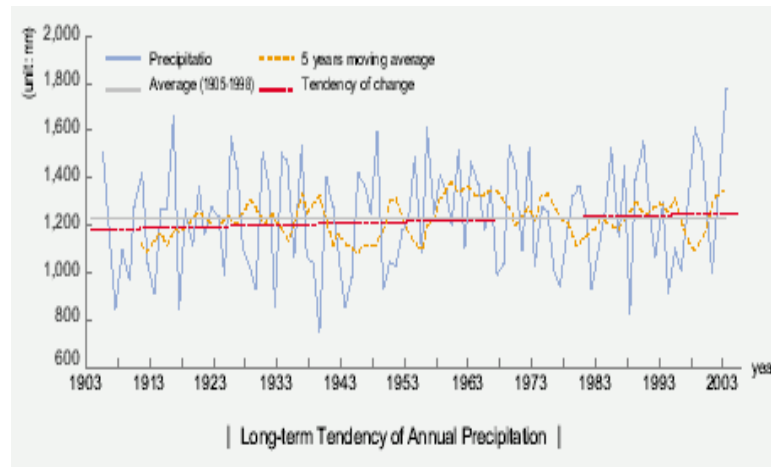
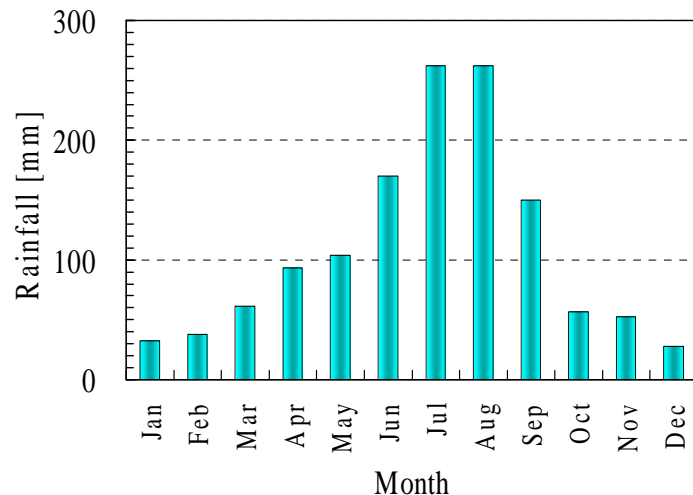
# ***1. The Status of Rivers***

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- ▶ ***Extreme variation of river flows***
- ▶ ***Deteriorated River Environment***

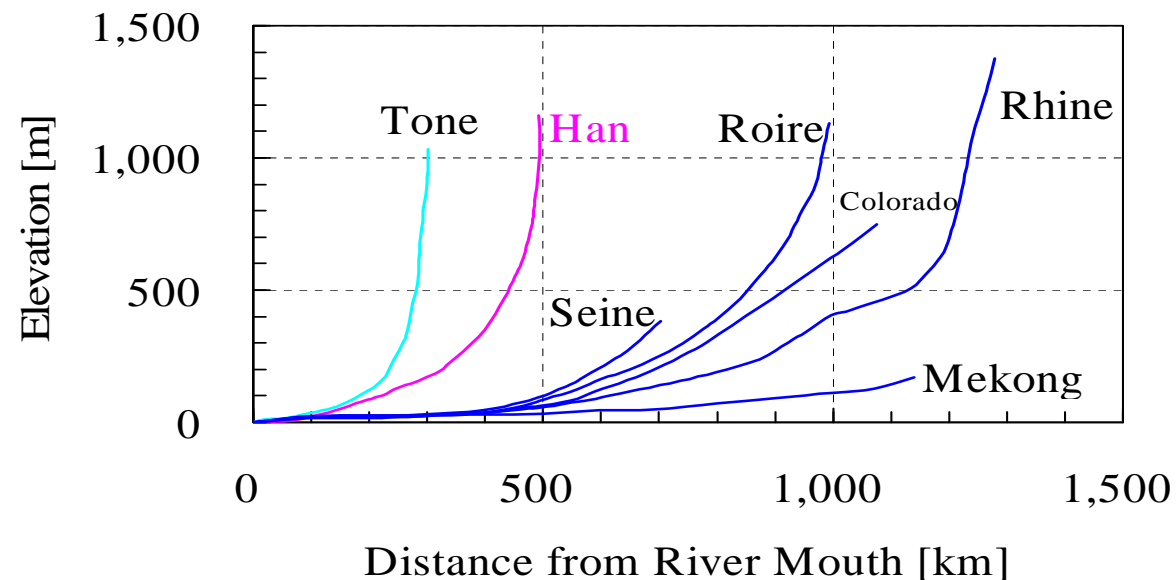
## ***Large variation of seasonal precipitation***

- ▶ ***65 % of annual precipitation concentrates in June to September due to monsoon and typhoons***
- ▶ ***The variation is also big annually***



## Steep Slope of River Channel

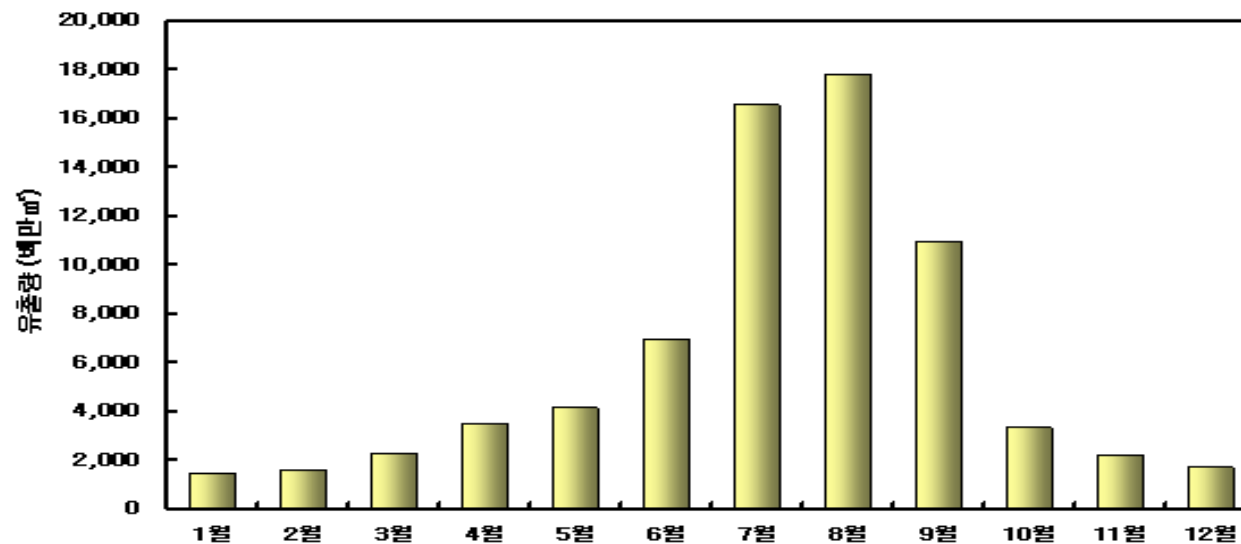
- ▶ *Korean Peninsula has high mountains in the East and relatively short length of rivers.*
- ▶ *Rainfall runs off rapidly into the ocean rather than being absorbed into the ground*



## Extreme variation of river flow

► **Consequently, discharges are extremely variable through the seasons**

✓ **Ratio of discharges ( $Q_{max}/Q_{min}$ ) : 100 to 700**



Monthly Average Runoff(1974 – 2003)





## ***Fast urbanization deteriorated rivers***

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▶ ***Rapid industrialization led to fast urbanization which caused urban land shortage during 1960s - 1980s.***

✓ ***The rate of urban population is 90 %***

▶ ***Many of the rivers lost their natural appearances***

✓ ***Natural river lines have been straightened***

✓ ***covered up with concrete for traffic or parking lots***



## *Original natural rivers in the past*

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## ***Deteriorated Example 1 : Parking lots in river***

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## ***Example2 : Straightened concrete channel***

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### ***Example 3 : rivers covered with structures***

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## ***2. River Restoration in Korea***

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- ▶ ***History about river environment***
- ▶ ***Examples of diverse restorations***



## ***History of River management in Korea***

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- ▶ ***Before 1980's: focused on flood control and water use***
  - ✓ ***River bank had been straightened and covered with concrete***
  - ✓ ***River environment was considerably deteriorated***
- ▶ ***After 1990: river environment became a matter of interest***
  - ✓ ***Public asked for improvement of river environment***
  - ✓ ***Demonstrated some pilot projects of river restoration***
- ▶ ***After 2000: build a system to restore rivers***
  - ✓ ***Revised River Act : river environment implementation***
  - ✓ ***Published River Planning & Restoration Guideline***



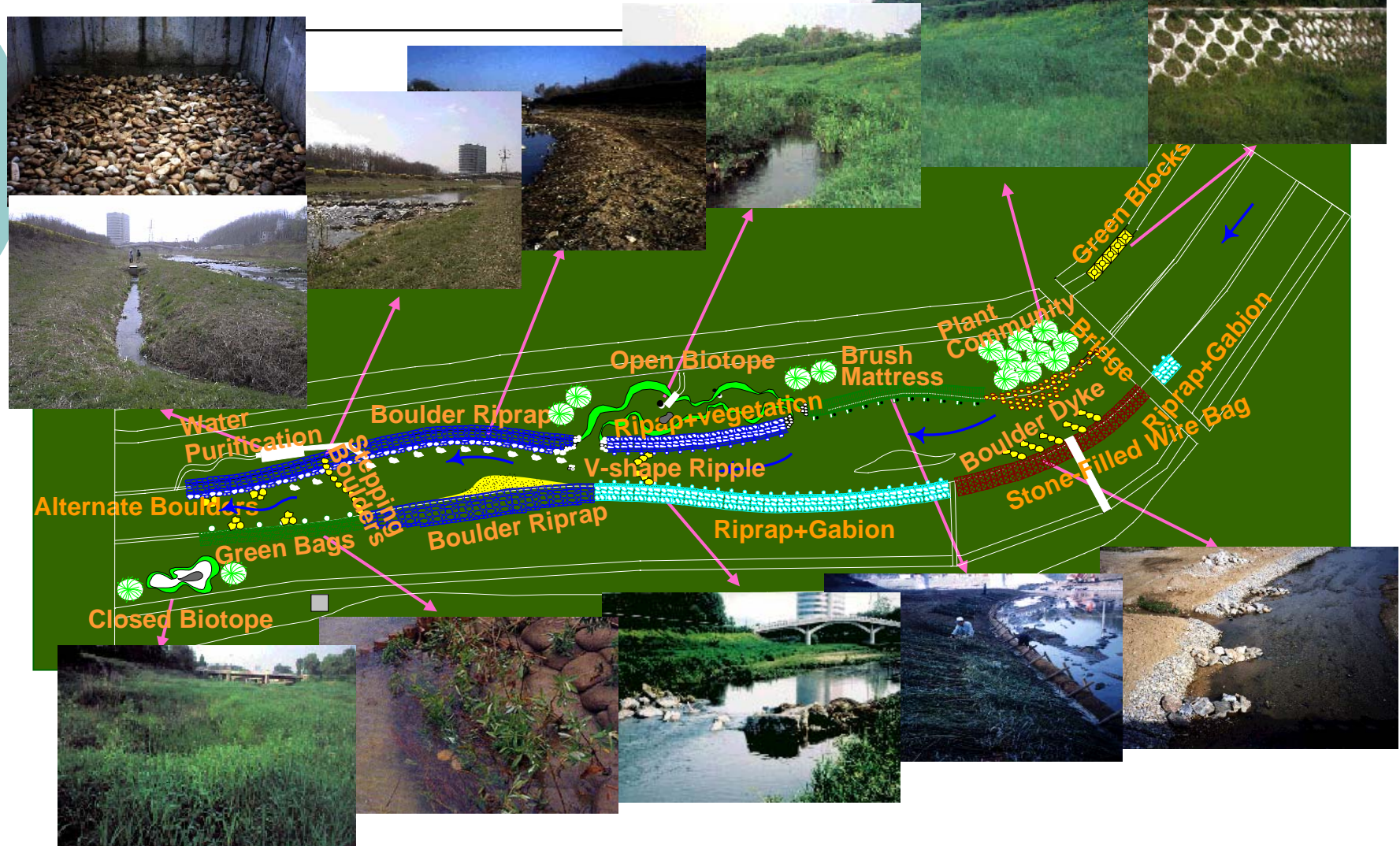
## ***The basic principle by revised River Act***

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- ▶ ***map out rivers by zoning system for management***
  - ✓ ***Conservation zone for well reserved river areas***
  - ✓ ***Restoration zone for damaged river areas***
  - ✓ ***Leisure zone for citizen's activity and amenity***



## Example 1 : Restoration of yangje-cheon in Seoul city





## *Transition of Yangjae-cheon*

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Before (1996)



After (1997)



After (1998)





Recent View





Recent View

## ***example 2 : Osan-cheon Restoration Project***

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**Before (1999)**



**After (2001)**



## ***Exanople 3 : Gyeonggan-cheon Restoration Project***

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Before (2001)



After (2003)

## ***Example 4 : Anyang-cheon Stream Restoration Project***

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Before (2001)



After (2003)

## ***Example 5: Hagi-cheon Stream Restoration Project***

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Before (2000)



After (2001)



## ***Example 6: Gyeong-cheon Restoration Project***

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Before (2003)



After (2006)

## *Example 7: Restoration of saji-cheon*

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Before (2002)



After (2004)



### ***3. Conclusions***

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- ▶ ***Problems to be solved for river restoration***
- ▶ ***Conclusions***

## ***Problems to be solved for river restoration***

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### **▶ Water Pollution should be cleared**

- ✓ ***In late 1980s, water pollution was in the worst situation***
- ✓ ***Since then , improved gradually***
- ✓ ***But still not satisfactory (annual average BOD 1.5-2.5)***



► ***Serious variation of river flow should be relieved***

- ✓ ***In spring , many of rivers are dried***
- ✓ ***But in summer, we almost always suffer from flood***





► ***Quantitative evaluation of ecological enhancement by restoration projects should be verified***





## **Conclusions**

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- ▶ ***River restoration is indispensable for river environment and future generations***
- ▶ ***And we have to maintain a good balance between flood safety, ecosystems of river front and citizens needs***
- ▶ ***However we can not achieve this projects without cooperation of all participants such as regional governments, environmentalists, engineers, and citizens***



# ***Cheonggye-cheon Restoration Project in Seoul***



**Before (1959)**



**Before (2002)**



**After (2006)**

# BACK TO A FUTURE

Chong Gye Chong, Jishin Project  
Seoul Metropolitan Government

SEOUL



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# Thank you!

