

Updates of Water Environment Governance in Korea

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Contents

- **Legislative Framework for Water Environmental Governance**
- **Water Quality Monitoring Framework**
- **Status of water quality**
- **Status of domestic & industrial wastewater**
- **Future targets**

Legislative Framework for Water Environmental Governance

Environment Policy Framework Act

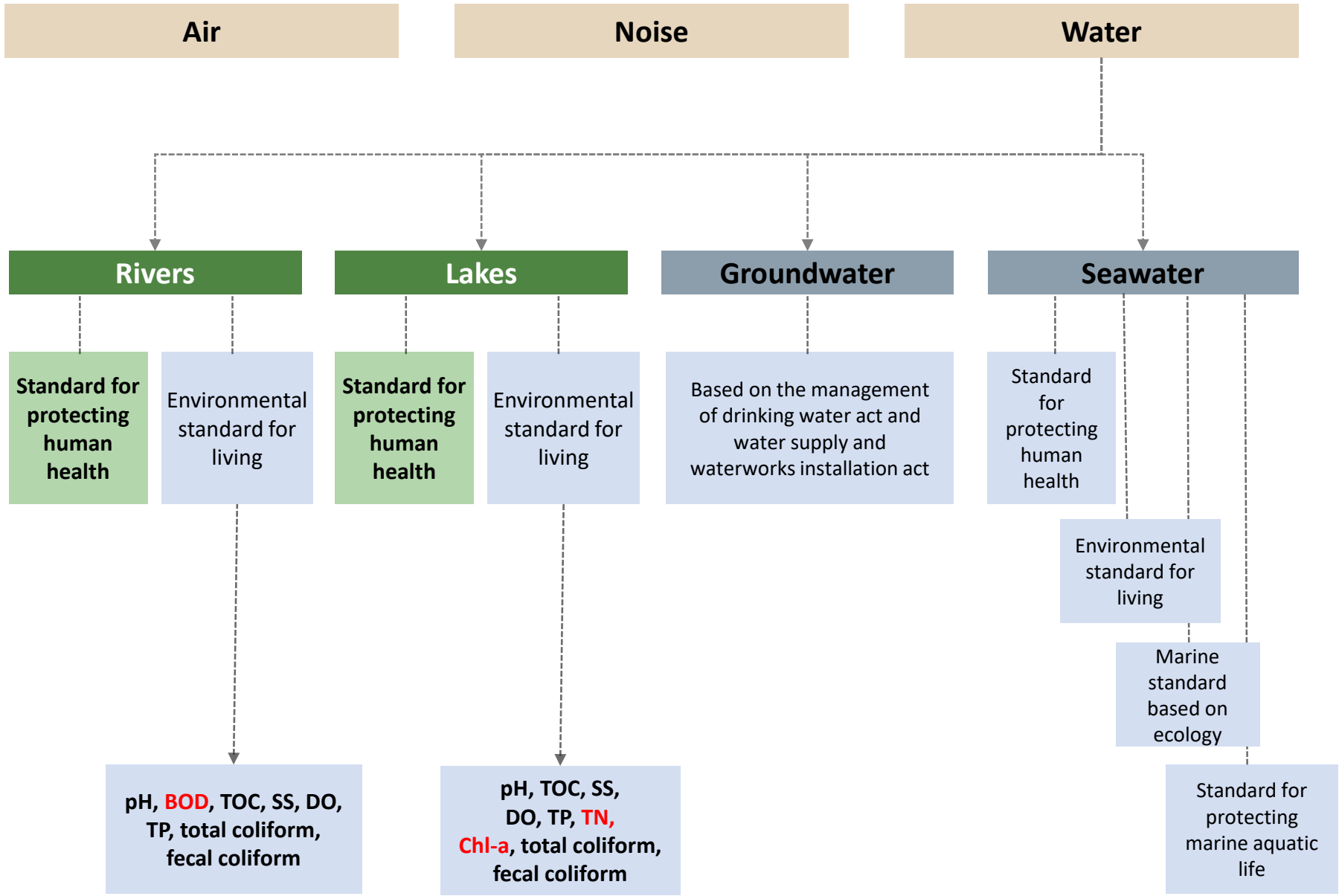
- The **primary law** governing environment in Korea
- Purpose: to **prevent environmental pollution**, to protect environment appropriately and to keep the environment sustainable, resulting in letting people enjoy the healthy and amiable environment.
- **The basis for regulations**

Water Environment Conservation Act

- Purpose: to **protect people from water pollution**, to manage the quality of streams, rivers and lakes appropriately, resulting in the benefit from the water environment managed well.
- **Regulation of wastewater** from the effluent

Legislative Framework for Water Environmental Governance

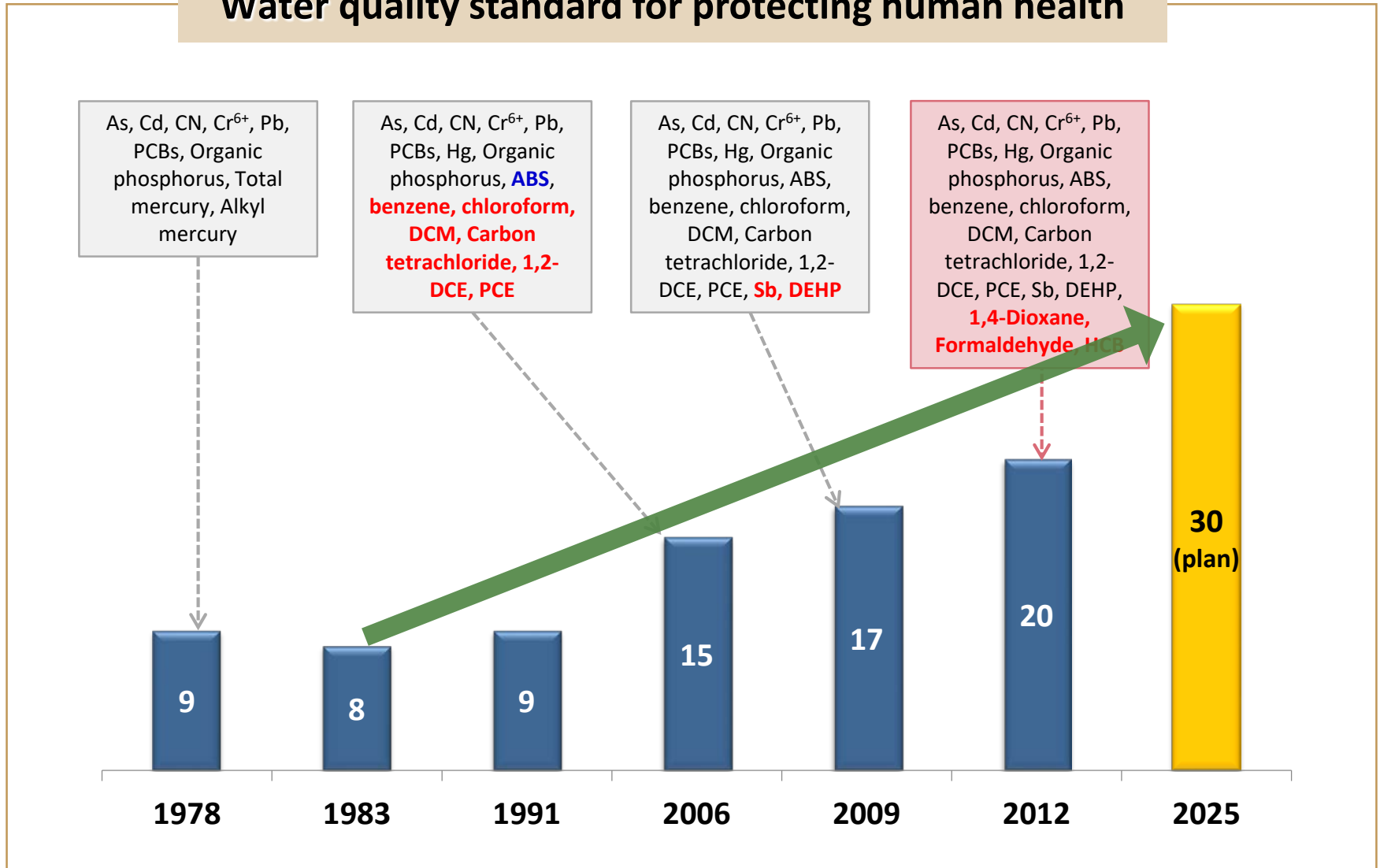
<Environment Policy Framework Act>



Legislative Framework for Water Environmental Governance

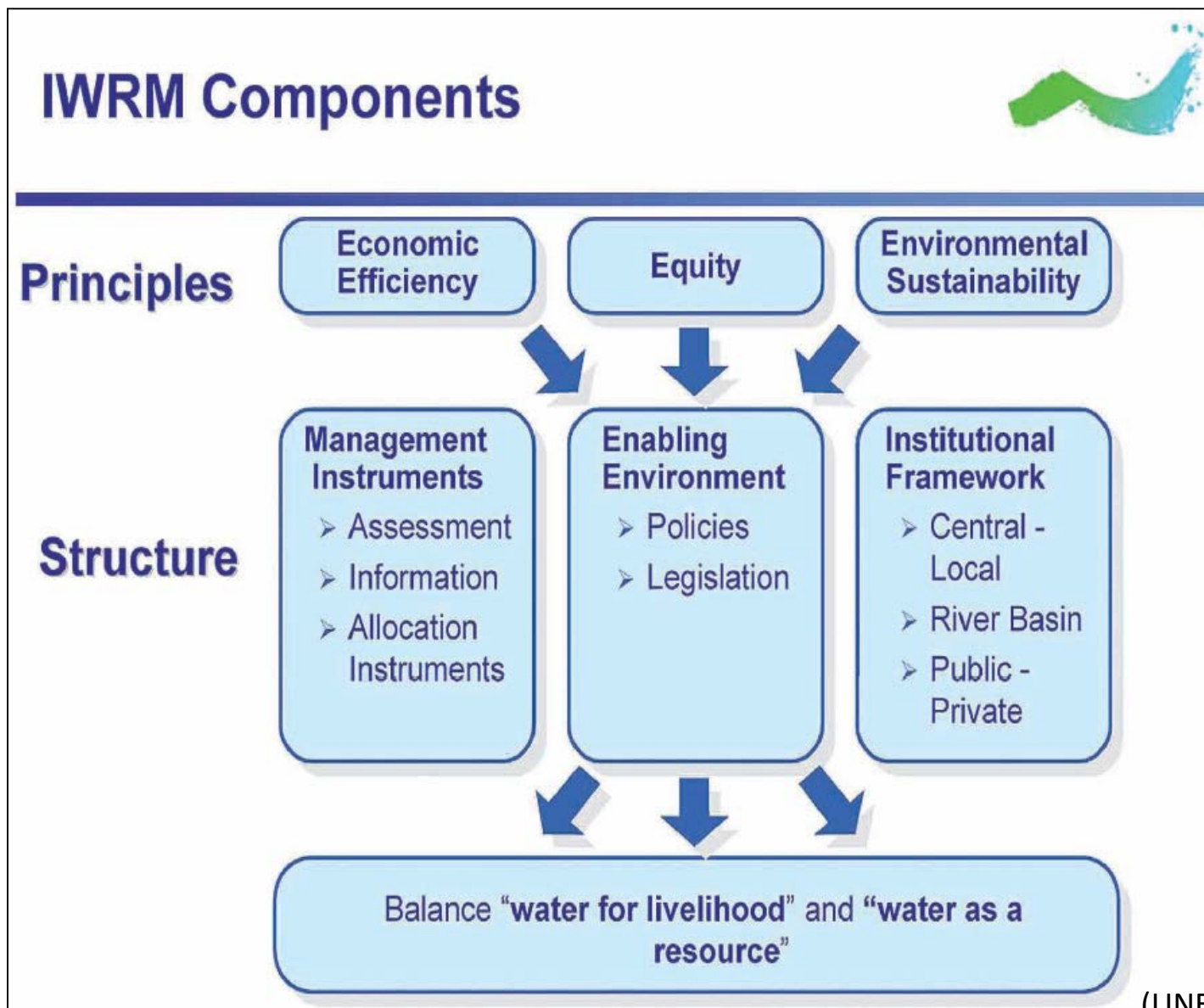
<Water quality standards>

Water quality standard for protecting human health



Legislative Framework for Water Environmental Governance

<Integrated Water Resources Management (IWRM)>



Legislative Framework for Water Environmental Governance

국가하천
(국토부)

Rivers or Streams
managed by Country

(Ministry of Land, Infrastructure
and Transport)

Sewerage

하수도
(환경부)

(Ministry of Environment)

Small stream or Creek

(Ministry of the Interior and Safety)

소하천
(행안부)

Local stream

(Ministry of Land, Infrastructure
and Transport)

지방하천
(국토부)

저수지
(농림부)

Lakes

(Ministry of Agriculture, Food
and Rural affairs)

Legislative Framework for Water Environmental Governance

Since 2019, Ministry of Environment is responsible for Integrated Water Resources Management.

국가하천
(국토부)

Rivers or Streams
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(국토부)

저수지

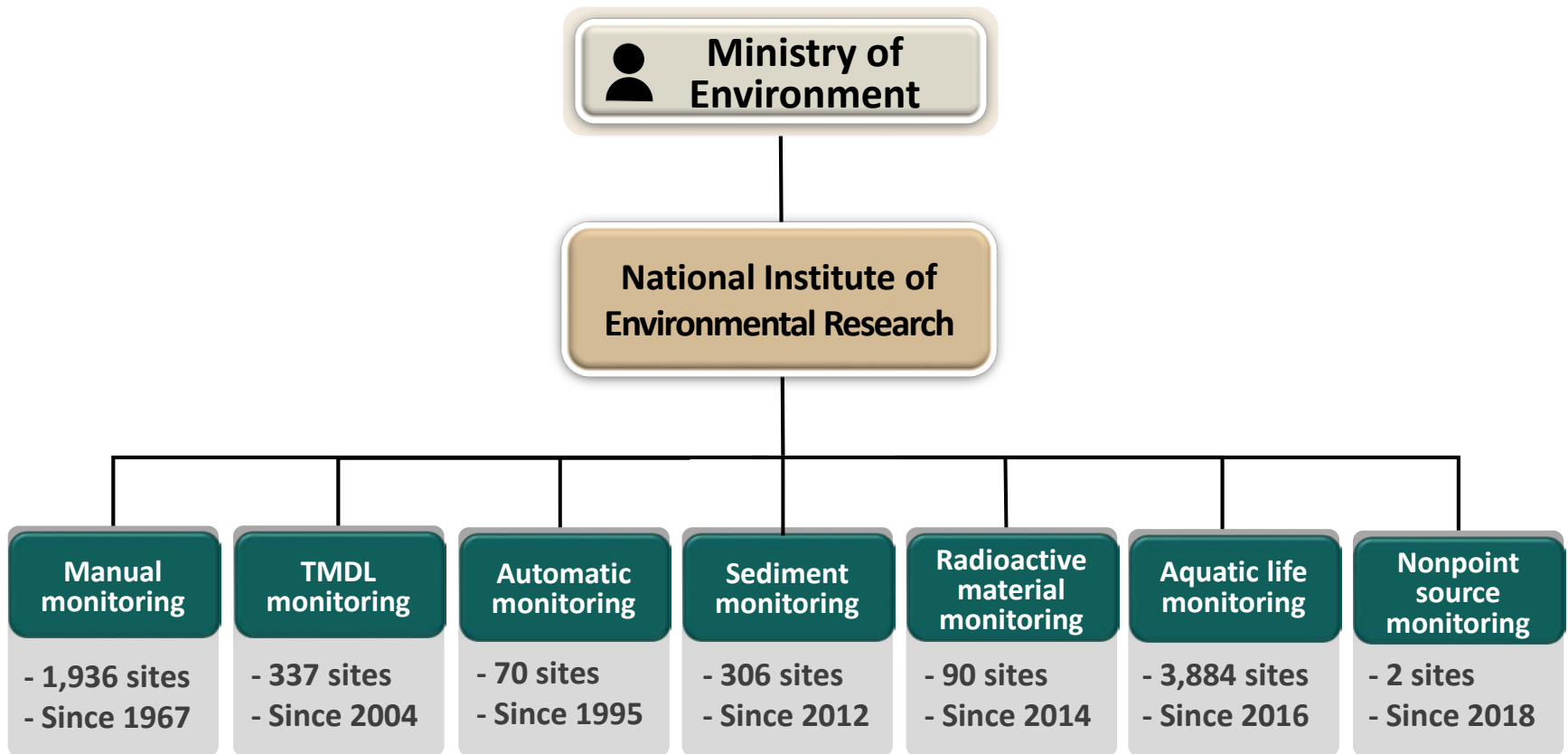
Lakes

(농림부)

(Ministry of Environment)

Water quality monitoring Framework

Classification



Water quality monitoring Framework

✓ Objective

to comprehend the state of water quality and aquatic ecosystem in public water

✓ Start of operation : Since 1967

✓ Number of sampling site : total 6,625 sites

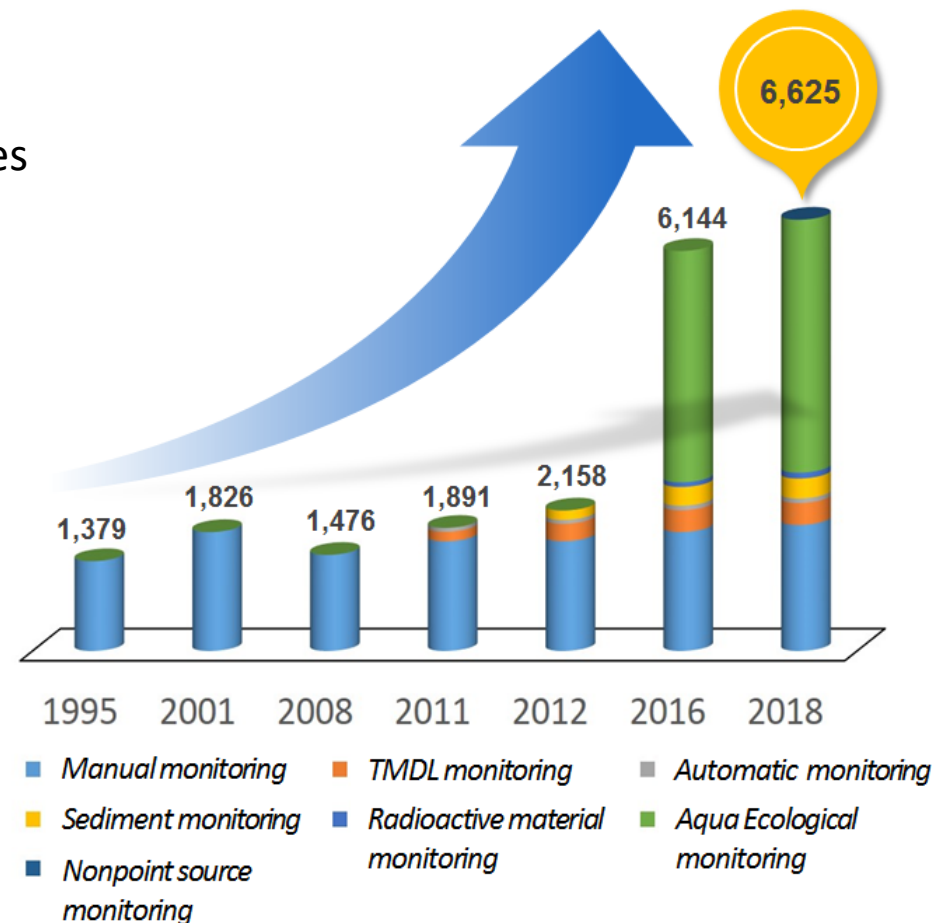
- (River) 5,589 sites,
- (lake) 368 sites
- (Estuary) 668 sites

✓ Number of investigation institution

- 29 institutions

✓ Related act

- Environment Policy Framework Act
- Water Environment Conservation Act



Water quality monitoring Framework

Water quality standard

Environmental standard for living

pH, BOD, COD(TOC), SS, DO, TN, TP, total coliform, fecal coliform

(8 parameters)

Standard for protecting human health

As, Cd, CN, Cr⁶⁺, Pb, PCB, Hg, Sb, organic phosphorus, ABS, benzene, chloroform, DCM, carbon tetrachloride, 1,2-DCE, PCE, DEHP, 1,4-dioxane, formaldehyde, hexachlorobenzene

(20 parameters)

National water quality monitoring

Temperature, pH, DO, BOD, COD(TOC), TOC, SS, TN, DTN, TP, NH₃-N, DTP, PO₄-P, total coliform, fecal coliform, conductivity, chlorophyll-a, As, Cd, CN, Cr⁶⁺, Pb, PCB, Hg, Sb, organic phosphorus, ABS, benzene, chloroform, DCM, carbon tetrachloride, 1,2-DCE, PCE, DEHP, 1,4-dioxane, formaldehyde, phenols, TCE, hexachlorobenzene

(39 parameters)

Permissible Discharge Limit

BOD, TOC, SS, pH, n-hexane, phenols, pentachlorophenol, phenol, CN, Cr, Fe, Zn, Cu, Cd, Hg, Organic phosphorus, As, Pb, Cr⁶⁺, Mn, F, PCB, total coliform, color, temperature, TN, TP, TCE, PCE, ABS, benzene, DCM, TU, Se, Ni, Ba, 1,1-DCE, Carbon tetrachloride, 1,2-DCE, chloroform, 1,4-Dioxane, DEHP, vinyl chloride, acrylonitrile, bromoform, naphthalene, formaldehyde, epichlorohydrin, Sb, toluene, xylene, styrene, perchlorate, acrylamide, DEHA

(55 parameters)

Water quality monitoring Framework

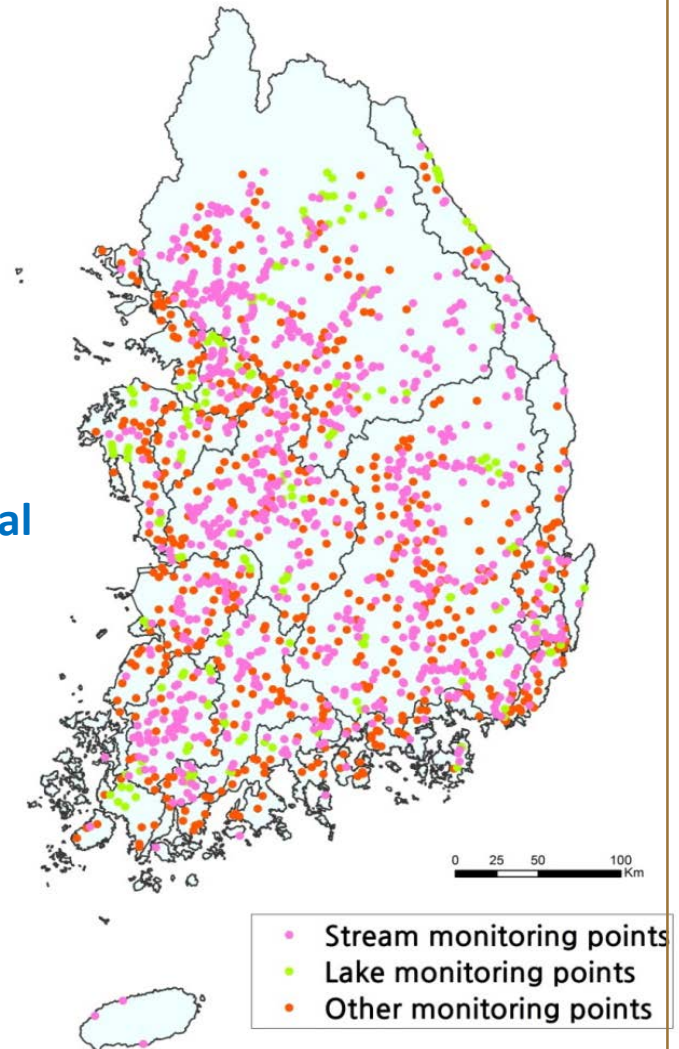
Manual monitoring

✓ **Number of sampling sites**

1,936 points cover most of the nation's streams and lakes

✓ **Sampling interval**

differs from points but **mostly monthly for a general purpose** and **weekly for important points** or specific use such as TMDL and water quality forecast



Water quality monitoring Framework

<Water Quality Index in Korea>

- Water Quality status is divided into 7 levels.

Ia. Very good

Ib. Good

II. Moderately good

III. Moderate

IV. Moderately bad

V. Bad

VI. Very bad

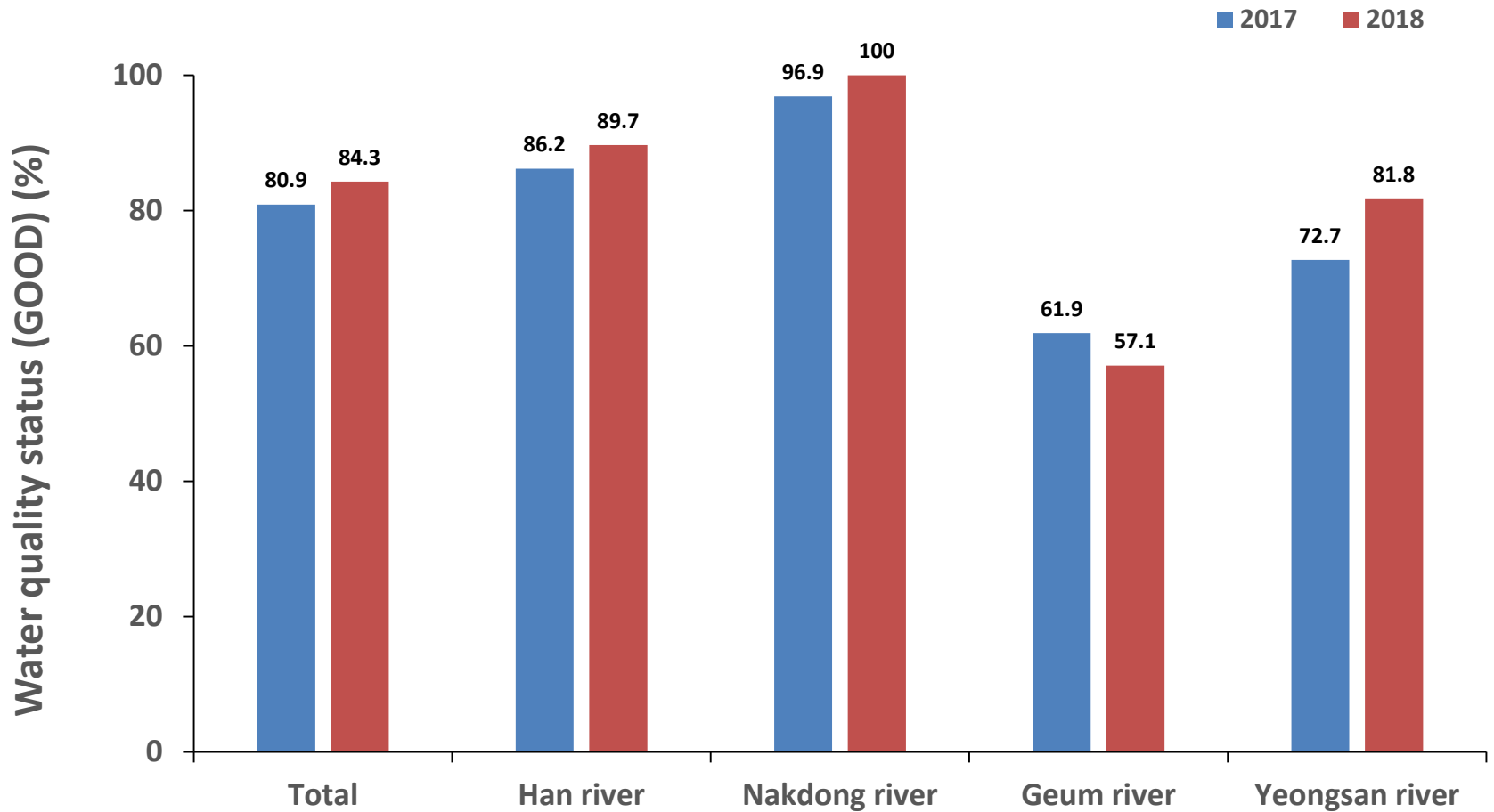


Status of Water Quality

<Status of water quality in 4 major **RIVERS** in Korea>

BOD

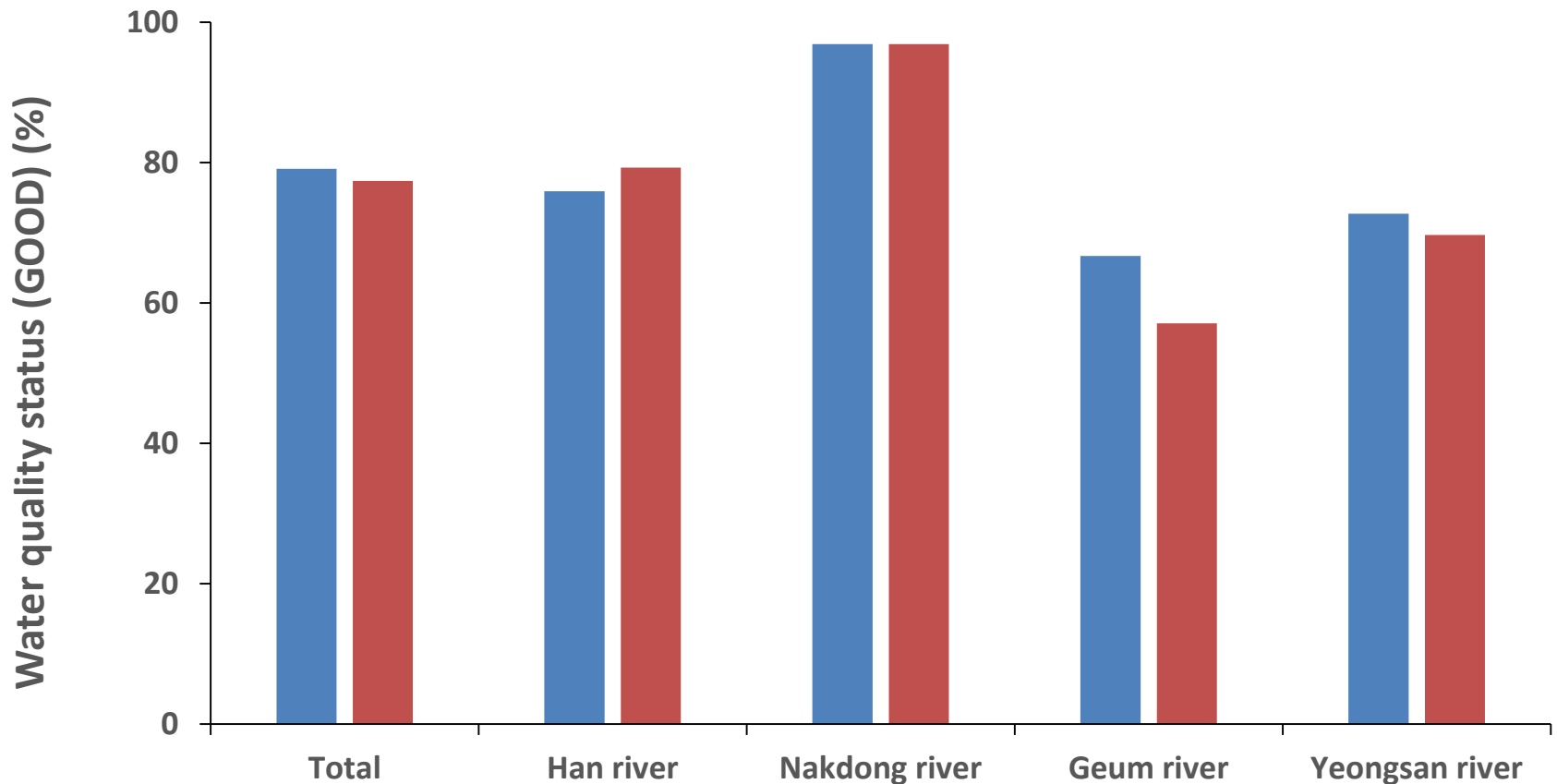
River and stream
(GOOD : BOD ≤ 3 mg/L)



Status of Water Quality

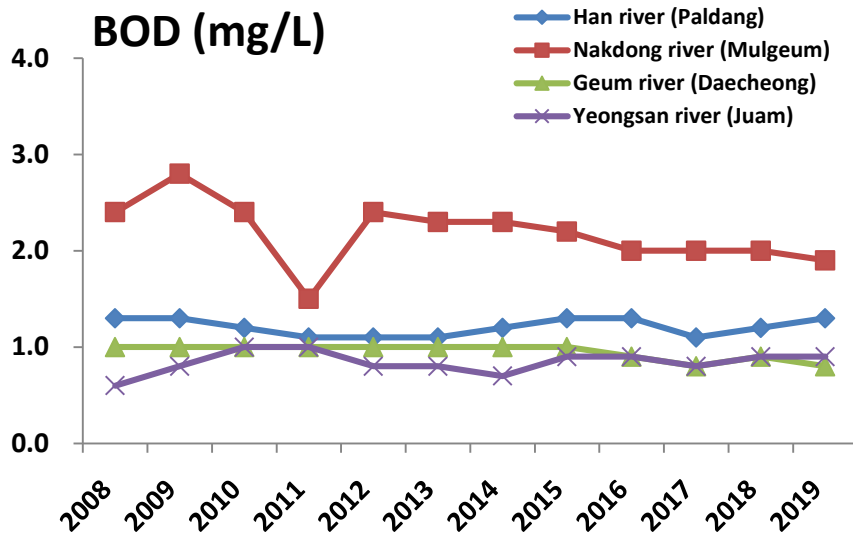
<Status of water quality in 4 major **RIVERS** in Korea>

TP **River and stream**
(GOOD: TP ≤ 0.1 mg/L)
■ 2017 ■ 2018

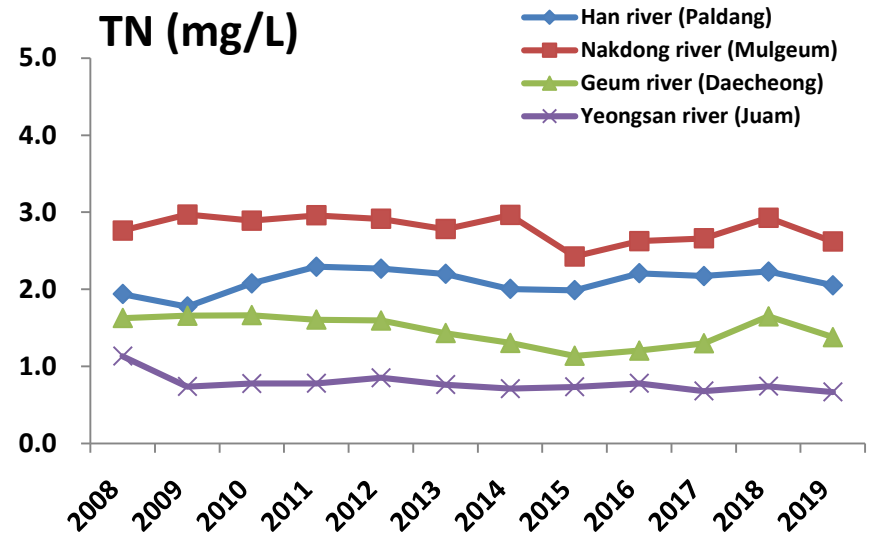


Status of Water Quality

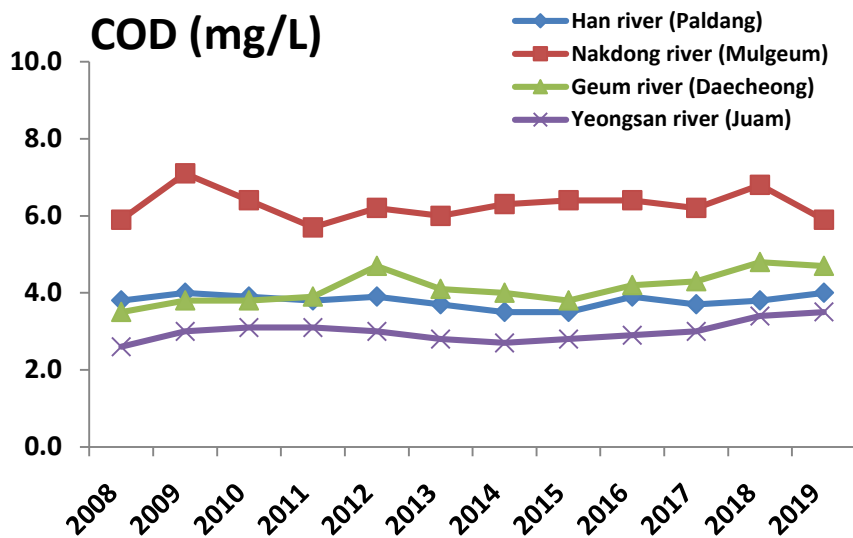
BOD (mg/L)



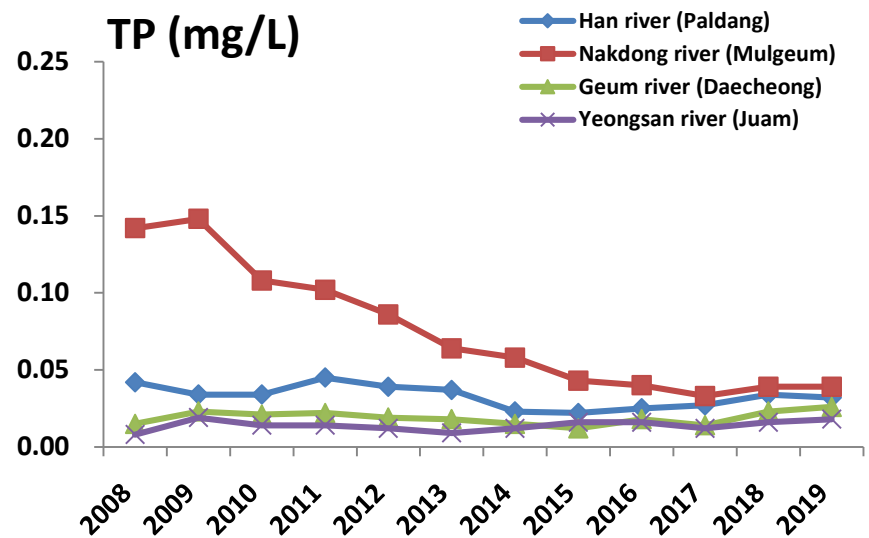
TN (mg/L)



COD (mg/L)

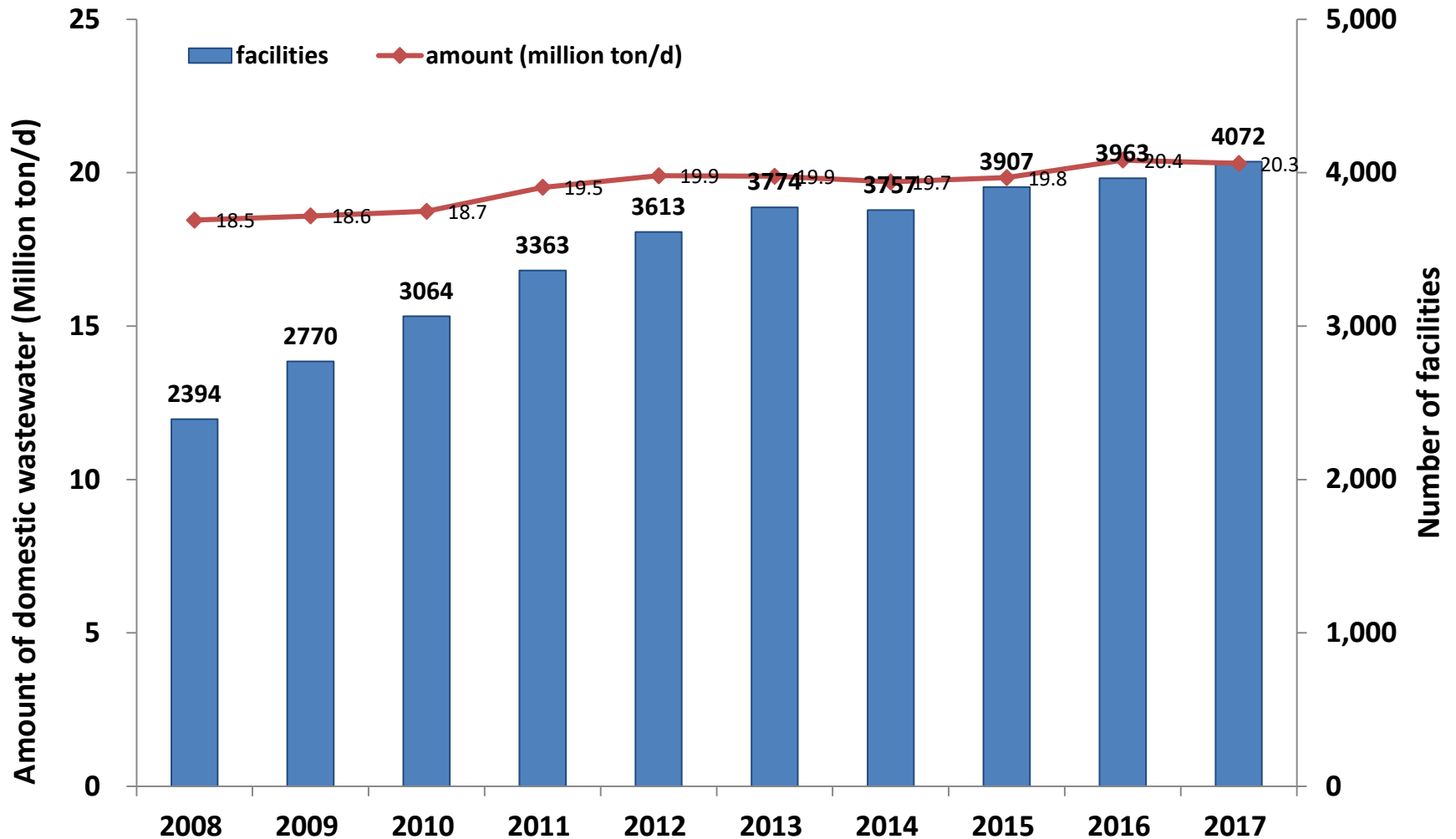


TP (mg/L)



Status of Domestic and Industrial Wastewater

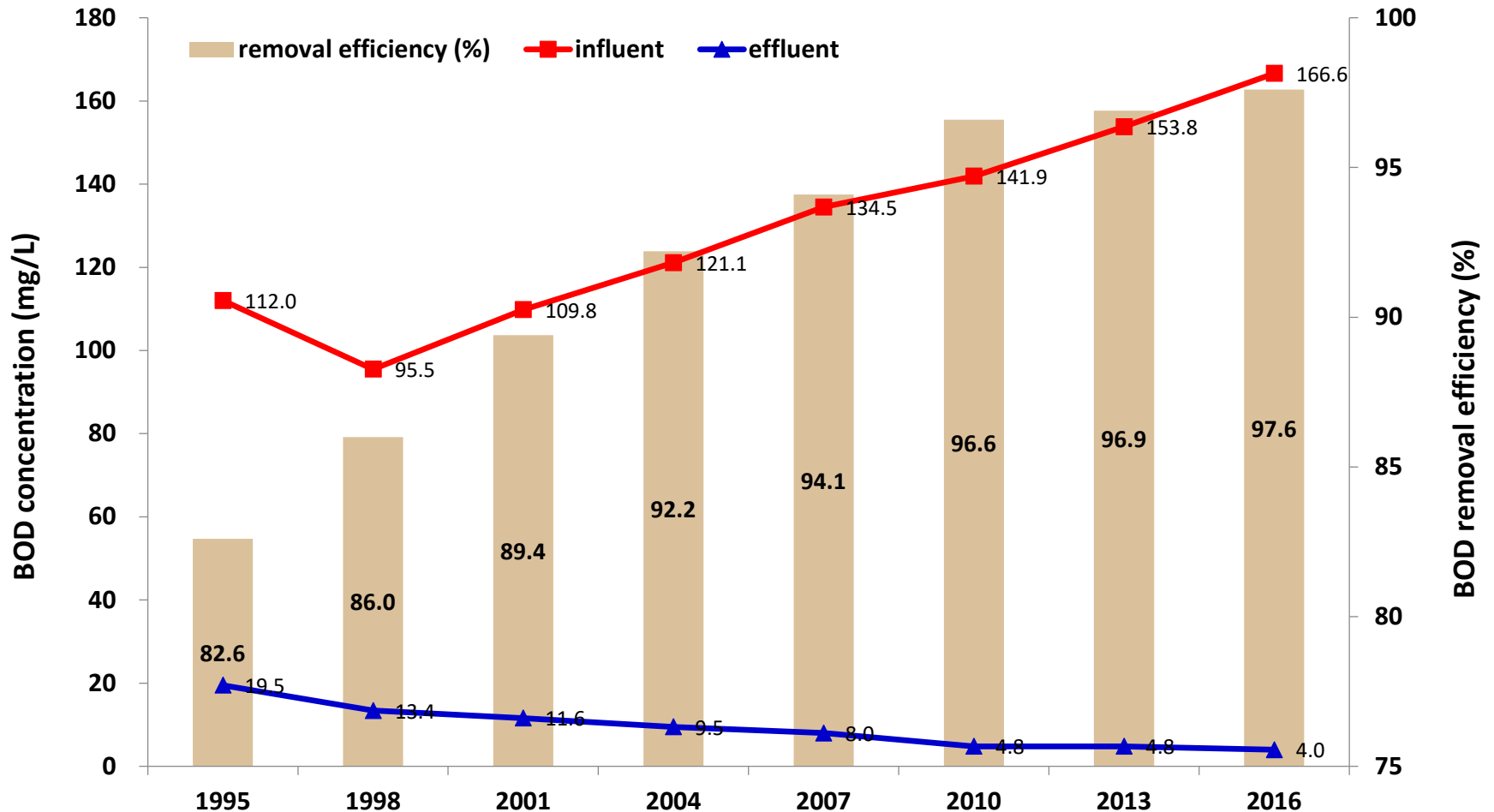
<Current status of domestic wastewater>



* This number does not include private treatment plants

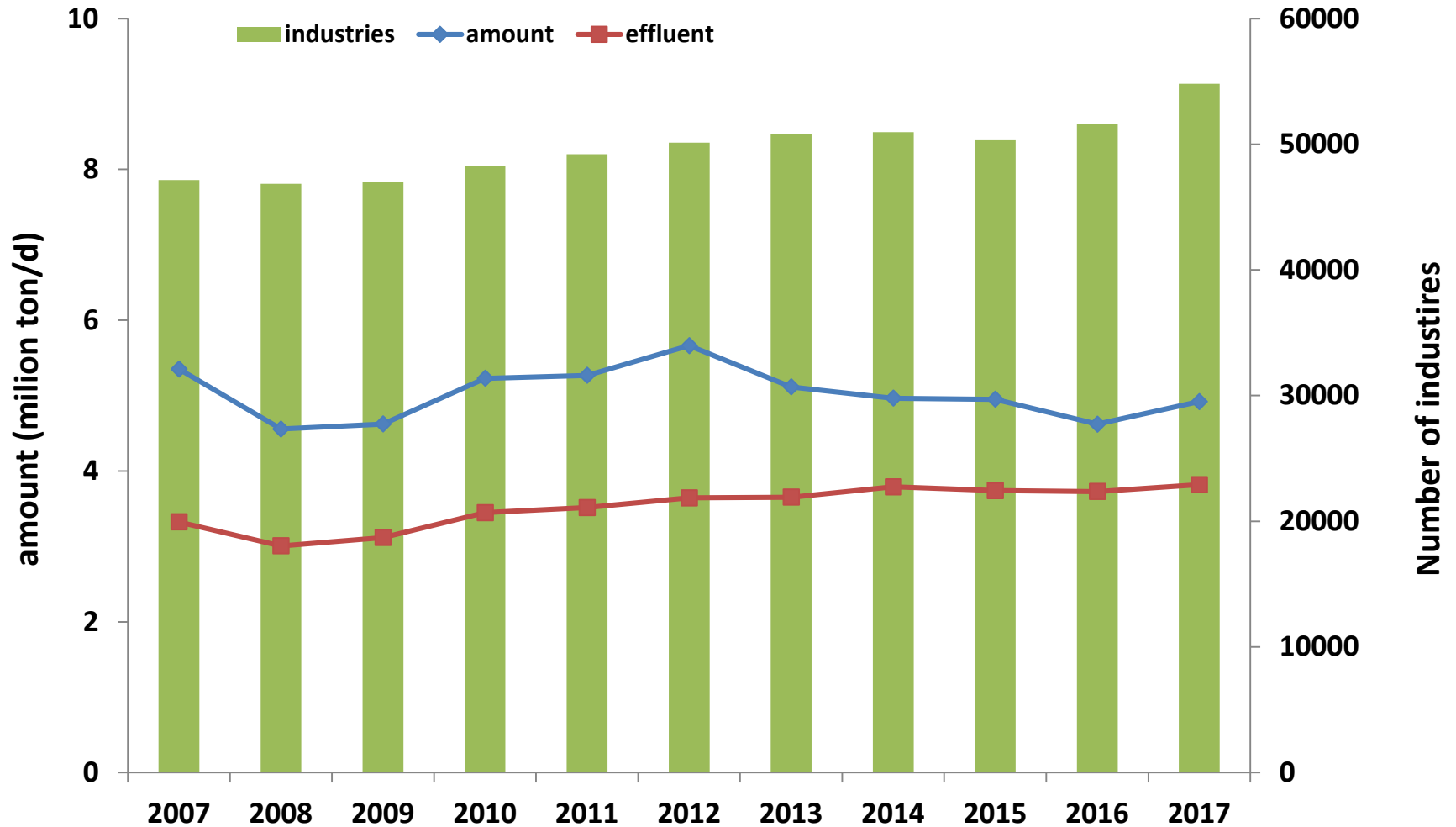
Status of Domestic and Industrial Wastewater

<Current status of domestic wastewater>



Status of Domestic and Industrial Wastewater

<Current status of industrial wastewater>



Future targets

1. To pay attention to emerging pollutants and manage them

Past

BOD
COD
TN
TP
etc.

Future

PPCPs(**Musk ketone**)
Pesticides
➔ **PFOS, PFOA** etc
microplastics
POPs
Other micropollutants

≈ 100,000 chemicals in use yet

Poor quality data only available

For ≈ 1000 – 5000 (1-5%) of these



2. To establish the framework of Integrated Water Resources Management

- To provide water and to monitor water quality & quantity more efficiently
- To adapt to climate change more efficiently

3. To keep water environment healthy from stream to estuary

- To make rivers ecologically friendly by recovering ecological health
- To strengthen the management of soil and underground water

Thank you for your attention!!!

경청해 주셔서 감사합니다.