

Progress of Water Environment Governance in Korea

Tae-Jin Park

National Institute of Environmental Research

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- **National water quality monitoring**
- **Status of domestic & industrial wastewater**
- **Future targets & plans**

Framework of water environment law

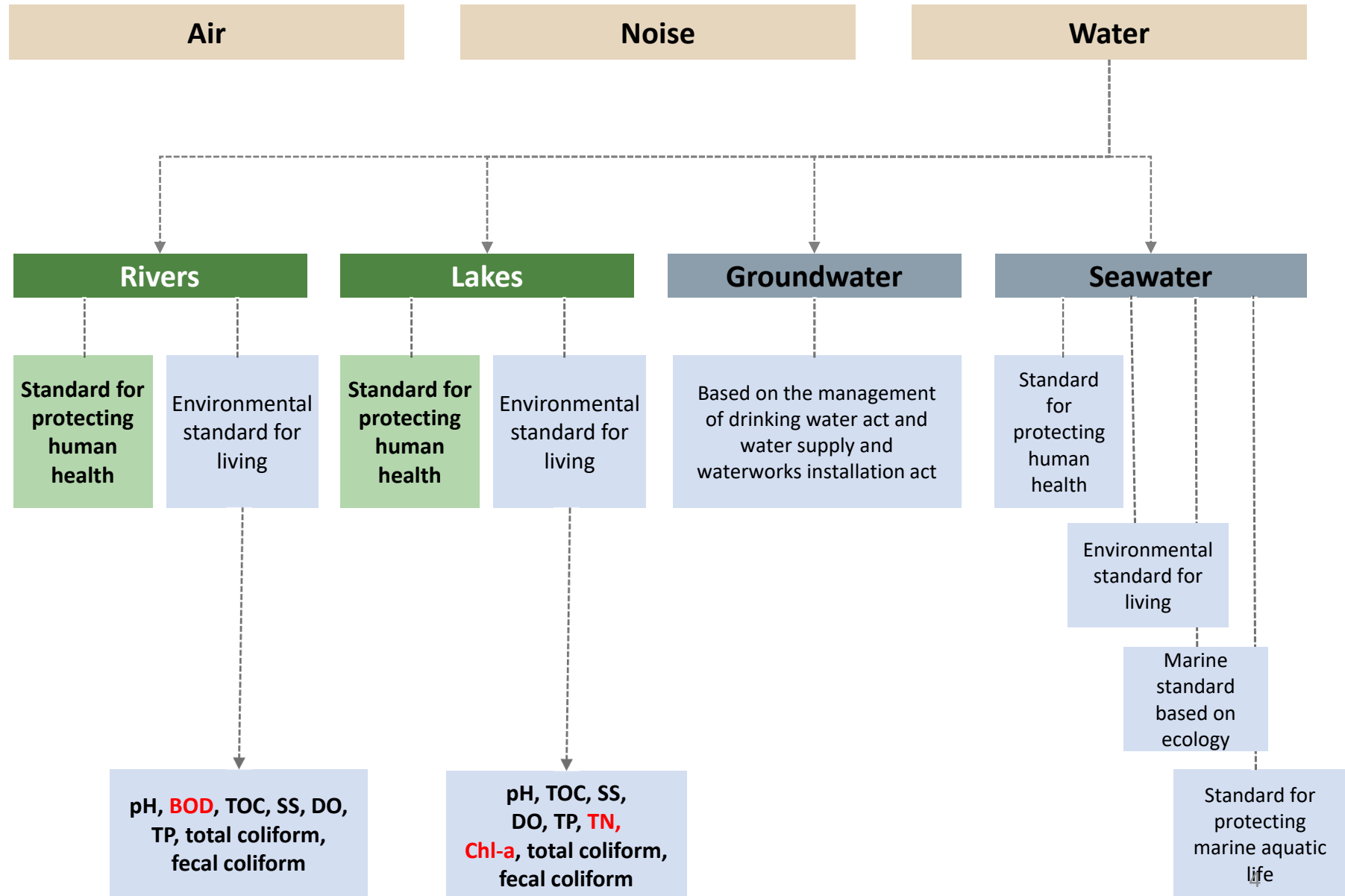
Environment Policy Framework Act

- 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

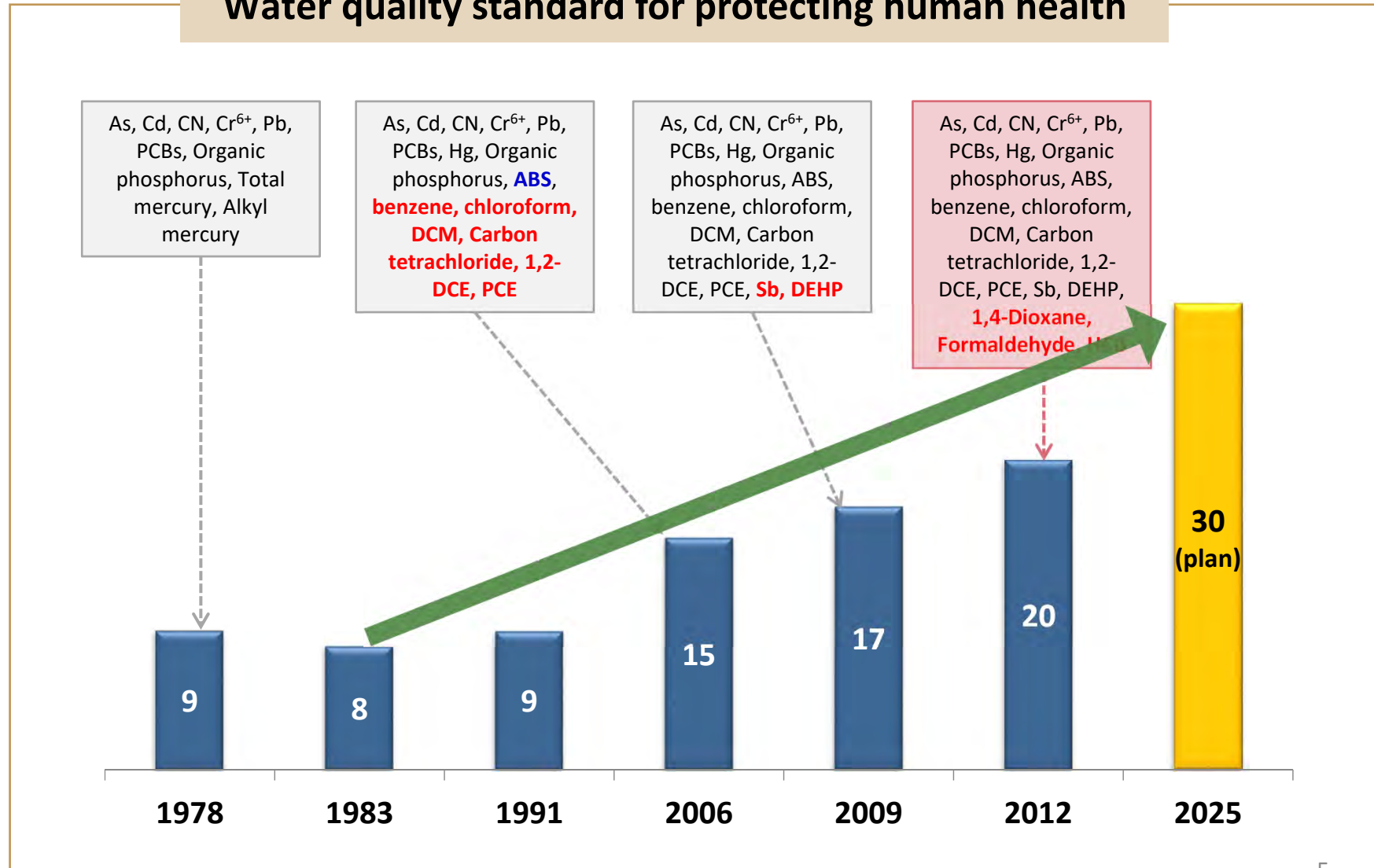
- Purpose: to **protect people from water pollution**, to manage the quality of streams, rivers and lakes appropriately, resulting in the benefit from the water environment managed well.
- **Regulation of wastewater** from the effluent

Environment Policy Framework Act

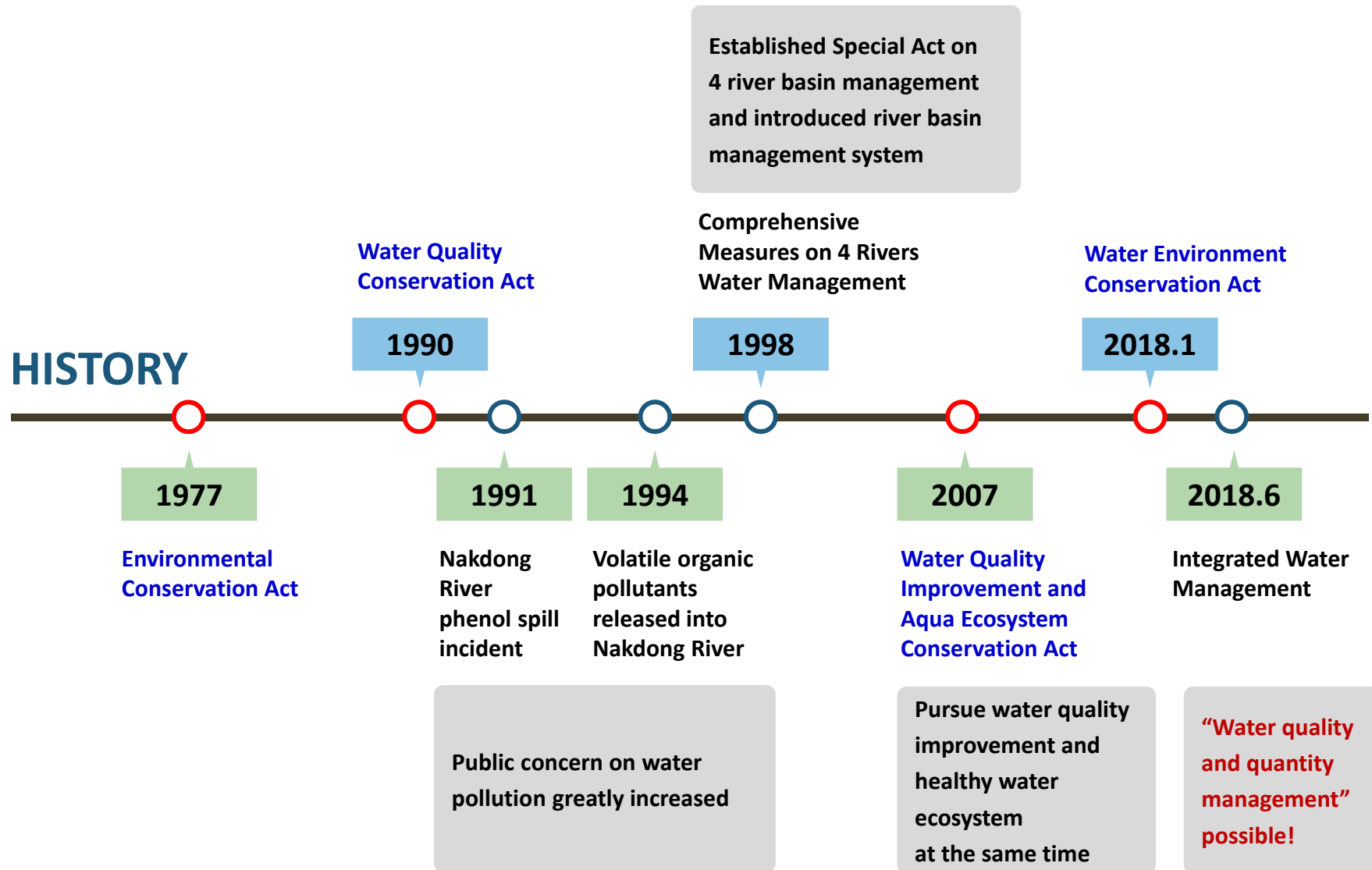


Water quality standards

Water quality standard for protecting human health



History of water environment policy in Korea



WQS, NWQM & Effluent standard

Water quality standard

Environmental standard for living

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

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 items)

National water quality monitoring

Temperature, pH, DO, BOD, COD, 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 items)

Effluent standard

BOD, COD, 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 items)

National water quality monitoring program

✓ 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

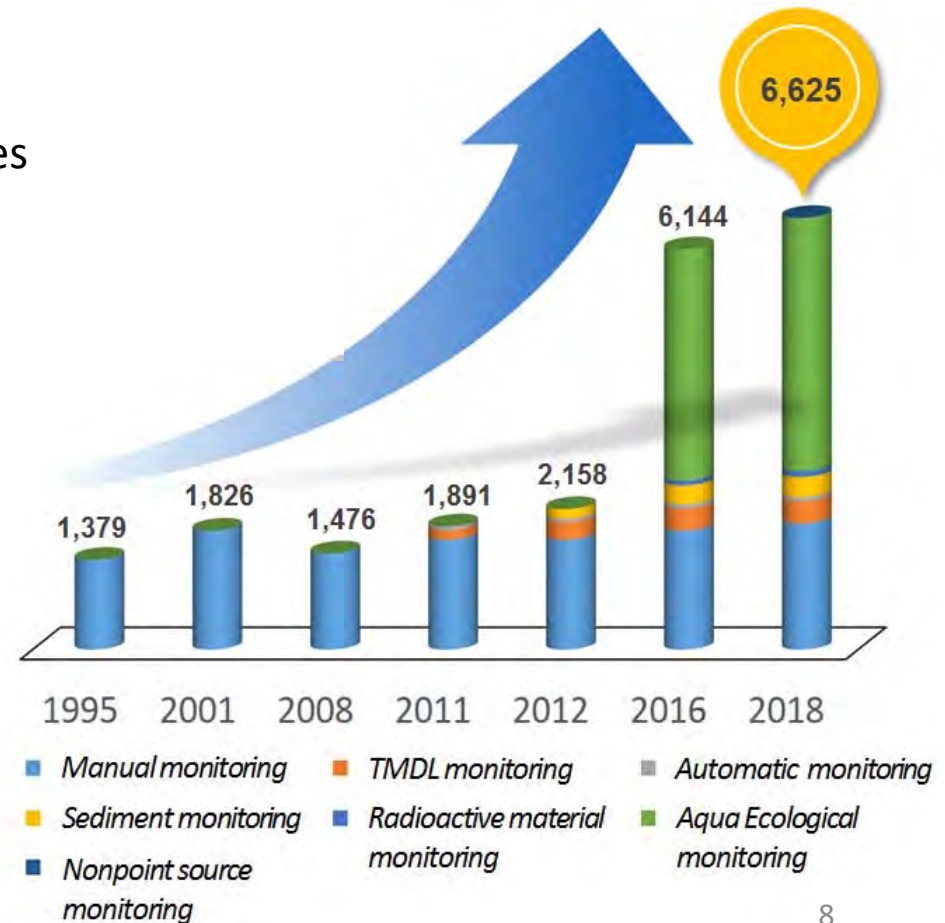
- (River) 5,589 sites,
- (lake) 368 sites
- (Estuary) 668 sites

✓ Number of investigation institution

- 29 institutions

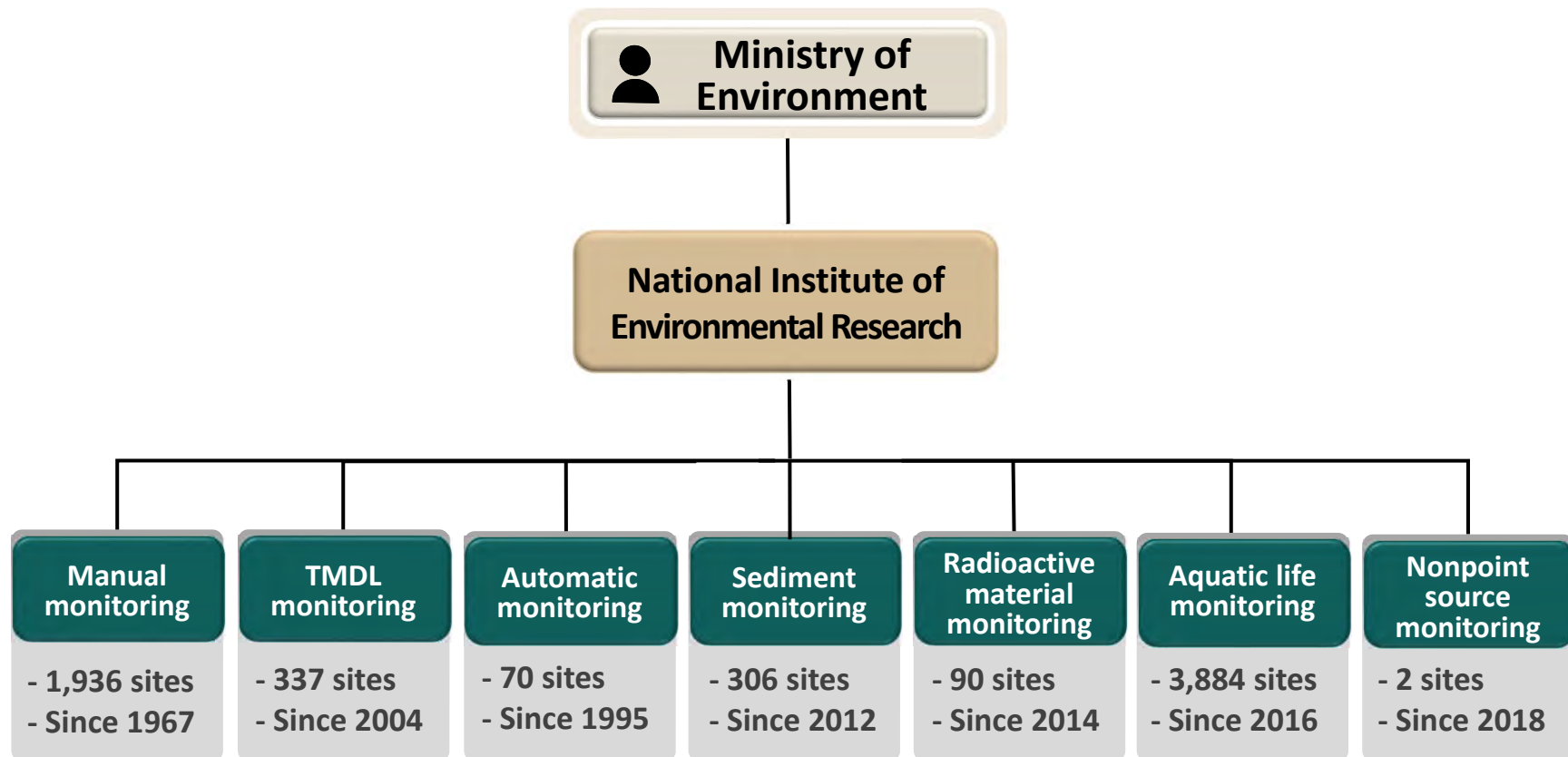
✓ Related act

- Environment Policy Framework Act
- Water Environment Conservation Act



National water quality monitoring program

Classification



National water quality monitoring program

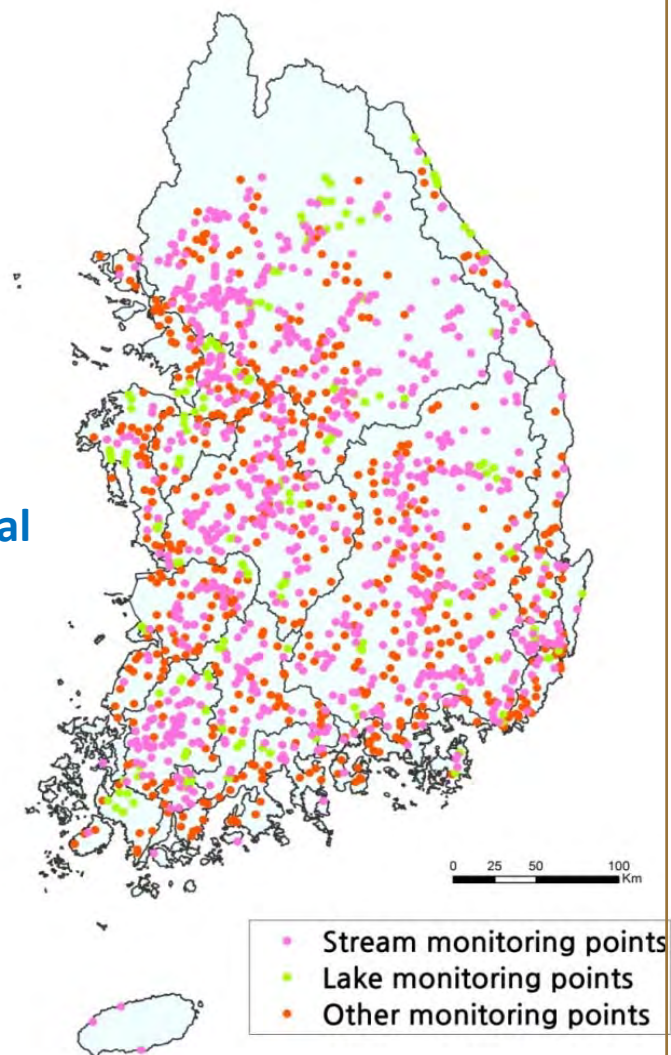
Manual monitoring

- ✓ **Number of sampling sites**

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

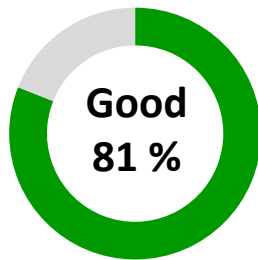
- ✓ **Sampling interval**

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

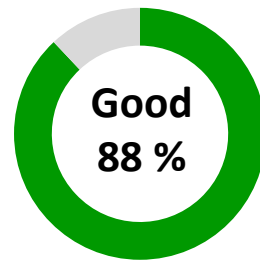


Status of water quality in 4 major rivers in Korea

Water quality status

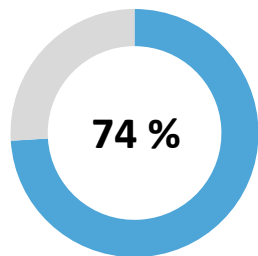


River and stream
(BOD ≤ 3mg/L)

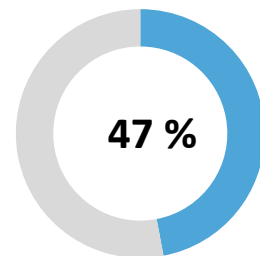


Lake
(TOC ≤ 4mg/L)

Achievement rate



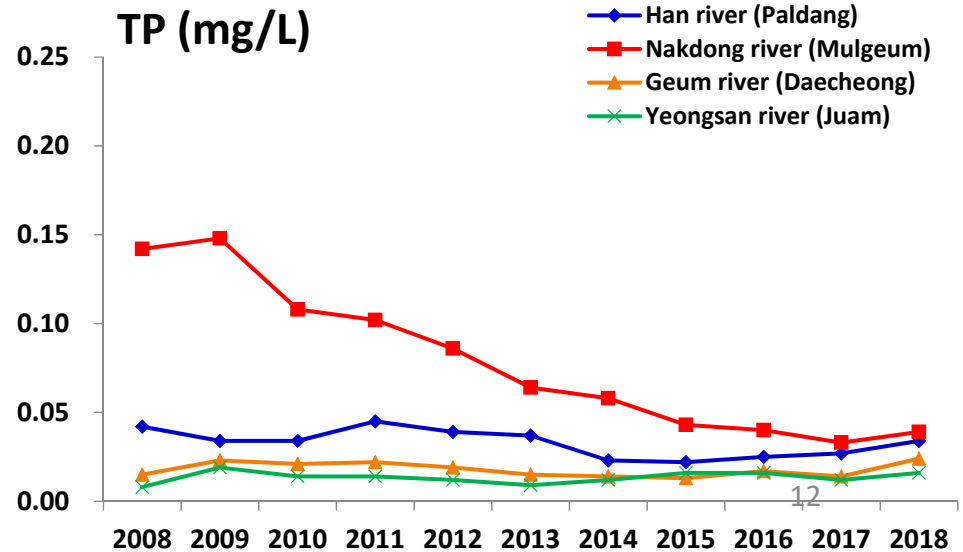
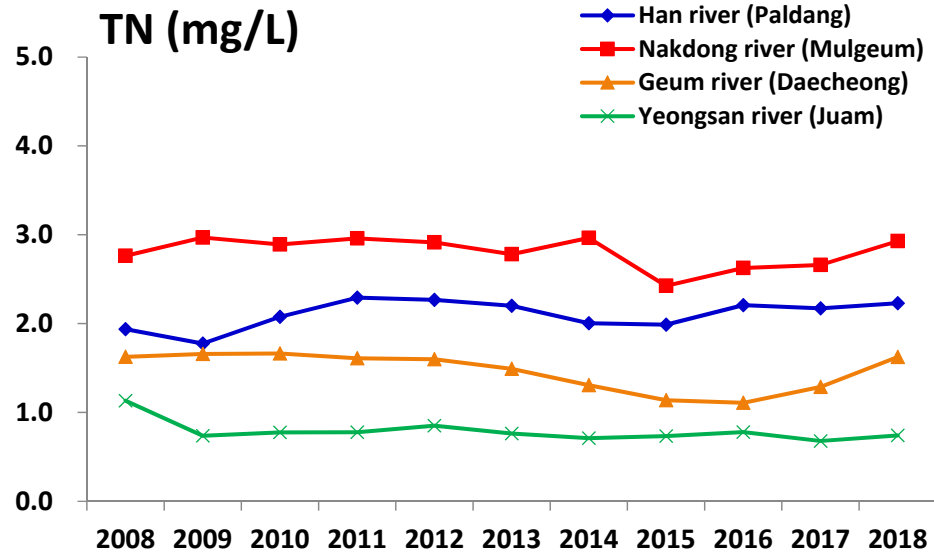
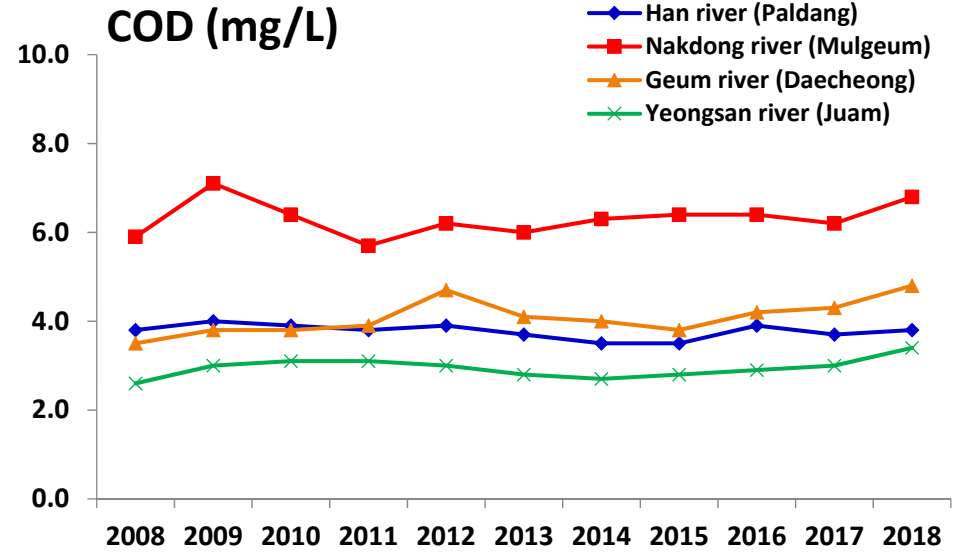
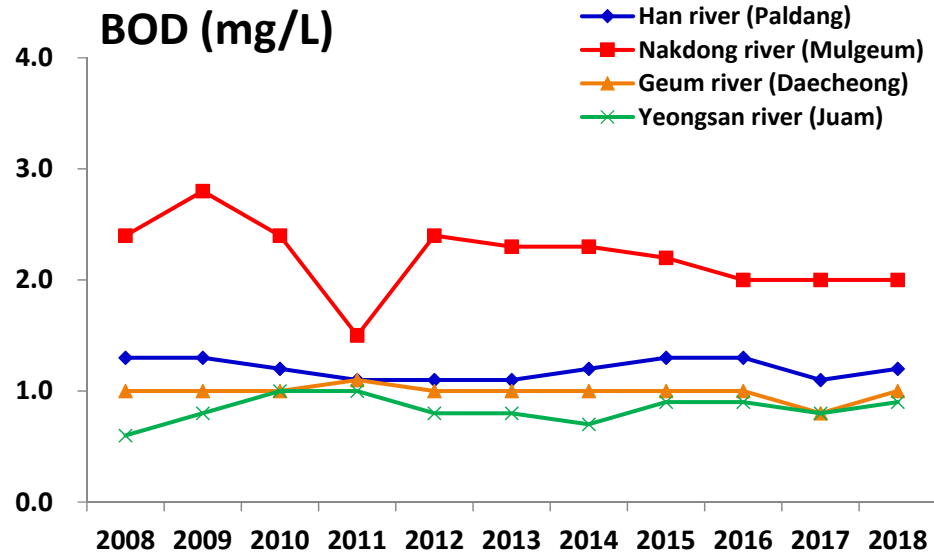
River and stream
(BOD)



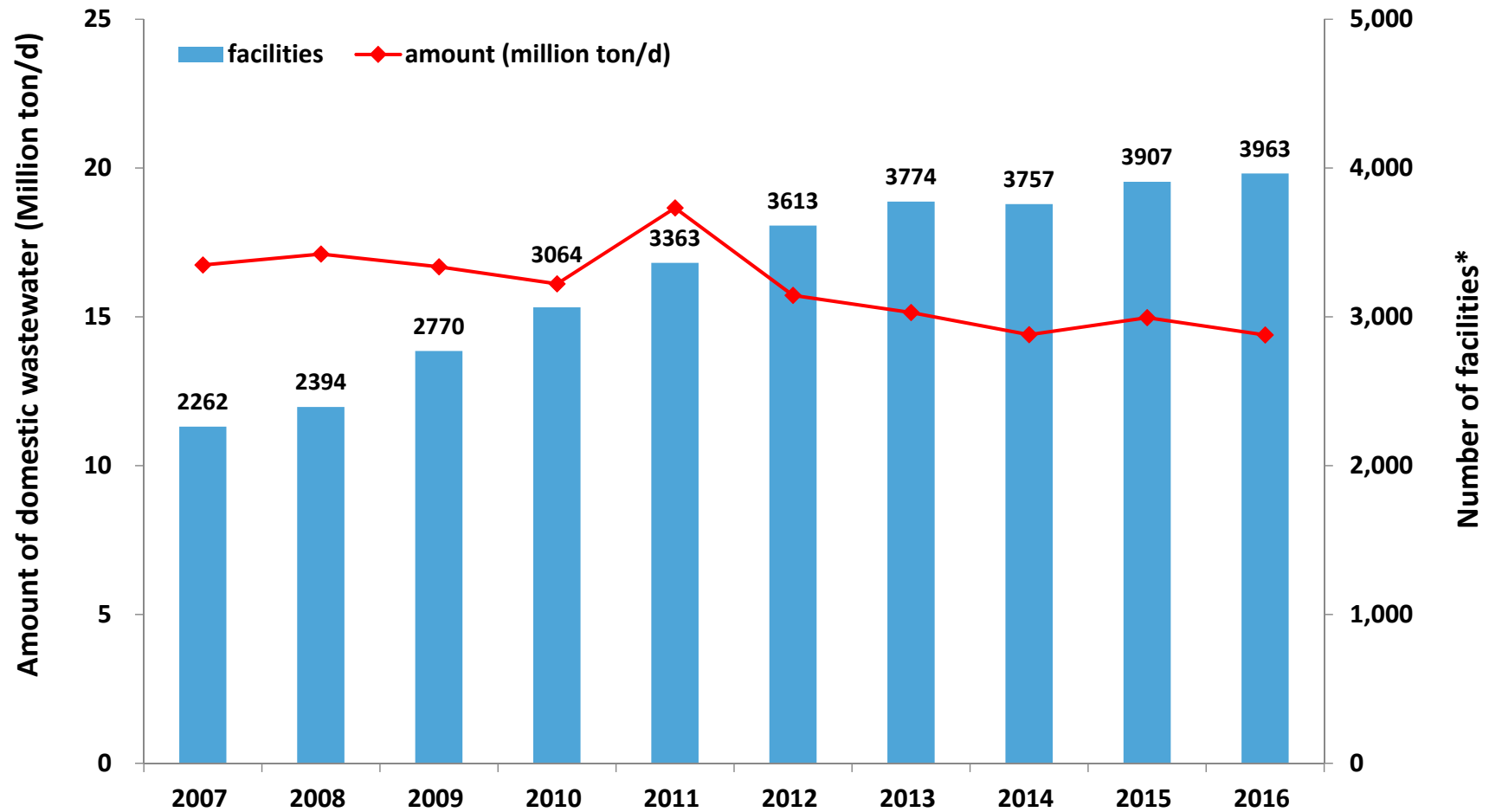
Lake
(TOC)



Variation of water quality

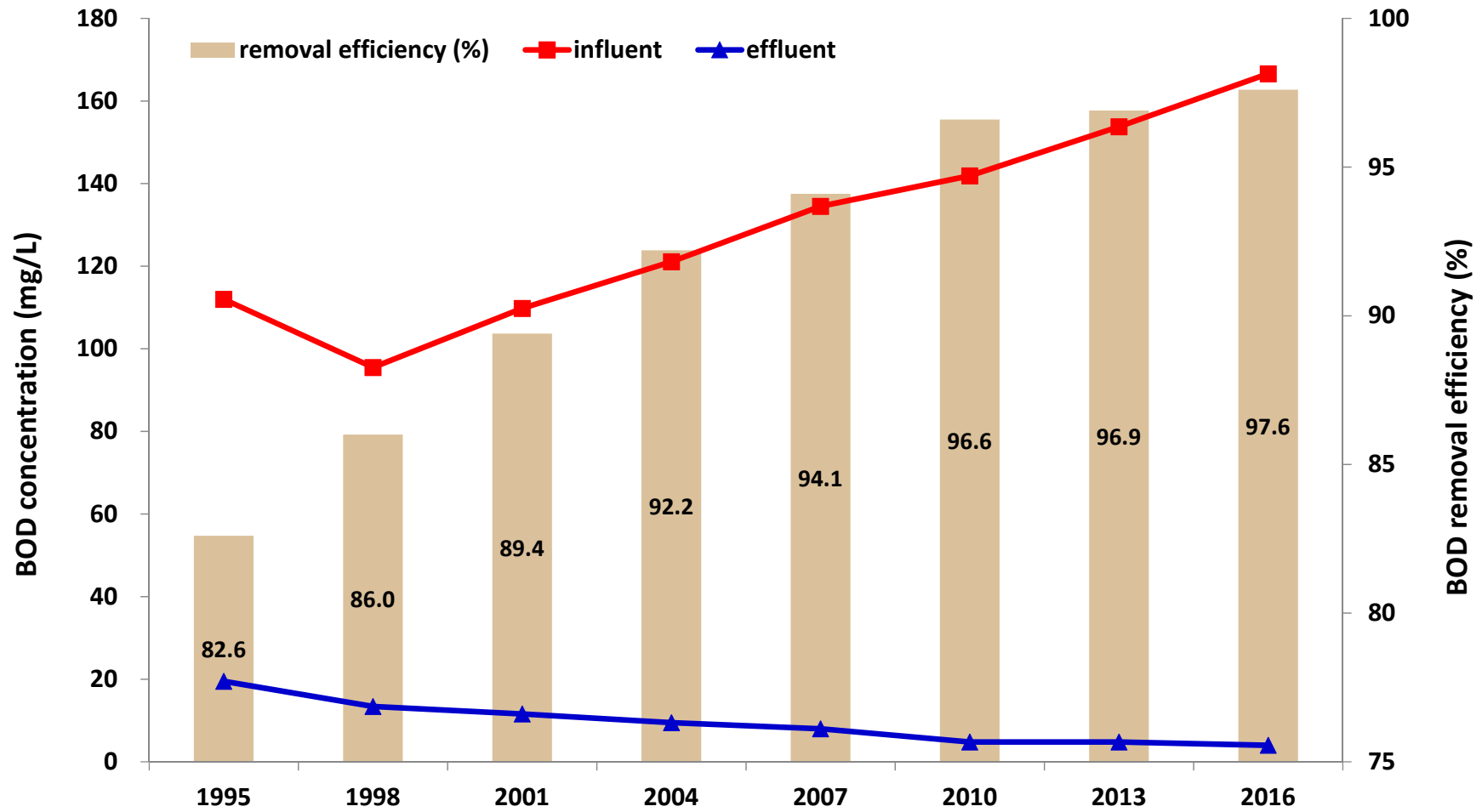


Current status of domestic wastewater

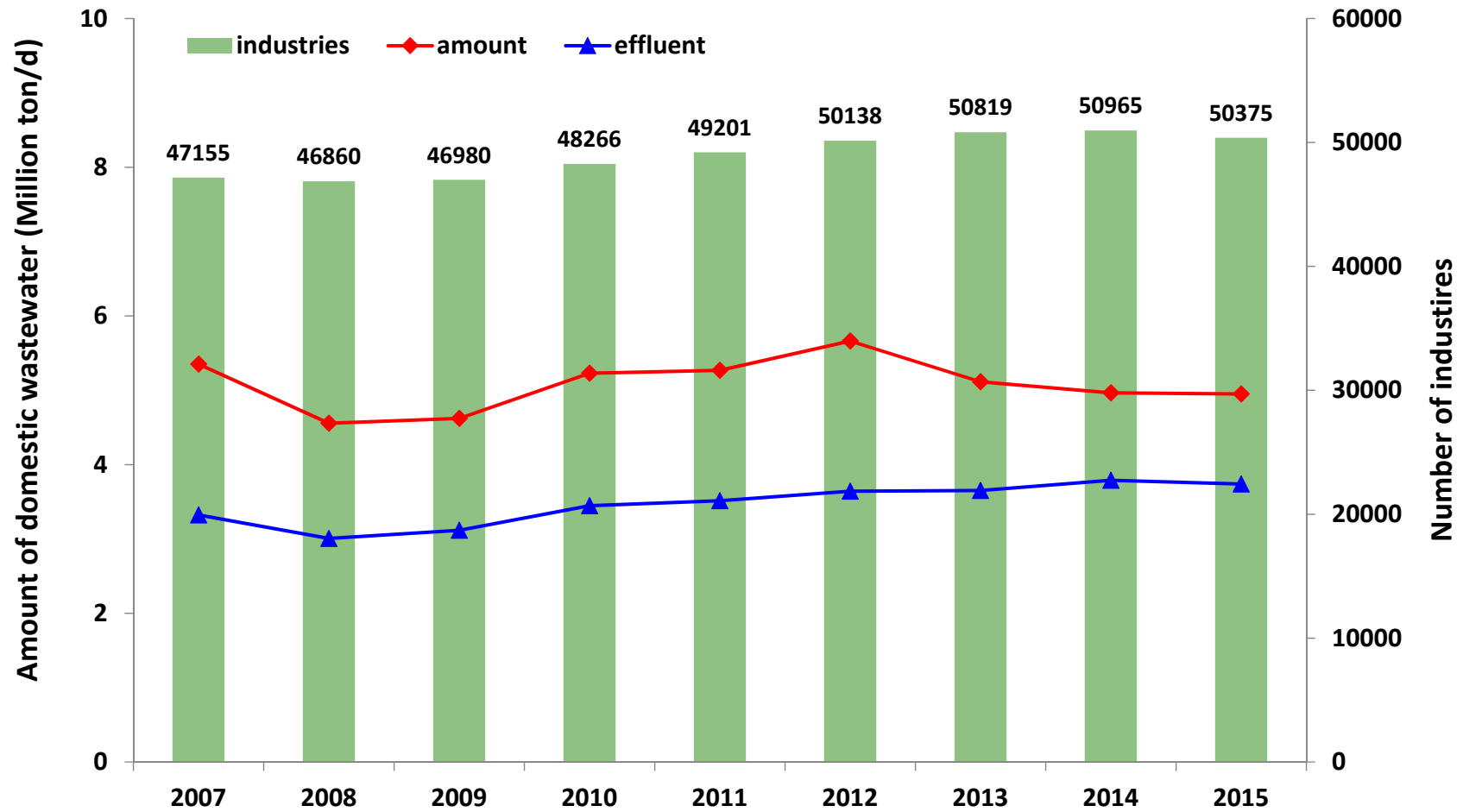


* This number does not include private treatment plants

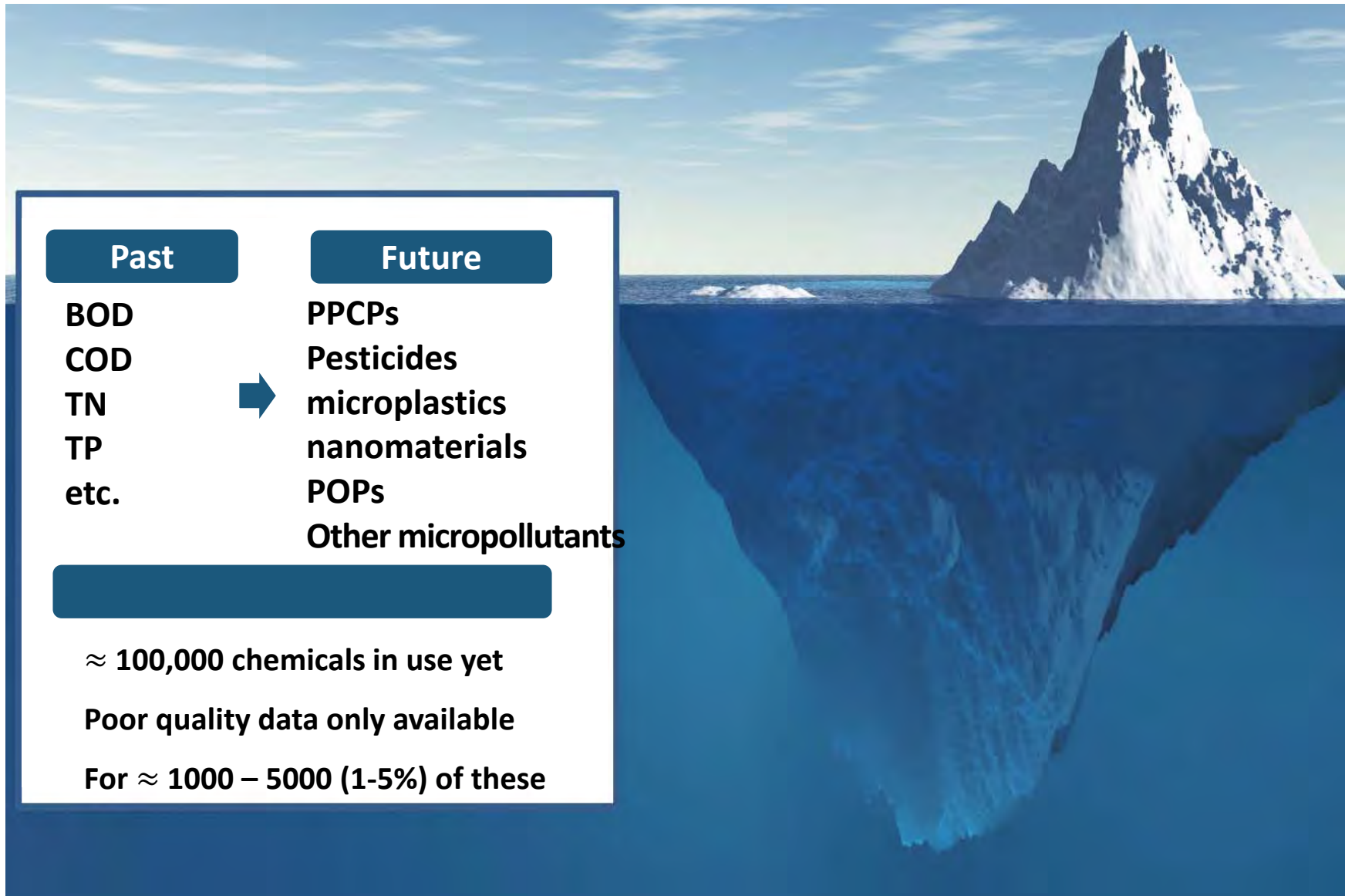
Current status of domestic wastewater



Current status of industrial wastewater



Future targets



Past

BOD
COD
TN
TP
etc.



Future

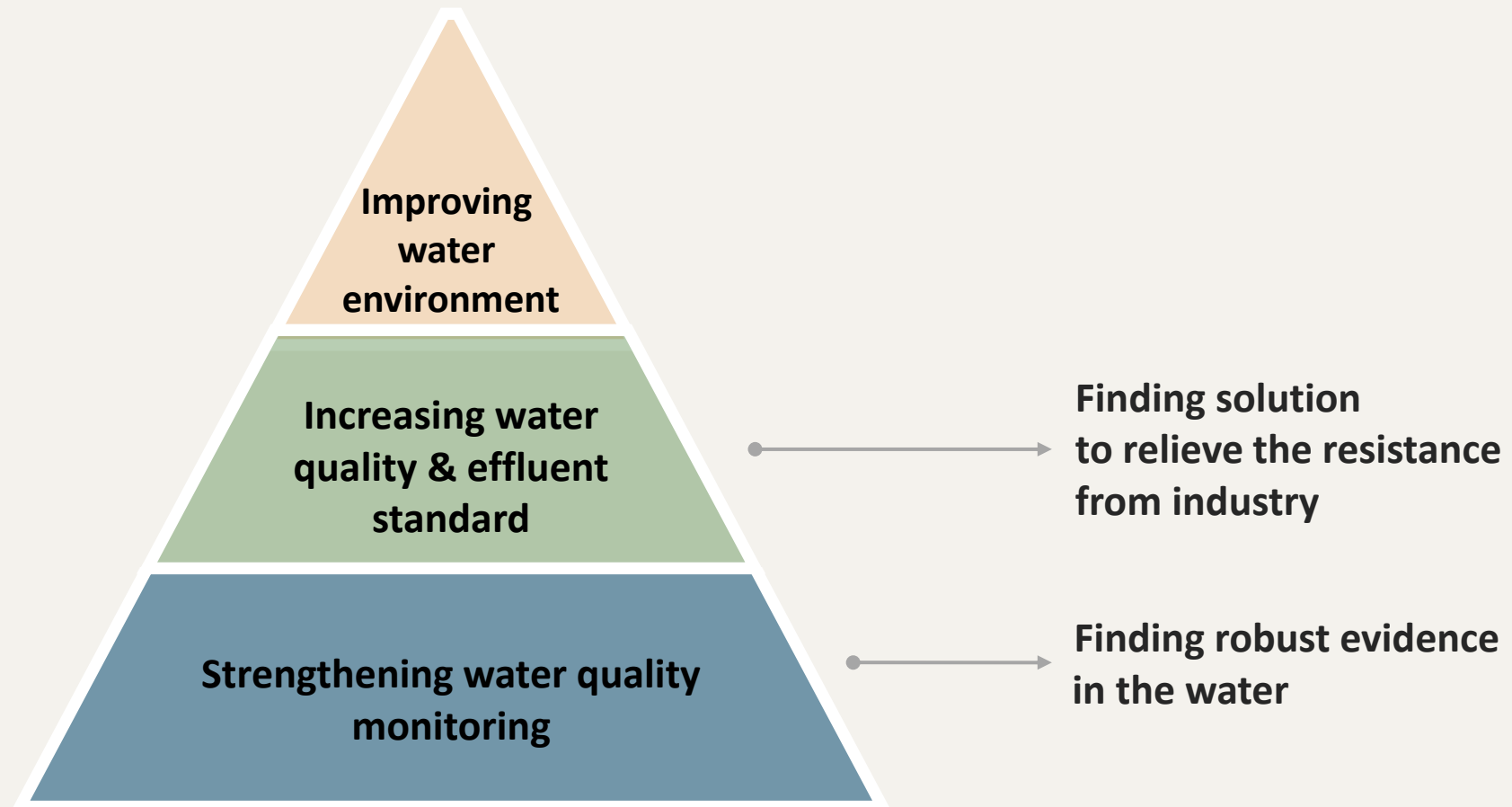
PPCPs
Pesticides
microplastics
nanomaterials
POPs
Other micropollutants

≈ 100,000 chemicals in use yet

Poor quality data only available

For ≈ 1000 – 5000 (1-5%) of these

Future plans



Thank you for your attention!!!