

# Sharing Knowledge, Sharing the Future

글로벌 지식공유 포럼

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Hosted by



## Environmental Policy in Korea

YUN, Sun-Jin

Seoul National University

[ecodemo@snu.ac.kr](mailto:ecodemo@snu.ac.kr)

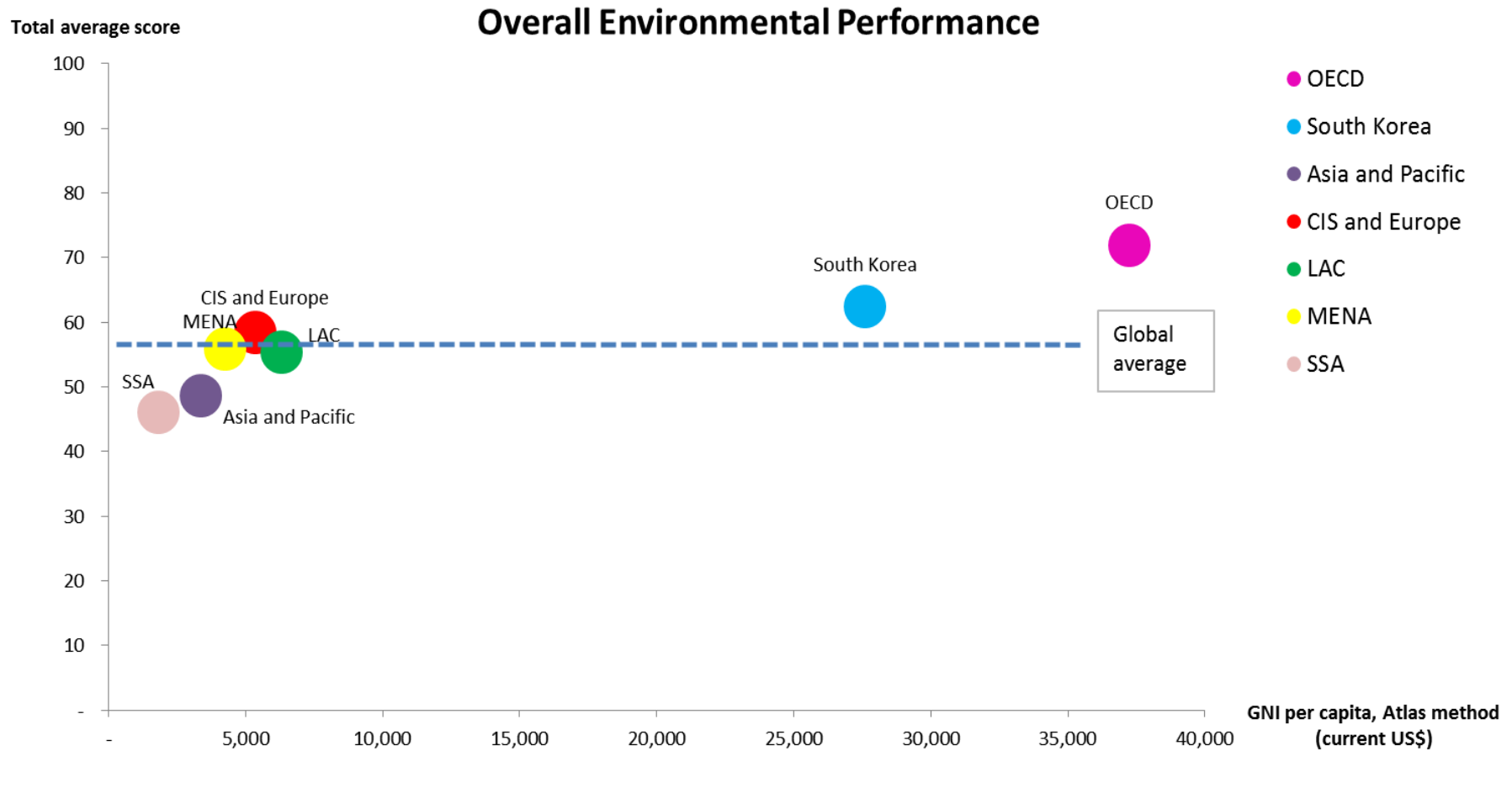
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1. Recent Status of Environmental Progress
2. Key Environmental Challenges by Region
3. Development of Environmental Policy in Korea
4. Three Major Environmental Policy Examples
5. Implications for Developing Countries

# 1. Recent Status of Environmental Progress

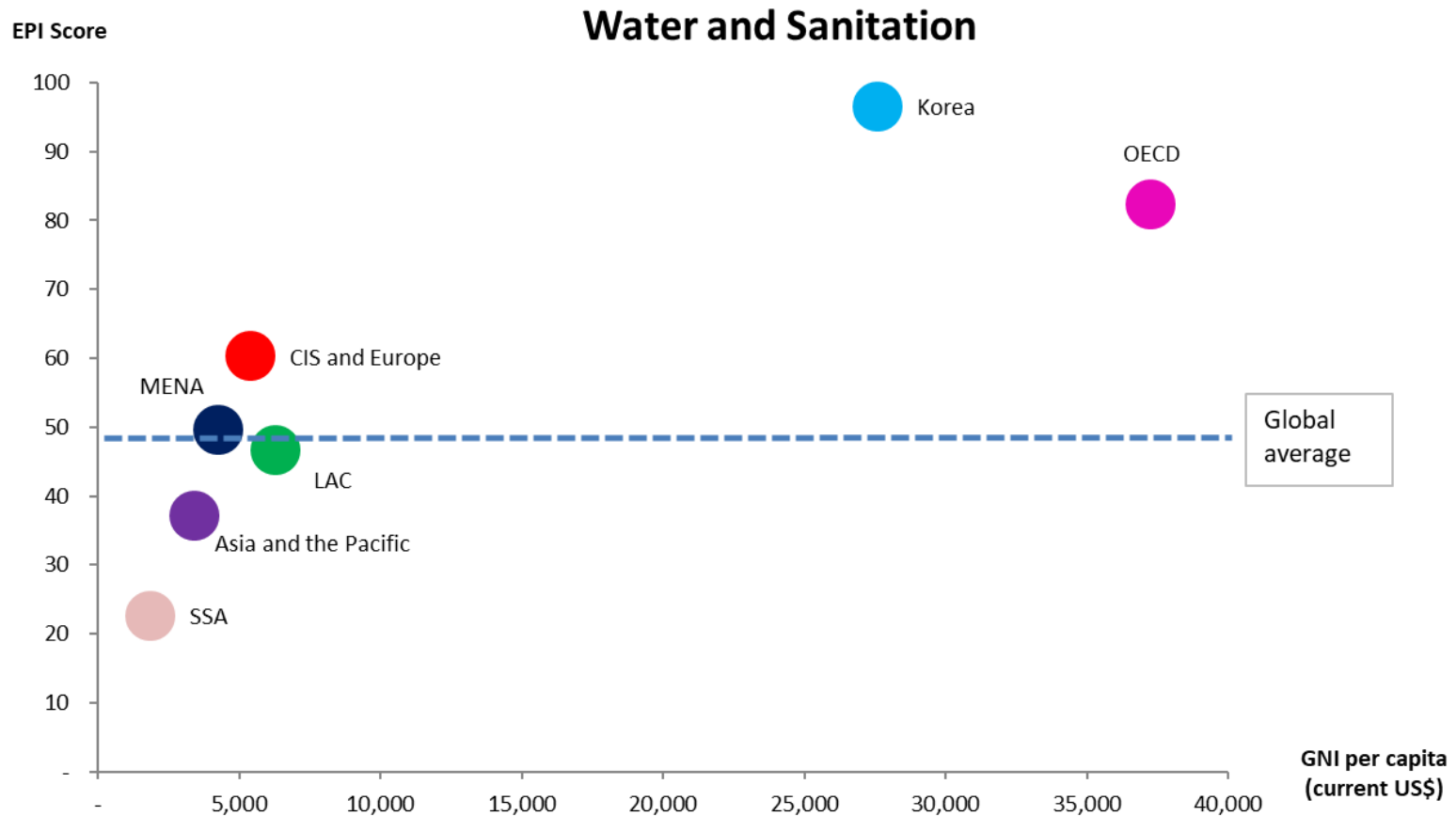
## Overall Environmental Performance by EPI



Source: World Bank Databank, 2018 Environmental Performance Index.

# 1. Recent Status of Environmental Progress

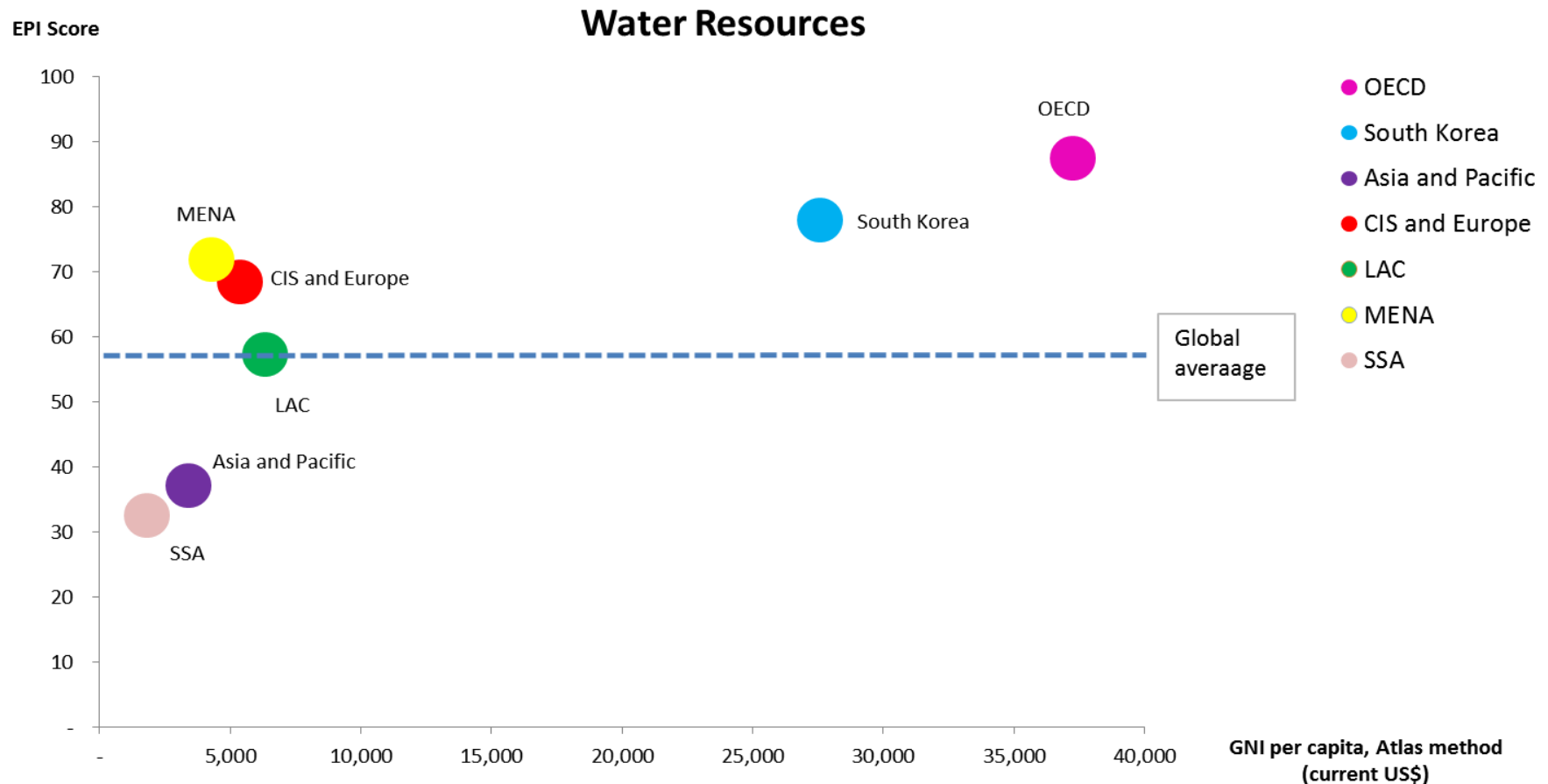
## Water and Sanitation



Source: World Bank Databank, 2018 Environmental Performance Index.

# 1. Recent Status of Environmental Progress

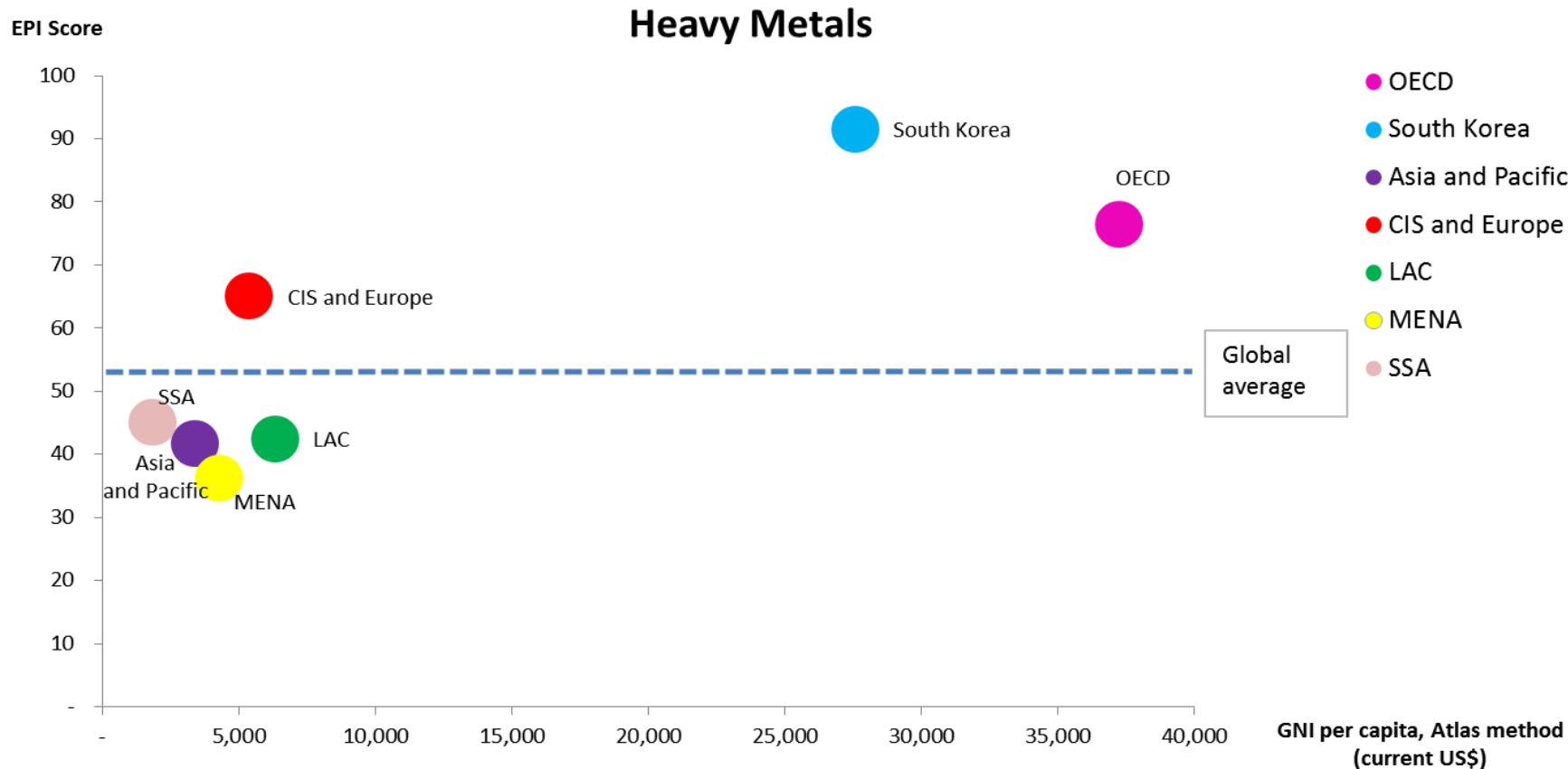
## Water Resources Management



Source: World Bank Databank, 2018 Environmental Performance Index.

# 1. Recent Status of Environmental Progress

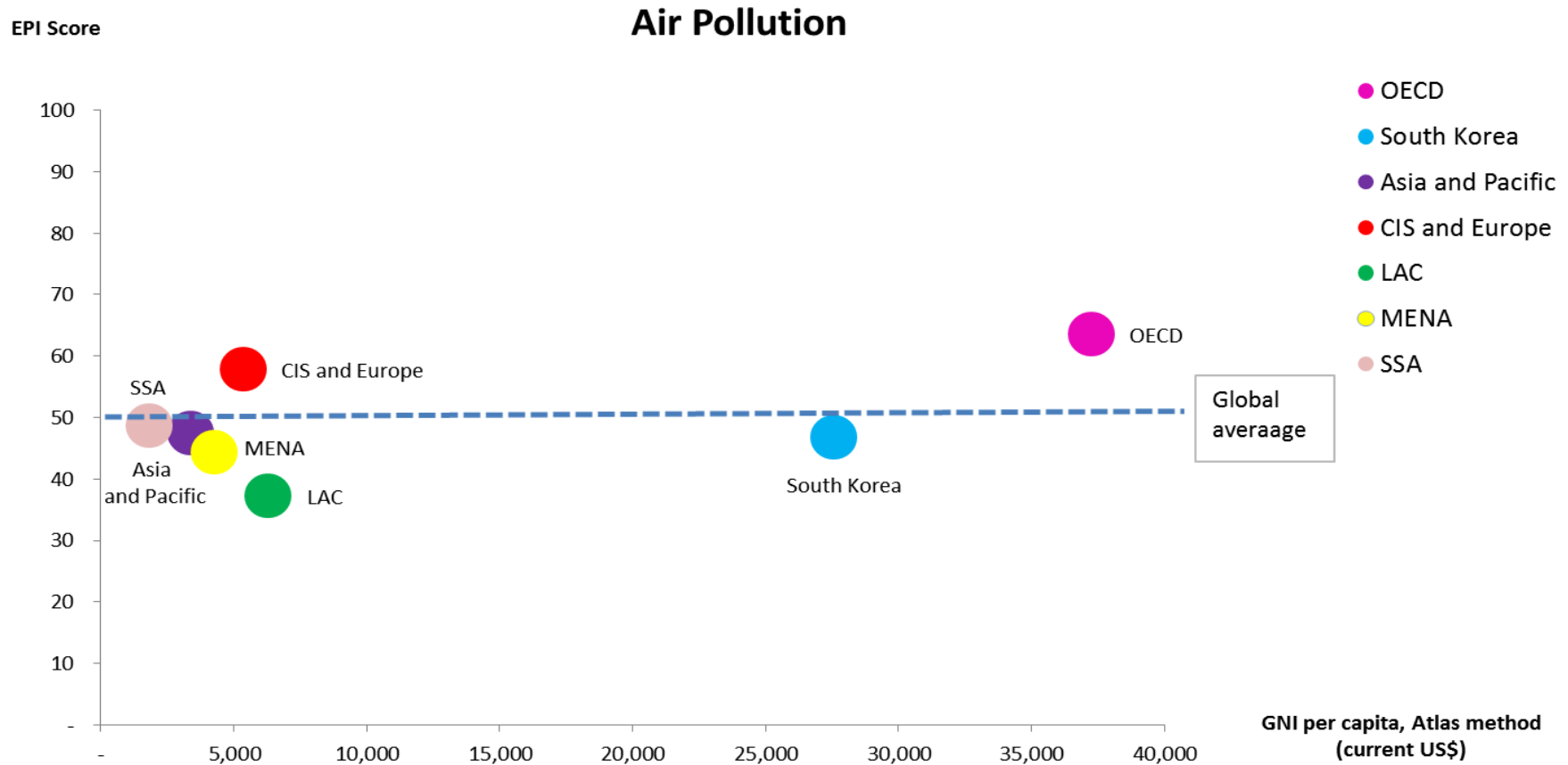
## Heavy Metals Management



Source: World Bank Databank, 2018 Environmental Performance Index.

# 1. Recent Status of Environmental Progress

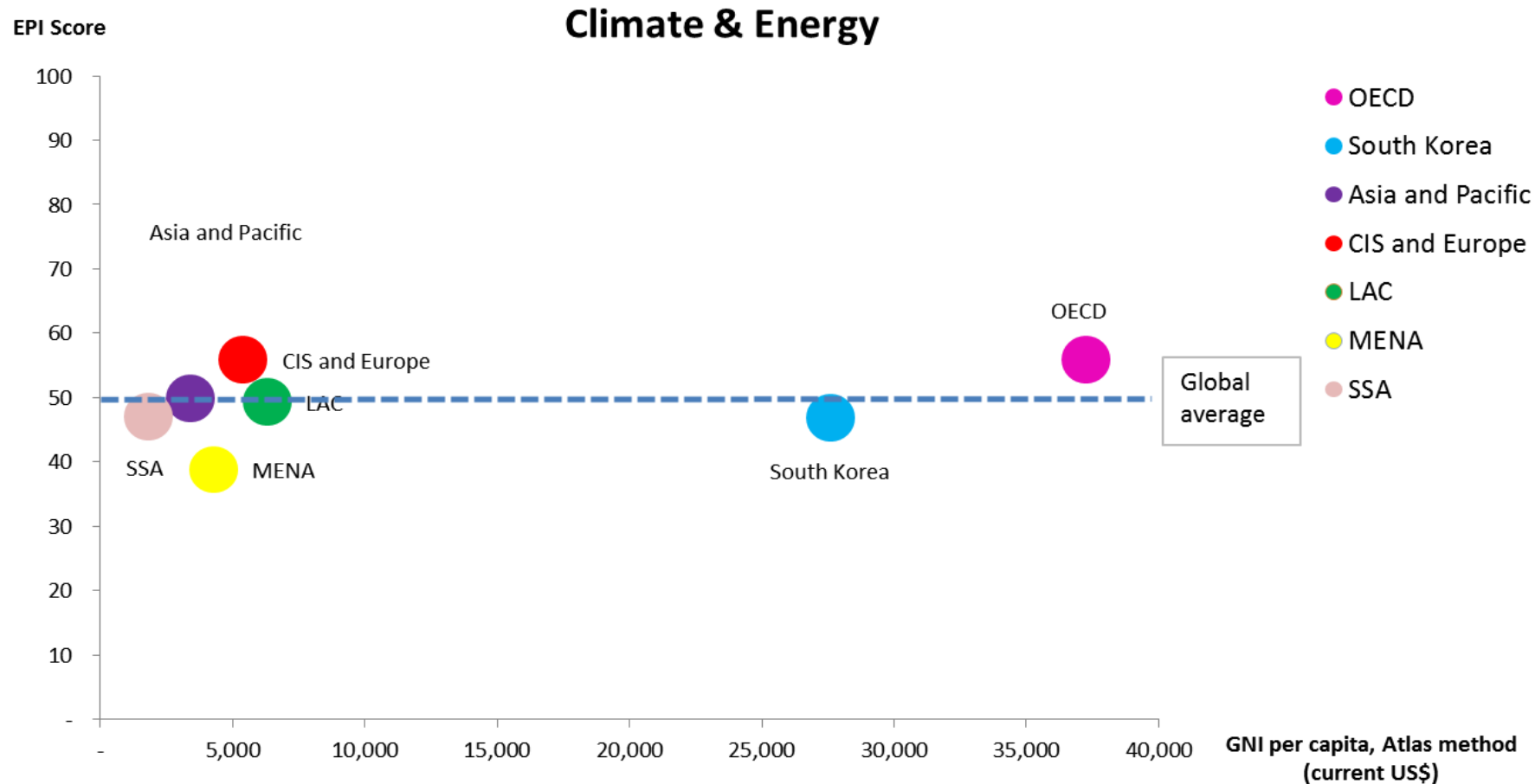
## Air Pollution



Source: World Bank Databank, 2018 Environmental Performance Index.

# 1. Recent Status of Environmental Progress

## Climate and Energy

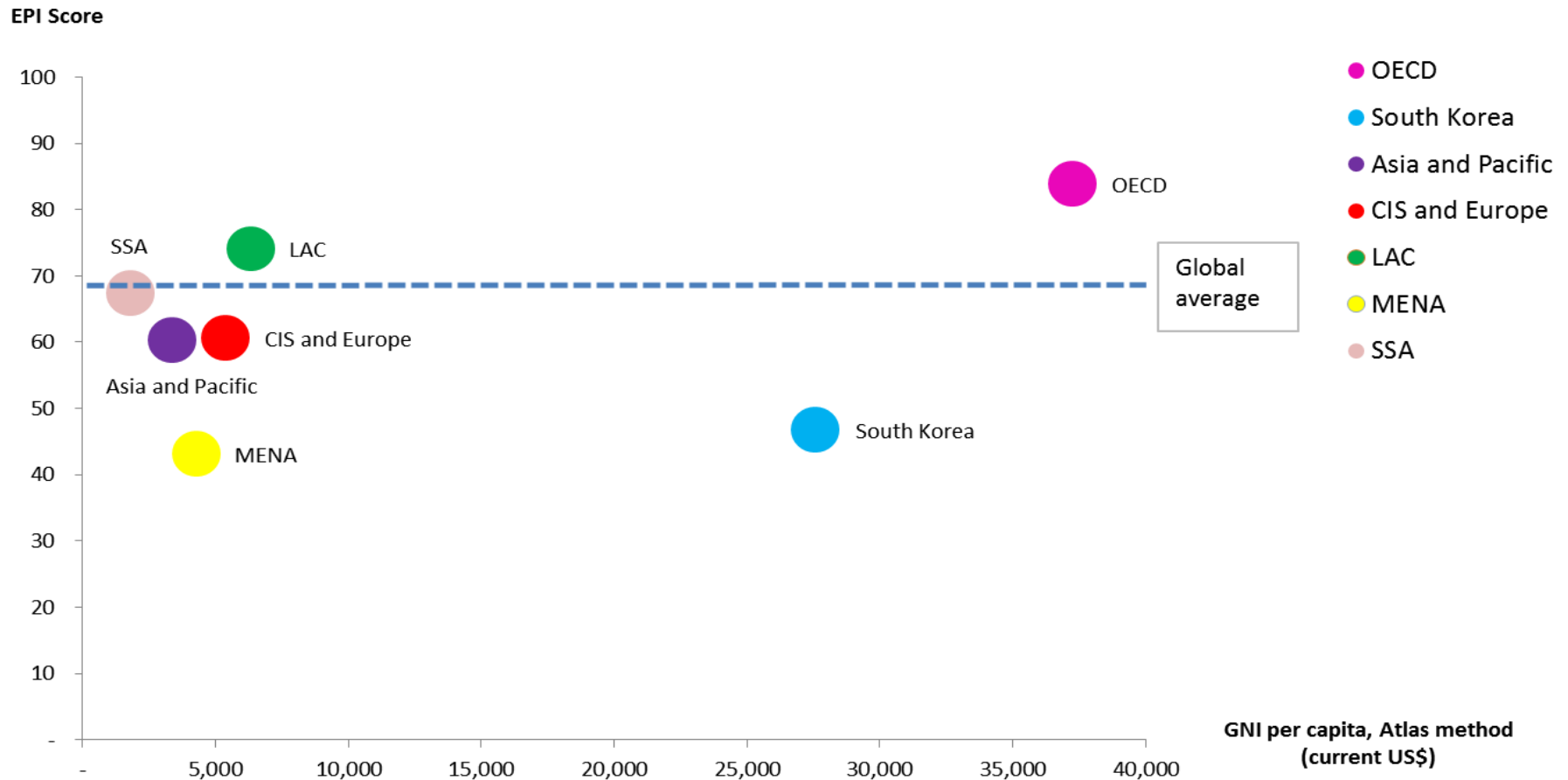


Source: World Bank Databank, 2018 Environmental Performance Index.

# 1. Recent Status of Environmental Progress

## Biodiversity and Habitat

### Biodiversity & Habitat



Source: World Bank Databank, 2018 Environmental Performance Index.

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## 2. Key Environmental Challenges by Region

# Environmental Performance by Region & Income

	Average	Air Quality	Water and Sanitation	Heavy Metals	Biodiversity and Habitat	Climate and Energy	Water Resources	Air Pollution
<b>Korea</b>	62	61	97	91	47	47	78	47
<b>Global</b>	56	68	49	53	69	50	57	50
Low Income	37	47	18	17	41	39	7	45
Lower Middle Income	52	63	40	44	62	51	51	46
Upper Middle Income	56	71	53	56	62	48	66	49
<b>Asia and the Pacific</b>	49	47	37	42	60	50	37	47
Low Income	35	24	25	9	41	34	0	71
Lower Middle Income	47	45	31	37	62	51	30	45
Upper Middle Income	57	59	55	63	61	51	66	47
<b>CIS and Europe</b>	58	64	60	65	61	56	68	58
Lower Middle Income	53	51	55	62	56	47	65	51
Upper Middle Income	61	70	63	67	63	61	70	62
<b>Latin and the Caribbean</b>	55	75	47	42	74	49	57	37
Low Income	34	62	15	3	14	43	0	21
Lower Middle Income	54	71	38	38	79	52	49	29
Upper Middle Income	57	77	50	46	76	49	63	40
<b>Middle East and North Africa</b>	56	88	50	36	43	39	72	44
Lower Middle Income	58	87	44	31	50	50	68	50
Upper Middle Income	54	89	55	41	36	28	75	38
<b>Sub-Saharan Africa</b>	46	56	23	45	67	47	32	49
Low Income	44	54	15	38	68	41	20	44
Lower Middle Income	47	58	29	51	62	55	45	53
Upper Middle Income	53	60	41	62	75	50	57	58

Source: World Bank Databank, 2018 Environmental Performance Index.

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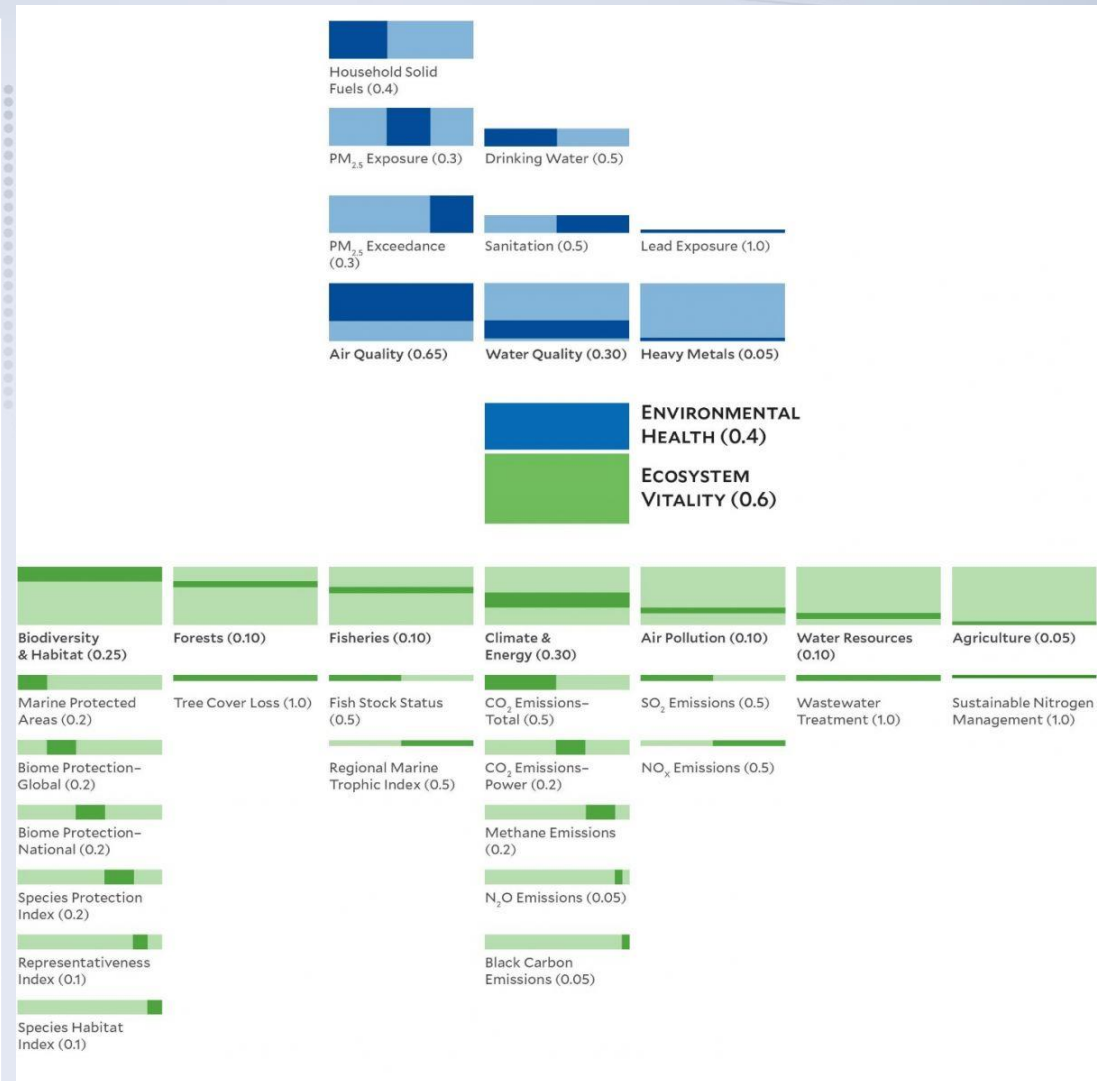
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### 3. Development of Environmental Policy in Korea

## Changes in South Korea's EPI Ranks since 2006

Year	Rank /No. of Total
2006	42 /133
2008	51 /149
2010	94 /163
2012	43 /132
2014	43 /178
2016	80 /180
2018	60/180



Source: Environmental Performance Index Homepage

### 3. Development of Environmental Policy in Korea

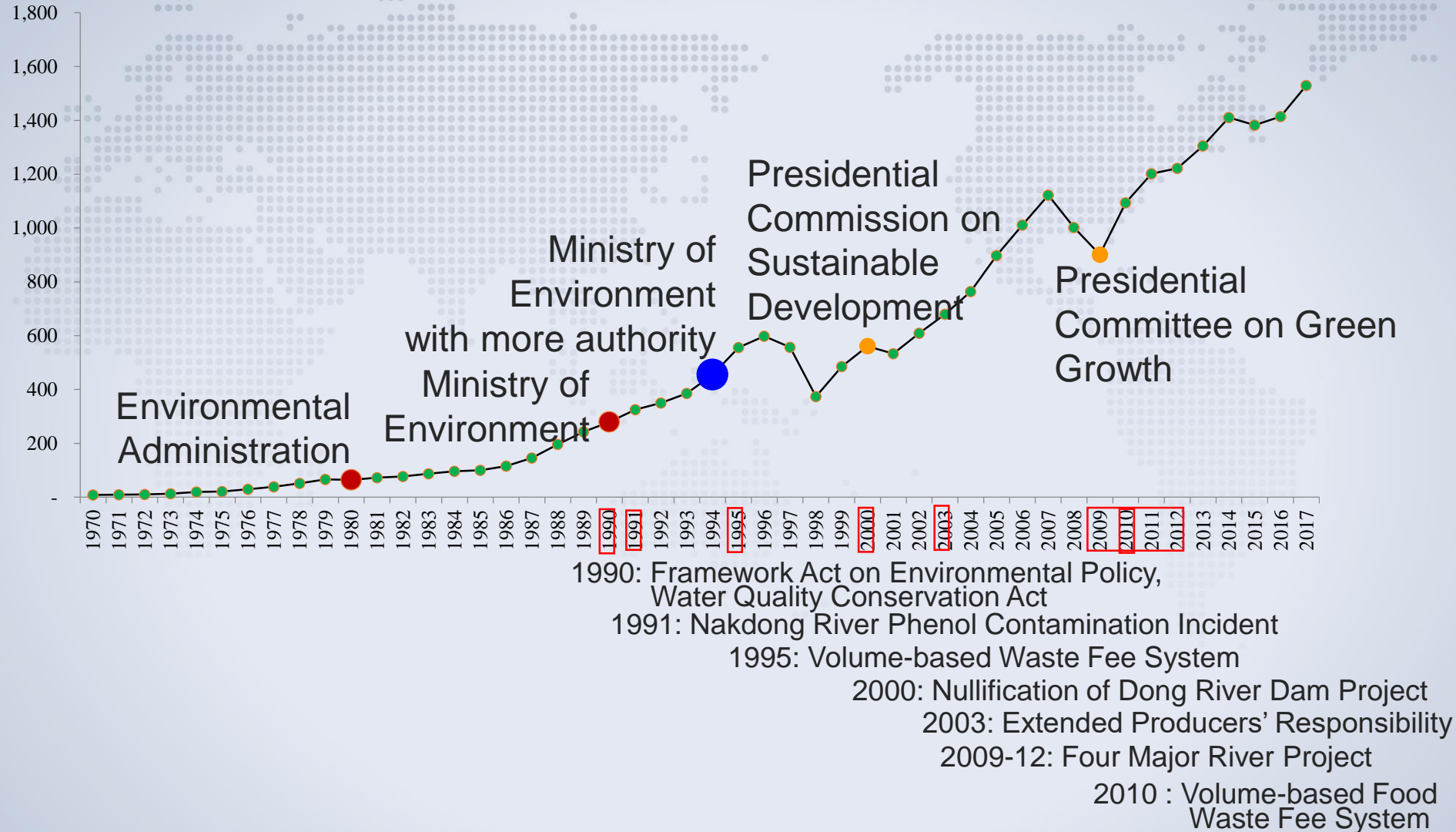
# History of Environmental Policy

Time	Government	Law	Administrative organization	Main Characteristics
1960s~1979	Park Chung-hee (60~79)	Pollution Prevention Act (63~76) / Environmental Conservation Act (77~89)	Pollution Section of the Ministry of Health and Society (67~79)	The formation period of environmental policy before 1980s:
1980s	Chun Doo-hwan (80~87)	Framework Convention on Environmental Policy (90~present)	Environment Administration (80~89)	The period of introducing environmental policy in 1980s: The beginning of environmental management
	Roh Tae-woo (88~92)		Ministry of Environment (90~94)	
1990~1997	Kim Young-sam (93~97)			Ministry of Environment (94~present)
1998~2007	Kim Dae-jung (97~02)		The period of practicing the concept of sustainable development: Expanding advanced environmental management	
	Roh Moo-hyun (03~07)			
2008~2017.5	Lee Myung-bak (08~12)		The period of environmental policy Stagnation since the advent of Low Carbon Green Growth: Placing the environment as growth engine	
	Park Geun-Hye (13~17)			
2017.5~present	Moon Jae-in (17~present)	The period of sustainable development: again		

### 3. Development of Environmental Policy in Korea

# The Trend of GDP and History of MOE

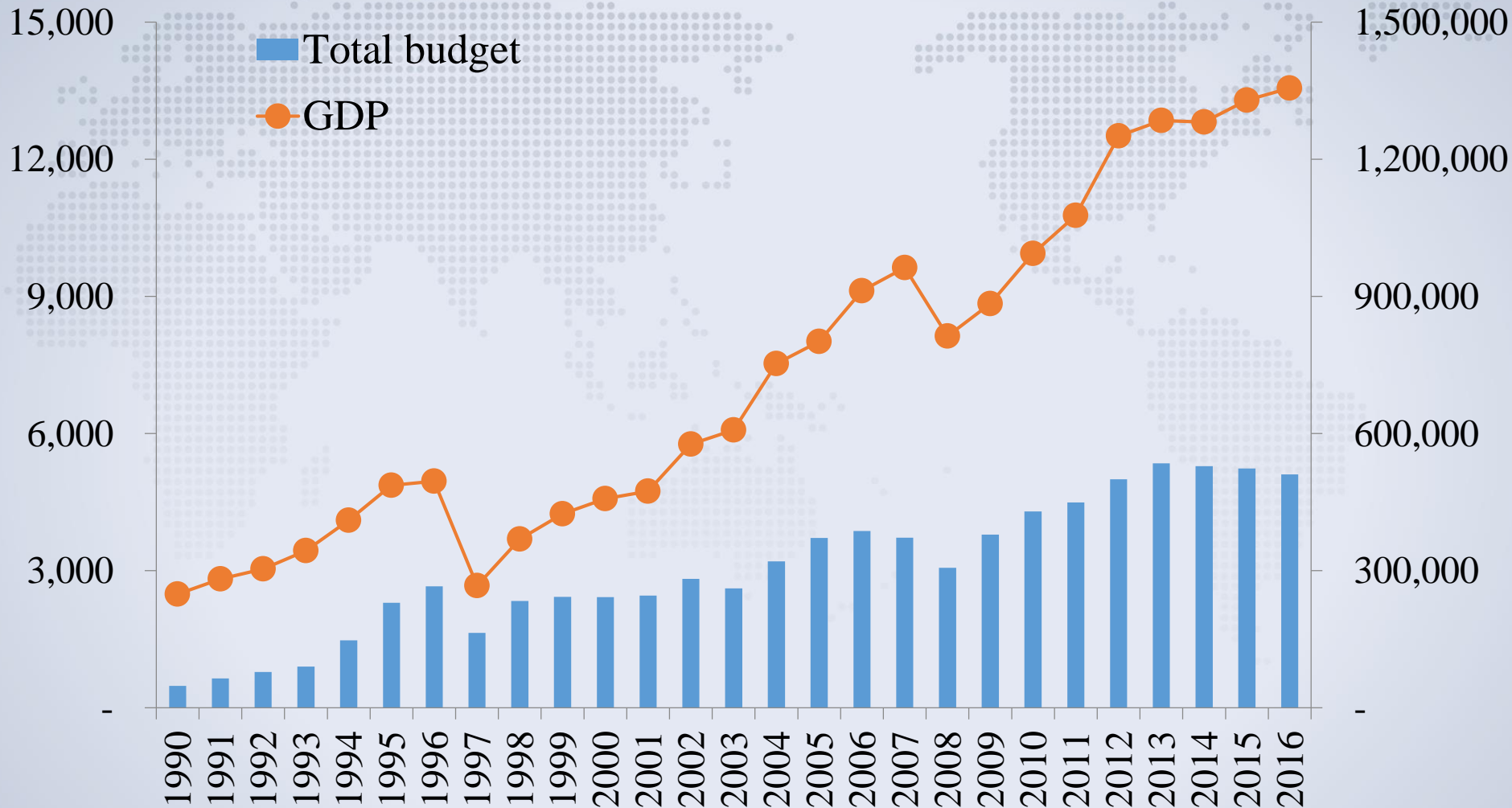
GDP (billion USD)



### 3. Development of Environmental Policy in Korea

# GDP vs. Environmental Budget in Korea

(Unit: Million USD)



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#### 4. Three Major Environmental Policy Examples

## ■ History of Waste Management Policy

- In 1961, the Waste Cleaning Act: to regulate garbage disposal and to safeguard public health.
- In 1977, the Environmental Conservation Act: to regulate industrial waste, while WCA for residential waste.
- In 1986, the Waste Control Act for a comprehensive and systemic legal base for the management of different types of waste.
- In 1992, the Act on the Promotion of Saving and Recycling of Resources
- In 1993, the Ministry of Environment announced the Comprehensive National Waste Management Plan (CNWP, 1993-2001) and put forward 3Rs—reduce, reuse, and recycle—to minimize damage to the environment

#### 4. Three Major Environmental Policy Examples

## ■ History of Waste Management Policy

- In 2002, the second CNWP (2002-2011)
- In 2011, the Basic Plan for Resource Circulation (2011-2015): aiming at realizing a zero-waste society by going beyond simple resource circulation towards “upcycling” that upgrades the value of waste resources.
- In 2013 the Ministry announced measures to promote the transition to a resource circulation society.
- In 2016, the “Framework Act on Resource Circulation (FARC)”: systematical regulation of the life-cycle of resources.
- Waste policy goal has shifted progressively from simple waste management up until the 1980s to the promotion of 3Rs in the 1990s and more recently to realizing a ‘resource-circulating society’ that regards waste as domestic resource.

## 4. Three Major Environmental Policy Examples

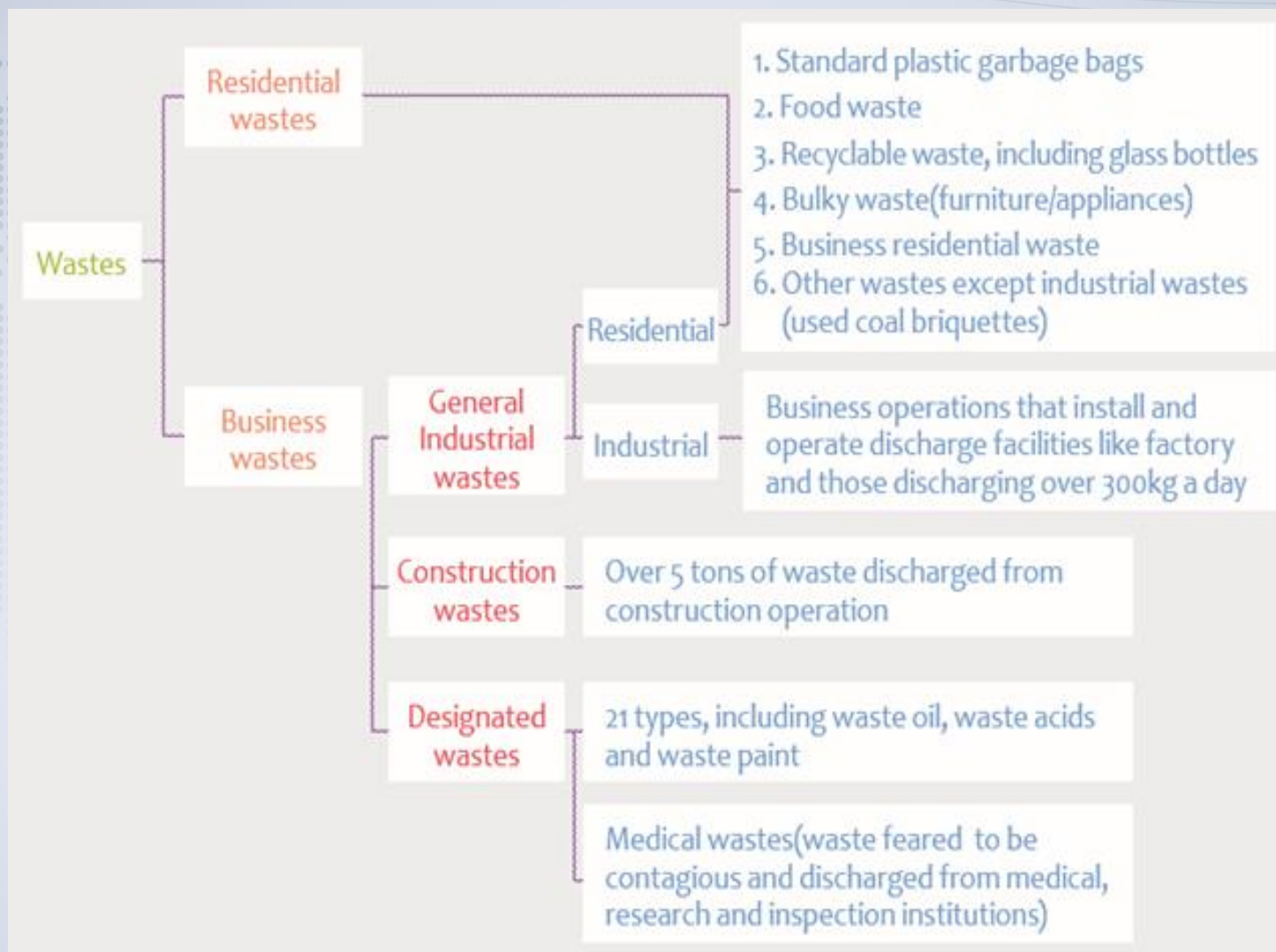
# ■ Paradigm Shift of Waste Management Policy

Category	Previous Policy Direction	New Policy Direction
<b>Motivation</b>	Worsened environmental pollution due to waste	Climate change, Raw material and energy exhaustion
<b>Objective</b>	Create clean living conditions	Construct a resource circulation society
<b>Implementation Strategy</b>	Reduction → Recycling → Treatment	Efficient Production/Consumption → Material recycling → Energy harvesting → Advancing treatment
<b>Main Tasks</b>	Volume-based waste fee system, EPR, and building the treatment facilities	Resource recyclability evaluation, Recycled product quality certification, Waste-to-Energy, Merger of treatment district
<b>Core Concept</b>	'Waste'	'Resource (Circulation/Natural)'

Source: The Ministry of Environment, 2015 and 2018

## 4. Three Major Environmental Policy Examples

# Legal Classification of Wastes in S. Korea



Source: The Ministry of Environment, 2015 and 2018

## 4. Three Major Environmental Policy Examples

# Policy Instruments by Policy Focus

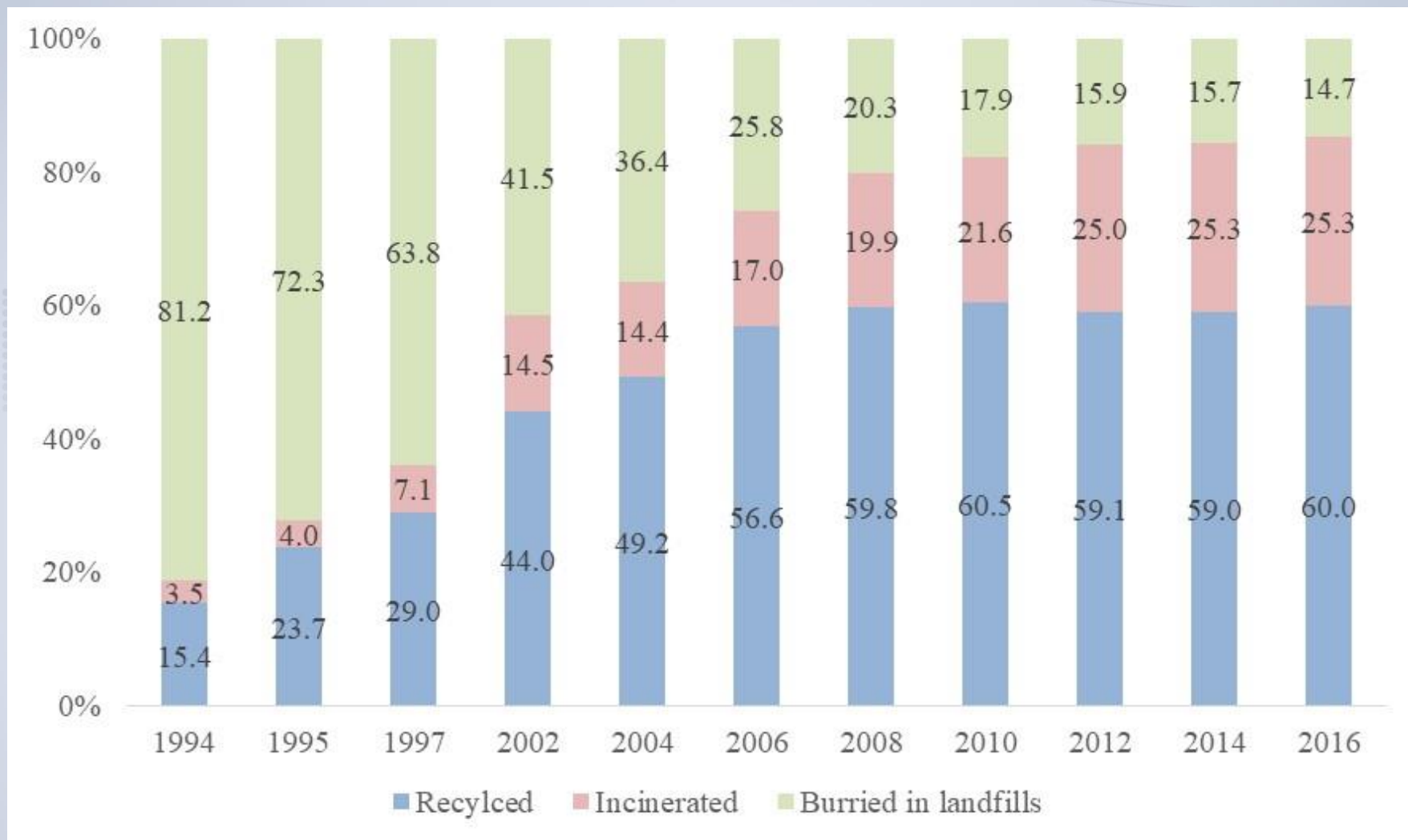
Policy Focus	Instrument
Wastes Management and Reduction	<ul style="list-style-type: none"> <li>• Volume-based Waste Fee System</li> <li>• Waste Charging System</li> <li>• Business Waste Reduction Program</li> </ul>
Waste Recycling	<ul style="list-style-type: none"> <li>• Extended Producer Responsibility (EPR)</li> <li>• Program for Ensuring Environmentality in Electrical &amp; Electronic Products and Automobiles</li> <li>• Food Waste Recycling</li> <li>• Construction Waste Recycling Promotion</li> <li>• Exchange of Resources used by the Circulation</li> <li>• Fostering the Recycling Industry and Expanding Related Infrastructure</li> <li>• Waste Disposal Fee</li> <li>• Recycable Resource Recognition Program</li> <li>• Resource Circulation Performance Management Program</li> </ul>
Hazardous Waste Management	<ul style="list-style-type: none"> <li>• Allbaro System (Waste Management System)*</li> <li>• Abandoned Waste Treatment· Medical Waste Management</li> </ul>

Note: \*Allbaro is a comprehensive online waste information and management system

Source: The Ministry of Environment, 2015 and 2018

## 4. Three Major Environmental Policy Examples

# Trends in Waste by Management Type



Source: The Ministry of Environment and KEI, 2016, The Ministry of Environment, 2018

## 4. Three Major Environmental Policy Examples

### ■ Impacts of Waste Management

- The total amount of household waste fell by 1.03 million tons between 1995 and 2012.
- Per capita household waste fell from 1.3kg/day in 1994 to 1.01kg/day in 2016, less than the average of OECD countries (1.43kg/day)
- More than half of the total waste has been recycled since 2005

### ■ Challenges to Waste Management

- Strengthening linkage with other policy domains such as agriculture, IT technology, energy, and so on.
- Effective coordination with the central government, the Ministry of Environment, and local governments
- Increasing use of plastics
- Longer term incentives for right market signals to encourage voluntarily actions of businesses and households.

#### 4. Three Major Environmental Policy Examples

## ■ Water Supply and Sewerage System

- In 1961, 18% of the population had access to piped water.
- 40% of water supply facilities were completed before the 1980s, meaning many of the facilities were aged.
- The expansion of water treatment processes was triggered by the 2<sup>nd</sup> Nakdong River contamination incident of 1994.
- The focus given on water supply side shifted to demand side in 2000 with the Comprehensive Plan on Water Savings.
- In 2007, the Comprehensive Plan on National Water Demand Management was published, covering all stages from water demand to supply to use and reuse.
- In 2016, 93.2% of the population had access to the sewerage network.
- The 1988 Seoul Olympic Games and the Comprehensive Plan for Clean Water Supply of 1989 set the stage for heavy investment in the sewerage infrastructure.

## 4. Three Major Environmental Policy Examples

# ■ The Status of Water Supply

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Population (thousands)	49,053	49,268	49,599	50,034	50,395	50,644	51,435	51,717	51,881	52,127	52,419	52,672	52,858
Population served by Water Supply (thousands)	44,187	44,671	45,270	46,057	46,733	47,336	50,264	50,638	50,905	51,325	51,712	52,045	52,259
Water Supply Rate (%)	95.1	95.4	95.9	96.4	96.8	97.4	97.7	97.9	98.1	98.5	98.6	98.8	98.9
Daily Water Supply per Capita (L)	353	351	346	340	337	332	333	335	332	335	335	335	339

- Promoting clean and safe water
- Promoting the Drinking of Tap Water
- Prevention of Urban Flooding
- The Safe Groundwater Service

## 4. Three Major Environmental Policy Examples

# ■ The Status of Sewage Disposal

	2011	2012	2013	2014	2015	2016
Total Population (thousands)	51,717	51,881	52,127	52,419	52,672	52,858
Population served by Sewage Disposal (thousands)	47,034	47,538	48,016	48,506	48,925	49,275
The Number of Sewage Disposal Facility	505	546	569	597	625	649
The Rate of Sewage Disposal (%)	90.9	91.6	92.1	92.5	92.9	93.2
Installation Capacity (Thousand Ton/Day)	25,228	25,597	25,330	24,999	25,398	25,671

## 4. Three Major Environmental Policy Examples

# Development Stage of Sewage Disposal

				<b>5<sup>th</sup> Generation</b>
			<b>4<sup>th</sup> Generation</b>	Treatment of micropollutants
		<b>3<sup>rd</sup> Generation</b>	Resource recycling	Resource recycling
	<b>2<sup>nd</sup> Generation</b>	Treatment of nutrients	Treatment of nutrients	Treatment of nutrients
<b>1<sup>st</sup> Generation</b>	Treatment of organic substance	Treatment of organic substance	Treatment of organic substance	Treatment of organic substance
Exclusion of dirty/rain water	Exclusion of dirty/rain water	Exclusion of dirty/rain water	Exclusion of dirty/rain water	Exclusion of dirty/rain water

Source: The Ministry of Environment and KEI, 2018

## 4. Three Major Environmental Policy Examples

### ■ Impacts of Waste Management

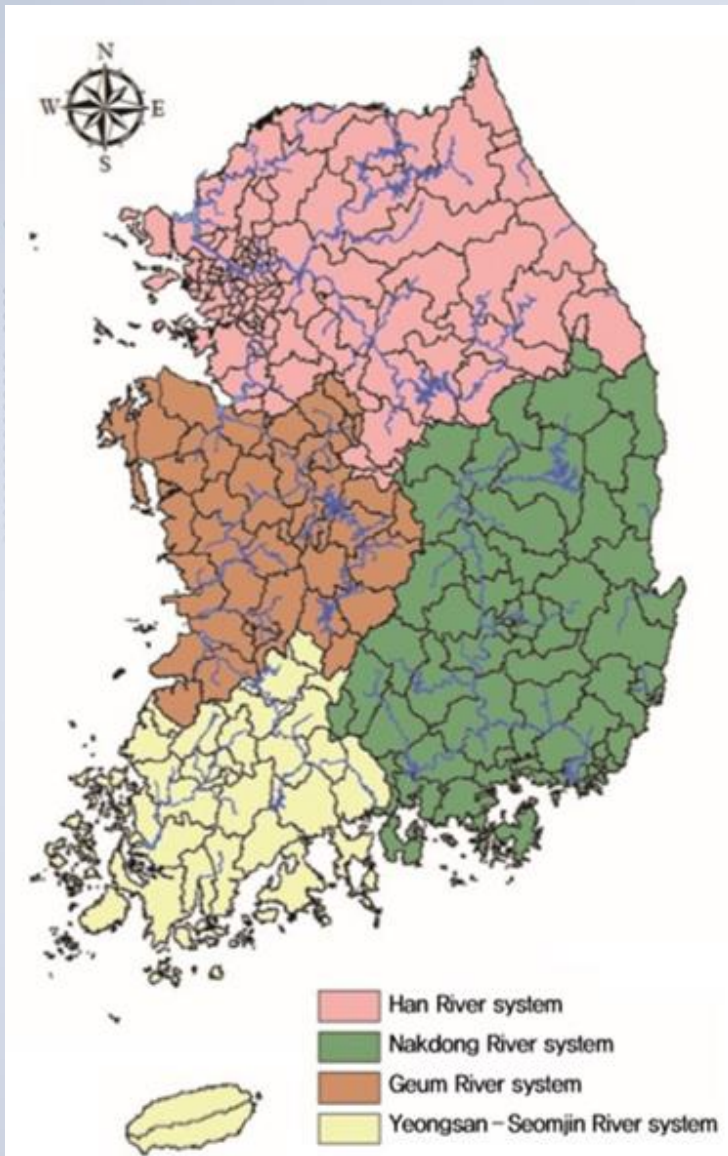
- The share of population with an access to water supply jumped up from 55% in 1980 to 99% in 2016.
- The share with an access to sewerage increased more than eleven times from 8.3% in 1908 to 93.2% in 2016.
- Citizens have been protected from water-borne diseases.

### ■ Challenges to Waste Management

- For continuous reinvestment for maintenance, user charges for tap water and sewage treatment should be raised to ensure financial sustainability.
- Since sewerage infrastructure is distributed unevenly between rural and urban areas, more efforts are needed to narrow the regional gap.

## 4. Three Major Environmental Policy Examples

# Water Resource and 4 Major River System



- Korea experiences large variation of rainfall by season and region → Matching water supply and demand throughout the year is important task of the government.
- Most of the metropolises are located in the downstream areas of these rivers → Clean water supply to the downstream residents requires restriction of economic activities of the upstream residents.

## 4. Three Major Environmental Policy Examples

# Changes of Water Quality Management Schemes

Conventional Policy By Water Quality Preservation Act		Watershed-based Policy By Special Acts
Special Measure Zone		Riparian Buffer Zone
Water Quality Criteria & Effluent Standard		Land Purchase System
Emission Charge	⇒	Total Pollution Load Management System
Support for Water Source Protection Area		Water Use Charge, TPL Excess Charge
		Financial Supports for Water Source Area
		Support for Civilian Water Quality Monitoring Activities
		River Basin Management Committee

- The merge of responsibilities for water quality management and water quantity management into the Ministry of Environment through the legislation of Framework Act on Water Management and the amendment of Government Organization Act in 2018

## 4. Three Major Environmental Policy Examples

# Major Water Environment Management Policy

- Total Water Pollution Load Management System
- Ecological Stream Restoration Project
- River Basin Management for Co-prosperity of Upstream and Downstream Reaches



## 4. Three Major Environmental Policy Examples

### ■ Impacts of Waste Management

- The River Management Funds have financed various projects (Projects for resident assistance, environmental treatment infrastructure, water quality improvement, land purchase and riparian zone, and the total pollution load management)
- Due to the TPLMS, basin management policies, & continuous investment, water quality has improved substantially.

### ■ Challenges to Waste Management

- Climate change has produced greater variability in rainfall and larger uncertainties in general.
- Currently, the four major rivers are suffering from serious green algae problems after the Four Major River Restoration Project → How to reestablish a healthy ecosystem in these rivers is a tremendous challenge.

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# ■ Implications for Developing Countries

- First, investment in environmental infrastructure requires massive funding, careful long-term planning, close cooperation among stakeholders, and most of all, political leadership that places high priority on improving the living conditions of the population.
- Second, the environmental policy should tackle the problems not only from the supply but also from the demand side.
- Third, environment is a textbook case in which externalities hamper market-based solutions and non-market, collective choices are therefore needed → Collective problem solving among stakeholders through discussion and negotiation should be encouraged

# ■ Implications for Developing Countries

- Fourth, Korea's history in environmental policy shows fair share of failures as well as successes. → Giving due consideration to environment and not being solely concerned with economic growth is required; Taking into account environmental consequences of economic policies early on is a wiser approach to reduce future economic and social costs and prevent conflicts.
- Fifth, unlike Korea back in the 1960s or 1970s, developing countries these days can benefit from a 'leapfrogging' strategy: The diffusion of advanced environmental technologies and up-to-date policy tools as well as international cooperation can enable developing countries to manage their environment more effectively.



**THANK YOU!**