

Climate Change Adaptation and Related Activities in South Korea : Climate Change and Post Covid-19 Era

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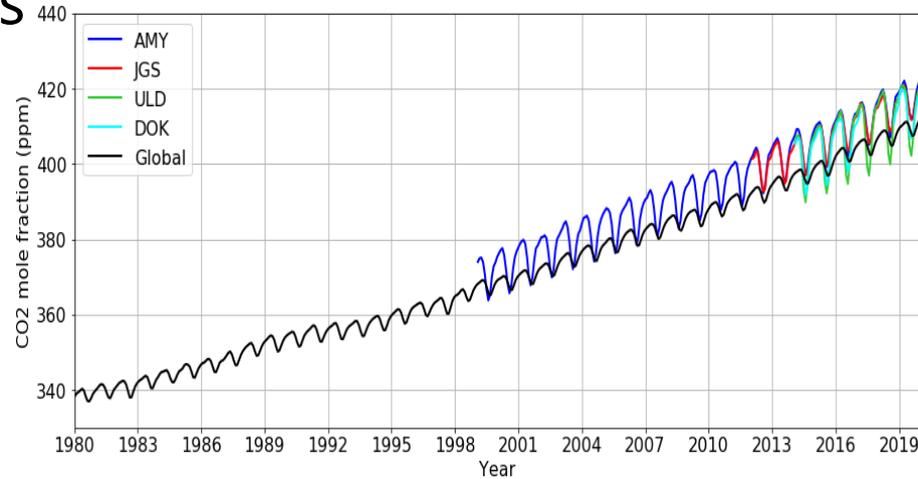
II. Korean New Deal

- Introduction of Korean New Deal
- Cities and Green Transition
 - Green Smart City

Climate Change in Korea

- GHGs emissions

- GHG concentrations



KMA(2020)

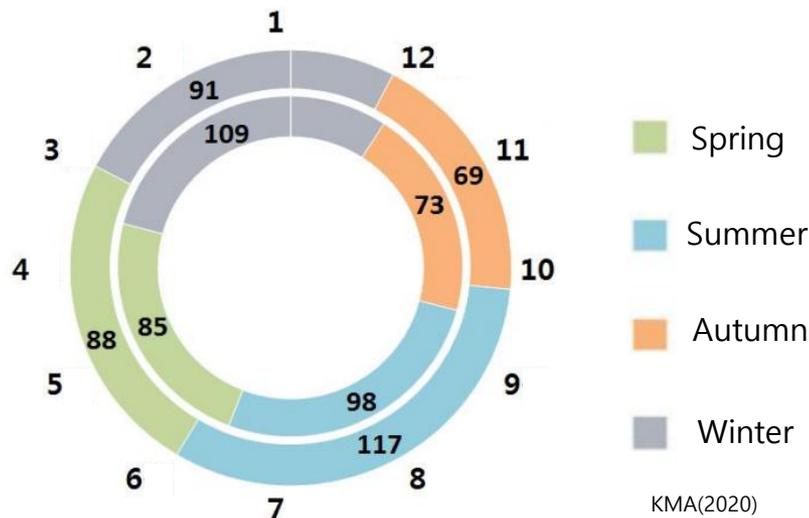
- Seasonal Changes

- Inside

- : Past 30 years (1912-1941)

- Outside

- : Recent 30 years (1988-2017)

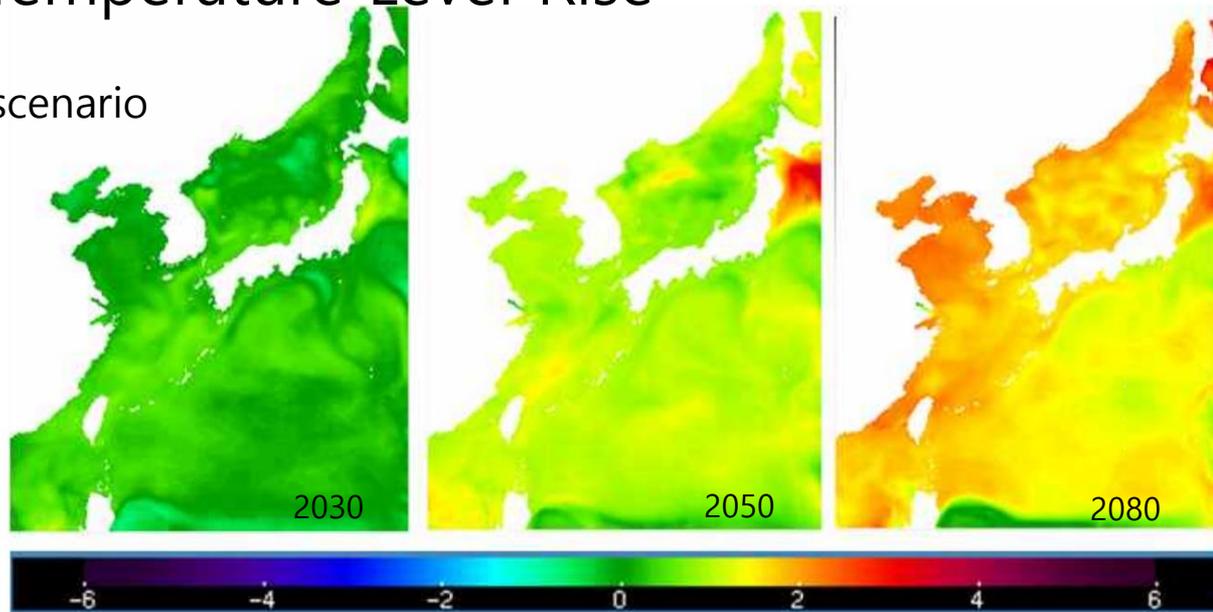


KMA(2020)

Climate Change in Korea

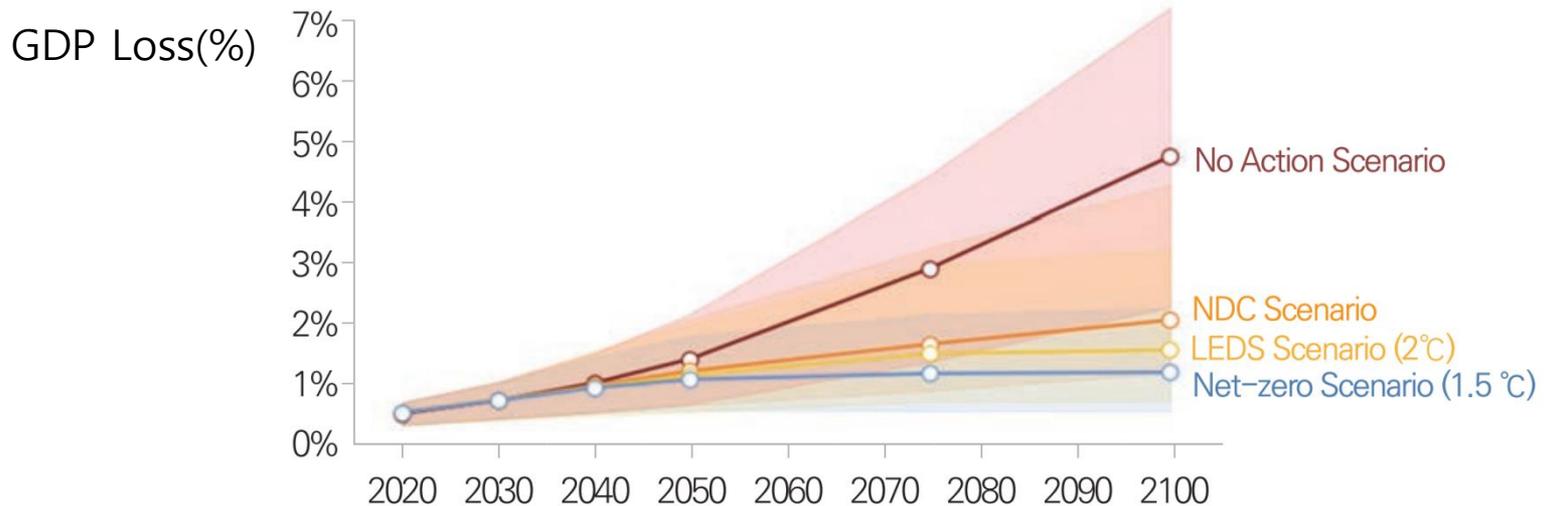
- Temperature Rise
 - Avg. annual temperature change over the past 106 years: $+0.18^{\circ}\text{C}/10\text{yrs}$
 - The annual avg. minimum and maximum temperature change : $+0.12^{\circ}\text{C}/10\text{yrs}$, $+0.24^{\circ}\text{C}/10\text{yrs}$
 - Winter : $+0.25^{\circ}\text{C}/10\text{yrs}$, Spring: $+0.24^{\circ}\text{C}/10\text{yrs}$
- Ocean Temperature Level Rise

- RCP 4.5 scenario



Climate Change in Korea

- Socioeconomic Damage Estimation due to CC



Scenario	GDP Loss (%)	Expected Cumulative Damage (Trillion KRW)
No Action	4.25	3,128
NDC	2.48	2,337
LEDS*	1.73	2,008
Carbon Neutral**	1.26	1,667

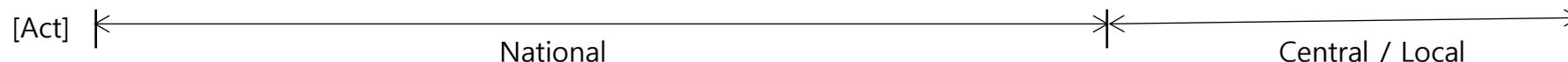
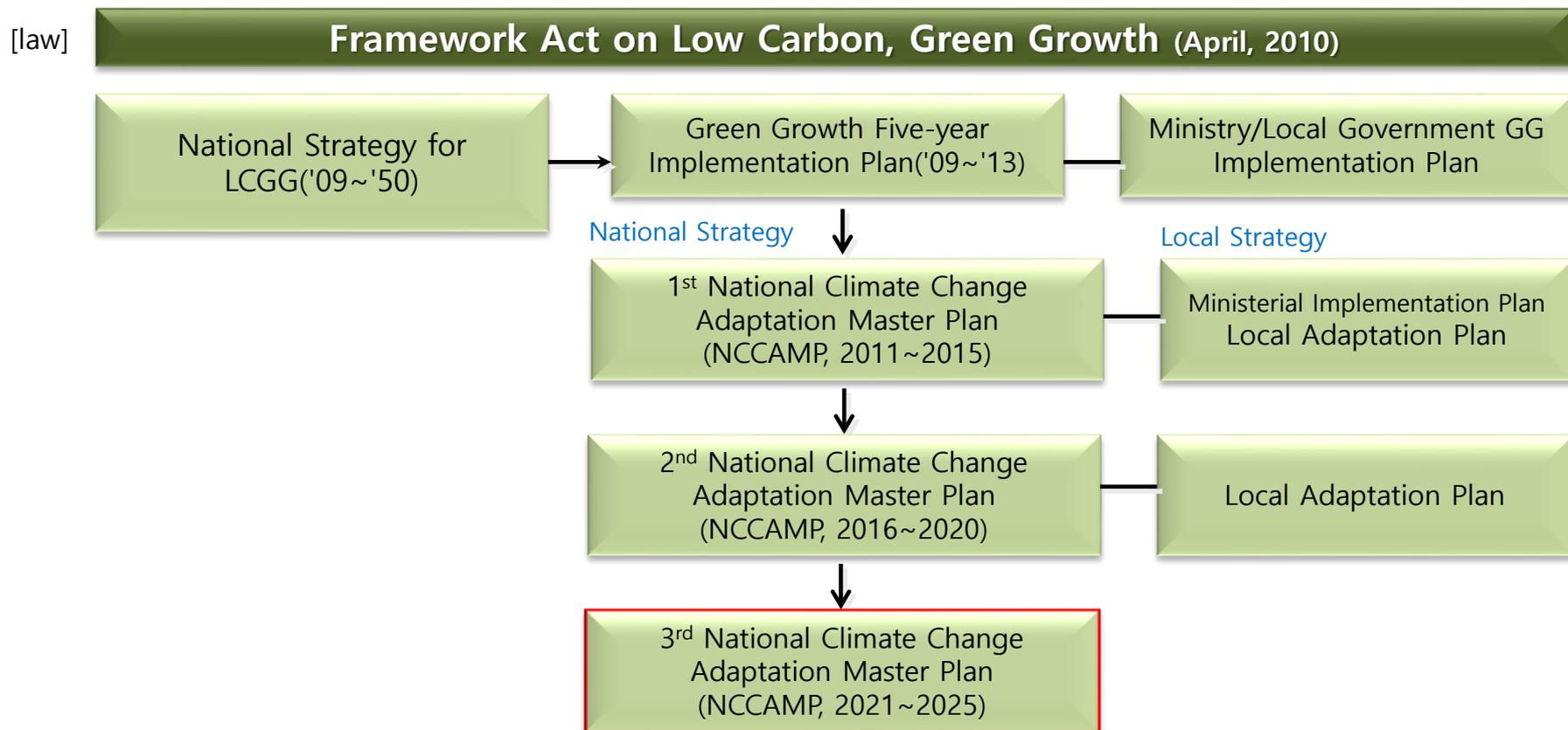
*: Emission Reduction below 2°C

** : Net zero by 2050

Chae et al(2020)

The 3rd National Adaptation Plan

- Framework for Climate Change Adaptation

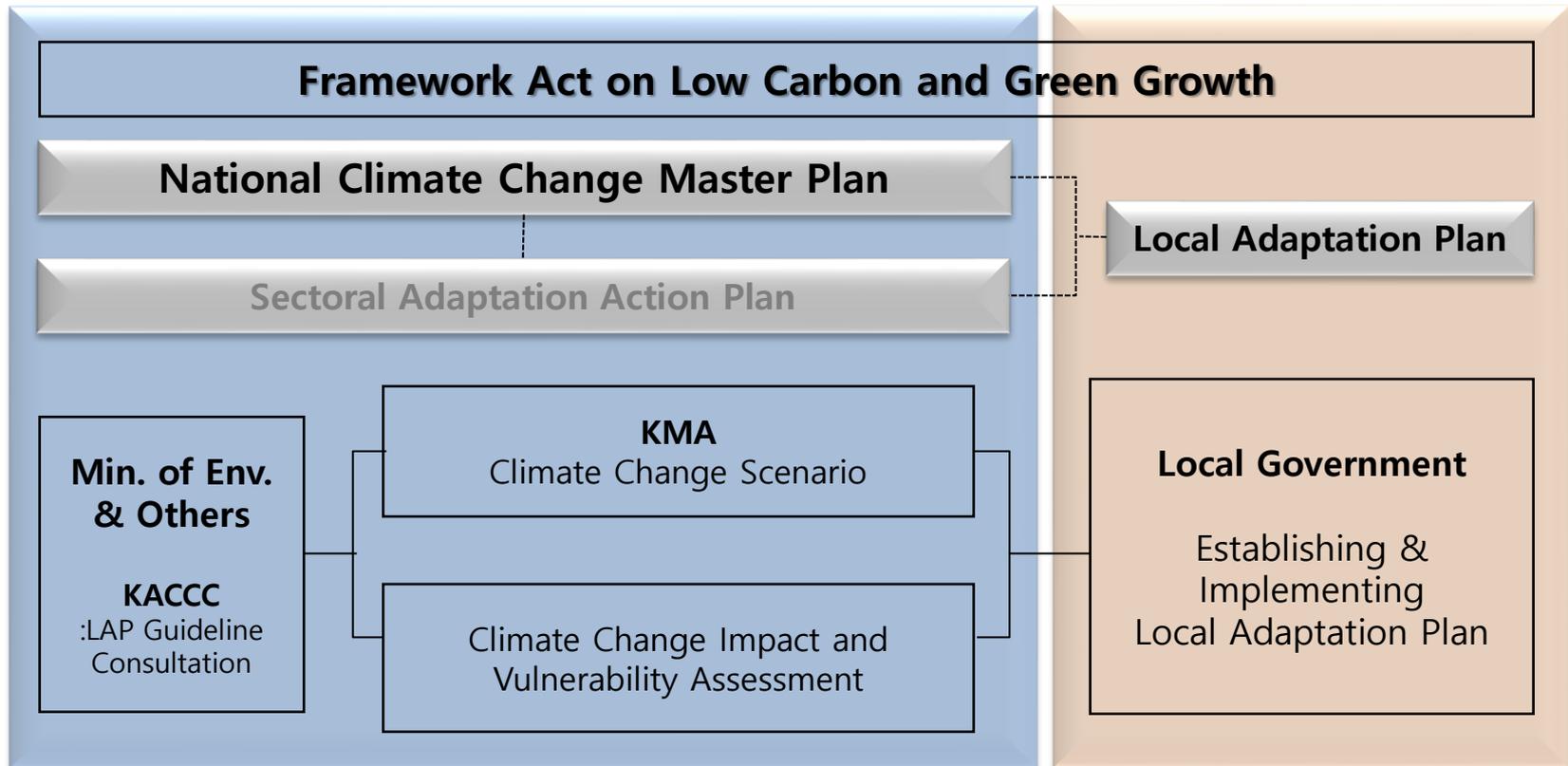


The 3rd National Adaptation Plan

- Multi-level Efforts for Climate Change Adaptation

National Level

Local Level



The 3rd National Adaptation Plan

- Comparison of the 2nd and the 3rd Plans

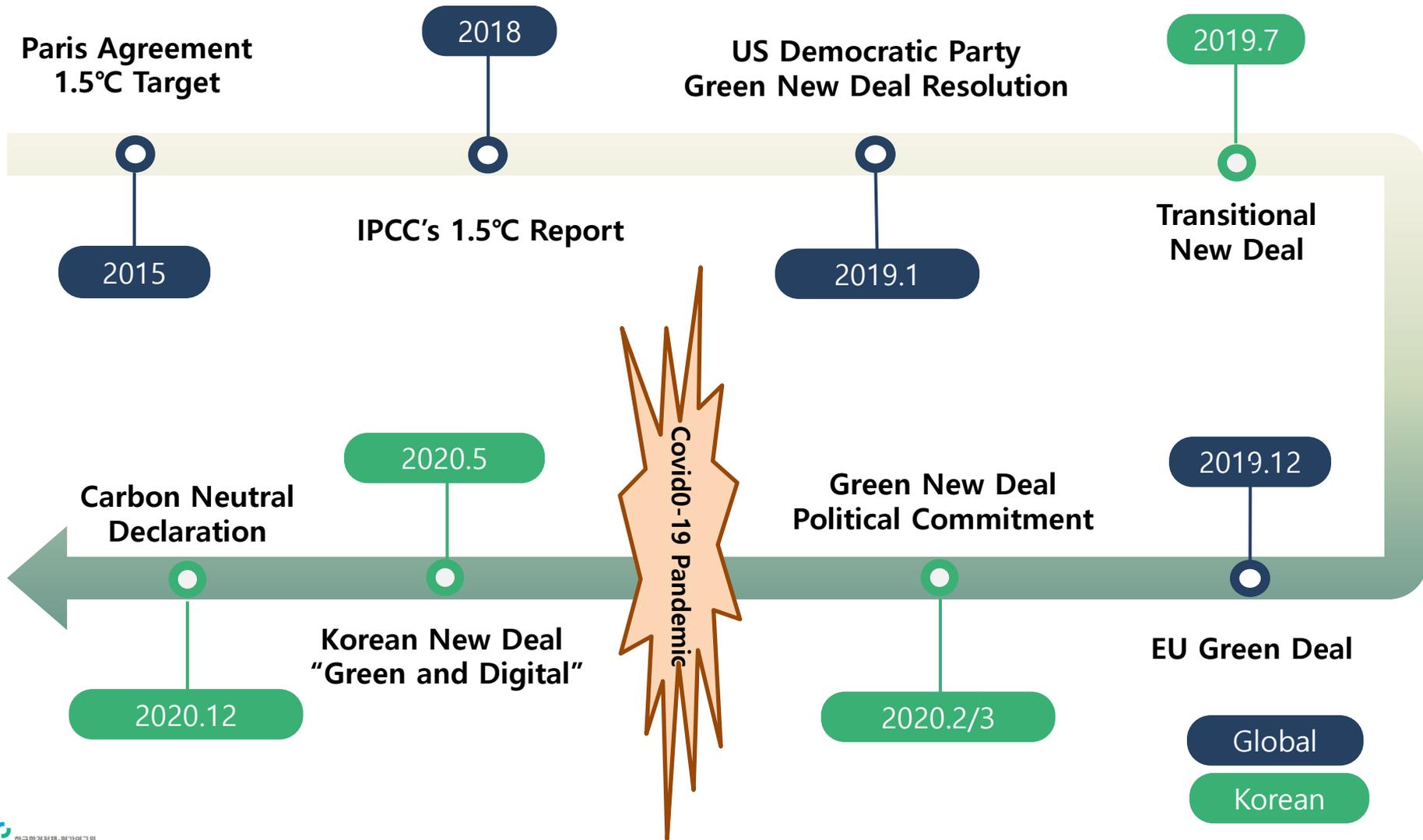
	2 nd Plan	3 rd Plan
Overall Process	Led by Government and experts	All stake holders participated (expert, local, civil societies etc)
Climate Risk Assessment	Expert Survey based - 8 sector, 87 risks	Science Based - 6 sectors, 93 risks
Driving adaptation measures	Prioritized on sectoral/ministerial projects	Deriving risk-specific adaptation measures
Monitoring & Evaluations	- Qualitative evaluation through expert forum - Performance-oriented evaluation	- Indicator based - Citizen participation

The 3rd National Adaptation Plan

- The three Main Policies

Policy	The details
Enhancing Adaptation Capacity against Climate Risk	<ul style="list-style-type: none"> Water management against future climate risk Maintaining healthy ecosystems Enhancing adaptation capacity for the entire country Building sustainable environment for agriculture and fishery sectors Establishing a system to prevent damage in the health sector Improving adaptation capacity for industry and energy sectors Strengthening climate monitoring, forecasting and evaluation system
Strengthening climate monitoring, projection and evaluation system	<ul style="list-style-type: none"> Building comprehensive monitoring system Updating/upgrading climate change scenario and projection system Enhancing related tools and providing necessary information
Mainstreaming Climate Change Adaptation	<ul style="list-style-type: none"> Strengthening the basis for implementing adaptation plans Laying the foundation for climate resilience Raising public awareness and cooperation for adaptation

Brief History



Basic Structure of Korean New Deal

- Korean New Deal

Digital New Deal

- Strengthening DNA Ecosystem
- Fostering Un-contact Industry
- SOC Digitalization

Green New Deal

- Green Transition in City·Space·Life Infrastructure
- Establishing Green Industry Innovation
- Low Carbon·Dispersive Energy

Strengthening the Employment Safety Net

Financial Investment

System Improvement

- DNA: Data, Network, and AI.

President Moon "Green New Deal Included in Korean New Deal Project"

문재인 대통령이 20일 진화경·일자리 창출에 초점을 맞춘 "그린 뉴딜을 한국판 뉴딜 사업에 포함시키라"고 지시했다.

문 대통령은 이날 "그린 뉴딜은 우리가 가야 할 길임이 분명하다"며 이렇게 말했다고 강민석 청와대 대변인이 전했다. 문 대통령은 지난 15일 환경부와 산업통상자원부, 중소벤처기업부, 국토교통부 등을 포함한 관계 부처로부터 그린 뉴딜 사업과 관련한 합동 서면보고를 받은 뒤 "그린 뉴딜은 국제 사회와 시민 사회의 요구를 감안하더라도 인정할 필요가 있다"며 코로나19 극복을 위한 한국판 뉴딜 사업에 그린 뉴딜을 주요 사업으로 포함하라는 지시를 내렸다고 한다. 강 대변인은 "그린 뉴딜의 구체적인 사업은 3차 추가경정예산안에도 반영할 계획"이라고 덧붙였다. 그린 뉴딜은 현재 화석에너지 중심의 에너지 정책을 신재생에너지로 전환하는 등 저탄소 경제구조로 전환하면서 투자와 일자리를 정책을 뜻한다.



Korean Government (2020.7)

Some Projects of New Deal

- Infrastructure · Green Transition of Energy + Green Innovation in Industry → **Net Zero Society**

Area	Project
Green Transition in City, Space, Daily Life Infrastructure	<ul style="list-style-type: none"> • Transforming public facilities close to people's life into zero energy
	<ul style="list-style-type: none"> • Restoring damaged ecosystem in land, ocean and cities
	<ul style="list-style-type: none"> • Establishing clean and safe water management system
Low Carbon, Dispersive Energy	<ul style="list-style-type: none"> • Increasing energy management efficiency, Building an intelligent smart grid
	<ul style="list-style-type: none"> • Establishing a foundation for spreading new and renewable energy and supporting fair conversion
	<ul style="list-style-type: none"> • Increasing green mobility including electric car and hydrogen car
Green Industry Innovation Ecosystem Building	<ul style="list-style-type: none"> • Fostering green leading promising companies, Low carbon green industrial complex furtherance
	<ul style="list-style-type: none"> • Laying the foundation for green innovation in R&D and finance

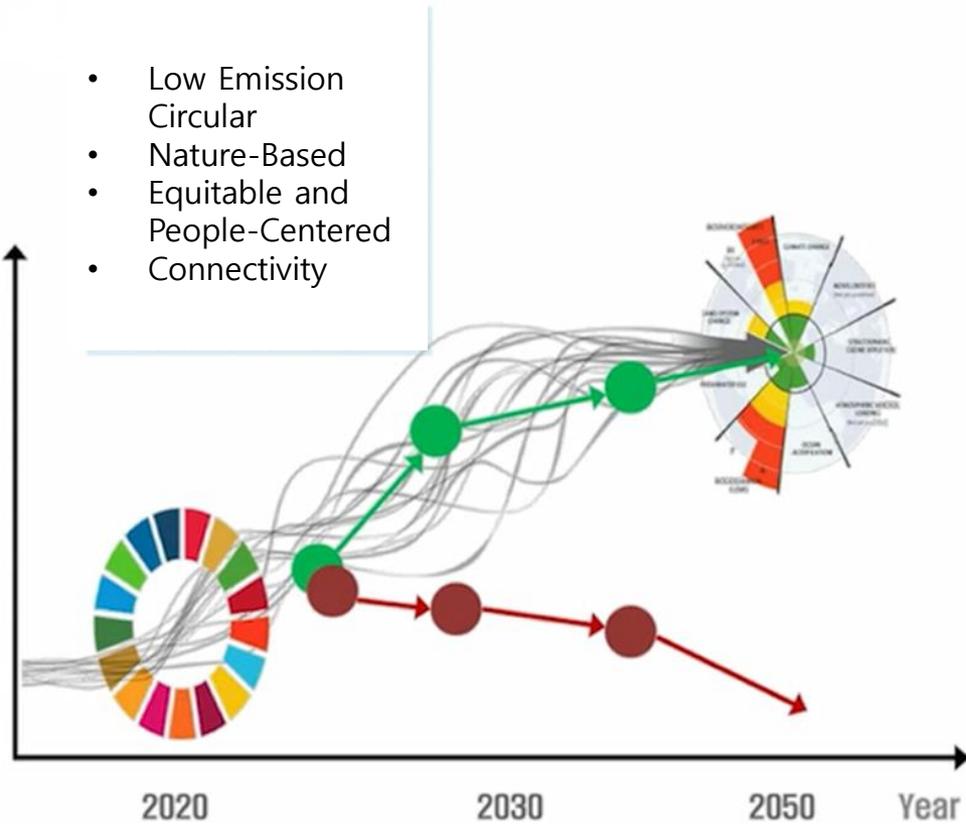
Some Projects of New Deal

- Green transition in City, Space, Daily life Infrastructure

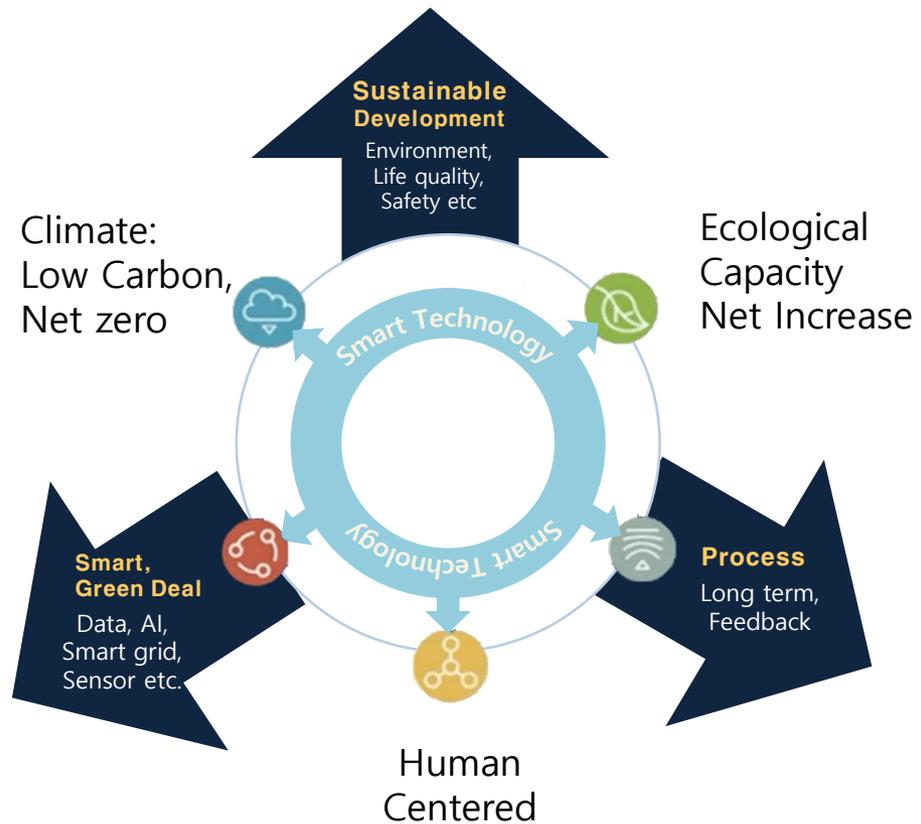
Project	Major Contents
Zero-energy for public facilities	Achieving zero-energy through public building remodeling
	Green smart school: public school first, applying to the old ones
Recovery of green ecosystem on land, in Ocean and Cities	Smart Green City: Customized environmental improvement
	Urban forest: mitigating fine dust pollution, child safety
	National ecosystem: ecosystem restoration and protection of endangered species
	Marine ecosystem: restoration of wetlands, marine waste management
Establishing a clean & safe water management system	Smart water supply: Smart water management in the entire process
	Drinking water management: Advanced water treatment plants and Enhancing deteriorated water supply systems
	Water quantity-quality management: Integrated management of water supply sources and creating ecological waterways
	Climate risk management: Tributary flood forecasting system, seawater desalination

Cities and Green Transition

- Low Emission
- Circular
- Nature-Based
- Equitable and People-Centered
- Connectivity



• Vision and Goals



Smart Green City

- Smart Green City: Green transition led by local community
- Examples of the detailed elements



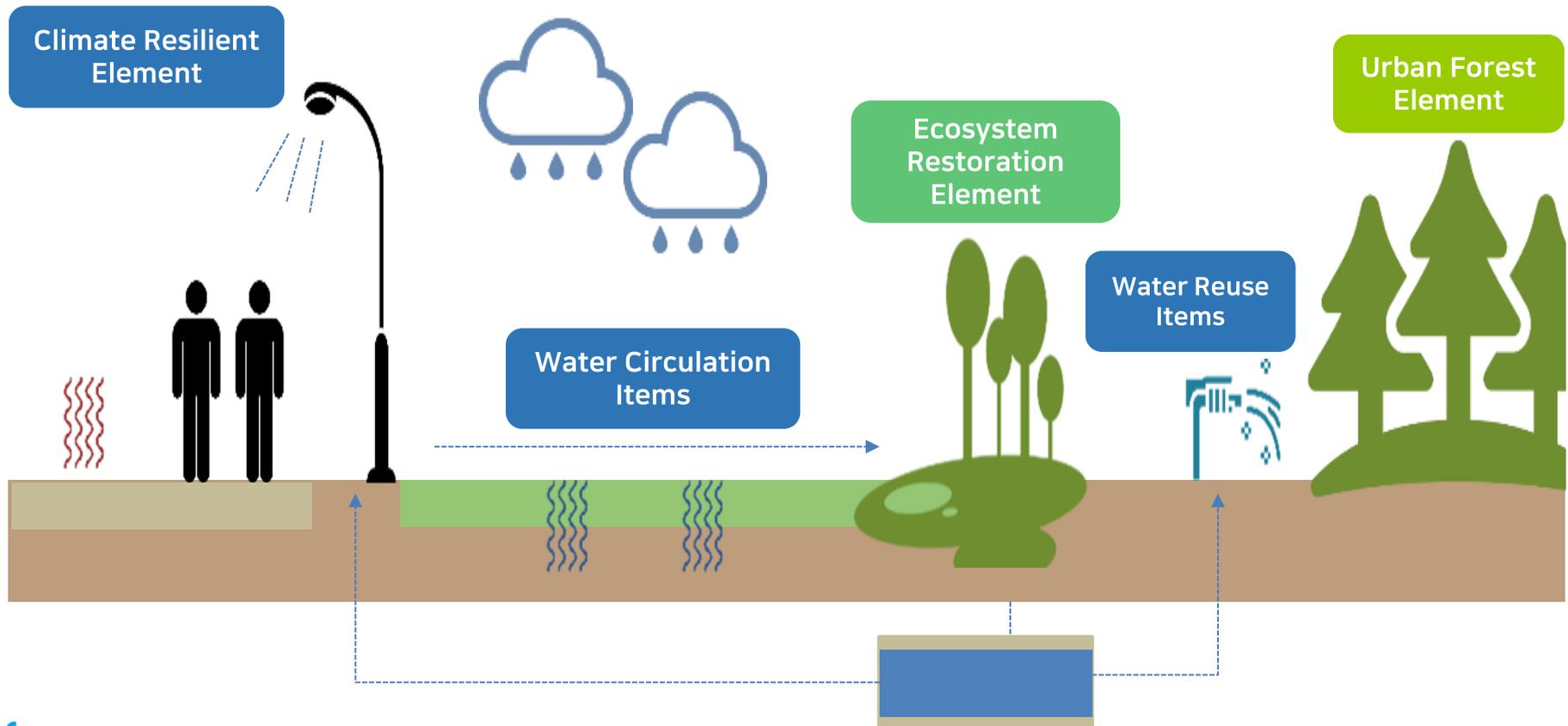
✓ **Business Innovation** Create Synergy by linking segmented environment improvement measures

✓ **Expansion of Good Practices** Develops smart city models, then the practices will be gradually applied to the entire nation and also globally

Smart Green City

• Smart Green City Business Model

Cities that link various environmental improvement items and create synergy within urban spaces



Smart Green City

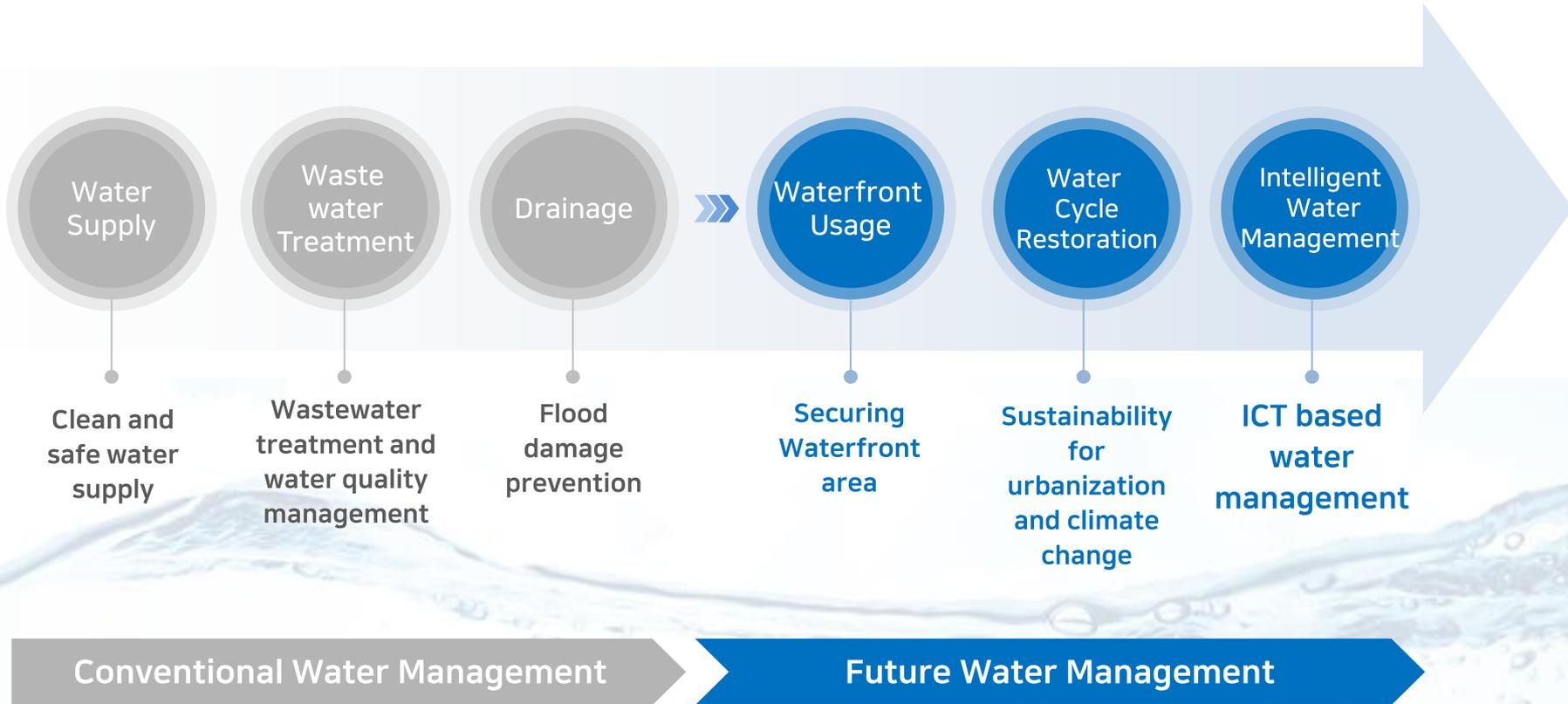
- Era of Climate and Environmental Crisis
 - Requires **Green Transition** of Cities

Green Transition of Cities
Start with Smart Green Cities

- **Collecting 25 Good Practices Cities**
 - **Two types**
 - **Problem Solving Types**
: Solve single or a few main issues in the city
 - **Comprehensive Leading Types**
: Address multiple urban issues, create synergy



Smart Water City



* Improvement of economical, settlement conditions, new industry creation

Busan Eco Delta Smart City



Busan Eco Delta Smart City (EDSC)

Area	11.77km ²
Population	76,000 people(30K households)
Functions	Residence, commerce, R&D, Logistics, and etc.
Project by	Busan Metropolitan City K-water Busan Metropolitan Corp.

Smart City National Pilot Project

Area	2.8km ²
Population	8,500 people(3,380 households)
Functions	The city where the major technologies of the 4 th Industrial Revolution and the ecological settlements are harmonized with three streams as the center

International Cooperation

- K- City Network : Korean smart city model for Int. Cooperation

Program Outline

Program Name 「2020 K-City Network」 Global Cooperation Program

Support Details

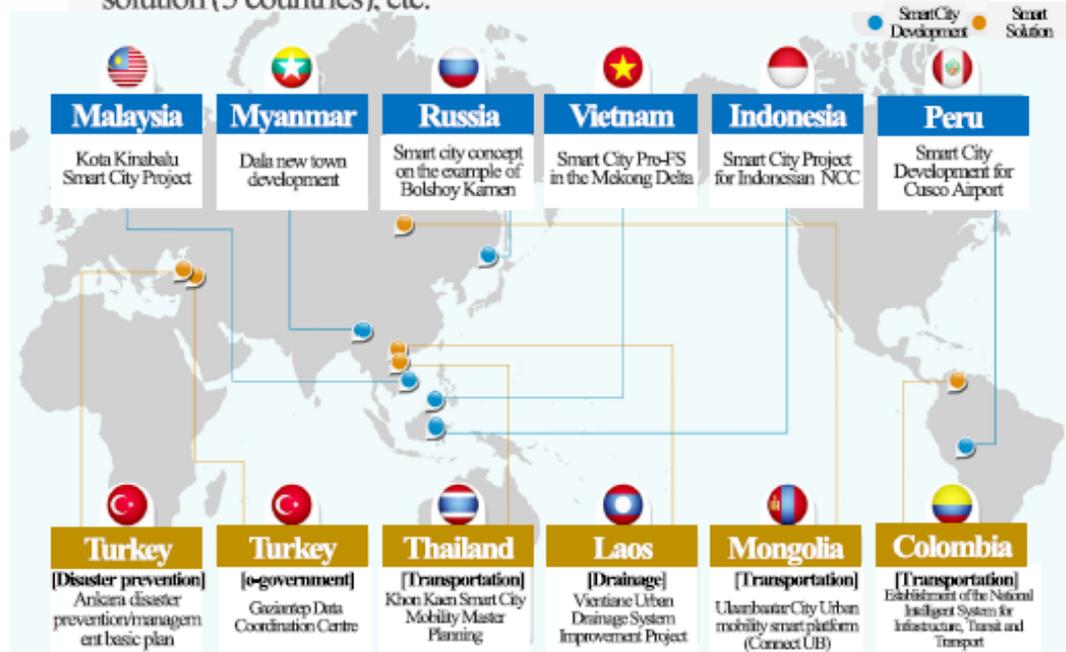
- Support for smart city planning for smart city development projects promoted by foreign governments, etc.
- Supporting Korea's smart city development experience and knowledge sharing through invitational training

Purpose

- Finding smart city cooperation projects and establishing smart city construction plan in collaboration with foreign governments
- Pursuing mutual economic development by sharing and disseminating excellent technologies from each country

Selection Result of "2020 K-City Network: Global Cooperation Program"

- A total of 80 cases in 23 countries applied
- Final 12 projects (11 countries) selected
- 6 cases of smart city development (6 countries), 6 cases of smart solution (5 countries), etc.



Ways forward

- Climate Resilient Society against global climate change
 - Human Centered Society against Covid-19
 - Building back better
 - Nature Based Solution in urban design
 - Green Infrastructure, Blue Infrastructure
 - Restoration of damaged ecosystem
 - Ecosystem Based Adaptation & Mitigation
 - adaptation/mitigation co-benefit
- Strengthened Infrastructure: reducing vulnerability to climate change
- Securing Climate Resilience and Urban Resilience
Net Zero Society, Sustainable Development



Thank you!!!