

Translating Locally-led Resilience into Action
in the Age of Complex Risk and Digital Transformation
복합위험과 디지털 전환시대, 지역주도 복원력의 실행

The 5th



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인천 국제재난복원력 지도자 포럼



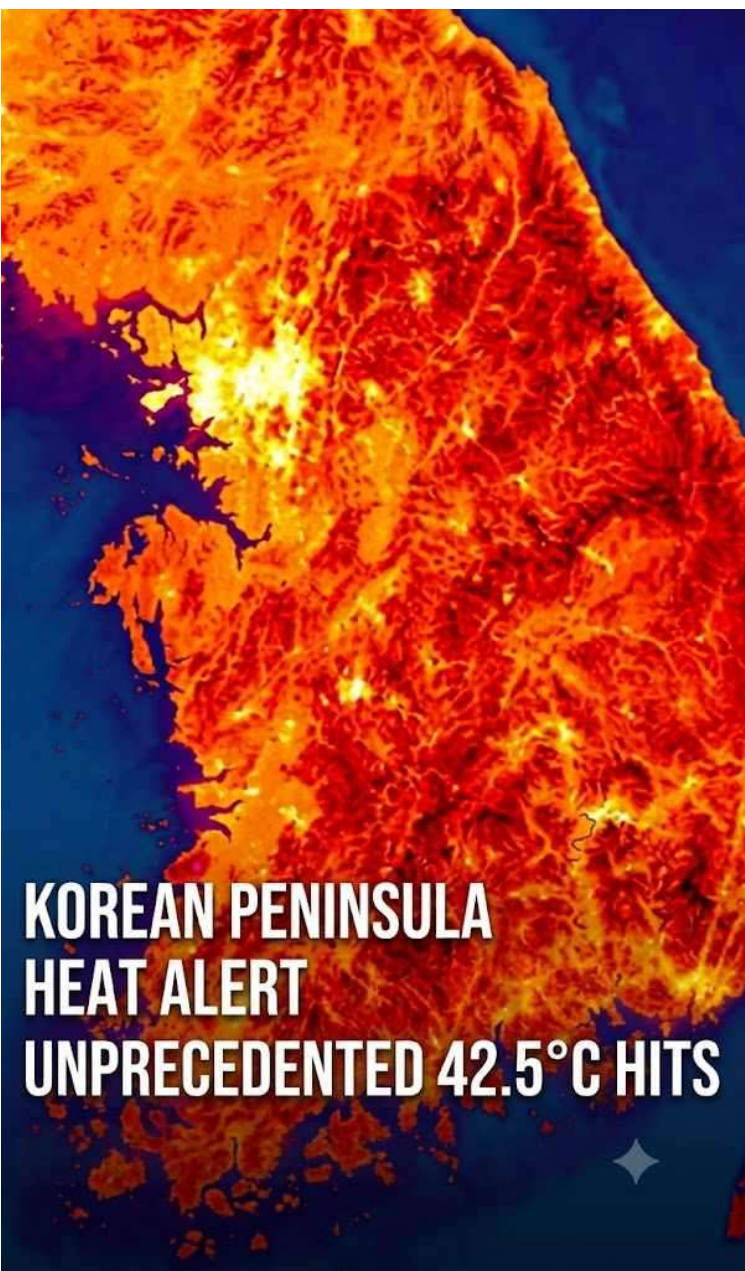
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송도컨벤시아 그랜드볼룸 A
Songdo Convensia, Grand Ballroom A

Advancing Disaster Risk Reduction: Smart Practices and Resilience Strategies in Yongin Special City

Lee, Seung-Wook
Yongin Research Institute
Republic of Korea / Yongin Special City



1. General Overview of Yongin Special City

1-1. Population, GRDP, and Disasters and Safety Budget Overview

1-2. Climate Change Trends and Extreme Weather Events

2. Smart DRR Practices and Governance in Yongin Special City

2-1. [Pre-Disaster Phase] Establishing South Korea's First 'School-Customized Snow Removal Map'

2-2. [During-Disaster Phase] Operating IoT-Enabled Smart Snow Monitoring and Control System

2-3. [Post-Disaster & Governance] Collaborative DRR Ecosystem and Global Leadership

3. Future Directions for Local Governments

3-1. The Way Forward: A Pathway toward an MCR2030 Resilience Hub

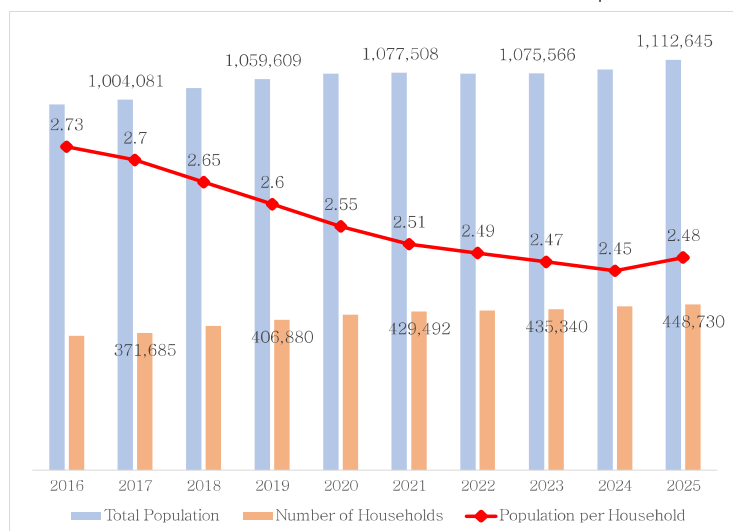
1 General Overview of Yongin Special City

1-1. Population, GRDP, and Disasters and Safety Budget Overview

Population grew by **12.3%** over the past decade (2016–2025),
GRDP increased by **27.6%** over the period 2013–2022.

Population and Household Trends

Units: Person, Househods, Persons per Household

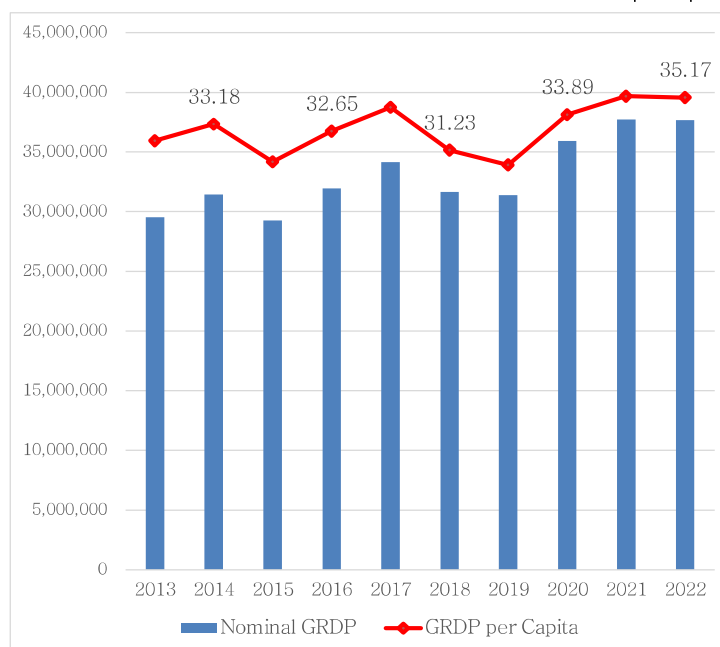


Source: Resident Registration Population Statistics, Ministry of the Interior and Safety

▶▶ As of July 2026, Yongin Special City had a population of **1,111,615** and **450,846** households, **continuing the overall upward trend.**

Annual Gross Regional Domestic Product (GRDP)

Units: Million KRW, Million KRW per Capita



Source: Gyeonggi Statistics, Estimated GRDP by City/County in Gyeonggi Province

Disaster and Safety Budget

Units: KRW 1,000

	2023	2024	2025	2026
Total Budget of Disasters-Safety	132,012,893	158,988,636	187,473,702	200,765,144
↳ Natural Disasters	17,673,343	20,684,794	25,373,902	34,823,143
↳ Social Disasters and Safety Accidents	108,924,628	129,788,936	145,583,182	150,393,055
↳ Others	5,414,922	8,514,906	16,516,618	15,548,946
Total Budget of Yongin City	2,933,616,909	2,955,702,147	3,052,890,771	3,517,443,258

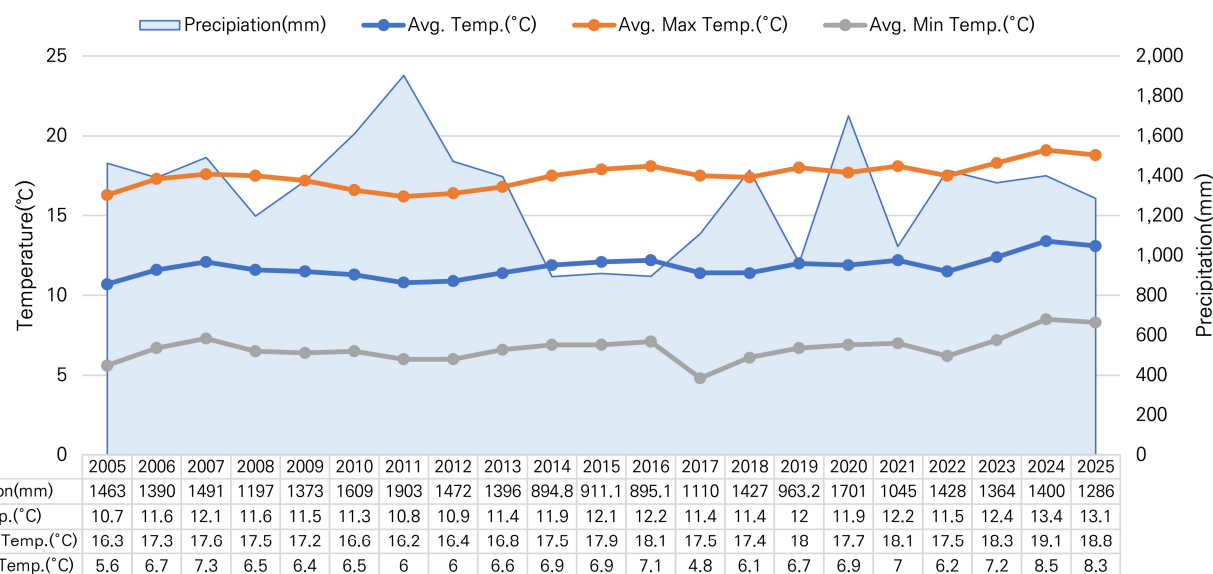
▶▶ The share of **the city's total budget allocated to disaster and safety increased** from **4.11% in 2023** to **5.71% in 2026.**

1 General Overview of Yongin Special City

1-2. Climate Change Trends and Extreme Weather Events

The annual average temperature rose by **1.2°C** from 2014 to 2025.
Heat-related disaster risk is also increasing amid greater variability in **heatwave occurrence**.

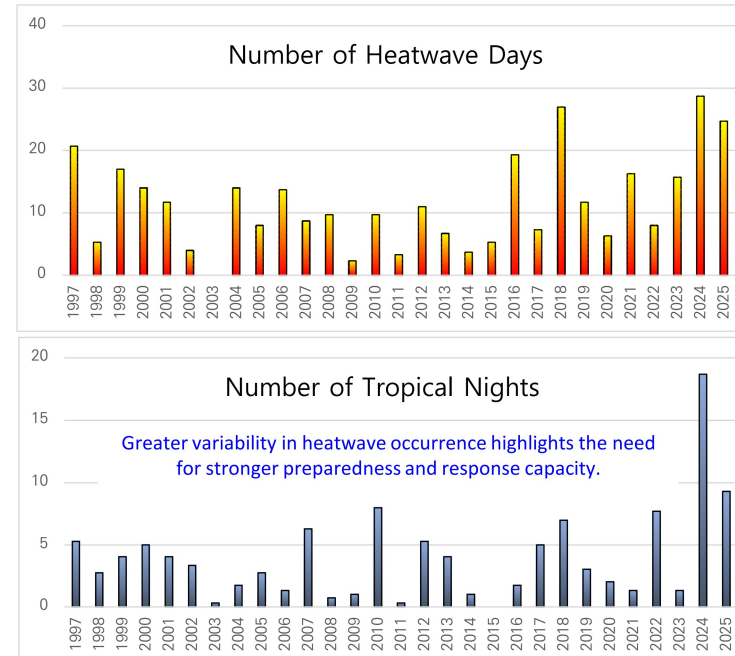
Temperature and Precipitation Trends



Source: Korea Meteorological Administration (KMA), Weather Data Open Portal, Automatic Weather Stations (AWS)

Note: Based on analysis of hourly data from three weather stations located in Yongin City — Yongin (549), Yongin-Idong (575), and Baegam (576).

Heatwave Days and Tropical Nights



Source: Korea Meteorological Administration (KMA) Weather Data Open Portal, Automatic Weather Stations (AWS)

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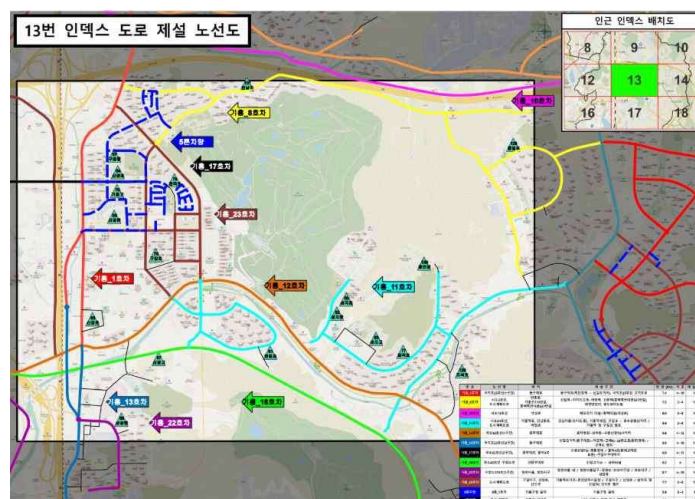
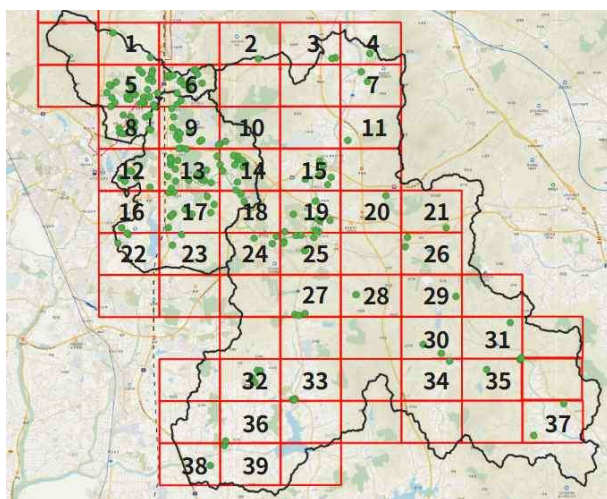
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2 Smart DRR Practices and Governance in Yongin Special City

2-1. [Pre-Disaster Phase] Establishing South Korea's First School-Customized Snow Removal Map

Shifting the focus from vehicle-centric main roads to **pedestrian-centric school zones** through a detailed spatial database.

School-Customized Snow Removal Map



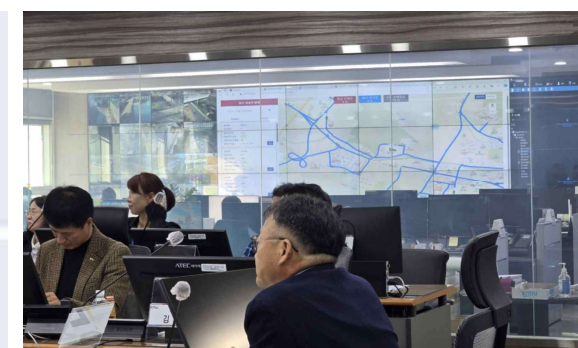
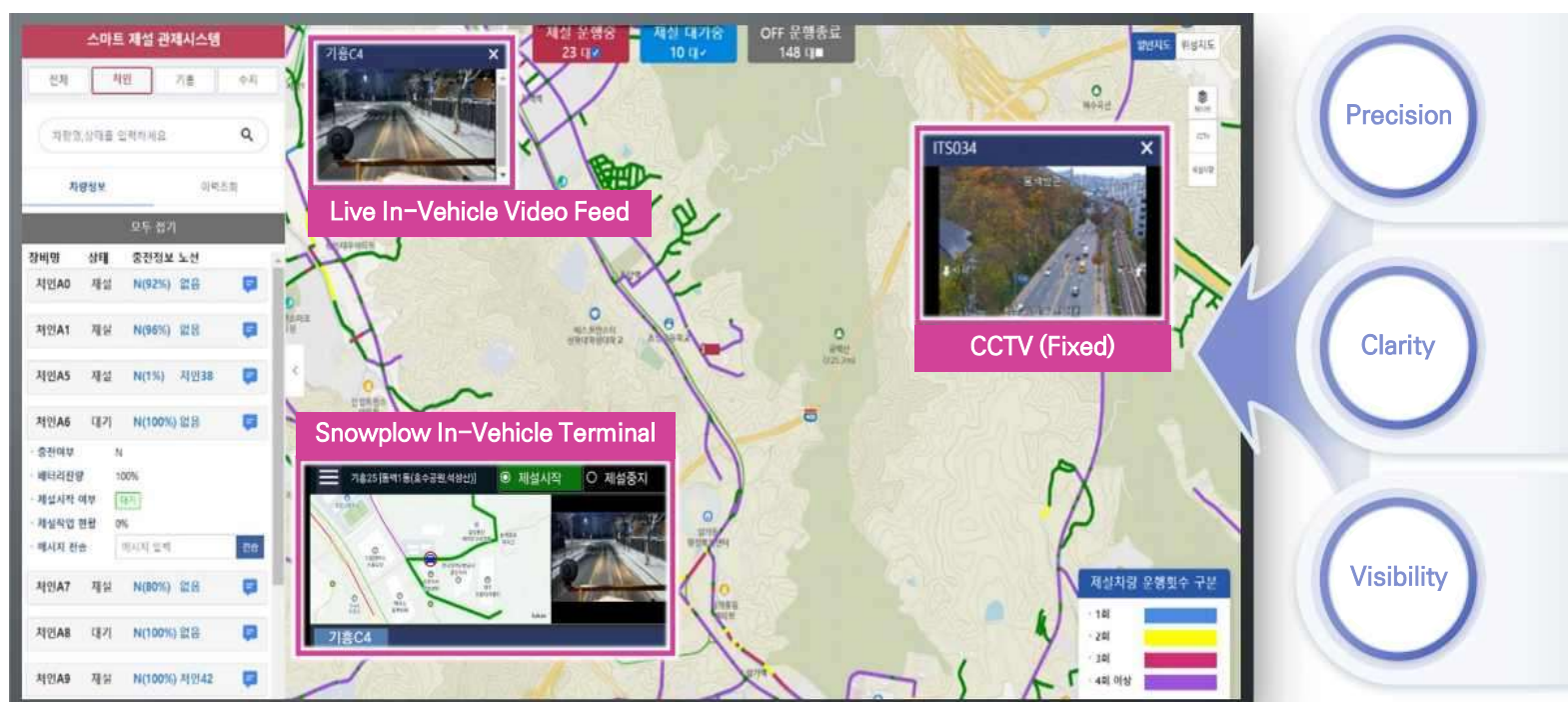
- Comprehensive Spatial Mapping of 195 Schools Using 39 Index Grids
 - Established a citywide GIS grid dividing Yongin into **39 sectors** to systematically survey and manage commuting zones for **all 195 school**
- Micro-Level Facility Integration & Customized Safety Profiles
 - Documented detailed **① sidewalk slopes, ② on-site photos, and ③ snow-removal** infrastructure (road-heating systems and brine sprayers) to establish standardized snow-removal priorities

2 Smart DRR Practices and Governance in Yongin Special City

2-2. [During-Disaster Phase] Operating IoT-Enabled Smart Snow Monitoring and Control System

Maximizing real-time situational awareness and operational efficiency
via **IoT-enabled Smart Snow Control System**.

Smart Snow Monitoring and Control System



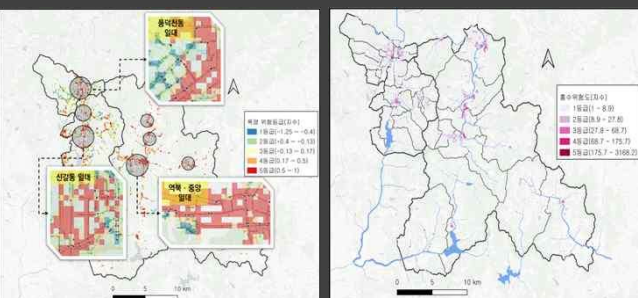
- **Real-Time Tracking & Live Visual Monitoring**
 - Synchronizes GPS vehicle telemetry with live in-vehicle feeds and CCTVs to track snow removal progress and road conditions simultaneously.
- **Dynamic Central Command & Blind-Spot Resolution**
 - Empowers the situation room to immediately identify unplowed routes and dynamically redirect equipment to high-priority school zones.

2 Smart DRR Practices and Governance in Yongin Special City

2-3. [Post-Disaster & Governance] Collaborative DRR Ecosystem and Global Leadership

Advancing urban resilience via scientific research, global partnerships, and multi-agency leadership.

① Science-Policy Research



Collaboration with Yongin Research Institute

Analyzing past disaster records (heatwave, flood inundation history) to build empirical hazard maps.

Translating post-event damage assessments into structural prevention policies and safety infrastructure.

② Global DRR Partnership

United Nations Office for Disaster Risk Reduction (UNDRR) Activities

Making Cities Resilient 2030 (MCR2030)
Officially joined the global campaign (May 2024)



③ Multi-Agency Governance

Safety Culture Salon Program

Meetings every two months with relevant agencies
to discuss measures for strengthening citizen safety



Key Achievements

- Received **Presidential Commendations for three consecutive years (2022–2024)** and was recognized as an **Excellent Disaster Management City** for ten consecutive years.
- Ranked No. 1 in Gyeonggi Province** in the 2024–2025 Winter Disaster Evaluation (Cold Wave) and received **the Governor's Commendation**.

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3 Future Vision for Inter-City Knowledge Sharing

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Sharing Proven DRR Know-How and Fostering Urban Resilience with Peer Cities.

Smart & Preemptive DRR Sharing

■ Smart Data Integration System

- Sharing operational practices of GIS-based real-time meteorological, hydrological, and hazard mapping systems.

■ Policy Manuals & Best Practices

- Disseminating standardized DRR framework manuals, hazard mapping methodologies, and case study reports.

Experiential Safety & School Safety Model

■ Experiential Safety Programs

- Transferring modular safety education models (Bicycle Safety License, Climate Change Experience Center).

■ School-Customized Snow Removal Map

- Sharing the nation's first GIS-based school zone snow removal mapping model and winter response protocols.

Citizen & Multi-Agency Governance

■ 'Safety Culture Salon' Platform

- Disseminating the executive consultative model to eliminate administrative silos across institutions.

■ Citizen Volunteer Corps

- Offering operational guidelines, civic safety curricula, and public campaign models for community resilience.

Our Commitment

Yongin Special City is committed to systematically managing disaster risks, building a climate-ready community, and **actively sharing its innovative policies and practices with peer cities.**

Thank you

Lee, Seung-Wook / swlee@yongin.re.kr

www.yongin.re.kr

