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KOREA GREEN GROWTH TRUST FUND

IDOP

ASIA PACIFIC FOREST FORUM

Training and Visit of the Türkiye Government Delegation to the Republic of Korea

TECHNOLOGY PARTNERSHIP FOR INTEGRATED FOREST FIRE MANAGEMENT

3 Nov 2025 - 7 Nov 2025, Republic of Korea

Preface

The Study Visit on Integrated Forest Fire Management marks an important step in strengthening cooperation between the Republic of Korea and the Republic of Türkiye under the World Bank's Technology Partnership for Integrated Forest Fire Management program. This visit goes beyond a simple exchange — it represents a collaborative effort to build a shared understanding of how technology, institutional coordination, and community engagement can work together to address the growing risks of forest fires in a changing climate. Although Korea and Türkiye differ in their climatic, geographical, and cultural contexts, both regions face the same challenge of increasingly frequent and severe wildfires, making this collaboration particularly meaningful.

As climate change accelerates, our forests are facing unprecedented stress — from prolonged droughts to the rise of mega-fires that devastate both ecosystems and communities. In this reality, no country can face such challenges alone. Korea and Türkiye share a common determination to learn from each other and to co-develop solutions that enhance forest resilience, restore ecosystems, and safeguard people's lives and livelihoods.

This program, organized by the Asia Pacific Forest Forum (APFF) in collaboration with AFoCO (Asian Forest Cooperation Organization) and several leading Korean institutions specializing in wildfire prevention, response, and restoration, aims to provide practical insights through field visits, lectures, and institutional dialogues. Participants will explore Korea's integrated forest fire management systems, covering technologies, response coordination, and post-fire recovery measures — all framed within the "5Rs" principle (Review, Readiness, Risk Reduction, Response, and Recovery).

We sincerely appreciate the support of the World Bank and the Korea Green Growth Trust Fund (KGGTF), as well as the commitment of all collaborating institutions and partners who have generously contributed their expertise and efforts to make this learning journey possible.

— Asia Pacific Forest Forum (APFF)

November 2025 | Seoul, Republic of Korea

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CONCEPT NOTE

Training and Visit of the Türkiye Government Delegation to the Republic of Korea

"Technology Partnership for Integrated Forest Fire Management"

04 Nov 2025 - 08 Nov 2025, Republic of Korea

1. Background

Forest fires pose a significant threat to Türkiye's environment, and mitigating this risk is a priority for the Turkish government. In response, Türkiye has intensified efforts to enhance its fire management capabilities, aspiring to become a leader in forest fire management across the Mediterranean region. The Antalya training center plays an instrumental role in these efforts, serving as a nexus for knowledge exchange and fostering collaboration among regional experts.

In this context, the Republic of Korea's advanced integrated forest fire management system serves as a valuable reference model. Korea's comprehensive approach—which includes early detection technologies, rapid response mechanisms, and community participation—offers practical insights that can inform Türkiye's efforts to bolster its fire management capabilities.

The Asia Pacific Forest Forum (APFF) is facilitating this study tour by organizing a training program for Turkish government officials. The program will introduce participants to Korea’s forest fire management strategies, with a focus on early detection, rapid response, and effective policy frameworks. The training also aims to strengthen cooperation between Korea and Türkiye by building a network of experts committed to advancing forest fire prevention and sustainable forest management in both countries.

2. Training Overview

- **Objectives**

1. To understand Korea's **practical approaches to strengthening climate resilience** and technology-based forest fire management, and to observe how advanced systems are being applied and operated in the field.

2. To examine how Korea has enhanced its **capabilities for wildfire prevention, preparedness, and response** through an integrated approach, by analyzing the operational practices of relevant institutions, and to explore ways to adapt these lessons to improve Türkiye's fire management system.

3. To facilitate **technical and policy dialogue** between Türkiye's General Directorate of Forestry (OGM) and Korea's key institutions (KFS, FAH, NIFoS, etc.), focusing on the applicability of real-time response systems such as the **Integrated Command System (ICS)** and **digital communication platforms** in Türkiye's context.

- **Expected Outputs**

1. Identification of **practical entry points** within Türkiye's national fire management strategy that can benefit from the methodologies and lessons learned from Korea's wildfire response practices and ICS model.

2. Enhanced understanding of **data-driven and digital technologies**—including communication systems, aerial monitoring, and fire-behavior prediction models—and assessment of their potential for adaptation to Türkiye's operational environment.

3. Strengthened **institutional partnership** between Korea and Türkiye, laying the foundation for expanded cooperation in areas such as capacity building, pilot projects, and regional knowledge-sharing networks.

- **Duration**

- Nov 2025 – 07 Nov 2025
- Detailed daily **program** is presented in the *Study Visit Schedule* section of this booklet.

- **Participants Information**

- Total number of participants: 13 in total

- (including delegation from the World Bank)

- **List of Participating Institutions and Key Learning Focus**

No.	Institution / Organization /Company	Key Learning Focus
1	The Korea Forest Fire Society (KFFS)	Introduction to Korea's integrated wildfire risk management framework and its national coordination mechanism
2	National Institute of Forest Science (NIFoS)	Overview of forest fire disaster management, risk assessment, and institutional response systems
3	Korea Forest Aviation Headquarters	Presentation on wildfire prevention and suppression systems, including ICT-based technologies for real-time response and aerial operations
4	Northern Regional Office of Forest Service (Wonju)	Introduction to the Regional Forest Fire Situation Room and firefighting equipment; demonstration of mechanized suppression vehicles and systems
5	Korea Forest Fire Management Service Association	Field visit to a restored forest area to observe post-fire rehabilitation processes and restoration techniques
6	Sentec Co.,Ltd.	Observation of ICT systems applied to forest recreation and monitoring, with a site visit to Jangtaesan Recreational Forest
7	Korea Forest Service (KFS)	Discussion on Korea's forest fire policy direction driven by advanced ICT technologies; visit to the national Forest Fire Situation Room
8	Hanseo Precision Industry co., Ltd.	Visit to a leading manufacturer of multi-purpose wildfire suppression vehicles; understanding design and field applications

3. General Inquiries and Emergency Contact

Jean-Young Shin Researcher, APFF Email: jeanyoung@apff.or.kr Phone: +82-10-8531-0239	**Seoyun Lee** Researcher, APFF Email: sylee@ apff.or.kr Phone: +82-10-7134-2594

PROGRAMME SCHEDULE

World Bank Türkiye Visit Programme Schedule
– 1st Week of November (3rd–7th) -

Date	Venue (City)	Time	Contents	Speaker
11/3 (Mon)		08:30 ~ 09:10	Travel to AFoCO Participants will be picked up - at 8:30 AM: Plaza hotel (Turkiye Delegation) - at 9:00 AM: Fairmont hotel (WB)	
	AFoCO (Seoul)	09:10 ~ 09:30	**AFoCO** 1. (20') Opening Ceremony (MC from APFF) * Remarks - WB(5') - Neeta Hooda - KGGTF(5') - TBD - Delegate (5') - TBD - APFF(2') - Chongho Park - Highlights of program(3') - Jean-Young Shin - Group Photo	MC Jean-Young Shin (APFF)
		09:30 ~ 09:50	Coffee Break	
		09:50 ~ 10:50	2. Lecture : An Overview of Korea's Wildfire Prevention and Response Policies	Ki-yeon Ko (President of the Forestfire Society)
		10:50 ~ 11:30	3. Interactive talk about the Study Visit - Expectations and Learning Objectives on the Study Visit in Connection with the Forest Fire Management; IDOP Project, led by the Delegation from Türkiye (5') - Course introduction (10'): Jean-Young Shin - with Ki-yeon Ko President of the Forestfire Society, joining as consultant	Delegation from Türkiye & Ki-yeon Ko & APFF
		11:30 ~ 13:15	Lunch	
		13:15 ~ 14:30	Travel to NIFoS	
	NIFoS (Seoul)	14:30 ~ 16:30	**National Institute of Forest Science (NIFoS)** - Introduction of NIFoS and Forest R&D Strategy - Introduction to wildfire disaster risk management and response systems (Forest Disaster Prediction and Analysis Center)	- Hwajin Yang (Program Officer) - Heeyoung Ahn (Director)
		16:30 ~ 17:30	Travel to Restaurant	
	Saffron Restaurant (Seoul)	17:30 ~ 19:30	**Welcome Dinner**	
		19:30 ~ 20:30	Travel to Hotel (The Plaza Hotel Seoul, Seoul)	

11/4 (Tue)		07:00 ~ 10:00	Travel to Korea Forest Aviation Headquarters ● Departure time - 7:00 Fairmont Hotel(WB) - 7:30 The Plaza Hotel(Turkiye Delegation)	
	KFAH (Wonju)	10:00 ~ 11:30	**Korea Forest Aviation Headquarters (KFAH)** - Introduction on ICT-based wildfire response systems (satellites, drones) ** Currently checking if the schedule can be adjusted*	Sung Kim
		11:30 ~ 14:30	Lunch & Travel to North Regional Forest Service	
	North Regional Forest Service (Wonju)	14:30 ~ 16:30	**North Regional Forest Service** - Introduction to the wildfire response situation room - Overview of wildfire suppression equipment specifications and main functions	Sung Sik Shin
		16:30 ~ 17:45	Travel to Hotel (Interburgo Hotel Wonju, Wonju)	
11/5 (Wed)		08:30~10:30	Travel to **Sejong National Arboretum**	
	Sejong National Arboretum (Sejong)	10:30 ~11:30	Sejong National Arboretum - Field visit	
		11:30-13:30	Lunch & **Travel to Travel to Forest Fire Restoration Site (Daejeon)**	
	Restoration Site (Daejeon)	13:30-14:30	**Visit forest fire restoration site** - Field visit at Sanjik-dong, Daejeon	
		14:30~15:00	**Travel to *Jangtaesan (National Recreation Forest)***	
	Jangtaesan (Daejeon)	15:00~15:40	***Jangtaesan (National Recreation Forest)*** **Show up the ICT system from Sentec Co.,Ltd.**	
		15:40~16:30	**Travel** to Korea Forest Fire Management Service Association	
	KFFMSA (Daejeon)	16:30~17:30	**Korea Forest Fire Management Service Association**	
		17:30~18:00	Travel to Hotel (Hotel Onoma, Daejeon)	
11/6 (Thu)	Daejeon	09:00 ~ 10:00	**Travel to Korea Forest Service**	
		10:00~11:30	**Korea Forest Service** - Policies on ICT-based advanced wildfire response - Visit to the national wildfire control center and system overview ** Currently checking if the schedule can be adjusted*	
		11:30~14:30	Lunch & Travel to Hanseo Precision Industry co., Ltd.	

		14:30 ~ 15:30	**Hanseo Precision Industry co., Ltd.** - A South Korean private corporation specializing in firefighting vehicles and equipment.	
		15:30 ~ 18:00	Travel to Hotel (The Plaza Hotel Seoul, Seoul)	
11/7 (Fri)	Seoul	09:20 ~ 10:00	Travel to AFoCO	
		10:00 ~ 11:40	1. Wrap-up Presentation(‘20)): Turkiye : Key Outcomes from the Study Visit Highlights key takeaways, insights, and lessons learned. - Presents what was most meaningful or different compared to their own practices. - Frames the experience in terms of potential applications back home.	Representative from the Türkiye delegation
			2. Reflections and feedback: Korean Consultants(‘60) - Delegates reflect on program content, structure, and relevance. - Feedback shared on what was impactful and what could be improved. - Open space to explore mutual areas of interest and possible future collaboration. 3.Certificate award & Group Photo(‘10)	**Ki-yeon Ko** (President of the Forestfire Society) & **Sunpil Jin** (Vice Executive Director of AFoCO)
		11:40 ~ 13:00	**Lunch**	
		13:00 ~ 13:30	**Travel to the destination for Cultural Program**	
		13:30 ~ 17:00	**Cultural Tour** (Gyeongbokgung Palace, Bukchon Hanok village, Insa-dong)	

REFERENCE MATERIALS

(Lecture Notes, Institutional Briefs, and Technical Documents)

Turkiye and World Bank visit to S. Korea
November 3rd – 7th 2025, Seoul

Introduction

Integrated Wildfire Risk Management in Korea

Nov. 3rd, 2025

Mr. Kiyeon Ko
President, Korea Forest Fire Society

Self Introduction

Forest officer in Korea Forest Service since April 1995 till Jan. 2025

5 times work experiences addressing wildfires (3 times in the field, 2 times in the policy establishment and mgt.)

- First position in KFS as an instructor on forest fire
- Organizer of the 6th Intl WildFire Conference held in PyeongChang, RoK, 2015
- Director of Forest Fire Div., Head of the Eastern Forest Service
- DG in charge of the Fire Aviation Headquarters with missions for managing major fires

2

Introduction

- Welcome delegates from Türkiyeʹs General Directorate of Forestry (OGM) and the World Bank.
- Todayʹs session introduces Koreaʹs wildfire management experiences.
- I hope these insights help inform Türkiyeʹs ongoing efforts—and I also welcome your comments and feedback to improve our system.

3

Korea’s Forest and Fire Context

- Forest cover: 63% of national land; majority coniferous plantations.
- Rapid reforestation since 1970s (15× increase in biomass).
- Challenge: Aging forests and accumulated fuel loads.
- Climate change intensifies spring wildfire risks.

4

Major Wildfire Trends

- 2022 Uljin–Samcheok, 2023 Gangneung–Hongseong, 2025 Yeongnam mega-fire.
- Causes: High winds, low humidity, heavy fuel accumulation.
- Pattern: Shorter ignition-to-spread times, faster escalation.

5

Evolution of Korea's Fire Response System

- Central command: KFS Fire Situation Center (since 2000s).
- Aviation assets: 49 helicopters, interagency coordination with Defense Ministry.
- Integration of AI-based risk forecasting and satellite monitoring.
- Expansion of ground firefighting units and community engagement.

6

Current National Strategies (from KFS 2025 Policy)

- Strengthen prevention: safety buffer zones, forest roads.
- Modernize technology: heat-sensing drones, early warning AI.
- Expand response: joint air–ground training, night operations.
- Post-fire recovery: climate-resilient reforestation principles.

7

Managing the Wildland–Urban Interface (WUI) Risk

• Around 70% of recent fires occurred within 3 km of WUI zones.

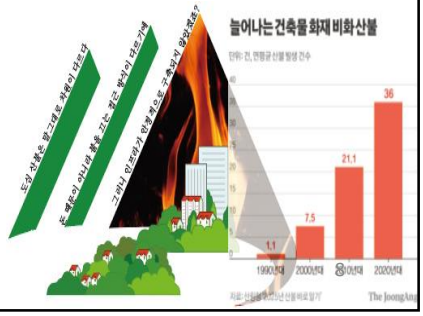
• KFS building national WUI risk map using AI and satellite observation (2025 rollout).

• Fire-Safe Buffer Zone Project and 'Green Village Without Burning' program expanded to 150 towns.

• Future plan: integrate KFS–MOIS(Ministry of the Interior and Safety) evacuation planning and urban boundary zoning with MLIT.

• Enhanced public alert and evacuation route mapping to minimize human casualties.

"Protecting lives begins with readiness in the WUI."



Integrating Climate Factors into Wildfire Management

• Seasonal risk maps updated with temperature, drought index, and wind data.

• Fire Danger Forecast System integrates climate modeling (KMA, NDVI).

• Post-fire restoration uses climate-resilient species selection.

• A severe drought-linked fire in the Yeongnam region led us to reinforce adaptive wildfire management.

"Climate is not an excuse, but a design input for policy."

9

Fuel-Load Management: Key to Prevention

- Forests full of overmature stands; annual growth > harvest 5:1 ratio.
- Excess biomass acts as wildfire fuel.
- Policy goal: Reduce fuel density via thinning and utilization.
- Promote biomass industry, circular forestry economy.

10

Institutional and Field Challenges

- Strong central coordination, but limited local autonomy.
- Need: more flexible on-site command and integration of data to action.

- Any similar challenges seen in Türkiye?.

11

International Cooperation and Learning

- June 2025: Visit to Ankara—impressed by OGM's advanced operations and situation room.
- Both nations share similar wildfire environments.
- Collaboration through AFoCO, World Bank, and scientific exchange will be mutually beneficial.

12

Dialogue and Reflection

- Türkiye's and World Bank's feedback on:
  - ✓ Integrating community prevention systems.
  - ✓ Financial mechanisms for prevention (insurance, green bonds).
  - ✓ Cross-country data and research collaboration.

- Aim: Build sustainable, science-based management.

13

Closing

- Wildfires are growing beyond national boundaries.
- Korea seeks to move from reactive suppression to proactive prevention.
- Your insights during this training week will help strengthen our approach.
- Let's continue this dialogue through exchange of information and training opportunities, etc.

Korea Forest Fire Society | www.k kokiyeon@hotmail.com

14

Introduction of NIFoS and Forest R&D Strategy

Hwajin Yang, Program Officer
Research Planning & Coordination Division

Meeting with World Bank and Turkey delegation
November 3, 2025

National Institute of Forest Science

Content

National Institute of Forest Science

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1.

General Status

History, Mission & Vision, Organization Structure,
Human Resource·Budget · Research Project, Experimental Forest

National Institute of Forest Science

1.1 History

1949 — Forestry Experiment Station was founded under the Ministry of Agriculture and Forestry

1967 — Reorganized as Forestry Experiment Station under the Korea Forest Service

1987 — Renamed as Forestry Research Institute (FRI)

2004 — Reorganized and Renamed as Korea Forest Research Institute (KFRI)

2010

Hosted the 23rd IUFRO World Congress

2024 — Establishment of the National Forest Satellite Information Utilization Center

National Institute of Forest Science
Republic of Korea

1 .2 Mission & Vision

MISSION

Research and Development of forest science and technology bringing **the National Happiness and Virtuous Circle of Forest Value**

VISION

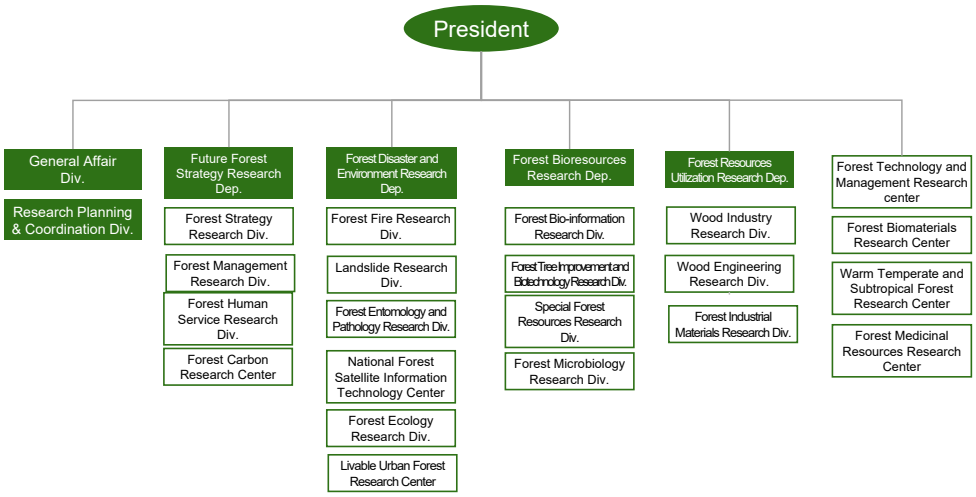
Research Institute **for People** by creating future value

with **an innovative Science Technology**

"2050 NIFoS will create the better world with Forest and science technology!"

1 .3 Organization Structure

4 Departments, 16 Divisions, 3 Center and 4 Regional Center



1 .4 Human Resources Budget Research Project

- Security Guard : 36
- Administrative Assistant : 142
- Doctoral Master's researcher : 87
- Academic training : 3

- Forest Science Research : $30 million
- Forest Carbon Neutralization Research : $ 4.5million
- Agricultural Satellite Utilization Research : $ 4.7million
- Nectar Species Development Research : $ 0.7million

- General research : 95
- Special research : 15

1 .5 Experimental Forest

Implementing a field-based Forest Science Research

Total	Seoul	Suwon	Pocheon	Jinju	Jeju	Yeongju
5,662.8ha	35.3ha	251.5ha	1,108.6ha	750.3ha	3,289.7ha	227.4ha


Seoul


Suwon


Jeju


Pocheon


Yeongju


Jinju

2.

TRM of Forest Science Research

National Institute of Forest Science

2.1 Technology Road Map of Forest Science Research

Establishing TRM of Forest Science Research from 2023 to 2027

- Establishment of direction and selection of priority as a National Research Institute
- Response on the Transition to Digital, Disaster, Carbon Neutrality under 5th National Science Technology Master Plan
- Contribute to Governmental Task Force and KFS's Forest Basic Plan

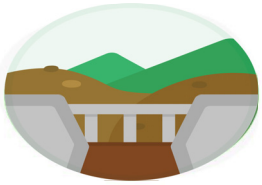
국립산림과학원

National Institute of Forest Science
Republic of Korea

2 Program 1. Integrated Forest Disaster Management Technology for Strengthening National Safety

Healthy Forest to prevent the forest disaster and predict forest pest

Development of advanced wildfire prediction and management



Development of landslide prevention technology

Development of forest pest occurrence prediction and management technology

2 Program 2. Establishing a Digital-based Sustainable Forest Management System Contributing to Carbon Neutrality

Sustainable Forest to circulate and Utilize forest Resource

Development of forest carbon management implementation system and strategy

Development of wood resource circulation management and forestry technology

Development of ICT converged digital forest management technology

2 Program 3. Promoting Wood Industry Activation through Optimal Processing Technology

Forests contributing to economic growth by creating value from wood

Development of strategy to expand the value of wood utilization and revitalize the wood industry

Development of advanced wood processing and necessary technology for wood architecture

Development of alternative materials to fossil resources using forestry resources

2 Program 4. Activating Forest Bio-industry for Enhancing Value of Forest Bio Resources

Developing Industries using Forest Bio Resources to enhance the national resources

Acquisition of bio-informatics for biological resources and establishment of a utilization base

Development of breeding and utilization technology for forest resources

Development and cultivation of income-generating forest resources and cultivation utilization technology

Development of new materials from forest biological resources and establishment of a commercialization base

2 Program 5. **Conservation and Enhancement of Healthy Forest Ecosystems for Function Improvement**

Enriching Forests for a more beautiful life

Development of forest ecosystem conservation and value enhancement

Development of technology forest ecological restoration

Development of technology to maintain and enhance function of urban forest

2 Program 6. **Enhancing Social Value of Forests and Expanding Global Green Cooperation**

Enhancing quality of life for citizens and Leading Global Issues through Forests

Development of forest basic polices and rural development strategy

Development of forest welfare service and stabilization technology

Development of International and Korean Peninsula forest cooperation policies

3.

International Research & Activities

National Institute of Forest Science

3.1 Project of International Cooperation

Support the CIFOR for restoration of degraded peatland in Indonesia

Overview of CIFOR-ICRAF

·Full Name : Center for International Forestry Research-World Agroforestry

·Establishment : lead by CGIAR in 1993

·Headquarter : Bogor, Indonesia

Overview of Project

·Purpose : Development of technology to restore and manage the degraded peatland

·Period : 2021~2030

·Target : South Sumatra, Central Kalimantan, Central Java

·Major Achievement

- Implementing Community based reforestation
- Establishing Governance between Government, International Organization, University and Community

National Institute of Forest Science
Republic of Korea

3 .2 Joint Research Project

Development of Science-based solution against global issue

Mangrove

·Country : Indonesia, Vietnam
·Topic : Mangrove carbon sequestration, storage dynamics and ecosystem services in Asia and the Pacific

Desertification

·Country : China
·Topic : Assessment of Forest Ecological Restoration in Desertified areas of Northeast Asia

Urban Forest

·Country : Malaysia
·Topic : Research & Analysis on Statistics on Street Trees and Urban Forest in Asia

Wood Harvest

·Country : U.S.A
·Topic : Developing decision support tools to analyze the feasibility of cable and tethered logging operation

3 3. Establishment of International Network

Science Technology Cooperation to resolve forest issue in Asia

Overview

· Full Name: Asia Forest Cooperation Organization

· Establishment : Treaty of Asia Forest Cooperation Organization in 2018

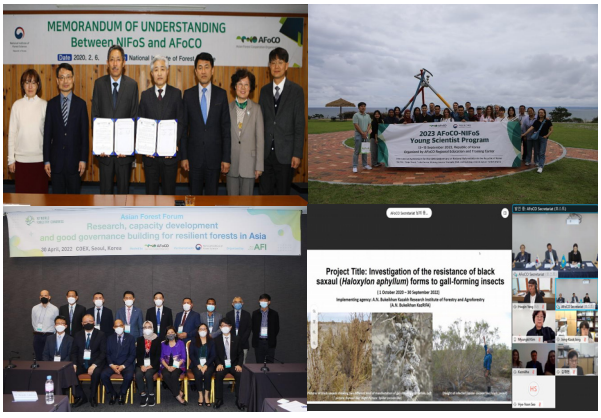
· Member : 15 countries(Observer : 2 countries)

Achievement

· Conduct a joint research project

· Establishment of partnership between high-level

· Implementing capacity-building program



3 3. Establishment of International Network

Cooperation for support implementing SDGs to Developing Countries

Overview

· Full Name : UNDP Seoul Policy Center

· Establishment : Decision between Korean Government and UNDP in 2011

· Role : Global Economic Cooperation and Policy network of UN

Empowered lives.
Resilient nations.

Achievement

·Support implementing SDGs in developing countries

- Countries : Philippines, Mongolia, Cambodia, Zambia, Namibia, El Salvador, Albania, Ecuador

3 3. Establishment of International Network

Dissemination of Achievement of Forest Research through IUFRO

Overview

· Full Name : International Union of Forestry Research Organizations

· Establishment : Lead by Germany-Swiss-Austria in 1892

· Member : 700 Organizations of 100 Countries

IUFRO
Interconnecting
Forests, Science and People

26th World Congress

· Topic : Forest and Society Towards 2050

· Date/Location : 2024.6.23(Sun)~29(토), Sweden Stockholm

· Scale : Participants 4,257 / Academic 202 Sessions

· Major Achievement

- Suggestion of Long-term perspective of Sustainable Forest Management in High Level Panel Discussion
- Dissemination of research results in Forest Ecology, Forest Pest · Disease, Urban Forest and Wood Architecture

3 3. Establishment of International Network

Leading forest research cooperation in Asia-Pacific region

Overview

- Full Name : Asia-Pacific Associations of Forestry Research Institutions
- Establishment : Decision between the Presidents of research institute o Asia-Pacific in 1995
- Member : 67 Research Organization of 23 countries

APAFRI

Chairman

- Period : 2024 ~ 2027
- Expectation
  - Leading research cooperation between member organizations
  - Implementing science-based solution to resolve forest issue

Thank you for your attention

National Institute of Forest Science

Forest Disaster Prediction and Analysis Center

1. Establishment Background and Objectives

The Forest Disaster Prediction and Analysis Center was established in 2015 under the National Institute of Forest Science (NIFoS). The Center was created to enable rapid and scientific responses to forest disasters such as wildfires and landslides. To enhance operational efficiency, a major modernization project was completed in 2024 with a budget of approximately 1 billion KRW, resulting in the construction of a state-of-the-art scientific prediction and analysis system.

Primary objectives of the Center include:
- Accurate prediction of forest disasters
- Scientific analysis and modeling of disaster dynamics
- Rapid and coordinated response to minimize damage

2. Characteristics of Forest Disasters in Korea

South Korea experiences four distinct seasons—spring, summer, autumn, and winter—each with different forest disaster patterns. Spring and autumn are characterized by dry conditions leading to frequent wildfires, while summer is marked by heavy rainfall and an increased risk of landslides.

The Korea Forest Service (KFS) designates two official disaster prevention periods each year:
- Wildfire Prevention Periods in spring and autumn
- Landslide Prevention Period during the rainy summer season

3. Wildfire Response Systems

3.1 National Wildfire Danger Forecasting System

Operated under the Forest Protection Act, this system provides hourly analysis of wildfire risks across the country. It scores wildfire danger from 1 to 100, categorized into four levels: Low, Moderately High, High, and Very High. The system can forecast risks up to seven days in advance and serves as a key decision-making tool for determining the national wildfire crisis alert level.

Case Study: On March 4, 2022, a large-scale wildfire occurred in Uljin and Samcheok, burning approximately 16,300 hectares of forest over 213 hours. Dry winds exceeding 20 m/s were recorded, triggering a Large-Scale Wildfire Warning through this system.

3.2 Wildfire Situation Control System

This system enables real-time nationwide monitoring and management of wildfire incidents. Field observers equipped with mobile devices report fire sightings, which are displayed as red, blue, or gray icons depending on the fire's status. The system shows weather conditions, helicopter positions, and overall fire situations across the country.

When major fires occur, the Center generates Wildfire Situation Maps that display fire lines, containment progress, evacuation shelters, and deployed firefighting resources. These maps are updated in real time and shared with national agencies and media.

3.3 Real-Time Fire Mapping and Data Acquisition

Fire maps visualize active and extinguished zones in red and yellow respectively. Helicopter flight paths and live videos are integrated automatically. At night, drones with thermal and optical sensors detect fire locations and movements for accurate mapping.

3.4 Wildfire Spread Prediction System

The Wildfire Spread Prediction System analyzes meteorological, topographical, and vegetation data to forecast the direction and rate of fire spread. These predictions assist in efficient resource allocation and the establishment of evacuation and containment strategies.

4. Landslide Response and Prediction Systems

4.1 National Landslide Risk Map

This map identifies areas vulnerable to landslides based on soil, terrain, and forest conditions. All forested areas nationwide are categorized into five risk levels and used for local and national management planning.

4.2 Debris Flow Impact Prediction Map

This map estimates the potential extent of debris flow when slope failure occurs. Red zones indicate first-level risk impacts, while yellow zones represent expanded impacts when multiple slope levels fail. The model was validated through the Umyeon Mountain landslide case.

4.3 Landslide Early Warning System (KLES Tank Model)

The KLES (Tank) Model divides the country into 11 hydrological zones and simulates rainfall infiltration and drainage based on geological features. Alerts are issued at 80% (Watch), 90% (Preliminary Alert), and 100% (Warning) tank capacity, providing crucial lead time for evacuation. This system supports crisis-level decisions during heavy rainfall or typhoon events.

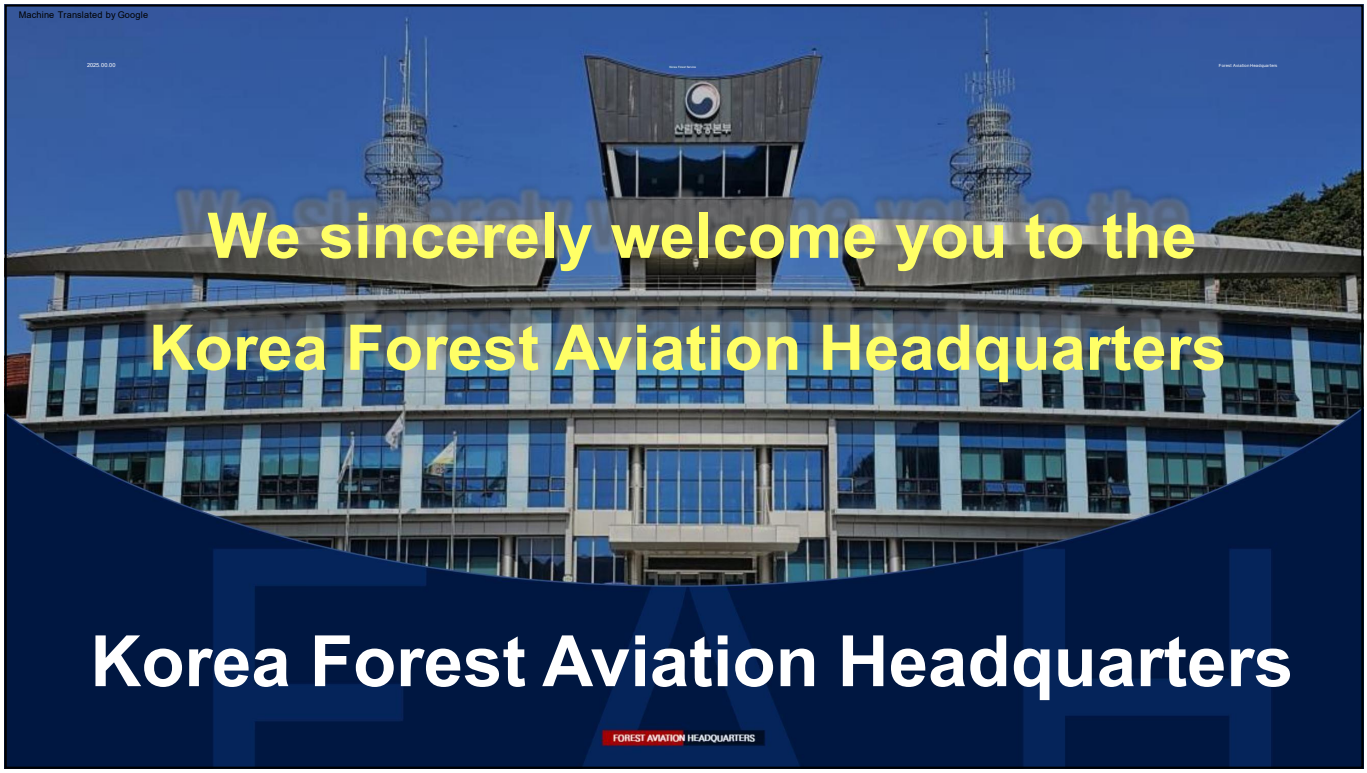
5. Mountain Weather Observation Network

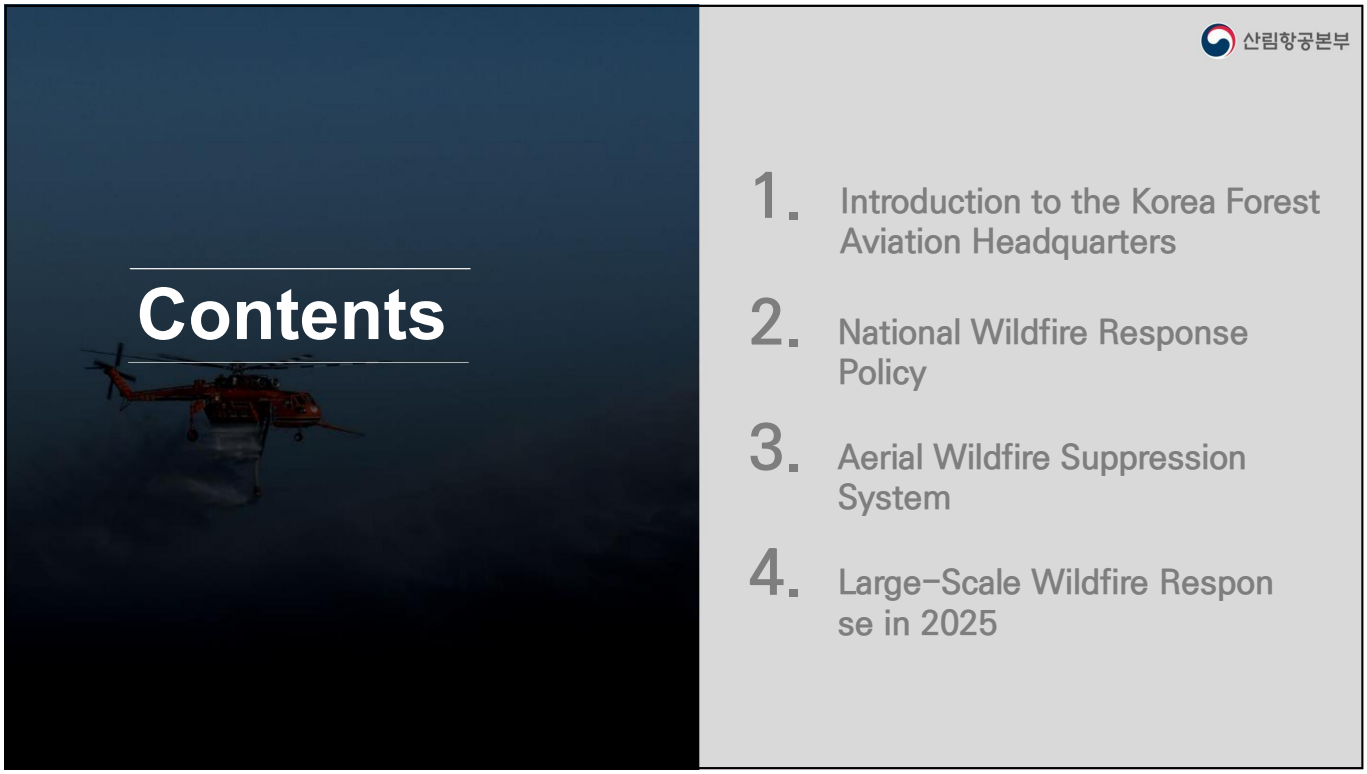
Most weather stations in Korea are located in cities, limiting forest disaster responsiveness. To address this, NIFoS and the Korea Meteorological Administration established a Mountain Weather Observation Network in forested regions. Currently, 480 stations are operational, with expansion to 620 by 2027. The network achieves a 98% data reception rate, providing reliable early-warning data.

6. Comprehensive Significance and Future Direction

The Forest Disaster Prediction and Analysis Center functions as the national hub for scientific forest disaster management, integrating prediction, analysis, and response. It enables real-time data sharing among the Korea Forest Service, Fire Agency, Ministry of Defense, and Police. By applying advanced technologies such as drones, AI models, and real-time data networks, the Center minimizes the impacts of forest disasters and enhances national resilience.

- Vision: To ensure public safety and protect forest resources through innovation, science-based prediction, and proactive disaster response.


Machine Translated by Google
We sincerely welcome you to the
Korea Forest Aviation Headquarters
Korea Forest Aviation Headquarters
FOREST AVIATION HEADQUARTERS


Contents
산림항공본부
1. Introduction to the Korea Forest Aviation Headquarters
2. National Wildfire Response Policy
3. Aerial Wildfire Suppression System
4. Large-Scale Wildfire Respon se in 2025


01 Organization Overview Organizational Structure
산림항공본부
Current Staff 443 (T.O. : 462) 25.09.01.
Korea Forest Aviation Head quarters
(93)
(72)
(101)
number of people
Wildfire Suppression Personnel(266)
Aviation Support Division
- HR & Information Systems Team
- Budget and Accounting Team
- Administrative Support Team
Forest Aviation Division
- Aviation Planning Team
- Flight Operations Team
- Disaster Response Team
- Drone Training Team
- Air Traffic Control Team
- Forest Aviation Training Center
Aviation Safety Division
- Safety Management Team
- Investigation & Analysis Team
- Maintenance Quality Team
- Occupational Safety & Health Team
Aviation Safety Division
- Safety Management Team
- Investigation & Analysis Team
- Maintenance Quality Team
- Occupational Safety & Health Team
Forest Aviation Management Offices
- Iksan
- Yangsan
- Yeongam
- Andong
- Gangneung
- Jincheon
- Hamyang
- Cheongyang
- Seoul
- Uljin
- Jeju
- Demilitarized Zone (DMZ)
(12 Management Offices)

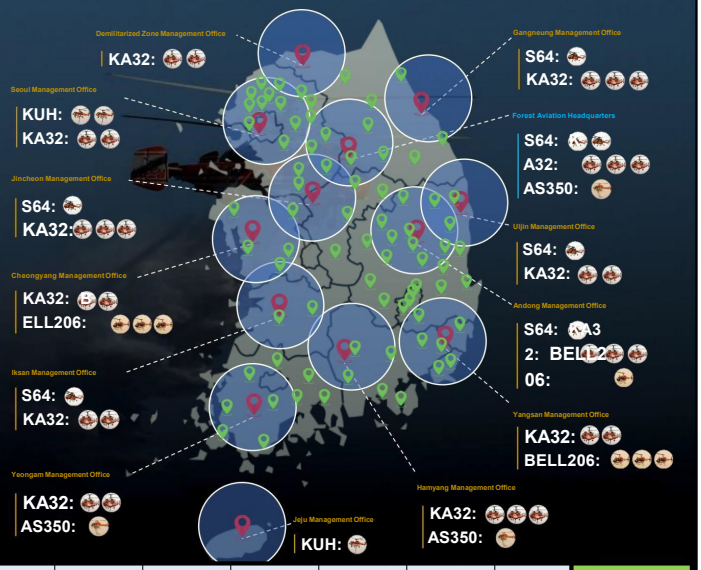

01 Intrduction to the organization
4 core missions
산림항공본부
Forest Fire Suppression
Forest Disaster Monitoring
Forest Project Support
Mountain Search and Rescue

Machine Translated by Google

01 Agency Introduction Helicopter Status

Total possession (49th)

"Golden Time : 30 minute



Division (KOREA)	Total	Forest Service	Fire Service	National Police Agency	Ministry of National Defense	National Parks	Local Government (Wildfire Suppression Chartered Helicopter)
Spring 2025	217 units	42	35	12	49	1	78(72 billion)
Spring 2026	265 units	46	35	12	92	1	79

01 Introduction to the organization Main forest helicopter

S64E

Ericson, USA

Introduction price: 55 billion won

* Per hour: 14 million won

Freshwater capacity: 8,000 liters

KA32 T/A

Russia, KumAPE

Introduction price: 10.1 billion (as of 2009)

* Per hour: 5 million won

Freshwater capacity: 3,000 liters

KUH

Republic of Korea, KAI

Introduction price: 33 billion won

* Per hour: 4 million won

Freshwater capacity: 2,000 liters

MODEL-234SP

Columbia Helicopter, USA

Introduction price: 55 billion won

* Per hour: 10 million won or more

Freshwater capacity: 10,000 liters

* Scheduled to be introduced from 2025

산림항공본부

Contents

산림항공본부

02 Wildfire Response Policy

Analysis of Recent Wildfire Occurrences

1. **Period of Occurrence: Forest fires are concentrated in spring (February 1 to May 15).**

2. **Cause of occurrence: Forest fires are caused by negligence of visitors (30%) and burning (24%).**
   - ✓ **Accidental fire by Visitor negligence (30%) > Small agricultural fires (24%) > Cigarette fires (7%) > Building fire spread (6%)**

3. **(Current Status) Due to worsening climate conditions, wildfire frequency and damage scale are both increasing.**
   - ✓ (Occurrence) **Compared to the 2010s (440 cases), the 2020s saw 520 cases, an 18% increase.**
   - ✓ (Damage) **The burned area in the 2020s (6,720 ha, equivalent to about 9,600 soccer fields) is approximately eight times larger than that of the 2010s (857 ha, about 1,224 soccer fields).**

02 Wildfire Response Policy

Wildfire Prevention Policy Goals (Comprehensive National Wildfire Prevention Plan 2025, Korea Forest Service)

GOAL : Create forests that everyone can enjoy, with minimal wildfire damage.

Implementation Strategies

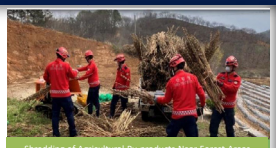
1. (Prevention) Promote wildfire prevention policies and projects.
2. (Preparedness) Expand systematic wildfire preparedness and readiness systems.
3. (Response) Operate structured manpower and expand firefighting support resources to ensure prompt and effective wildfire response.
4. (Recovery) Promote wildfire recovery and public awareness efforts.

02 Wildfire Response Policy

Wildfire Prevention Policy Goals (Comprehensive National Wildfire Prevention Plan 2025, Korea Forest Service)

1. Prevention

- Establish a cooperative system among related organizations for wildfire prevention.
- Reduce small-scale agricultural fires by expanding the collection and removal of agricultural residue. (20,100 tons collected in 2020)
- Build protection systems for key facilities near forests (fire prevention safety zones and firefighting facilities)
- Create forests resistant to wildfires: Establish 500 km of firebreak roads
  - Construct three multipurpose reservoirs. Create 400 ha of broadleaf tree buffer zones and forest fire barriers.



Shredding of Agricultural By-products Near Forest Areas

Multipurpose Erosion Control Dam (Inje, Gangwon Province) | Forest Fire Suppression Access Road (Uljin, Gyeongbuk Province)

2. Preparedness

- Expand the forest fire precaution period(from February 1–May 15 → extended to January 24–May 15).
- Strengthen monitoring capability through the expansion of unmanned surveillance cameras and AI-based systems:
  Install 100 new cameras and replace 78 outdated units.
  - Build AI-powered wildfire monitoring and ICT-based control platforms (44 local centers, 1,500 linked units).
- Enhance firefighting capability through specialized education and training
  - Integrated training for forest fire personnel.
  - Expert training for special forces and local support units.

ICT Platform for Forest Fire Prevention (Daegu, May 2024)

Special Forest Fire Response Team Training Program (Forest Education Institute, August 2024)

산림항공본부

02 Wildfire Response Policy

Wildfire Prevention Policy Goals (Comprehensive National Wildfire Prevention Plan 2025, Korea Forest Service)

3. Response

- **Efficient management and professional enhancement of firefighting personnel**
  (Operation of 53,000 forest fire prevention personnel, nighttime large-scale response, etc.)
- **Establishing a foundation to expand ground firefighting resources and enhance response capacity**
  - Expansion of high-performance forest fire helicopters (from 29 to 32 units) and multipurpose forest fire trucks (16 units) , Expansion of firefighting equipment (from 148 to 156 units)
- **Strengthening aerial firefighting capacity** (Additional introduction of Super Medium Helicopter M234, overseas firefighting operations)
- **Enhancement of the nationwide cooperation system for forest fire helicopters and increased efficiency**
  - Expansion of nationwide helicopter command base (from 18 to 20 bases)
  - Deployment of mobile command bases and relocation of forest fire helicopters to high-risk areas during dry seasons


확충 예정 헬기(M234 기종) 야간산불진화(수리온 기종)


이동식저수조 운영(S64 기종)

4. Recovery

- **Operation of the 'Central Forest Fire Damage Recovery Headquarters' for rapid and systematic recovery**
- **Restoration considering forest characteristics, landscape, and biodiversity**
  - Artificial regeneration in severely damaged areas and natural regeneration in less-affected regions
- **Activation of compensation systems and proper disposal of burned timber to raise public interest**
- **Targeted public outreach using various media during appropriate seasons**

산불피해지 원인 조사

전광판 활용 산불예방 홍보(호남고속도로)

Contents

03 Forest Fire Suppression System

Stage-by-Stage Forest Fire Response System

산림항공본부

1 **Operation of the Forest Fire Prevention Headquarters** according to the forest fire caution period in spring and fall.

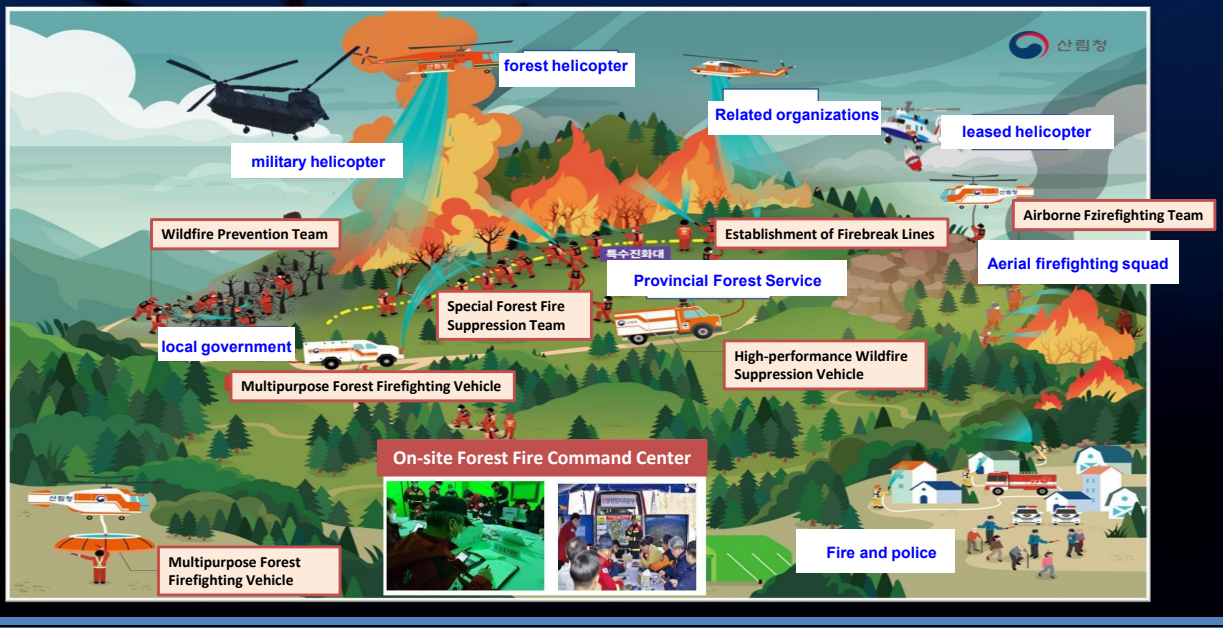
✓ 2025 Wildfire Caution Period: **Spring (January 24-May 15) (112 days)**, Fall (November 1-December 15) (45 days)

2 **Classification of forest fire response stages and mobilization of firefighting resources** based on the area of damage, etc.

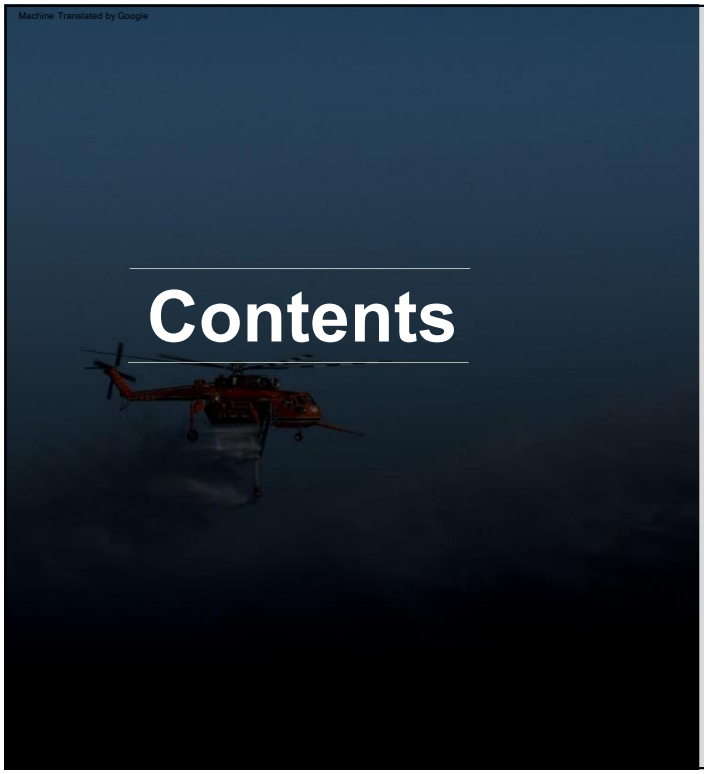
division	Initial response	Diffusion response		
Response steps		Step 1	Step 2	Step 3
Commander	Mayor, county governor, or district head Director of the National Forest Management Office	Mayor, county governor, or district head Director of the National Forest Management Office	Mayor, county governor, or district head Director of the National Forest Management Office	City/Provincial Governor
Damage area	less than 10ha	Less than 10~50ha	Less than 50~100ha	More than 100ha
Wind speed	less than 3 m/s	Less than 3~7 m/s	Less than 7~11 m/s	11 m/s or more
Evolution time	less than 5 hours	Less than 5 to 10 hours	Less than 10 to 48 hours	More than 48 hours
helicopter	100% jurisdiction	100% jurisdiction, 50% metropolitan area,	100% jurisdiction, metropolitan area,	National helicopter

03 Forest Fire Suppression System

Ground Suppression / Aerial Suppression



03 Forest Fire Suppression System
video



산림항공본부

산림항공본부

03 Response to Large-scale Forest Fires in 2025

Large-scale forest fires in Sancheong, Gyeongnam, and Uiseong, Gyeongbuk (March 21, 2025)

1 (Damage status) 187 casualties (31 deaths, 156 injuries), 3,848 houses, 6,747 facilities

Forest area: 103,876 ha

✓ Largest area of forest fire damage in history

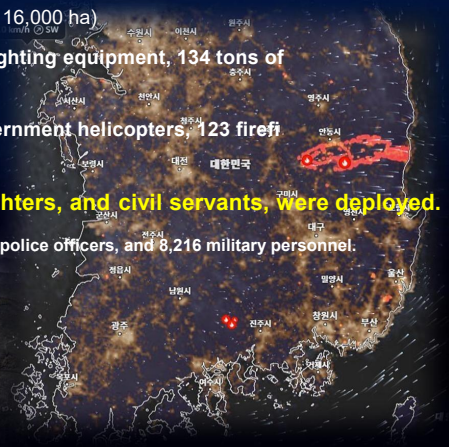
* (2nd place) East Coast (2000, 24,000 ha), (3rd place) Uljin/Samcheok (2022, 16,000 ha)

2 (Evolution resources) 1,226 forest fire fighting helicopters, 7,996 forest fire fighting equipment, 134 tons of forest fire retardant deployed. Helicopters

✓ deployed by agency (cumulative): 312 forestry helicopters, 334 local government helicopters, 123 firefi ghting helicopters, 457 military, police, and national

3 (Efforts) A total of 70,723 people, including forest firefighters, firefighters, and civil servants, were deployed.

Key personnel: 10,163 forest firefighters, 18,302 civil servants, 20,796 firefighters, 7,041 police officers, and 8,216 military personnel.

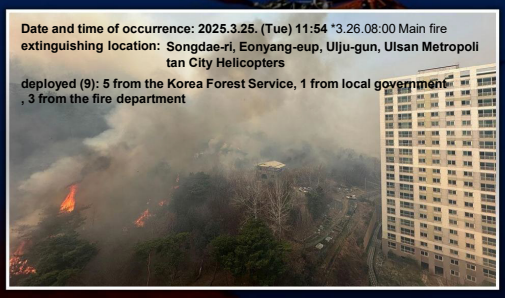


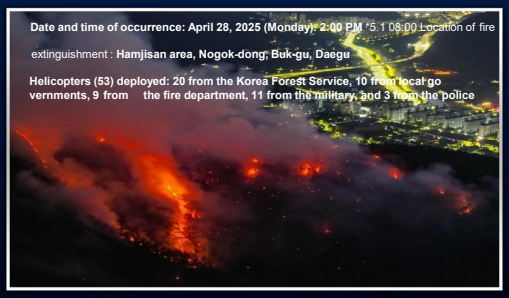
산림항공본부

03 Response to Large-scale Forest Fires in 2025

Urban Forest Fire Response – Ulsan, Ulju, Eonyang, and Apsan (Daegu) Fires)

1 Forest fire status





2 Forest Aviation Headquarters response

✓ (Ulju·Eonyang) Concerns about damage to facilities and lives in densely populated urban areas led to concentrated water droplets using large helicopters (S-64) * Urban areas around forest fire outbreak area s (Eonyang-eup population: approximately 29,000)

✓ (Daegu) Two Surion aircraft extinguished a wildfire at night, causing widespread damage. * Nearby residents evacuated b y emergency evacuation of some 5,000 people.

Minimizing Forest Fire Damage through Concentrated Helicopter Deployment in Urban Areas and Nighttime Aerial Fire Suppression

03 Response to Large-scale Forest Fires in 2025

Response Efforts for Large-scale Forest Fire Suppression

산림항공본부

1 **Integrated command and total response of forest fire fighting aviation assets**

✓ Simultaneous response to large-scale forest fires and prioritization of firefighting Concentrated management of aviation assets

2 **<Surion> helicopters extinguish wildfires at night, preventing the spread of damage.**

✓ April 28, 2025. Nighttime firefighting helicopter at the Hamjisan Mountain forest fire site in Daegu.

Deployment of two Surion aircraft

3 **Increasing helicopter operation rate by utilizing mobile maintenance teams (3 teams) and maintenance vehicles (2 vehicles).**

✓ Deployment of 68 Maintenance Personnel and 94 Day & Night Maintenance Operations During the 2025 Large-scale Forest Fires

4 **Installation of 10 mobile water tanks and operation of forest fire retardant (1,407 tons)**

Ulju wildfire suppression (S-64)

20

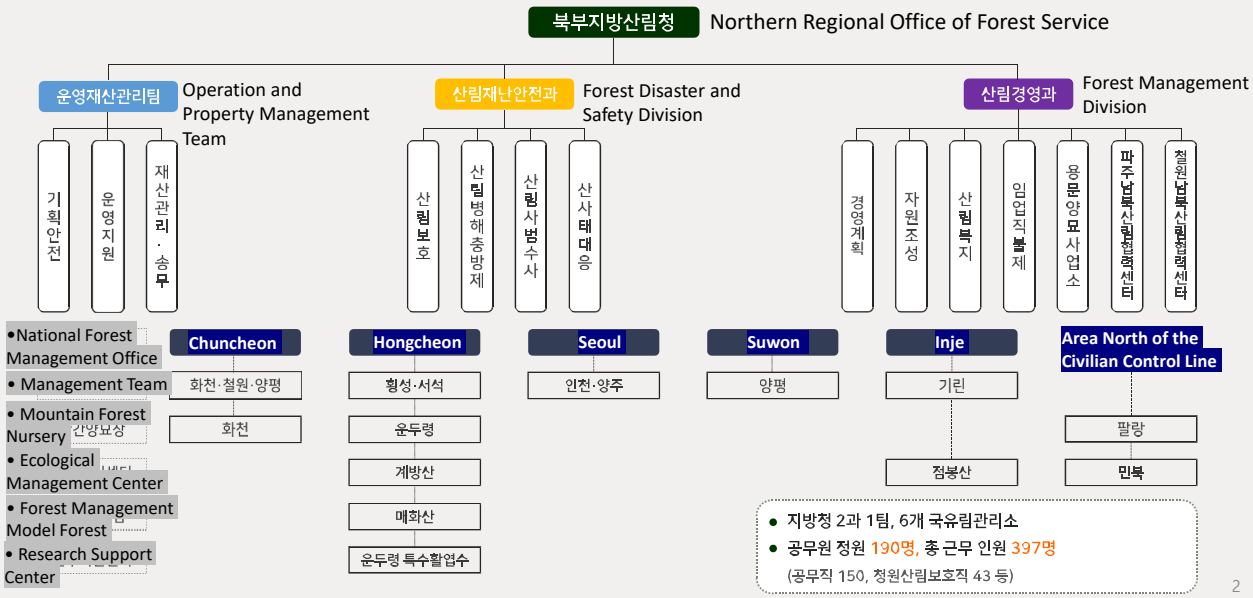

산림항공본부
The power to protect forests
from the sky,
-Korea Forest Aviation Headquarters

글로벌연수사업
현장견학('25.9.25.)

Introduction to the Northern Regional Office of Forest Service

북부지방산림청
Northern Regional Office of Forest Service

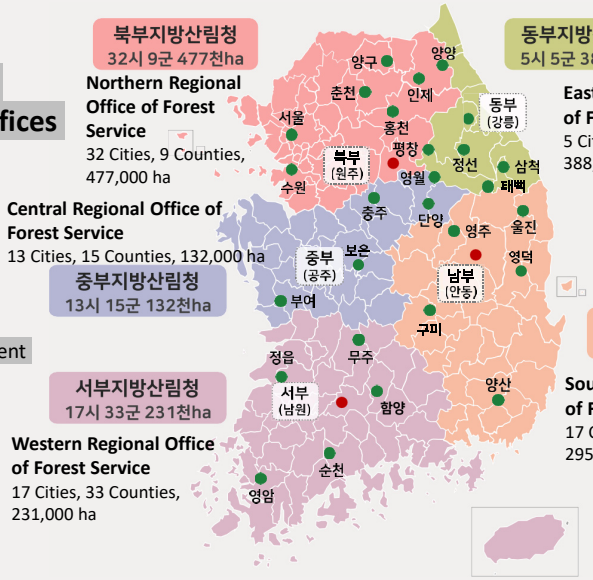
Organization of the Northern Regional Office of Forest Service



Roles of Regional Forest Offices

5 Regional Forest Offices and 27 National Forest Management Offices

- 지방산림청의 역할
  - Efficient Management of National Forests
  - Protection and Development of National Forest Resources
  - Improvement of National Forest Management through Advanced Forestry Techniques
  - Enhancement of Public Benefits from National Forests



Roles of National Forest Management Offices

Organization and Responsibilities

Head of National Forest Management Office

국유림관리소장

운영지원 Operational Support	보호관리 Protection and Management	산사태·산림경영 Landslide and Forest Management	자원조성 Resource Development
• Management of civil servants' attendance, education/training, and personnel records • Coordination of budget execution • Maintenance and management of facilities such as office buildings and vehicles	• Prevention and suppression of forest fires • Forest protection • Authorization for the use of national forests • Management of national forest properties	• Prevention and response to landslides • Construction and maintenance of forest roads • Implementation of national forest management plans • Allocation of national forest products	• Establishment and implementation of plans for seedling production, reforestation, and forest tending • Training of forest management cooperatives and forestry workforce • Operation of forestry machinery and equipment

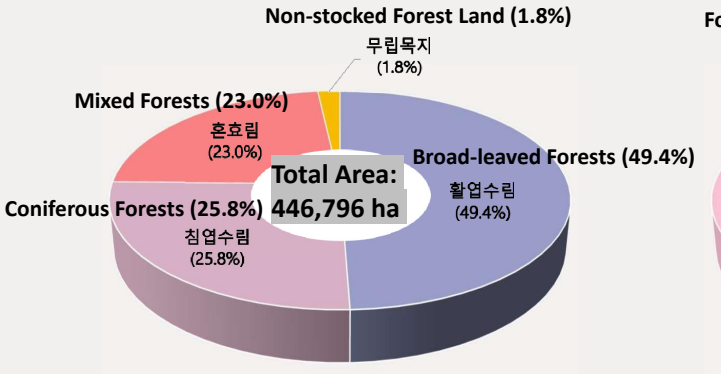
*The organizational structure may vary depending on each National Forest Management Office.

Jurisdiction of the Northern Regional Office of Forest Service

- **A total of 74 Cities, Counties, and Districts Covering 446,796 Hectares**
  - **66 cities, counties, and districts in the Seoul Metropolitan Area, and 8 cities and counties in the western region of Gangwon Province**
    - **Chuncheon National Forest Management Office**: 4 Cities and Counties
    - **Hongcheon National Forest Management Office**: 3 Cities and Counties
    - **Seoul National Forest Management Office**: 48 Cities and Counties
    - **Suwon National Forest Management Office**: 17 Cities and Counties
    - **Inje National Forest Management Office**: 1 Country
    - **Civilian Control Zone (North) National Forest Management Office**: 4 Country

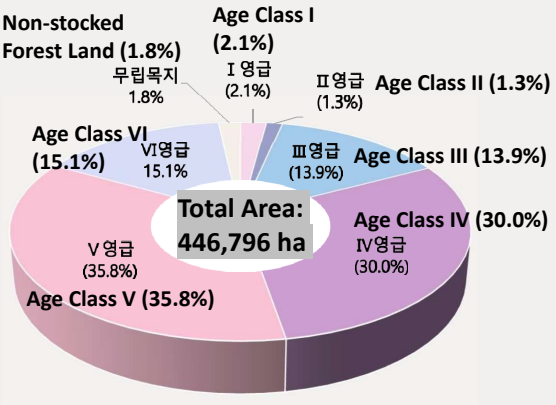
The national forests under the jurisdiction of the Korea Forest Service account for 35% of the total forest area within the jurisdiction.

Forest Area under the Jurisdiction of the Northern Regional Office of Forest Service



By Forest Type

임상별

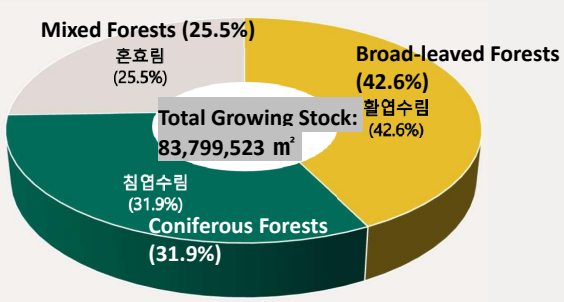


By Age Class

영급별

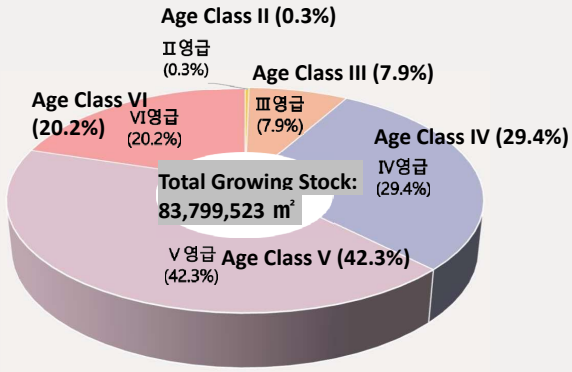
2020 임업통계연보 기준

Growing Stock within the Jurisdiction of the Northern Regional Office of Forest Service



By Forest Type

임상별



By Age Class

영급별

2020 임업통계연보 기준

7

Forest Area and Growing Stock of the Northern Regional Office of Forest Service

The forest area (94,488.32 ha) and growing stock (83,799,523 m²) under the Northern Regional Office of Forest Service account for 30% of the national forests (151,100 ha / 278,350,000 m²) managed by the Korea Forest Service

8

Promotional Video of the Northern Regional Office of Forest Service

Thank You.

Wildfire Suppression Equipment Overview

November 4, 2025

북부지방산림청

Northern Regional Office, Korea Forest Service

I Wildfire Command Vehicle

Overview

The wildfire command vehicle is designed to assist in wildfire and landslide response operations by providing real-time information through ICT-based communication and satellite systems. It supports field command centers in developing suppression strategies and conducting on-site briefings.

Features

▶ Displays real-time monitoring screens for wildfire status, fire spread prediction, live video, drone footage, and suppression strategy maps.

▶ Equipped with an internal battery allowing up to 4 hours of operation without an external power supply. When connected to an external source, the vehicle can operate without time limitation.

▶ The Northern Regional Forest Service uses a Renault Master Van model equipped with three 65-inch monitors.

- Vehicle cost: 34 million KRW
- System installation cost: 22 million KRW

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Wildfire Command Vehicle (Standard Type)</td><td>Wildfire Command Vehicle (Improved Structure)</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Spring 2025 wildfire suppression training</td><td>Actual wildfire site (Inje-gun, Gangwon Province)</td></tr>
</table>

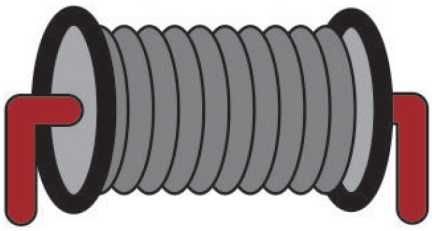
Ⅱ Mechanized Wildfire Suppression System

1. Components

The system consists of a pump, distributor, hoses (13mm and 8.5mm), pulley, portable water tank, and spray gun.

Medium Pump

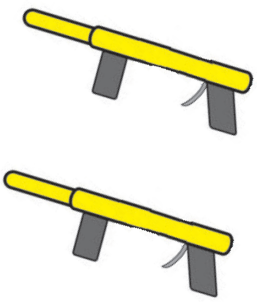
Distributor



Main Hose (13mm)

Branch Hose (8.5mm)

Portable Water Tank



Spray Gun

2. Operational Concept

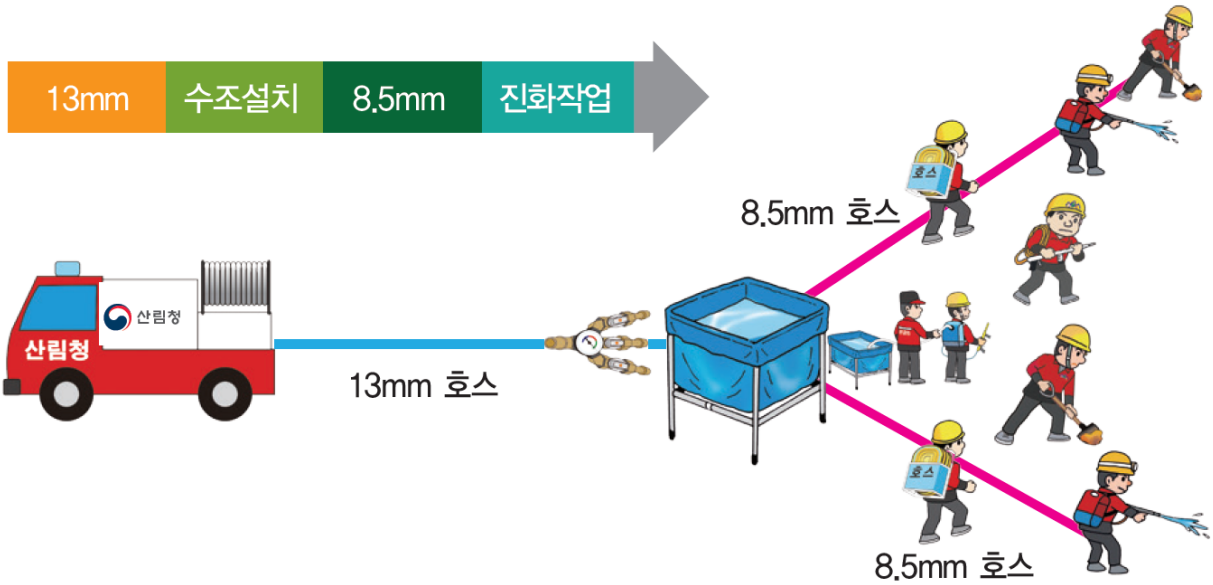
By combining fire engines, medium pumps, and small pumps, the water supply capacity for fire suppression is increased.

Hoses are installed using hose pulleys, and suppression is then carried out through two branch hoses.

Various suppression operations are possible depending on the scale of the wildfire, the equipment available, and field conditions, such as supplying water from portable water tanks to backpack pumps.

• Concept diagram for small-scale wildfire suppression

13mm hose - water tank installation - 8.5mm hose - suppression operation



• Concept diagram for medium-scale wildfire suppression

13mm hose - water tank/pump - 13mm hose - water tank distributor - 8.5mm hose - suppression operation

III High-Performance Wildfire Suppression Vehicle (Unimog U5023)

<Background>

◈ Following large-scale wildfires in Uljin and Miryang (2022), the need for high-performance suppression equipment was recognized. Therefore, the Unimog U5023 was first introduced in late 2022 to enhance effective response to forest disasters.

◈ It provides high water capacity and four-wheel drive capability for rugged terrain, making it ideal for wildfire operations.

❑ Vehicle Overview

- **Model**: Mercedes-Benz Unimog U5023
- Manufactured by Daimler Truck AG under the Mercedes-Benz brand in Germany.
- Originally developed as a **multi-purpose agricultural vehicle** for labor reduction and mechanization.
- Features a **portal axle system**, raising ground clearance and ensuring superior off-road mobility—especially suitable for unpaved forest roads and towing heavy loads.

< superior off-road mobility >

❑ Specifications of the High-Performance Wildfire Suppression Vehicle

Category		Specification	Remarks
Vehicle Model		**High-Performance Wildfire Suppression Vehicle** (U5023)	
Seating Capacity		2 persons	
Cage gory	Dimensions	7,000 mm (L) × 2,450 mm (W) × 3,350 mm (H)	
	Engine	231 HP Diesel (Euro 6) / 5,132cc (4-cylinder), Fuel tank: 220ℓ	fuel: 220ℓ
	Performance	Max speed: 90–110 km/h / Max climbing angle: 46° / Water fording: 1.2m / Minimum ground clearance: 460mm / 3-level tire pressure adjustment	
	Weight	Total weight: 14,020 kg / Max load: 35,000 kg	Regular license
	Drive Type	4WD / 16 forward, 14 reverse automatic transmission	
	Water Tank Capacity	3,500ℓ	
	Approach / Departure Angles	46° / 50°	
	Max Pumping	13mm hose: 1,000m (60ℓ/min)	

	Distance	25mm hose: 600m (250ℓ/min per line, 2 lines = 400ℓ)	Additional 400m
		40mm hose: 300m (500ℓ/min per line, 6 lines = 3,000ℓ)	
	Lighting	Equipped with two 300W LED floodlights for nighttime operations	
Main Features		Enables direct suppression and water supply operations on forest roads	

Training and Visit of the Türkiye Government Delegation to the Republic of Korea 「Technology Partnership for Integrated Forest Fire Management」

Introduction of Forest Fire Damage Restoration (Afforestation) Project Sites

□ Status of Forest Fire Damage

○ Date/Time of Occurrence) April 2, 2023 (Sun), occurred at 12:18

○ (Location) Seogu Sanzik-dong, mountain lot no. 16-3 and 150 other parcels

○ (Cause of Fire) Ignited at 24-1, Sindaeri, Geumsan-gun, and moved toward Seogu

○ (Damaged Area) 646.45 ha in Daejeon Seogu (Private forest 603.54 ha, National forest 42.91 ha)

□ Current Progress

○ (Restored Area) 33.59 ha restoration (afforestation) completed / Artificial restoration target: 37.6 ha, Natural regeneration target: 565.94 ha

○ (Project Budget) 753,540 thousand KRW / Based on the end point of the 2025 forest fire damage restoration afforestation project (June 2025)

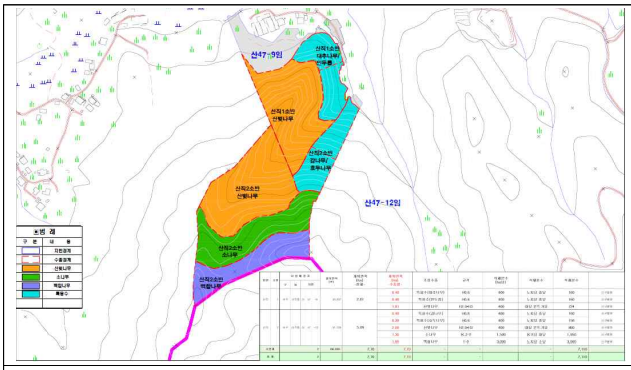
Year	Project Name	Location	Work Type	Project Period	Budget (thousand KRW)	Project Details
2023	Forest Fire Damage Restoration Basic Plan Establishment Service	Sanzik-dong San 23-1 and 6 other lots	Service	23.10.17. ~24.2.13.	62,048	- Establishment of basic restoration plan for forest fire damage (1 lot)
	Forest Fire Damage Emergency Logging	Sanzik-dong San 23-1 and 6 other lots	Design	23.05.12. ~06.10.	20,000	- Survey of forest fire damage and working design service (1 lot)
			Supervision	23.10.05. ~10.10.	3,250	- Supervision service (1 lot)
			Construction	23.10.27. ~11.23.	119,873	- Emergency logging on 5.5 ha
2024	Permanent Restoration Afforestation Project in Forest Fire Damage Site	Sanzik-dong San 23-1 and 6 other lots	Design	24.2.15.~ 3.13.	6,980	- Working design service (1 lot)
			Supervision	24.3.11.~ 11.5.	3,000	- Supervision service (1 lot)
			Construction	24.4.4.~6. 19.	191,174	- Forest fire damage restoration afforestation 5.89 ha- 3,931 trees (Yamazakura and 7 other species)

	Forest Fire Damage Restoration Afforestation Project	Sanzik-dong San 27, San 52-4	Design	24.2.15.~ 3.13.	6,980	- Working design service (1 lot)
			Supervision	24.3.11.~ 11.05.	5,700	- Supervision service (1 lot)
			Construction	24.4.29.~ 6.19.	189,717	- Forest fire damage restoration afforestation 15 ha- 20,884 trees (Pine and 5 other species)
	Fall Permanent Restoration Afforestation Project for Forest Fire Damage Site	Sanzik-dong San 47-9, San 47-12	Design	24.9.9.~1 0.07.	2,893	- Working design service (1 lot)
			Supervision	24.10.4.~ 25.1.1.	3,540	- Supervision service (1 lot)
			Construction	24.11.12. ~12.19.	161,920	- Forest fire damage restoration afforestation 7.7 ha- 7,110 trees (Pine and 6 other species)
2025	Forest Fire Damage Restoration Afforestation Project	Sanzik-dong San 50-4	Design	25.2.17.~ 3.16.	2,004	- Working design service (1 lot)
			Supervision	25.3.14.~ 6.11.	2,664	- Supervision service (1 lot)
			Construction	25.4.30.~ 5.27.	68,000	- Forest fire damage restoration afforestation 5 ha- 9,400 trees (Yamazakura and 2 other species)

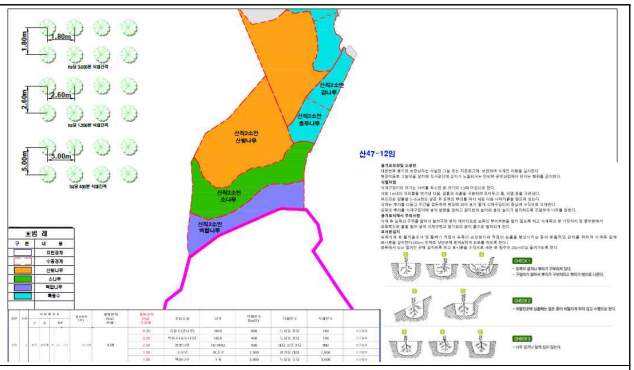
❍ Visit Sites

Location (Dong)	Lot No.	Project Area (ha)	Area by Species (ha)	Species	Number of Trees	Remarks
Sanzik-dong	San 47-9	2.61	0.4	Jujube tree	160	Afforestation in Nov. 2024
			0.4	Aralia elata	160	
			1.81	Yamazakura (mountain cherry tree)	724	
	San 47-12	5.09	0.4	Persimmon tree	160	
			0.39	Walnut tree	156	
			2	Yamazakura (mountain cherry tree)	800	
			1.3	Pine tree	1,950	
			1	Tulip tree (Liriodendron tulipifera)	3,000	
	San 23-3	0.41	0.09	Pine tree	180	Afforestation in Apr. 2024
			0.08	Yamazakura (mountain cherry tree)	40	
			0.17	Cornelian cherry tree	85	
			0.07	Fringe tree	35	
	San 27	6.81	4.85	Pine tree	9,700	
			1.45	Tulip tree (Liriodendron tulipifera)	4,350	
			0.51	Walnut tree	204	

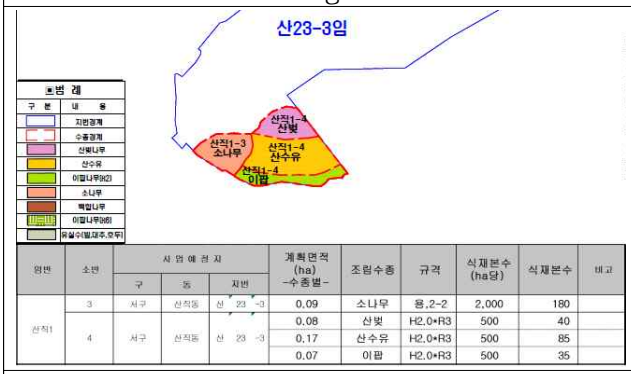
○ (Reference Maps)



Sanzik-dong san47-9

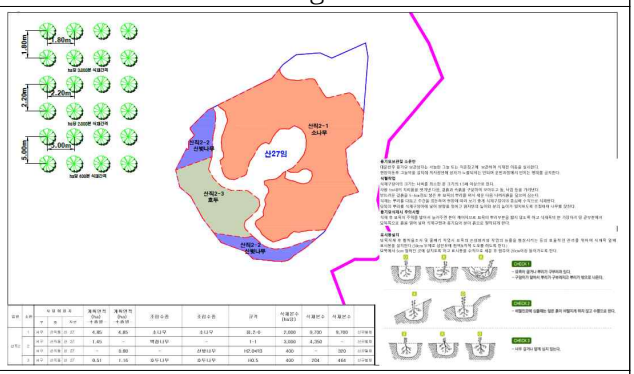


Sanzik-dong san47-12



임반	소반	사업예정지			계획면적 (ha) -수종별-	조림수종	규격	식재본수 (ha당)	식재본수	비고
		구	동	지번						
산직1	3	서구	산직동	산 23 -3	0.09	소나무	용,2-2	2,000	180	
	4	서구	산직동	산 23 -3	0.08	산벚	H2.0*R3	500	40	
					0.17	산수유	H2.0*R3	500	85	
					0.07	이팝	H2.0*R3	500	35	

Sanzik-dong san 23-3



Sanzik-dong san27

□ Future Plans

○ (Feb. ~ May 2026) Implement afforestation on the remaining artificial restoration target area (4 ha)

Current Status of Wildfire Damage Restoration in Seo-gu, Daejeon

대전광역시 서구

Current Status of Wildfire Damage Restoration in Seo-gu, Daejeon

1 Overview of Wildfire Damage

Date and Time of Occurrence / Suppression

- A wildfire occurred between Geumsan to Daejeon from 12:18 on April 2, 2023 to 16:40 on April 4, 2023 (52 hours)
- Daejeon Seo-gu was declared **a Special Disaster Zone** on April 5, 2023

Total Burned Area

- **646.45**

* Includes 42.98 ha of national forest (Jangan-dong San 12-1; Sanjik-dong San 33, 34).

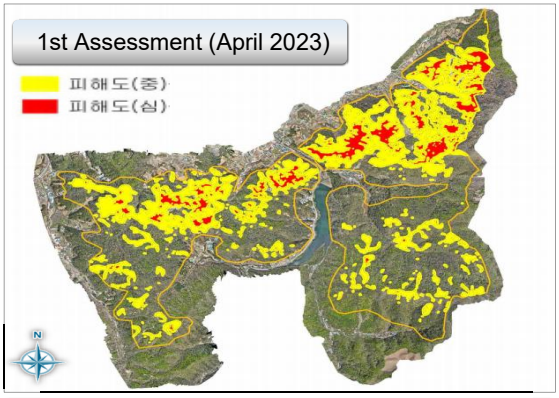
Total (ha)	Severe	Moderate	Light
646.45	36.37	127.1	482.98

Total Restoration Budget

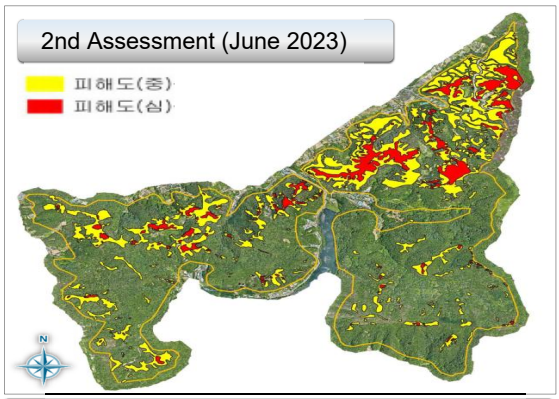
- **3,556,992 thousand KRW** (National: 1,593,894 / City: 942,194 / District: 540,904 / Special Account: 480,000)
  - * 2023 Budget: 1,576,988 thousand KRW (National: 298,169, City: 736,910, District: 61,909, Special Account: 480,000)
  - * 2024 Budget: 1,980,004 thousand KRW (National: 1,295,725, City: 205,264, District: 478,998)




2 Wildfire Occurrence and Suppression Timeline



Total affected area confirmed at 646.45 ha
(Severe: 54.36, Moderate: 174.27, Light: 417.82)

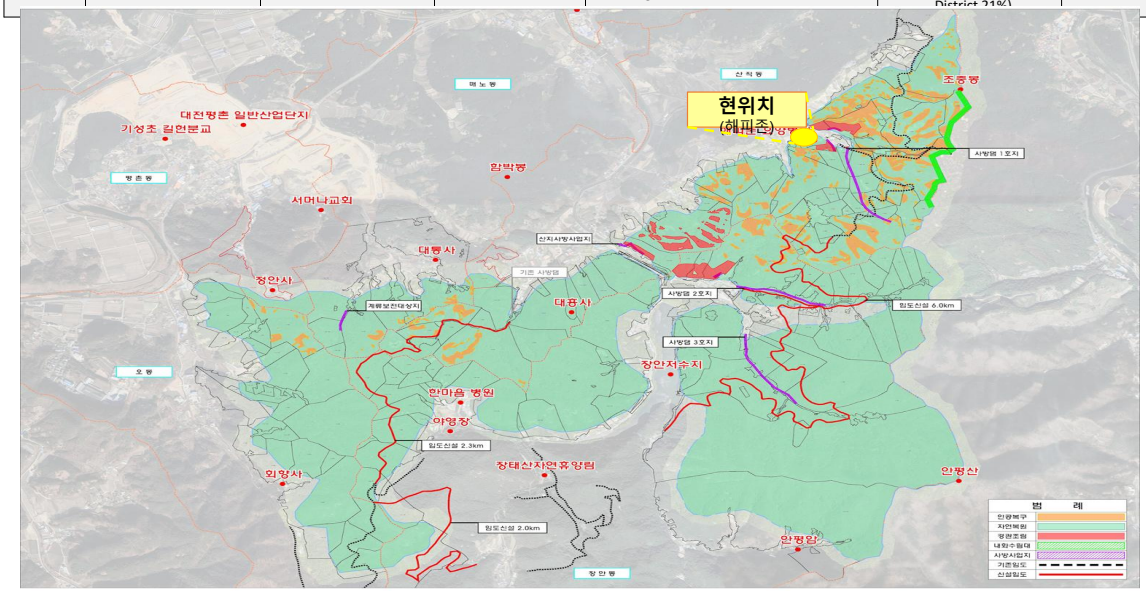


Total affected area confirmed at 646.45ha
(Severe: 36.37, Moderate: 127.1, Light: 482.98)

3 On-site Photos of Burned Areas and Restoration Activities

4 Comprehensive Restoration Plan and Progress

Year	Project Type	Location	Period	Main Work	Budget (1,000 KRW)	Status
2023	Emergency Restoration	Sanjik-dong, Jangan-dong, etc	2023.10.17 ~ 2024.2.13	Emergency logging & basic restoration planning	200,000 (City 100%)	Completed
2023	Emergency Logging	산직동 산23-1 외 6필지	23.10.27.~11.23.	Logging 5.5 ha	174,350 (National 100%)	Completed
2023	Emergency Slope Stabilization	산직동 산23-1 외 3필지	23.11.3.~12.31.	Slope stabilization 1.62 ha	247,638 (National 50%, City 25%, District 25%)	Completed
2023 ~2024	Permanent Restoration (Slope & Stream Protection)	산직동 산27 외 3필지	24.4.12.~ 6.21 .	Slope stabilization 1 ha + stream protection 1 km	480,000 (Special Account 100%)	Completed
2023 ~2024	Permanent Restoration (Reforestation)	산직동 산23-1 외 6필지	24.4.4.~6.19.	Reforestation 5.89 ha (post-logging area)	320,000 (City 100%)	Completed
2024	Reforestation (Including Fire-Resistant Belt)	산직동 산52-4 외 1필지	24.4.29.~6.19.	Reforestation 15 ha	219,100 (National 50%, City 15%, District 35%)	Completed
2024	Wildfire Suppression Facility	오동 산3 자혜은빛마을(노인시설)	24.4.23.~7.21.	Installation of water-mist suppression system (3 towers)	309,860 (National 20%, City 59%, DIstrict 21%)	In Progress
2024	Forest Fire Response Road Construction	서구 관내 산림	24. 1. ~ 12.	Construction of wildfire response roads 5 km	1,606,440 (National 70%, City 9%, District 21%)	In Progress



Daejeon Seo-gu Wildfire Damage Restoration Project

1 Overview of Wildfire Damage

Date of Occurrence

- **Wildfire Occurrence:** 2 April 2023, 12:18 • **Wildfire Extinguishment:** 4 April 2023, 16:40
- **Total Burned Area:** 889.36 ha (Daejeon: 646.45 ha / Geumsan: 242.91 ha)
- **Special Disaster Area Declaration:** Seo-gu, Daejeon designated on 5 April 2023.

Location

San 23-1, Sanjik-dong, Seo-gu, and 150 related parcels.

Damage Classification

Seo-gu, Daejeon: 646.45ha(Private Forest: 603.54ha, National Forest: 42.91ha)

Total (ha)	Severe Damage	Medium Damage	Minor Damage
646.45	36.37	127.1	482.98

Restoration Plan

(Private Forest 603.54 ha)

- Artificial Restoration: 37.6 ha (6.3%)
- Natural Regeneration: 565.94 ha (93.7%)

2 Emergency Logging and Burned Area Reforestation

Location

San 23-1, Sanjik-dong, Seo-gu, and 11 adjacent parcels

Project Period

2025. 5. October 2023 – May 2025

Budget

KRW 788,450,000

Scope of Work

- Emergency Logging: 5.5 ha
- Reforestation: 33.59 ha
- Total Restoration Target: 37.6 ha → Progress: Approx. 89.3% completed

3 Erosion Control Facilities for Post-Wildfire Disaster Prevention

Location

Area near 905-1, Jangan-dong, Seo-gu

Project Period

January 2025 – June 2025

Budget

KRW 323,000,000 (National 70%. City 21%, District 9%)

Scope of Work

- Gravity-Type Concrete Check Dam (Crest Length: 21.5 m)
- Boulder Masonry
- Sediment Barriers
- Drainage Channel Improvements

→ Construction Progress: 70%

4 Forest Road Construction for Wildfire Suppression and Access

Location

Area around San 66, Jangan-dong, Seo-gu (Connection to Odong Forest Road)

Project Period

October 2024 – December 2025

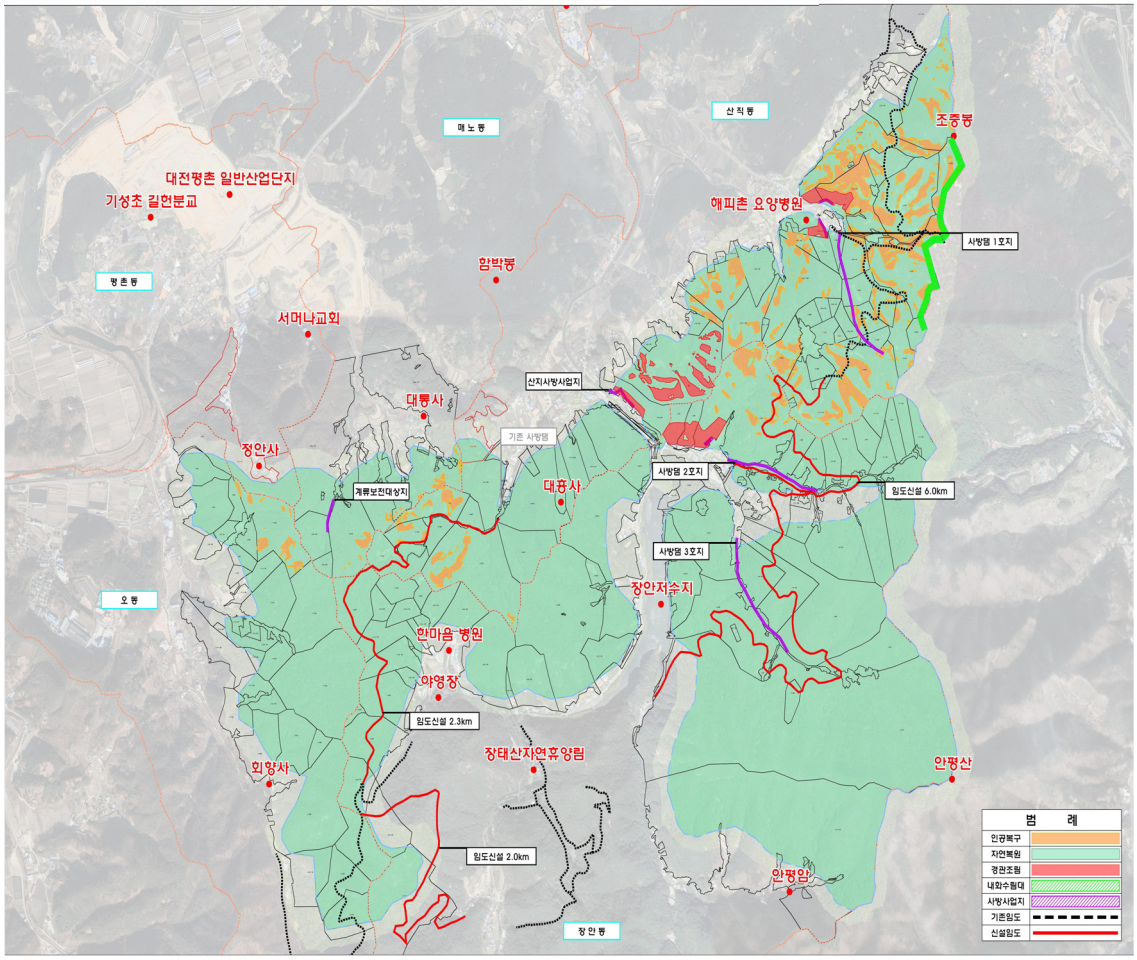
Budget

KRW 1,606,044,000 (Regional Fond 70%, City 9%, District 21%)

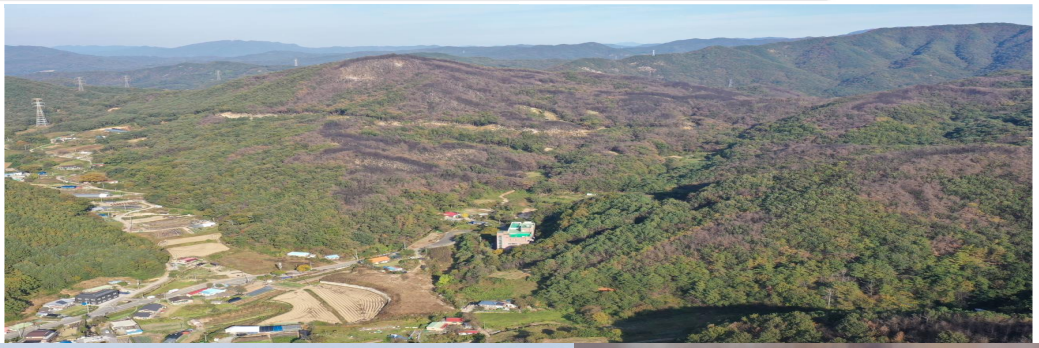
Scope of Work

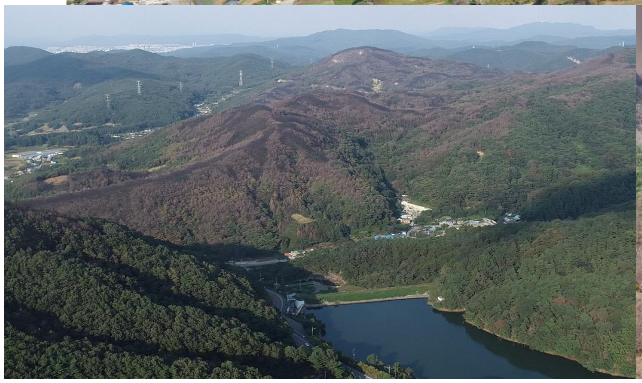
- Section 1: 2.4 km (Scheduled for completion)
- Section 2: 0.8 km (Under construction)

Map of Burned Area and Restoration Progress



Drone Footage of Burned Area





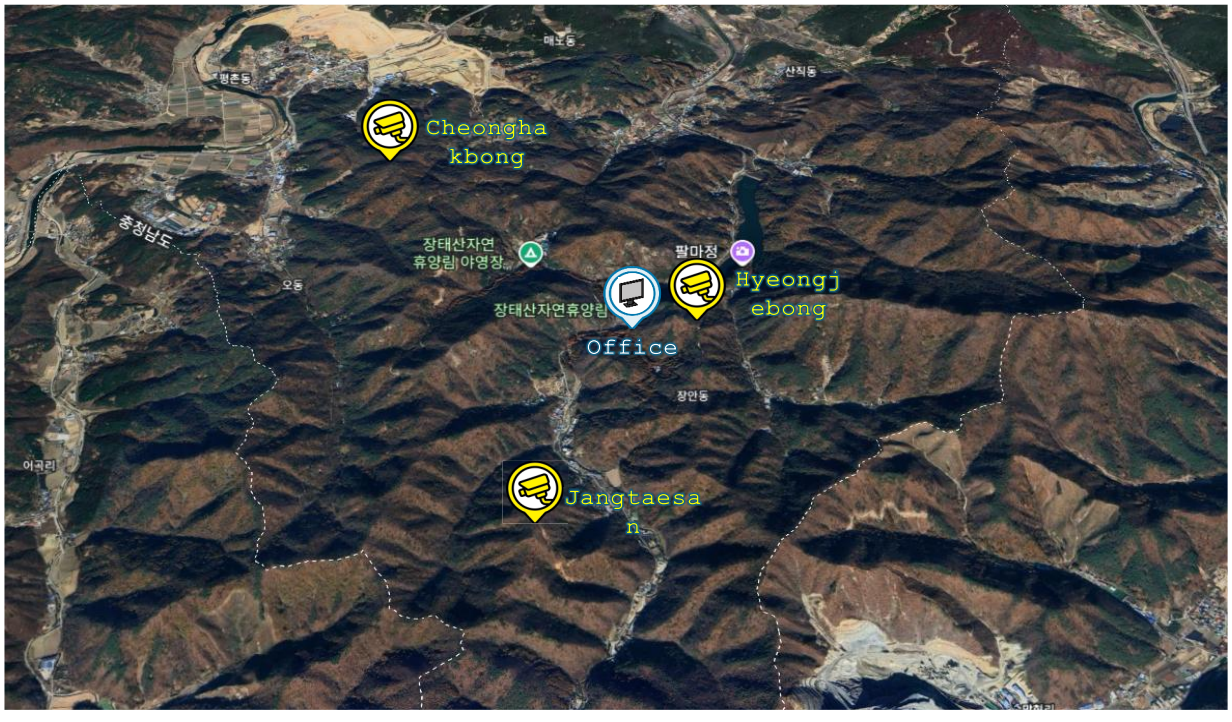
ICT-based Wildfire Prevention and Monitoring System

Project Proposal

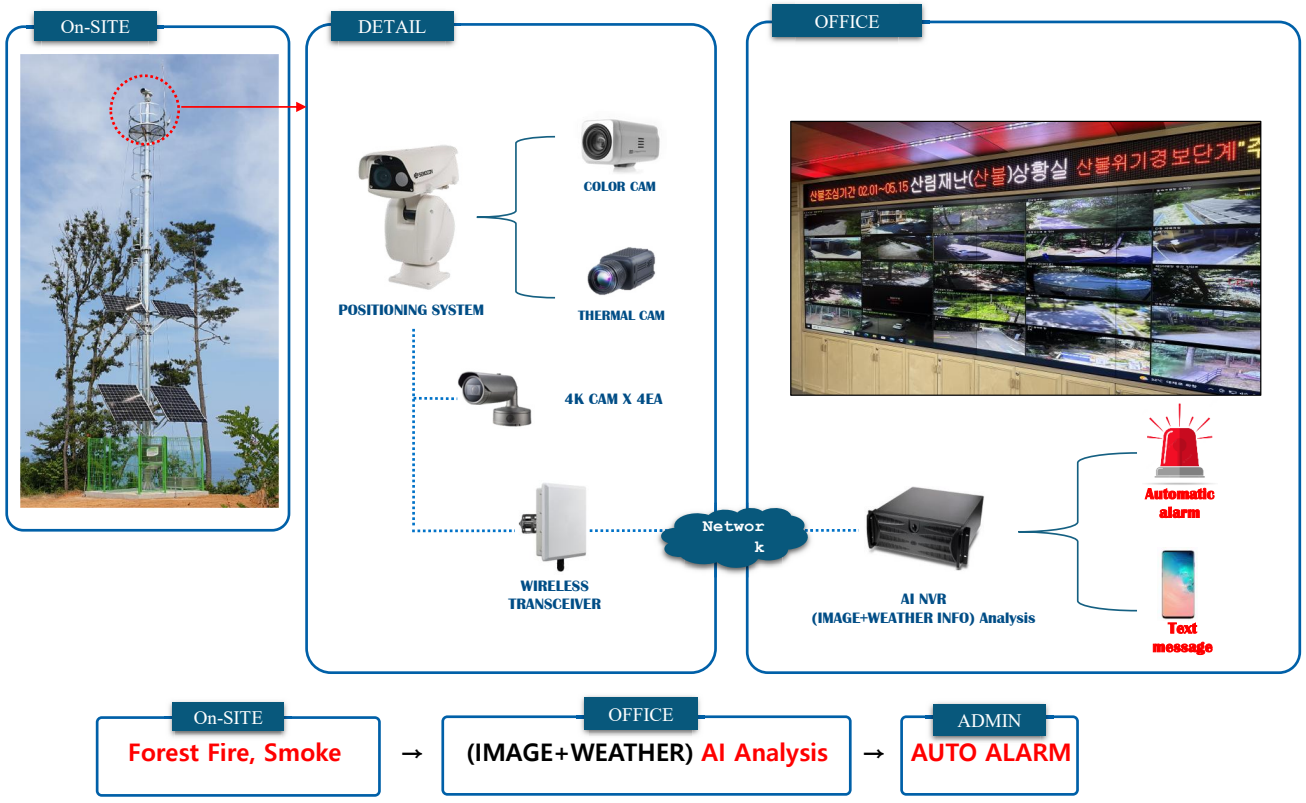
SENTEC

Tel : +82-041-522-5610
Fax : +82-041-523-5610
E-mail : sentec@sentec.co.kr

1. Camera installation locations



2. System Block diagram



On-SITE	→	OFFICE	→	ADMIN
Forest Fire, Smoke		(IMAGE+WEATHER) AI Analysis		AUTO ALARM

3. Product Specification

Thermal camera

◈ Detects infrared radiation and displays thermal images..
◈ Clear images day and night.
◈ Independent wildfire detection using flame dynamics and BMD method for fast, accurate analysis.
◈ Detects fires within 1–3 km (range extendable with lens change).

MODEL	
CG-640	

TYPE	Spec	Remarks
Measurement Wavelength	8 – 14 ㎛	
Resolution	640*480 Pixel	
Frame Rate	50Hz	
Thermal Sensitivity	≤50mK @f/1.0, 30Hz, 300k	
Input Power	DC12V, AC220V	
Operating Temperature	-15℃ ~ 50℃	
Size	132 x 77.6 x 67.6mm	

Color camera

◈ High-resolution megapixel camera for wildfire monitoring.
◈ Fog and shake correction functions.
◈ Up to 36x zoom, up to 60 fps.
◈ Intelligent video analysis features

MODEL	
SCN-200B36N15 (TTA)	

TYPE	Spec	Remarks
Image sensor	1/1.8" CMOS Image Sensor	
Resolution	2.0MP, 2560 x 1440@30fps	
Lens	F=6~216mm, x36 zoom	
Shutter speed	1/1~1/30,000sec	
Video Compression	H.265/H.264/Mjpeg	
Output	Composite	
Network	Ethernet 10/100base-T(RJ-45)	
Operating Temperature	-30℃ ~ 70℃	
Input Power	DC12V/PoE:MaxDC12V/9.6W	
Size	80(w)x227(L)x88(H)mm	

3. Product Specification

4K Bullet camera

- ◈ 4K Resolution.
- ◈ 4.5–10mm (F2.2) Motorized Varifocal Lens.
- ◈ IR Visible Distance: 30m.
- ◈ Maximum Resolution: 3864 (H) x 2180 (V)

MODEL	
SCN-OA9081S	

TYPE	Spec	Remarks
Image sensor	1/1.8" CMOS Image Sensor	
Resolution	4K, 3864 x 2180	
Lens	F=4.5~10mm, x2.2 zoom	
Shutter speed	1/5~1/12,000sec	
Video Compression	H.265/H.264/Mjpeg	
FOV	H:101.4˚(Wide)~45.4˚(Tele) / V:53.6˚(Wide)~25.5(Tele) / D:120.7˚(Wide)~52.3˚(Tele)	
Network	Ethernet 10/100/1000 base-T(RJ-45)	
Operating Temperature	-40℃ ~ 55℃	
Input Power	DC12V/PoE+(IEEE802.3at)	
Size	Ø91x368.6mm, 2.48kg	

Positioning system

- ◈ Supports multiple protocols (with auto-selection function).
- ◈ RS-485 Control: Samsung-T/E, Pelco-D/P, etc.
- ◈ Built-in Wiper/Fan/Heater.
- ◈ 360° (Endless) Rotation, Dual Housing

MODEL	
SNP-7000L	

TYPE	Spec	Remarks
Pan Angle, Speed	360°(Endless), 0.036°/sec~120°/sec	
Tilt Angle, Speed	-90°~40°, 0.012°/sec ~ 40°/sec	
Preset Accuracy	Max. ±0.1°	
Protocol	Automatic, semocon, Samsung-T/E, Pelco-D/P, AD, Bosch, GE, Honeywell, Panasonic, Vicon	
Network	802.3u/100BASE-TX	
Operating Environment	-40℃~55℃/Up to 90%RH	
Dustproof, Waterproof	IP66	
Input Power	AC24V, DC36V, Max 130W	
Size	262(w)x518(H)x534(D)mm	

3. Product Specification

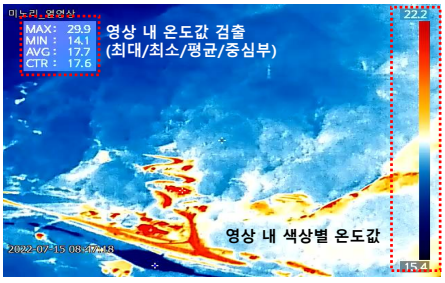
AI NVR

◈ Deep learning-based **AI system analyzes fire and smoke videos and weather data in real time**, delivering fast and accurate alerts to the control room.

Ch	16 CH
Video compression	H.265, h.264, MJPEG
Multi-view	1/4/6/9/16/USER CUSTOM
Video Output	2 ports
Protocol	ONVIF, RTSP
Event	Motion detection, Sensor detection
Function	Supports various manufacturers, CMS monitoring, and scheduled/event recording.
AI Analysis	Fire (wildfire, smoke), people, vehicles etc.

◈ **Monitoring view**

Color camera view



Thermal camera view

4. On-site installation

4. Office monitoring system

Korea Forest Fire Management Service Association

Education and Training · Prevention technology · Research institution

OUTLINE

- BASIS OF ESTABLISHMENT AND GOAL

Education and training on forest fire prevention, research and investigation, and delegation of administrative duties related to forest fire prevention, pursuant to Article 35-2 of the Forest Protection Act.

- SCOPE OF BUSINESS

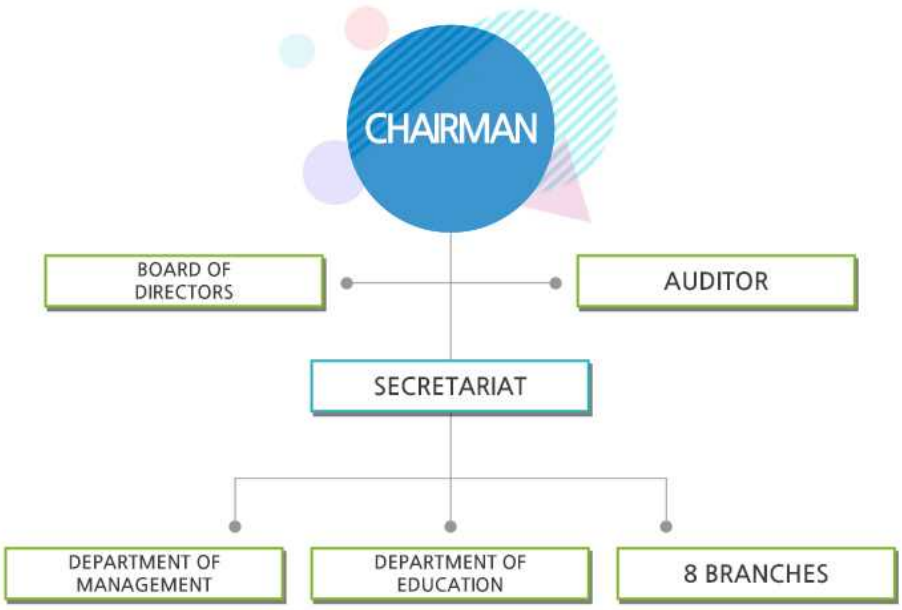
The statutory projects under Article 35-3 of the Forest Protection Act include education and training on forest fire prevention, research and investigation on forest fire prevention, international exchange on forest fire prevention technology and information, delegation of administrative duties related to forest fire prevention, and other related tasks.

- CHARACTER OF INSTITUTION

Non-profit incorporated association (special corporation) under the *Korea Forest Service*, established pursuant to the foundation basis in Article 35-2 of the Forest Protection Act.

ORGANIZATIONAL SYSTEM

Our association is run by the Chairman, Board of Directors, Auditors, and Secretariat, as well as the Business Management Headquarters, Education Business Headquarters, Forest Fire Prevention Research Institute, and eight offices across the country.



*8 BRANCHES : GYEONGGI BRANCH, GANGWON BRANCH, CHUNGBUK BRANCH, CHUNGNAM BRANCH, JEONBUK BRANCH, JEONNAM BRANCH, GYEONGBUK BRANCH, GYEONGNAM BRANCH

[Education training center]

Forest fire prevent education·training business

In order to advance changing and developing forest fire prevention policies and technology education, improve the efficiency of forest fire prevention education and training and provide customized education services to consumers.

■ Conducting education and training tasks to develop specialized personnel in forest fire prevention and enhance public awareness and knowledge of forest fire prevention, in accordance with Article 35-5 of the Forest Protection Act, under delegation from the Korea Forest Service and local governments pursuant to Article 35, Paragraph 2 of the same Act.

■ We provide optimal training services to enhance forest fire disaster response capabilities and protect lives and property by rapidly distributing forest fire prevention policies and newly introduced technologies.

Specialized Education

(Enhancing the expertise of forest fire prevention professionals and preventing hazard incident)

1. Training on the principles of forest fires, response strategies tailored to fire situations, forest fire suppression methods and tactics, and the use of mechanized suppression systems.
2. Developing skills for performing assigned tasks and knowledge of safety at forest fire suppression sites.
3. Target : Forest fire suppression crew, Forest fire warden, and others.

Basic Education

(Strengthening fire suppression capabilities and preventing hazard incident
for relevant agencies involved in forest fire prevention)

1. Various and precise prevention methods, including forest fire monitoring guidelines, instruction on burnung activities, fire reporting procedures, and coordinated burning management.
2. Developing skills for performing assigned tasks and knowledge of safety at forest fire suppression sites.
3. Target : Military units, forestry teams, the *Korea National Park Service*, and others.

Prevent Education

(Enhancing awareness of forest fire prevention and raising alertness to forest fire hazards)

1. Awareness of the dangers of forest fires and prevention methods.
2. Procedures for reporting and responding to forest fire sightings.
3. Target : students, residents, and others.

Contest

(Strengthening ground suppression capabilities through competitions that simulate actual forest fire suppression activities)

1. Enhancing the capabilities for utilizing machanized forest fire suppression systems and facilitating information sharing between related agencies.
2. Promoting competitions to ensure training is suitable for the local forests and terrains.

[Technical support team]

Forest fire extinguishing facility maintenance·inspection business

1. Ensure that fire suppression facilities are operational at all times through regular inspection and maintenance, enabling the protection of human, cultural heritage, and critical facilities in case of forest fire occurrences.
2. All inspectors are required to obtain certification, enhancing maintenance and repair capabilities through shared inspection techniques and on-site training.

Classification of inspection

Pre investigation

Regular·precise inspection

Emergency inspection

Write a report

[Forest Fire Prevent Research Institute]

As an organization composed of expert researchers in the field of forestfires, it strives to resolve current wildfire challenges and respond to policy demands by developing progressive and practical prevention and response technologies grounded in comprehensive research and investigation.

Forest fire Burned area Investigation

Targeting cities and counties nationwide, this initiative selects areas where significant forestfire-related threats to life and property are anticipated. Through on-site surveys, mapping analysis, and others, it proposes administrative, forestry and engineering-based management strategies for forestfire prevention.

Selection of survey sites using forestfire risk maps

(Selection of survey target areas based on forestfire thematic maps)

⇓

Pre investigation

(Data collection and analysis of forestfire risk factors and protective facilities)

⇓

Field investigation

(Conducting a detailed survey of forestfire risk factors in the field)

⇓

Organizing data and writing reports

(Evaluating the risk levels based on forestfire risk factors and establishing appropriate management strategies)

Consulting for Strengthening Forest Fire-Resilient Communities

Engaging and conducting expert consultations to diagnose wildfire risks, enabling communities to protect themselves from wildfires. This includes developing alternatives such as land use planning, risk assessments, capacity building (including ampaigns and education), and tailored business proposals to mitigate these risks.

Land use planning
⇓
Risk assessments
⇓
Strengthen capacity
⇓
Tailored business

[Conducting government R&D and planning project research]

Conduct practical research and development, integrating advanced technology and aiming toward future-oriented studies, to support the demand for wildfire prevention and response policies and technology development carried out by government bodies, local municipalities, and public institutions.

*as of the year 2024

OPERATION	PROJECT NAME
Andong National University	Analysis and evaluation of testbed for forest fire demonstration
Korea Forest Service	Preparation of spread forecast and situation map to respond to forest fires in 2024
Korea Forest Service	Establishment of Wildfire Response Systems for National Infrastructure (Gas Facilities)
Korea Forest Service	Forest fire surveillance camera status survey and monitoring
National Institute of Forest Science	Medium and small-sized forest fire area damage intensity classification based on satellite and drone images II
National Institute of Forest Science	Survey of ground extinguishing resources and establishment of DB
16 city and county	2024 Consulting for Strengthening Forest Fire-Resilient Communities

[Forest Fire Investigation Center]

Investigation of forest fire-affected areas and establishment of a database

The Head of the *Korea Forest Service* or the Head of a Local government is required to conduct investigations on the causes and current status of forest fires and to form and operate a specialized forest fire investigation team, pursuant to Article 42 of the Forest Protection Act. Since 2015, We have been progressively training specialized personnel and, upon requests from the Korea Forest Service and local governments, has been conducting investigations of wildfire-affected areas. Additionally, it has been continuously working on research for the development of investigation technology and the establishment of a database.

Prepare

-preparing eqipments

-get a pirior information, request for cooperation

⇓

Field investigation

-investigation of the current status of forest fire-affected areas

-investigation of forest fire ignition sites and causes

⇓

Establishment of DB, analysis

-database development for information on forest fire-affected areas

-editing orthophoto

-analysis GIS, mapping

⇓

Writing reports

-schematic drawing of forest fire-affected area

-writing forest fire affected area report

Central Forest Disaster Control Center of the Korea Forest Service

Overview of the Central Forest Disaster Control Center

The Central Forest Disaster Control Center operated by the Korea Forest Service monitors various forest-related disasters—including wildfires, landslides, and forest pests—around the clock. The center is responsible for ensuring rapid response and command during disaster events and serves as the national control tower in forest disaster management. Due to the nature of real-time operations, activity levels within the center may increase when alerts are received.

Workforce and Operations

- Total of 12 personnel, operating on a 4-team, 3-person rotation for continuous monitoring.
- During the spring wildfire precautionary period (February 1–May 15), 3 additional personnel are assigned, enabling 3 teams of 5 personnel.
- The center remains on standby for immediate response when wildfire reports are received.

Wildfire Response System Components (6 systems)

1. Wildfire Situation Management System (primary)
2. National Wildfire Risk Forecasting System
3. Wildfire Spread Prediction System
4. Wildfire Monitoring System
5. Wildfire On-Site Video Monitoring System
6. Helicopter Safety Operation Information System

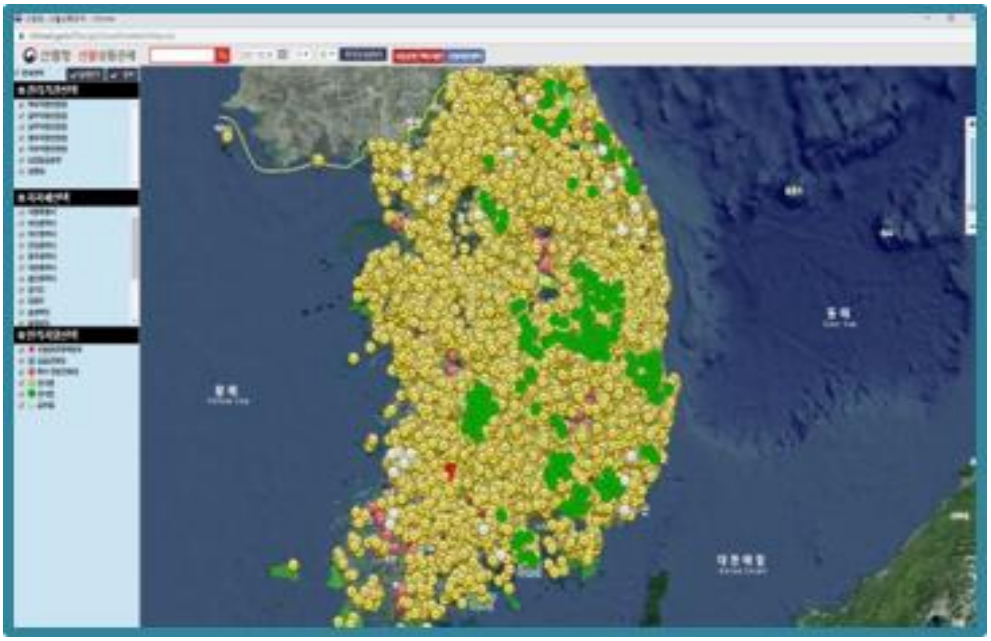
All screens displayed in the situation room are used in real wildfire response operations.

National Wildfire Risk Forecasting System

- Issues wildfire alert levels based on weather conditions and wildfire risk indices.
- Four alert levels: **Attention** → **Caution** → **Alert** → **Severe**.
- High-risk areas may be designated under:
  - **High-Risk Wildfire Advisory**
  - **High-Risk Wildfire Warning**
- Risk indices are color-coded; values are calculated using:
  - Forest type (coniferous, broad-leaf, mixed)
  - Temperature, wind speed, humidity
  - Local environmental characteristics
- Real-time risk data are provided by region via web and mobile platforms.

Wildfire Monitoring System

- Utilizes **GPS-based Forest Disaster Safety Devices** to report wildfire locations.
- Real-time personnel tracking reduces surveillance blind spots and improves allocation.
- Device icons distinguish:
  - Aerial firefighters
  - Special wildfire suppression teams
  - Wildfire monitors
  - Observation towers
- Approximately **13,000 devices** are deployed nationwide.
- Live video feeds allow real-time onsite assessment.



Wildfire Situation Management System

An integrated platform covering the full wildfire response lifecycle, including:

- Incident report reception (via the safety device, smartphone app, or 119 emergency hotline)
- Display of ignition location and surrounding information (weather, forest type, terrain)
- Situational assessment, resource allocation, and strategy development
- Shared situational awareness with the On-Site Integrated Command Post and related agencies

Key Features

- Records all resources and actions from report to extinguishment.
- Provides nearby critical infrastructure data:
    - Cultural heritage sites
    - Power transmission towers
    - Nuclear power plants
    - Elderly care facilities
    - Childcare centers and kindergartens
- Contains approximately **320,000** facility entries.
- A 2023 improvement to the national emergency reporting system reduced initial response time from **6 minutes to 3 minutes**.

Wildfire Spread Prediction System & Wildfire Situation Map

Prediction Inputs

- Forest type
- Terrain and slope
- Wind direction and speed
- Humidity

Utilization

- Forecasts wildfire spread direction and intensity
- Supports evacuation decisions
- Guides fireline construction and protection of key facilities

Wildfire Situation Maps

- Integrate helicopter and drone footage
- Visualize:
    - Spread direction
    - Fire impact area
    - Suppression progress
- Facilitate tactical resource deployment
- Example visualized: **March 2023 Hongseong (Chungnam) major wildfire**

Real-time updates from the field are continuously fed back into the situation room, supporting adaptive strategy adjustments.

Wildfire On-Site Video Monitoring System

- Real-time video feeds from helicopters, ground personnel, and vehicles
- Nighttime monitoring uses **thermal imaging drones** due to helicopter limitations after dark
- Drone imagery is integrated into daytime situation maps
- Enables accurate assessment of fire intensity and spread
- Supports optimal placement of aerial and ground suppression teams
- Video and photos are provided to disaster-related media outlets

Helicopter Safety Operation Information System

Provides comprehensive aviation information including:

- Available helicopters
- Real-time and historical flight paths
- No-fly zones
- Weather conditions

Supports:

- Airspace coordination
- Safe entry/exit routes for multiple aircraft
- Monitoring of transport paths between water sources and fire sites

Command aircraft play a key role in large wildfires involving military, leased, and firefighting helicopters.

Technological Excellence and International Recognition

- The wildfire situation management platform is **independently developed** by the Korea Forest Service.
- Recognized domestically and internationally for its advanced capabilities.
- Frequently visited by delegations from:
    - Australia, Austria, Portugal, Spain
    - Indonesia, Mongolia, Cambodia, Vietnam

The center is regarded as a leading reference example for forest disaster management systems worldwide.

Future Development Directions

The Korea Forest Service plans to further advance its systems through:

- Artificial intelligence (AI)
- Information and communications technology (ICT)
- Mountain meteorological observation networks
- Agricultural and forestry satellites
- Additional scientific and technological innovation


HANSEO
Company
Fire fighting trucks
Water Cannon
Agricultural machine
Inquiry
THE BEST TECHNOLOGY, THE BEST SERVICE
HANSEO PRECISION INDUSTRY
READ MORE
HANSEO
COMPANY
PRODUCT
Fire fighting trucks
READ MORE
Water Cannon
READ MORE
Agricultural Machinery
READ MORE

LOCATION

COMPANY INTRO.

Location	195 Yeonamyulgeum-ro, Seonghwan-eup, Seobuk-gu, Cheonan-si,Chungnam, South Korea
Tel	+82-41-529-3000~3 (Sales dep. +82-41-529-3066)
Fax	+82-41-529-3005
E-mail	hanseo@hsltd.co.kr, Jin@hsltd.co.kr
Website	www.hsltd.co.kr/english

COMPANY HISTORY

First in, last out To hero.

- **HANSEO** establishment — 1990
- Established an office to innovate the factor — 1996
- **PRIME MINISTER** certificate — 2000
  - ISO 9001, 14001
  - INOBIZ
- **FIRE VEHICLE** Multiple-production system — 2010
  - CE cert.
  - CCR(Central Contractor Registration, USA)
- **PRESIDENT AWARD** — 2015
  - Prime minister award
  - Public Procurement Service award
- **3million export** tower — 2016
  - 21units to Vietnam
- **112units fire trucks** — 2019
  - Philippine
- **73units fire trucks** — 2021
  - Philippine
- **10million export** tower — 2025

HANSEO

Summary of company history

1

1990–2000

Established "Hanseo Agricultural Machinery" with the construction of Low Profile spray unit
Established an office to innovate the factory (1996)
Changed the company name to "HANSEO PRECISION INDUSTRY CO., LTD." (1996)
Installation of an automatic assembly line in the first factory (1999)
Award of the ISO9001 certificate for quality management (2000)

2

2003–2008

Award for performance and future potential of the company (2003)
Awarded a certificate of an innovative company (INNO-BIZ) (2006)
- Certificate for a clean and safe factory
- Official recognition and approval of the R&D Center
- Major participant in the Seoul International Exhibition of Agricultural Machinery
- Awarded a certificate of venture company

Installation of an automatic assembly line in the second factory (2007)
Vice presidential award for social contribution to national industry (2008)
Obtained Q-Mark (2008)

3

2010–2017

Awarded a certificate for a Promising Export Firm by the Small & Medium Business (2010)
Awarded a Ministry of Trade, Industry and Energy certificate (2014)
Exported 21 vehicles in Vietnam (2015)
Awards for Export Tower of USD 300 million (2017)

4

2019–2022

Participated in SIMA 2019, agricultural machinery and livestock equipment exhibition in France
Exported 12 fire pump vehicles to the Philippines (2020)
Exported 73 fire pump vehicles from the Philippines (2021)
Awarded the Export Tower of USD 7 million (2022)
Selected for HRD4U program by Human Resources Development Service of Korea (2022)
Designated as G-pass company (2022)

5

2023–2024

Export ratio significantly increased compared to 2021, accelerating export-driven growth (2023–2024)
Achieved USD 9.48 million export in the first half of 2024 (cumulative over USD 16.51 million) (2024)
Entered the Vietnam market, secured contract for 36 fire trucks (2024)
First exports of forest fire trucks to Cambodia and Myanmar through AFoCO (2024)
Continued stable supply of fire pump vehicles and parts in the Philippine market (2024)
Fulfilled the requirements for the "USD 10 Million Export Tower" (2025)

EXPORT

COUNTRY
China
Vietnam
Norway
Switzerland
Zimbabwe
Netherland
Syria
Mongolia
Australia
Peru
Japan
Iran
Indo
New-Zealand
USA
Canada
Gabon
Sri Lanka
Philippines

EXPORT

Exported 200 units to the Philippines(8.5t Fire fighting vehicle)



Exported 24 units to the Vietnam (8.5t Fire fighting vehicle)



Exported 6 units to Ulaanbaatar Fire Department, Mongolia (forest)



Serving Heroes & For Heroes

Education

"How to Work" Technical Education




CERTIFICATION

ISO 9001
Quality Administration

ISO 14001
Environmental Administration

Innovative Administration

INNO-BIZ Certification

Certification of
Promising Company

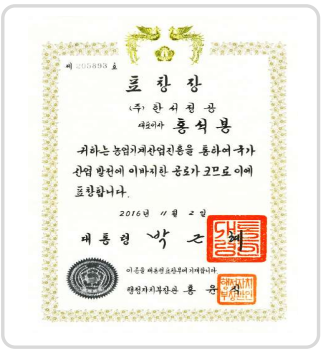
Official Approval of
R&D Center

Certification of KFI

Certification
Clean Factory

AWARD

2016 KOREA PRESIDENT AWARD



2016 KOREA PRIME MINISTER

2022 MINISTERIAL CITATION

2023 MINISTERIAL CITATION

2024 MINISTERIAL CITATION

2024 PRESIDENTIAL CITATION

EXPORT TOWER

2025
10 million export tower (to be awarded)

2015
1million export tower

2016
3million export tower

2022
7million export tower

COMPANY FACILITIES

THE BEST TECHNOLOGY! THE BEST SERVICE!

We, Hanseo Precision Industry Co., Ltd., are established in 1996 as specialized in Agricultural machinery,
multi-purpose fire fighting vehicles, pump fire fighting vehicles, Chemical fire fighting vehicles and fire fighting vehicles with CAFS.
WATER CANNON

R & D CENTRE

SERVICE CENTOR

QUALITY CENTRE

BUILDER LINE

3 PRODUTION LINE

Safety, Simplify, Stable

REPRESENTIVE agricultural machine

Represented production

유럽에도 호평받는 국내최초 2000ℓ 대용량 SS기 탄생!

PRODUCT INFO

Title		Description
Model		HSC-2000DW
Airframe Specification	Full length x Full width x Full height	5,550 × 1,900 × 1,415(㎜)
	Weight	2,762kg
Drug tank capacity		2,000ℓ
Engine	Type	D3400T (Kookje Diesel Engine)
	Output / Revolution Speed	57/2,600 ~ 63/2,600 (85-horsepower)
	Fuel	Diesel
Driving part	Shifting steps	Main Transmission: Forward 5 steps and reverse 1 step / Sub Transmission: 3 steps
	Driving speed	2.0 ~ 24 km/h
	Driving type	4-wheel drive at all times
	Wheel Specification	31-15.5/15 12PR
Ventilation air volume		600 ~ 700㎥/min

Safety, Simplify, Stable

REPRESENTIVE agricultural machine

Orchard Speed Sprayer

Model : HSC-2000DW

Model : HSC-1000DW

Italian pump with excellent performance

Blow fan with Italian clutch

Independent brake and plate spring

differential gear for automobiles

Powerful aluminum fan

European style electric valve

Independent brake and plate spring

Car type operation method

Safety, Simplify, Stable

REPRESENTIVE agricultural machine

Orchard Speed Sprayer

Model : HSS-1000EDW


Spacious driver's seat


kia frontier mission


Aluminum fan


54 horsepower diesel engine

Model : HSS-1000WTLDV


Italian four-part valve


Powerful aluminum fan


kia frontier mission


Spray Check LED Light

Safety, Simplify, Stable

REPRESENTIVE agricultural machine

Orchard Speed Sprayer

Model : HSS-500WTLD


European style electric valve


A twin nozzle with adjustable dose.


Automatic Electric Reel


kia frontier mission

Model : HSS-500CTLD


Simple shift lever


Double Equalizer


Strong hot-dip plating frame


A twin nozzle with adjustable dose.

Power Carrier

Model : HC-1000WDL

Model : HC-600CDL

Mini Dumper

Model : HC-500CD/CDL,
HC-500CHDL

Safety, Simplify, Stable

REPRESENTIVE agricultural machine

Mower

Model : HAM-1120
(Wireless Remote-Control)

Model : HCM-1000

Model : HCM-4040

Model : BM21

REPRESENTIVE agricultural machine

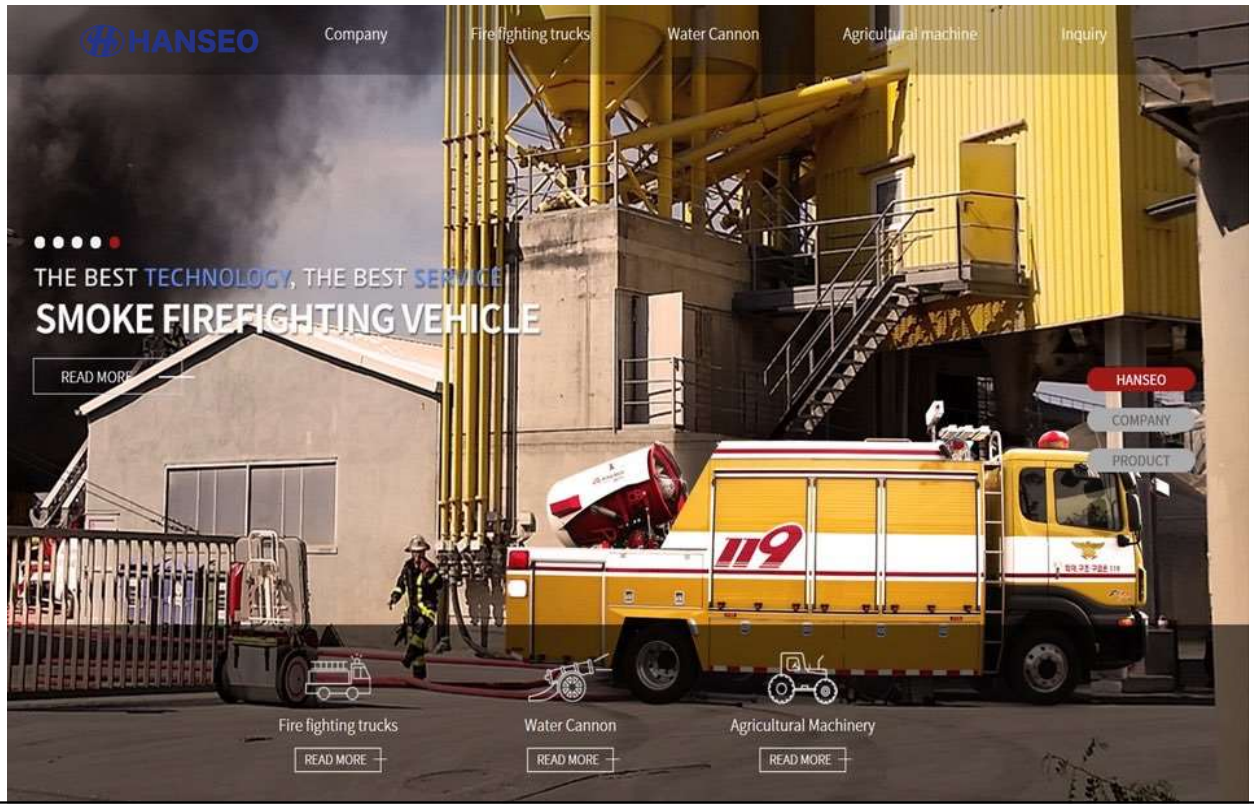
Bean Harvester (One-row walking)

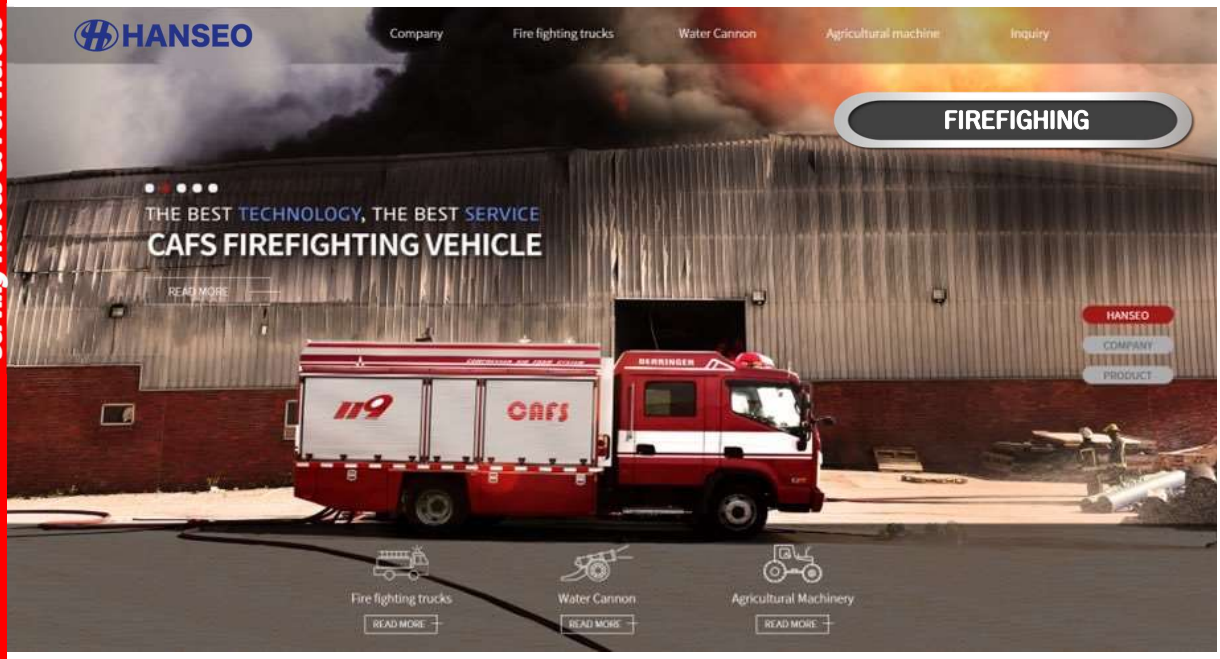
Model : BH-710A

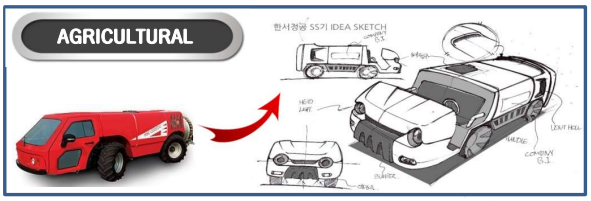
Bean Threshers(Walkimg hydraulic)

Model : HBT-1000

PRODUCTION





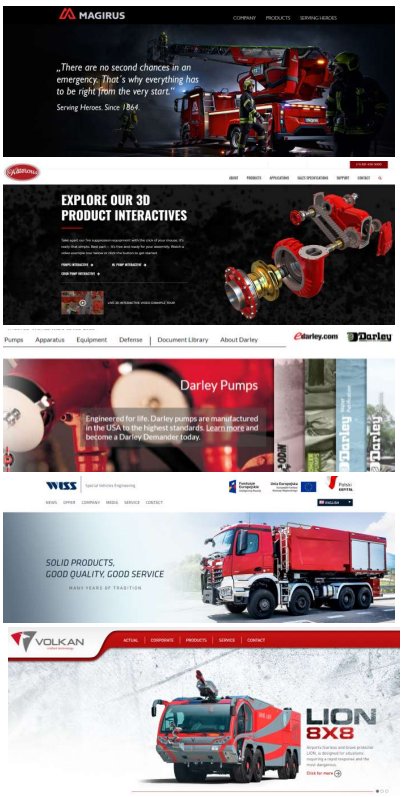


Serving Heroes & For Heroes

HANSEO

Type of vehicles

- 1.0 TON
  - Mini Fire fighting truck
  - Mini Decontamination truck
  - Mini forest Fire fighting truck
  - 1 , 1.2 ton CAFS (OP. 4X4, 4X2)
- 2.5 TON
  - Small fire fighting truck
  - small forest fire fighting truck
- 3.5 TON
  - Small fire fighting truck
  - CAFS
  - Foaming agent transfer truck
- 5. TON
  - Middle fire fighting truck
  - high pressure Middle fire fighting truck
  - CAFS
  - Middle Decontamination truck
  - Air core
  - Rescue truck
- 8.5 TON
  - Water Tanker
  - Pumper
  - CAFS
  - Water Cannon



22

REPRESENTIVE firefighting vehicles

SPACIAL ODER

- 4 X 4 & BUILD BY IMPORT VHIECLES

- MAGA FIREFIGHTING VHIELCLE

- 1.2 TON CAFS SYSTEM

Serving Heroes & For Heroes

REPRESENTIVE firefighting vehicles

Firefighting Truck (Compressed Air Foam System)

Model : HFF-1500 CAFS

Model : HFF-3000 CAFS

Firefighting Truck

Model : HFF-5000 CAFS

Detailed Photos

Serving Heroes & For Heroes

REPRESENTIVE firefighting vehicles

Firefighting Truck (Pump System)

Model : HFF-1500K

Detailed Photos

Model : HFF-5000

Firefighting Truck (Poisonous Gas Elimination System)

Model : HFF-1500K

Model : HFF-5000K

Serving Heroes & For Heroes

REPRESENTIVE firefighting vehicles

Firefighting Truck (Smoke Discharging System)

Model : HFS-5000

Model : HFS-5000E

Model : HS-700AT

REPRESENTIVE special vehicles

Represented production

WATER CANNON

Model : HFF-3500

Collaboration with World Leading Companies

Darley TRUSTED WORLDWIDE SINCE 1908 | MAGIRUS | WISS

Serving Heroes & For Heroes

Reference Info

Always welcome my world customers!


HANSEO

NOTE

[APPENDIX] – ABOUT APFF

ASIA PACIFIC
FOREST FORUM

ABOUT US

The **Asia Pacific Forest Forum** (formerly the Northeast Asia Forest Forum) was established in 1998 by a coalition of experts, entrepreneurs, and citizens committed to overcoming forest degradation in Northeast Asia.

Since then, we have been working to enhance the quality of life for local communities and contribute to combating desertification and climate change through the creation and sustainable management of forest ecosystems.

Guided by our vision of "**Healthy Nature, Happy People**" we have planted over 7,080,000 trees across 3,500 hectares in Mongolia, China, and other parts of Northeast Asia. Our efforts have included creating school forests, organizing forest experience programs for youth, and hosting international academic conferences.

Now, expanding beyond Northeast Asia, we are moving forward with a broader mission — to cultivate forests across the Asia-Pacific region as more valuable and sustainable resources, and to strengthen the vital connection between forests and people.

OUR HISTORY

1998-2000
- Launched at the Founding General Assembly & Seminar (Nov 24, 1998)
- Conducted research on forest degradation in Northeast Asia
- Explored inter-Korean forestry cooperation
- Published Forests and Forestry in Korea White Paper

2001–2005
- Produced a documentary on international reforestation cooperation (China & Mongolia)
- Hosted forums on yellow dust prevention and black locust tree use (China, DPRK, Korea) & Mongolian Forest Forum inauguration and tree planting event
- Began large-scale reforestation in Mongolia's Tolgoit Nars with Yuhan-Kimberly
- Explored CDM utilization in tropical forestry for climate action
- Engaged in seminars on China-Mongolia desertification prevention
- Launched disaster and restoration research across Northeast Asia

2006–2010
- Conducted capacity-building training for Chinese and Mongolian officials
- Celebrated the UN Year of Deserts with symposiums and master plans Signed MoU for the creation of the Friendship Forest in Mongolia Led the UNCCD Joint Project on desertification in Northeast Asia Joined the Climate Change Green Network (CCGN) Signed MoUs for afforestation projects in Altanbulag and Mungunmorit, Mongolia

2011–2015
- Marked the 10th anniversary of the Yuhan-Kimberly Forest
- Completed a joint nursery project in Mongolia
- Introduced forest tending techniques in Mongolia for the first time

2016–2020
- Delivered on-site training in nursery and forest management
- Opened the Yuhan-Kimberly Forest Eco-Tower

2021–Present
- Rebranded as the Asia Pacific Forest Forum (2024)
- Conducted feasibility studies on Pacific Island mangrove cooperation and Timor-Leste forestry collaboration (commissioned by Korea Forest Service)
- Led corporate volunteer mangrove planting in Batam Island, Indonesia with IBK Bank

OUR CORE FOCUS

Forests inspire our solutions
Forest conservation is closely linked to major global challenges—climate change, water scarcity, food security, biodiversity loss, and natural disaster risks. Creating and maintaining environments where trees can take root and thrive is, in essence, a meaningful step toward addressing broader social and economic issues.

Asia Pacific Forest Forum (APFF) works across the Asia-Pacific region to strengthen nature's resilience in the face of climate crisis. Through collaboration with international organizations, governments, corporations, local communities, and NGOs, we seek **integrated and sustainable solutions** where people and nature can coexist.

When forests thrive, so does the planet. Our approach to **Nature-Based Solutions (NbS)** begins with trees and ends with lasting change.

OUR STRATEGIC PROGRAMS

☑ PLANT PLANNER

"We plant trees and grow forests"

Through large-scale tree planting efforts, we contribute to expanding carbon sinks and addressing climate change. Our goal is to restore degraded forests and enhance biodiversity across the Asia-Pacific region.

#CLIMATEACTION
#ECOSYSTEMRESTORATION

☑ IMPACT MAKER

"We collaborate with local communities"

We design and implement community-based forest restoration and conservation programs in partnership with local NGOs and stakeholders. Each project is tailored to local needs and ecological characteristics, contributing to sustainable development and environmental resilience.

#COMMUNITYDRIVEN
#NTFPFORDEVELOPMENT

☑ GREEN SCHOOL BUILDER

"We share the value of forests and expertise in conservation"

We provide education and training programs that deepen understanding of forest ecosystems and the importance of sustainable forest management. We engage governments, businesses, communities, and individuals through workshops, site visits, and customized learning experiences. We also organize international study tours to share Korea's experience in forest conservation and enhancing climate resilience.

#FORESTEDUCATION
#CONSERVATIONAWARENESS
#STUDYTOURS

INTRODUCTION TO CI

CORPORATE IDENTITY

YELLOW
- Asia
- desertification

BLUE
- Pacific region
- tsunamis and floods

RED
- determination
- wildfires

GREEN
- forest restoration
- Symbolizes forests

The yellow in our CI represents Asia and the growing threat of desertification driven by climate change.
Blue signifies the Pacific Ocean, tsunamis, and floods,
while brick red conveys the danger of wildfires.
However, all these threats are met with green—a symbol of our vision to restore and protect forests as the ultimate solution.

BLUE
- Pacific region
- tsunamis and floods

RED
- determination
- wildfires

GREEN
- forest restoration
- Symbolizes forests

YELLOW
- Asia
- desertification

ORGANIZATION OVERVIEW

Membership

- Comprised of over 100 individual and corporate members
- Includes professionals, institutions, and organizations actively engaged in forest conservation, ecological restoration, and sustainable development across Asia-Pacific

Board of Directors

- Structured with 1 Chairperson, 8 Directors, and 1 Auditor
- Elected through the General Assembly from among qualified members
- Composed of experts in the forestry sector, including senior academics, professionals from public institutions, and private sector leaders
- Responsible for steering the organization through policy reviews, project planning, and financial oversight

Secretariat

- Implement decisions of the Board and General Assembly
- Oversees project execution, coordination, and administrative management
- Staffed by two full-time professionals with experience in international forestry initiatives

Contact

https://apff.or.kr/ +82.2.960.6114 @hello_apff