

The Ministry of Environment has announced a set of preemptive and systematic measures to prevent flood disasters

On Tuesday, May 9, 2023 at 16:30 AM, by Environment Minister Han Wha-jin

Good afternoon Everyone,

I am here to provide you with the details of our 2023 summer flood countermeasures, a part of the natural disaster countermeasure begins next week on May 15.

The Korea Meteorological Administration has reported that El Niño may develop earlier than expected this year and bring more rain to the southern regions.

Looking back at last year's heavy rains in August and Typhoon Hinnamnor in September in the Seoul metropolitan area, it's clear that they caused significant damage to both life and property. Considering this, it is crucial to take preemptive and organized steps to prevent the recurrence of flood damage this year.

To protect our citizens from floods this year, the Ministry of Environment has created important measures in three categories.

The Ministry will enhance flood forecasting and provide tailored information on flood-related matters.

Starting this May, we will pilot to forecast urban floods utilizing AI and VR technologies in the Dorimcheon Stream in Seoul. This area was previously affected by flood damage due to heavy rainfall in August last year.

We plan to expand the urban flood forecasting system to Pohang in Gyeongbuk, Changwon in Gyeongnam, and Gwangju by 2024 with the help of the Ministry of Science and ICT, based on the results obtained.

The Ministry has improved how we convey flood risk information by using specific and understandable phrases such as "flooding in a parking lot on the river bank" instead of vague terms like "attention" and "caution." This change was implemented last year and will now be expanded to 574 locations nationwide.

By 2025, we plan to extend our AI-driven flood forecasting system to 223 locations nationwide, enabling faster and more accurate predictions of floods in the mid to long term.

We will keep offering flood risk maps online for easy access and understanding of the flooding extent. We plan to create flood risk maps for severe weather conditions like a "1 in 500-year rainfall" event by next year.

Next, the Ministry will enhance our infrastructure for flood defense.

Our top priority is to enhance the safety of our current infrastructure.

In order to address the issue of flood-prone regions, we will be repairing river embankments and upgrading sewage pipes throughout the country. Specifically, last fall, certain areas of Seoul experienced flooding homes and roads due to clogged storm drains and street inlets caused by fallen leaves.

In order to avoid a recurrence of this issue, we made revisions to the Sewerage Act in December last year. These revisions strengthen the responsibilities of local governments in managing rainwater. In addition, we plan to conduct inspections of rainwater management by June this year. We will also work with local governments to

promote action plan people should follow for managing storm drains and street inlets.

We are going to install prevention facilities to prevent maintenance hole covers from coming loose, reducing the risk of accidents caused by flooding.

The Ministry plans to create new large-scale infrastructure.

By 2027, there are plans to build deep underground rainwater tunnels in the Gwanghwamun area and Gangnam Station, as well as an underground drainage channel in Dorimcheon Stream in Seoul.

We are working on a basic plan to begin construction in November 2023.

Starting at the end of this year, we will begin the construction of a spacious reservoir alongside the riverbank in Mokgamcheon, Gwangmyeong. Additionally, we will also be building a dam specifically for flood control in the upper region of Naengcheon, Pohang. It will be done following a feasibility study to be conducted this year.

In the coming years, we will establish water management plans tailored to each region's river basins to benefit major cities nationwide.

This year, we will establish plans for 34 regions by 2026, starting from the plans for Busan, Pohang, and Gyeongju. We will gradually install tailored flood defense infrastructure based on the unique characteristics of each region.

Third, the Ministry will improve its flood response capabilities and cooperate closely with other pertinent organizations.

Earlier this year, from February to March, we surveyed flood risk factors in all sections of national rivers. As a result, we have identified 390 flood-prone areas.

We have developed evacuation plans tailored to each area's specific characteristics and formed a consultative group with residents to share information about risk factors and strategies for minimizing the impact of potential disasters.

For the Imjin River basin and other bordering areas, we will increase the frequency of taking high-resolution satellite imagery from once to at least twice daily to prepare for unapproved releases from North Korea. Automatic analysis of satellite images will be improved to capture intricate details such as changes in dam water levels, river widths, and flow rates. This will help ensure a more accurate and swift response to crisis signals.

We will maintain sufficient water levels in the dam to be prepared for typhoons and heavy rainfall during the flood season to ensure effective flood control measures.

Our multi-purpose dams' storage rate has remained constant at 43.8% since May 8, which is in line with previous years. Furthermore, the flood control capacity is currently at 7.26 billion tons.

Previously, during times of crisis, such as heavy rainfall, meetings were held between the Korea Meteorological Administration and the flood control center. Moving forward, we plan to enhance our crisis response efforts by involving water management departments such as Korea Water Resources Corporation and Korea Hydro & Nuclear Power for better collaboration.

In anticipation of increased river levels, we will utilize the 8,000 CCTVs currently used by the Regional Environmental Offices, Flood Control Center, and Korea Water Resources Corporation.

In May 2023, we will be conducting joint emergency recovery drills with regional

environmental management offices and local governments to improve the speed of our flood response. We will work with the Ministry of Land, Infrastructure, and Transport and local governments to ensure recovery materials and equipment can quickly be supplied in an emergency.

We will work with the Ministry of the Interior and Safety and take necessary measures to minimize damage to lives and property due to typhoons and heavy rains.

Thank you.

<Q> Regarding the urban flood forecasting pilot project in the Dorimcheon Stream, how prepared are the environment ministry and other related organizations?

I have three additional questions. According to the briefing material, AI flood forecasting is being presented as a project for the mid-to-long term. Based on this statement, can you clarify how many locations we can examine data and predict for this year?

Concerns were raised about delayed disaster alert messages during the flood damage last year. It would also be helpful to know how the alert messages will be delivered and what types of alerts will be sent out.

Last year, the National Assembly Research Service brought to light that the Central Disaster and Safety Countermeasures Headquarters, led by the Minister of the Interior and Safety, had overlapping duties with the Prime Minister's office during the floods. The National Assembly has recognized that our national disaster response system is fragmented and needs to be unified. I am curious if this topic was addressed in the flood response plan.

<A> We have completed all necessary preparations. Our AI flood system is expected to be completed by 2024. At present, we are in the final stages of developing the AI flood forecasting platform. This platform has the advantage of providing more scientifically accurate forecasts, allowing us to bring forward the forecast window to six hours instead of the conventional three hours. It will enable us to secure precious time in the event of a flood.

We are working with the Ministry of the Interior and Safety to address issues related to the Central Disaster and Safety Countermeasures Headquarters. However, it will take more time to resolve these matters fully. We will have conversations with the Interior Ministry to resolve any overlapping concerns.

<A> (Son Ok-joo, Director-General of Water Resources Policy Bureau) We aim to finish developing the AI flood forecasting system by 2024. We will start a trial run in Dorimcheon. Our first step this year will be to set up the platform comprehensively, using different methodologies and consulting with experts. We plan to make the platform operational for practical use by 2025.

The pilot operation in Dorimcheon is a necessary step in testing the system before its full-scale operation in 2025.

<Q> As per your previous statement, the construction of an underground drainage channel in Dorimcheon Stream and rainwater tunnels in Gangnam Station and the Gwanghwamun area was scheduled for this November. However, the press release material indicates that it will be carried out after the disaster preparedness period, and AI forecasting will commence in 2024. From my understanding, the digital flood forecasts, rainwater tunnels, and sewer and maintenance hole management plans are the immediate measures that can be implemented this summer. Can you please share with us any new forecasting and prevention system that will be implemented this

summer which is different from last year?

<A> These countermeasures detail the Ministry's preparedness for floods this year. It includes new initiatives to prevent previous flood damage from happening again, as well as enhancements and expansions to existing measures.

Based on what you said, several new measures seem to be being implemented. These include a pilot program for flood forecasting in Dorimcheon, mandatory maintenance for sewage facilities like storm drains and maintenance holes, and the installation of new flood defense structures.

We will improve the existing measures by providing real-time public information, expanding the locations where flood information is available, investing more in sewage and river maintenance, and upgrading satellite surveillance of North Korean dams along the border to twice a day.

Unfortunately, we won't be able to introduce AI flood technology this year. We are working hard to develop it, and our current timeline estimates completion in 2024, with a full-scale launch planned for 2025.

<Q> It appears that the primary objective is to improve the dissemination of flood-related data. I am interested in understanding the sharing of this information with emergency services like the police, firefighters, and other departments responsible for rescue operations during flooding. Additionally, I would like to know the specific details of how this system will function.

During the last briefing, you mentioned the AI forecasting system. Have there been any recent updates or enhancements in this area? Additionally, I was curious about the process for addressing false reports or misinformation. Is there a specific plan in place

for taking responsibility in such cases?

<A> (Son Ok-joo, Director-General of Water Resources Policy Bureau) Among what you mentioned, we handle two types of information. The first type pertains to flood forecasting, which involves making predictions ahead of 3 hours. The second type is not a forecast. We provide real-time data that can be accessed at 574 points.

We share both types of information with the fire department, the Ministry of the Interior and Safety, local governments, and, if necessary, other related departments. We also receive information from these organizations as part of the sharing process.