기후에너지환경부 보도자료

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Bigger Water Capacity, Smarter Flood Forecasting

- MCEE reports and announces 2026 summer flood measures at Cabinet meeting
- MCEE and MAFRA strengthen flood response using agricultural reservoirs, hydropower dams, and estuary barrages
- Public urban flood alert service to launch in six districts of Seoul

The Ministry of Climate, Energy and Environment (MCEE, Minister Kim Sungwhan) announced that it had established the "2026 Summer Flood Countermeasures" to prevent flood damage during the summer natural disaster response period (May 15–October 15), and reported the plan at the 21st Cabinet Meeting chaired by the President held at the Blue House on May 12.

In recent years, rainfall patterns have changed rapidly due to the impacts of climate change, with hourly precipitation reaching record highs and localized torrential downpours occurring more frequently. As the first summer flood season (June 21–September 20) under the Lee Jae Myung administration approaches, thorough preparedness is essential to minimize flood damage in response to these changing rainfall patterns. Accordingly, the MCEE has begun establishing a comprehensive plan to minimize casualties this summer.

The plan will be implemented under the key directions of "securing hidden water storage capacity and intelligent flood response based on artificial intelligence (AI) and digital twins (DT)," through 19 tasks across three priority areas: △ strengthening flood control through expanded water storage capacity, △ securing lead time for proactive response by enhancing forecasting systems, and △ intensive management of vulnerable areas and risk factors.

1. Strengthening flood control through securing hidden water storage capacity

Through close collaboration, the Ministry of Climate, Energy and Environment (MCEE) and the Ministry of Agriculture, Food and Rural Affairs (MAFRA) will identify hidden water storage capacity in existing facilities such as agricultural reservoirs, hydropower dams, and estuary barrages to secure up to an additional 1.04 billion tons of flood control capacity compared to the previous year.* This is comparable to the effect of operating approximately three Hantan River Dams and is expected to generate budget savings of around KRW 4 trillion** by securing large-scale flood control capacity without constructing new dams.

* Total flood control capacity: Existing 10.82 billion tons → Improved 11.86 billion tons (1.04 billion tons ↑)

** Estimated based on the construction cost (KRW 1.2 trillion) of the Hantan River Dam (with a flood control capacity of approximately 300 million tons, constructed in 2016)

First, agricultural reservoirs managed by the Korea Rural Community Corporation (KRC) will expand water storage capacity from the current 640 million tons to up to 1.06 billion tons (an increase of 420 million tons) by supplying water and conducting pre-release operations within a range that does not disrupt agricultural water supply. In addition, three estuary barrages (Geum River, Yeongsan River, and Nakdong River) and the Asan Bay Seawall (Han River watershed) will revise flood-season operating standards to newly secure up to 150 million tons of flood control capacity.

* (Agricultural reservoirs) 420 million tons (Existing 640 million tons → Improved 1.06 billion tons) / (Estuary barrages, etc.) 150 million tons (New)

Water storage capacity will be secured flexibly by considering on-site conditions such as summer rainfall patterns at each reservoir and estuary barrage, as well as water supply needs during the farming season. In cases where flood risk is anticipated, the Flood Control Office (FCO) will issue a “flood alert system directive” by analyzing regional rainfall forecasts in

conjunction with discharge conditions at upstream dams and reservoirs, while estuary barrage operators will maximize water storage capacity through pre-release operations that take tidal conditions into account.

In addition, the number of agricultural facilities subject to the FCO's approval for sluice gate discharge will be expanded from 38 to 58 (an increase of 20 facilities)* to strengthen an integrated flood response system linking dams, reservoirs, and estuary barrages by watershed. Seventeen reservoirs equipped with sluice gates, two estuary barrages (Geum River and Yeongsan River), and the Asan Bay Seawall will be newly included under the FCO's sluice gate discharge management, enabling the establishment of a rapid flood response system through close coordination between facility operators and the FCO.

* (Reservoirs) Existing 37 facilities with a capacity of at least 5 million tons, etc. (River Act) → Improved 17 additional facilities equipped with sluice gates
(Estuary barrages) Existing 1 (Nakdong River (K-water)) → Improved 3 additional facilities (Yeongsan River and Geum River estuary barrages, and the Asan Bay Seawall)

Hydropower dams operated by the Korea Hydro & Nuclear Power Co. (KHNP) will also more than double their flood control capacity in preparation for extreme summer rainfall, expanding it from the current 380 million tons to up to 850 million tons (an increase of 470 million tons).* Hydropower dams will secure up to an additional 440 million tons of water storage capacity by lowering water levels below normal-year levels through pre-release operations when rainfall is forecast. In particular, Goesan Dam, which experienced overtopping during flooding in 2023, will be thoroughly managed to ensure preparedness for even the highest historical flood levels through sluice gate operations and, if necessary, the activation of emergency discharge facilities. Pumped-storage hydropower dams will also newly secure a total of 30 million tons of water storage capacity across seven dams by pumping water in advance from lower reservoirs to upper reservoirs and conducting pre-release operations when rainfall is forecast.

* (Hydropower dams) 440 million tons (Existing 380 million tons → Improved 820 million tons) /

(Pumped-storage hydropower dams) 30 million tons (New)

Before the flood season, the MCEE and the MAFRA plan to establish detailed watershed-specific plans to secure water storage capacity in cooperation with relevant agencies, including K-water, KRC, and KHNP, which manage the facilities, and to build a comprehensive response system through simulation exercises and on-site inspections.

2. Securing response time by strengthening forecasting systems

Meanwhile, response time will be maximized by strengthening forecasting systems, including public alerts for urban flooding, AI-based flood forecasting and ultra-short-term weather forecasts,* and intensive management of flood warning points, to predict and communicate risk situations in advance.

* Improvement of the radar-based AI ultra-short-term precipitation forecasting model (May 2026)

① Expanded coverage (from inland South Korea to the Korean Peninsula), ② increased resolution (from 8 km to 1 km), and ③ improved predictability through algorithm enhancements

In particular, urban flood forecasting, which will be implemented for the first time this year, will target six districts surrounding Gangnam Station and Sindaebang Station in Seoul. A system will be introduced to predict flood extent and water depth in advance and issue “Flood Advisories” (when flooding is forecast in advance) and “Flood Warnings” (when flooding is occurring in real time or is considered imminent). Through this system, local governments, police, and fire authorities are expected to be able to respond quickly on site by implementing access controls and installing flood barriers, while helping local residents safely evacuate from hazardous situations.

In addition, the predictive model for the AI-based flood forecasting system, which has been in operation since 2024, will be improved to enhance accuracy through measures such as the rapid retraining of new data.

Furthermore, among flood warning points, those with rapid water-level rise rates and short lead times to threshold water levels will be subject to intensive management through analysis of past flood events, including warning issuance times and actual arrival times of flood conditions. This targeted management of high-risk warning points is expected to secure sufficient evacuation time for residents.

3. Intensive management of vulnerable areas and risk factors

Lastly, the government will intensively manage flood-prone areas, river facilities, and sewage infrastructure, while strengthening response capabilities through measures such as improvements to emergency alert messages and AI-based closed-circuit television (CCTV). These efforts aim to enable rapid action before damage occurs in vulnerable areas and high-risk factors, thereby minimizing impacts.

In particular, through improvements to emergency alert messaging, notice of “Severe”-level flood, previously issued as a safety guidance text message, will now be upgraded to an “Emergency Disaster Alert” sent at the maximum mobile phone volume (40 dB or higher). Although the “Severe” flood notice indicates that a river has reached the Flood Water Level (FWL), signaling imminent overflow, risks arising from floods at the level had previously been communicated through standard safety guidance messages, making prompt evacuation difficult. This measure addresses that limitation. Meanwhile, the MCEE operated the “3rd Korea Flood Safety Awareness Period” from April 15 to May 14, thoroughly reviewing flood preparedness through joint simulation exercises, local government consultations, flood safety roadshow training, and inspections of flood response systems at affiliated and subordinate organizations. During this summer natural disaster response period, the MCEE also plans to work closely with relevant agencies to actively respond to flooding and minimize casualties.

Minister Kim Sungwhan of the MCEE stated, “Strengthening flood response by securing water storage capacity in existing dams, reservoirs, and estuary barrages is an example of maximizing the use of available resources to generate budget savings worth several trillion won.” He added, “We will not only improve rapid forecasting and response, but also break down barriers between ministries and fully utilize facilities not previously used for flood control to ensure thorough preparedness for flooding this summer.”