Cooperation between the two water-energy agencies to overcome drought in Gwangju and Jeollanam-do

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National Water Management Committee

Today, I will explain the 'cooperation between agencies to overcome drought in Gwangju and Jeollanam-do.'

The National Water Management Committee (formed under the President's direct control) signed an MOU on the cooperation between concerned authorities to overcome drought in Gwangju and Jeollanam-do. The MOU aims to strengthen the integrated operation of the Boseong River Dam (a hydroelectric power dam) and the Juam multi-purpose dam.

This agreement is meaningful because Korea Water Resources Corporation (K-Water) and Korea Hydro & Nuclear Power, two major management agencies for water and energy, respectively, agreed on the need to secure domestic and industrial water for the Juam Dam. The two agencies also agreed to cooperate to overcome drought in Gwangju and Jeollanam-do under the supervision of the National Water Management Committee.

Juam Dam, a multi-purpose dam operated by Korea Water Resources Corporation (K-Water), supplies water to 11 local governments around Gwangju and Jeollanam-do. However, it has been managed under the drought stage of 'severe' since August 30, 2022, due to the lack of precipitation in the Seomjin River basin.

As of March 13, 2023, the reservoir storage rate at Juam Dam was 22.2%, only 51% of the previous year. So it is necessary to develop countermeasures for a stable water

supply.

Boseong River Dam, a hydroelectric power dam operated by Korea Hydro & Nuclear Power, has produced electricity by discharging agricultural water toward Deungnyang Bay in Goheung, Jeollanam-do. However, its operation method has been changed according to the integrated operation of the Boseong River Dam-Juam Dam from July 2022.

Except for the amount of agricultural water required in the Deungnyang Bay area, the rest of the water used to generate power is discharged to the Juam Dam, operated by the Korea Water Resources Corporation. Discharged water will be used for domestic and industrial purposes in the area.

In this case, about 29.8 million tons of water will be supplied to the Juam Dam by June 2023. This amount is equivalent to about 30 days' worth of Juam Dam's domestic and industrial water supply, and it is expected to help overcome drought in Gwangju and Jeonnam.

Signed by Korea Water Resources Corporation and Korea Hydro & Nuclear Power, the agreement specifies plans to compensate for the decrease in power generation and power generation losses caused by using water from the Boseong River Dam for domestic and industrial water from the Juam Dam.

First, the decrease in power generated by the Boseong River Dam will be compensated with additional hydroelectric power generated from the Soyang River Dam, which has a relatively good water storage rate.

Korea Water Resources Corporation will financially compensate Korea Hydro & Nuclear Power for the water supplied from the Boseong River Dam to Juam Dam from

July last year and for power generation losses corresponding to additional support until the drought is resolved.

This agreement allows us to secure additional water sources for the Yeongsan River and Seomjin River basins, where the total amount of water needs to be increased. It is achieved as the agreement established specific grounds for the integrated operation of the Boseong River Dam and Juam Dam in case of drought in Gwangju and Jeonnam, as well as standards for compensating power generation losses.

The National Water Management Committee considers this agreement a best practice of actively responding to drought and energy crises through cooperation between agencies in the water and energy sectors. The Committee will continue to work with concerned agencies to bring about integrated water management.

With the Ministry of Environment and other concerned agencies, the National Water Management Committee will establish fundamental mid-to-long-term strategies for drought preparation for Gwangju and Jeonnam. These will include the measures promoted to date to overcome the drought in the southern region, such as integrating the operation of dams and reducing water used to maintain rivers.

If you take a look over here, I can explain the integrated operation of dams in more detail.

Juam Main Dam and Juam Control Dam are in the lower reaches of the Boseong River. In the past, Juam Main Dam supplied domestic and industrial water to six local governments, including Gwangju. Juam Control Dam supplied domestic and industrial water to five local governments, including Yeosu.

Now, the two dams are connected by a water supply tunnel. So, you can consider them

as one Dam. The extreme drought in this area caused a shortage of water supply for the region.

Meanwhile, the capacity of the Boseong River Dam located in the upper reaches of the Boseong River is relatively small compared to its basin. So normally, the system generates electricity while supplying agricultural water to the Deungnyang Bay area. This agreement enables us to use this water to fight the drought.

Since July 2022, we have changed the operation method to cope with the drought. Specifically, we calculate the required amount of agricultural water and only discharge the equivalent volume to Deungnyang Bay, indicated by the green arrow. The rest of the water is stored at Juam Dam through the Boseong River, which allows us to secure the domestic water supply to Yeosu and Gwangju.

In this case, hydropower and nuclear power generate power by discharging water to Deungnyang Bay to supply electricity and generate profits. Integrating the dams decreases the amount of power generation. We intend to solve this problem through this agreement.

The alternative power generated at Soyang River Dam, which is relatively rich in water, will compensate for the decrease in power generation to prevent any problems in the electricity supply throughout the country. According to this agreement, Korea Water Resources Corporation will pay compensation for the cost of power generation loss.

This integrated operation will increase the amount of water available at Juam Dam by about 30 days. If the current drought continues, we’re expected to reach low water levels around May this year. However, we do not anticipate low water levels thanks to this measure.