

PBAPP: Bigger Air Itam Dam does not reduce water risks

Audrey Dermawan - April 12, 2022



Expanding the Air Itam Dam to cater for increasing water demand will not lower the risk of facing water dearth. - NSTP/DANIAL SAAD

GEORGE TOWN: Expanding the Air Itam Dam to cater for increasing water demand will not lower the risk of facing water dearth, the Penang Water Supply Corporation (PBAPP) said.

Its chief executive officer Datuk Jaseni Maidinsa said a bigger dam would not store more water if the size of its water catchment area remained the same. He said the 60-year-old Air Itam Dam, located on a hill, could not be expanded without taking into account "safety factors".

"If we think rationally, we know that Penang does not need a bigger Air Itam Dam.

"It needs the timely and precise implementation of the Raw Water Contingency Plan 2030 (RWCP 2030) and the Penang Water Supply Initiative 2050 (PWSI 2050) projects to ensure continuous good water supply services until 2050," he said today.

PBAPP recently issued an alert for water consumers in the state, particularly those staying in the Air Itam township and surrounding areas, to use water wisely following a drop in the Air Itam Dam effective capacity and high water demand.

This prompted Penang Gerakan spokesman for Air Itam, Eric Woo, to tell the state government and PBAPP not to use the present situation to increase water tariff.

He had also said that the Air Itam Dam had been in used for 60 years, since 1962 until today, with no upgrading works being done to increase the effective capacity storage.

Elaborating, Jaseni said expanding the Air Itam Dam to cater for increasing water demand might sound like a good idea.

He, however, said from the professional water supply engineering standpoint, this idea would not "hold water", due to three key reasons.

"As at April 2022, the Air Itam Dam's water reserves have depleted. This scenario is not due to inadequate dam capacity. It is due to lack of rainfall in the dam's water catchment area (WCA) and high water demand in Air Itam and its surrounding areas.

"So, building a bigger Air Itam Dam does not make sense. Water supply engineers will propose to increase the size of a dam only if rainfall data shows that its WCA (or raw water resource, such as a river) can deliver more water than the existing maximum capacity of the dam.

"Expanding the Air Itam Dam without increasing the size of its WCA is pointless. It is akin to pouring the same amount of soup from a smaller bowl into a bigger bowl. The serving may look nicer but the volume of soup remains the same," he said today, adding that the protected Air Itam WCA could not be expanded because Penang was a crowded state and there were not many areas of rainforests left to gazette.

Secondly, Jaseni said, the Air Itam Dam was commissioned in 1962. It is "celebrating" its 60th year of service to Penang in 2022.

He said the Air Itam Dam was designed to be filled and re-filled by rainfall in the surrounding Air Itam WCA.

"Before the dam was built, water supply engineers calculated its optimal size based on the potential water yield of the WCA. Then, they built a dam that can safely withstand the pressure of up to 2.16 billion litres of effective water capacity.

"The 1960s water supply engineering calculations have been proven to be correct. The dam has clearly withstood the test of time in terms of both maximum effective capacity and structural integrity.

"It took years to build the Air Itam Dam. Any proposed expansion will involve extensive re-engineering and re-building works, which will require shutting down the dam. Shutting down the dam is not plausible because it could deprive some people living in Air Itam (and its surrounding areas) of water supply for several years," he added.

According to Jaseni, the Air Itam Dam is a popular public recreational area in Penang because it is located in a hillside valley, surrounded by higher hills.

Its crest is 243.8m above sea level and its top water level is 235.0m above sea level.

Below the dam is the Kek Lok Si Temple and the Air Itam township.

"Due to the topography, landslides have occurred in the dam area and along its access road throughout the history of the Air Itam Dam.

"PBAPP has been keeping the dam area 'safe' for public access since 1999. We have continuously undertaken hill slope reinstatement and reinforcement works at the Air Itam Dam for 23 years and counting.

"The risks of expanding a 60-year-old dam that is located above a densely populated area are not acceptable," he stressed.

Jaseni also said PBAPP planned to complete two upgrading projects at Penang's award-winning Sungai Dua water treatment plant (WTP); build three new WTPs at Mengkuang Dam, Sungai Muda and Sungai Prai; and Sungai Prai has been identified as an additional raw water resource for Penang.

He pointed out that there were no RWCP 2030 projects located in Air Itam or its vicinity.

However, Penang's existing water supply infrastructure includes:

- three sets of Penang Twin Submarine Pipelines (PTSPs);
- Pump houses in Penang's nine WTPs, two pump houses in the Bukit Dumbar Reservoir Complex and 95 booster pump stations;
- 59 treated water reservoirs and 42 treated water towers; and,
- 4,696km of pipelines (100mm and above).

"As such, the additional treated water that will be produced in Seberang Prai by the RWCP 2030 projects can be supplied to areas on Penang island (including Air Itam), in the future.

"Today, treated water from the Sungai Dua WTP in Seberang Prai is being pumped all the way to the Teluk Kumbar pumping station on Penang island. From Teluk Kumbar, the water is being re-pumped all the way to Balik Pulau.

"As such, PBAPP would like to reassure Penang water consumers that the RWCP 2030 has been thoughtfully engineered to help in addressing water supply issues in all areas throughout the state, including high ground or end-of-line (EOL) areas Air Itam, Bukit Gedung and Seberang Prai Selatan.

"The RWCP 2030 will significantly reduce the risks of a water supply crisis in Penang until 2030, especially during extended dry seasons related to climate change," he said.

Beyond 2030, Jaseni said, PBAPP's PWSI 2050 recommended the deployment of desalination plants at strategic areas to ensure water supply sufficiency until 2050, depending on the final outcome of the Sungai Perak Raw Water Transfer Scheme (SPRWTS) proposal which is subject to implementation by the federal government.