

Coastal area needs absorption wells

Serious attention to the degradation of the environment in the city's north coastal area is needed as its high salinity level has caused two structures to collapse in one year, experts say. Bandung Institute of Technology (ITB) researcher Heri Andreas said infrastructure in North Jakarta needed extra care to prevent corrosion that occurs faster than in other areas.

"The saltwater in North Jakarta can worsen the corrosion process, so maintenance must be conducted regularly and should not be neglected," he said. Salt water has been seeping into the city at an alarming rate, Heri said. North Jakarta residents have been forced to deal with salty tap water.

Recently, the supports of a 7-meter-high slide at the Atlantis Water Adventure water park in Ancol, North Jakarta, collapsed after being weakened by prolonged exposure to salt water. PT Pembangunan Jaya Ancol acknowledged that they might have failed in making thorough maintenance checks during the regular monitoring of all rides and structures inside the amusement park. The incident injured three adults and two children.

Last year, the main road in North Jakarta, Jl. RE Martadinata, also collapsed, due to erosion of the road foundations by the rising sea level. Energy and Mineral Resources Ministry water resources and environmental geology division head Dodid Murdohardono said the conditions of aquifers in Jakarta were divided into three categories: damaged, critical and safe.

"Those classified as 'damaged' are, among others, Kamal Kapuk and Tanjung Priok, where the salinity of the shallow aquifer has reached its highest level in less than 40 meters," he said. In damaged areas, chloride levels in the water have reached 600 milligrams per liter. In critical areas, where the water is salty, the chloride level is 200 to 600 milligrams per liter. The chloride content in freshwater is less than 200 milligram per liter. However, Dodid said high levels of chloride were not only caused by sea water intrusion.

"There are some parts of Jakarta that also hold salt water because thousands of years ago they were part of the ocean. We usually call it water fossils," Dodid said. To avoid further intrusion of salt water in shallow and deep aquifers, absorption wells could become one of the solutions, he said. By constructing an absorption well, rain water could be saved as a water reserve that could help fill the empty pores underground as the result of groundwater withdrawal. Heri also said that salt water intrusion could be stopped if excessive use of groundwater was curbed, which has caused serious land subsidence

"But this is of course hard to do," said Heri, who is also a member of the Jakarta Coast Defense Strategy (JCDS). Besides the increasing sea levels due to global warming, land subsidence in North Jakarta makes the area more prone to floods. Since 2002, land subsidence in North Jakarta has reached more than 1 meter and could cause the area sink below sea level in the next decade. The JCDS findings show that around 40 percent of the land in Jakarta is already below sea level. Heri said the construction of a giant seawall was expected to be able to help solve sea water intrusion, land subsidence and flooding.

"The study of the construction of the seawall is expected to be completed in the next two years," he said. He said the seawall would be constructed a short distance off the coast and would include coastal reclamation efforts.

"There's controversy over the reclamation, but I believe if we build it carefully and manage it well, it won't damage the environment," Heri said. The construction of the seawall is a joint project run by the city administration and the JCDS, which is funded by the Dutch government.