Danang Must Construct Submerged Seawalls to Protect the Coastline and Prevent Erosion

Dr. Nguyen Thi Minh Phuong, DTU Dean of Environmental & Chemical Engineering, believes that the slope movement and attrition along the Danang seashore is mainly caused by the overexploitation of groundwater along the coastline and that the city should construct a submerged seawall to protect it.

It was reported that slope movement caused by the Vamco storm was apparently under control, however it continues to affect many locations along the Danang coastline. According to the Son Tra Peninsula management board, the waves are still causing severe erosion and slope movement and many seafront buildings in Danang have their foundations threatened. On My Khe beach, in the Ngu Hanh Son district, the sidewalk is approximately one to two meters above sea level but due to the danger of slope movement, businesses operating there must continually move their equipment to higher ground.

The Danang Department of Natural Resources & Environment has subsequently carried out a field survey and noted six areas with significant slope movement which are, the beach at the intersection of Ho Thau and Vo Nguyen Giap streets, between the Phuong My 2 and My Hanh restaurants, between the Vo Van Kiet intersection and the Grand Tourane hotel, between Beach 9 and the Muong Thanh hotel, between the Vo Nguyen Giap and the Hoang Ke Viem intersection, near the Holiday Beach hotel, and at the Son Thuy beach. Slope movement occurred throughout 2017 and 2018 and has continued until late December 2020 and early January 2021.

To learn about causes and solutions, Nhadautu.vn spoke with Dr. Nguyen Thi Minh Phuong.

Reporter: *Slope movement along the Danang coastline is becoming a severe problem, especially since the Goni storm. Do you know the reason?*

Dr. Minh Phuong: According to my research, the main reason for slope movement and attrition of the Danang seashore is the overexploitation of groundwater along the coast, which weakens the structure of the aquifer, causing subsidence. At the seashore, this strengthens power of the waves and results in slope movement.

However, many others believe that groundwater exploitation has in fact been recently greatly reduced, as a result of extended hotel closures due to the pandemic and unusually heavy rainfall, both allowing the water table to rise again. So why is slope movement still occurring? I maintain that, despite these circumstances, there is too much continuing construction going on along the shoreline, which blocks the accumulation of groundwater and slows its replenishment.

The DTU Environmental & Chemical Engineering Water Resource Management course materials state that, previously, it was only necessary to drill down one to two meters to discover groundwater on the Danang seashore, but now that has changed. Three years ago, I warned that slope movement would severely endanger the beach along Vo Nguyen Giap street, but it few listened.

Reporter: *Based on these causes, which solutions do you propose that Danang takes to overcome slope movement along the shore?*

Dr. Minh Phuong: The city must have comprehensive plan and solution, stopping groundwater depletion immediately, restricting coastal construction until the resources have been recovered and constructing submerged seawalls to protect the coastline.

Reporter: *Why should Danang build submerged seawalls rather than normal ones?*

Dr. Minh Phuong: The energy of the waves beating the shore is enormous and the sediment base has been damaged. Normal barriers, however strongly they are built, will not last. We need submerged seawalls built offshore to reduce the strength of the waves, which is lower farther out, which will then allow beach redevelopment. Their construction must be based on the topography of the sea-bottom, waves, currents and sediment volumes.

I have inspected the four-pin concrete blocks in the Bien Tinh area of the Nui Thanh district, in Quang Nam province. When the waves hit the concrete blocks, the water spreads around concrete pins, which dissipates and greatly reduces wave energy. I think that building submerged seawalls from concrete blocks is a good solution. If the wave energy is lowered, the beach can be restored if more sand can be retained.

Thank you!

(Media Center)