

Sand Islands for offshore exploration and logistics infrastructure in environmentally protected areas.

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Sand Islands with near vertical slope could be a solution for exploration of resources and logistics infrastructure in shallow waters up to 30 meters deep.

Two classical elements - sand and water - are the main components of the system. With the use of an impervious membrane and standard dewatering system, non-saturated sand is compressed by the natural external pressure of the water. As a result, the shear strength of sand increases to that of lean concrete. It means that the new islands can be constructed with near-vertical side slopes reducing the quantity of sand and construction time required to achieve a given working area above the surrounding water level.

Larger islands can be constructed using a series of abutting sand island cells to form a perimeter and then the center filled with more sand. They would be more economical compared to steel or concrete structures. Additional benefits include improved speed of mobilization and demobilization as well as considerable reduction of the environmental impact.

A prototype was built and tested in 15-meter water depth in a real marine environment of the South Coast of England some time ago. However, the current need for sustainable development could give this innovative technology a new life and save projects.