News Release

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Hitachi Zosen Corporation

August 1, 2024

Our Product "Seabed-Type Movable Flap-Gate Type Breakwater" Wins Awards of the National Land Technology Development Award and Others

～ Contributing to Disaster Prevention and Land Strengthening in Coastal Areas ～

Hitachi Zosen Corporation is pleased to announce that our "Seabed-Type Movable Flap-Gate Type Breakwater", a product developed in collaboration with TOYO CONSTRUCTION CO., LTD. (Tokyo, hereafter TOYO), Penta-Ocean Construction Co., Ltd. (Tokyo, hereafter Penta-Ocean) and others, has been awarded for its technology at the 10th Japan Resilience Awards, the 2023 Japan Society of Civil Engineers Awards and the 26th National Land Technology Development Awards. The technology was submitted with the theme “Development of Seabed-type Movable Flap-Gate Type Breakwater”.

Implementation case at the Hosoura area of Ofunato Fishing Port, Iwate Prefecture.
(The gate body is lying on the seabed)

This product is a movable structure that can form continuous floodgates and breakwaters, etc., by standing up a gate body installed on the seabed leveraging its buoyancy. To date, it has been delivered to two locations; the Hosofura district of Ofunato Fishing Port in Iwate Prefecture and the Kemurijima in Fukura Port, Hyogo Prefecture.

The main features are as follows.

1. The gate body is usually stored in a collapsed state on the seabed, which minimizes the impact on the landscape, and does not limit the height of the navigating vessels.
2. The pre-air supply method to the gate body enables quick, unpowered gate closing (closure time: 1 to 2 minutes).

3. The adoption of a two-point support structure using a tension rod or door stopper allows for handling large loads, and by arranging the gate bodies in the span direction, it can also be applied to long spans.

Conventional water gate facilities, which are installed over the sea or rivers, have limitations in extending the pure span of the gate body or making it larger. However, by adopting this technology, it is effective for tsunami and storm surge measures in large ship navigation areas, and it is possible to shorten and simplify the protection line. This reduces the management cost and effort, and by expanding the protected area, it becomes possible to protect more people's lives and assets from tsunamis and storm surges.

The outline of each prize is as follows.

1. 10th Japan Resilience Awards (Resilience Prize)

(1) Organizer : Resilience Japan Promotion Council

(2) Recipients : Hitachi Zosen, TOYO Construction and Penta-Ocean

(3) Name of the award : The Best Award

(4) Date of Award : April 23, 2024

2. 2023 Japan Society of Civil Engineers Award

(1) Organizer : Japan Society of Civil Engineers

(2) Recipients : Kenichiro Shimosako (Coastal Technology Research Center), Nakayasu Kyoichi (Hitachi Zosen), Osamu Kiyomiya (Professor Emeritus, Waseda University), Hajime Mase (Professor Emeritus, Kyoto University), Akira Nagano (Professor Emeritus, Future University, Hakodate)

(3) Name of the award : Technology Development Award

(4) Date of Award : June 14, 2024

3. 26th National Land Technology Development Award

(1) Organizer : National Land Technology Development Center and Coastal Technology Research Center

(2) Recipients : Hitachi Zosen Corporation and Toyo Construction Corporation

(3) Name of the award: Winning a prize

(4) Date of Award : July 31, 2024