Japan Dredging and Reclamation Engineering Association

www.umeshunkyo.or.jp

Purpose of JDREA

Japan Dredging and Reclamation Engineering Association (JDREA), a non-profit organization consists of 28 members, was founded in 1961 for the purpose of:

- improving the technologies related to construction of port and harbor facilities including coastal and offshore structures;
- promoting sustainable development of marine construction industry;
- improving the quality of life of the people and secure their safety

In order to realize these, JDREA members have been continuously developing advanced technologies through acquired extensive and nurturing experiences in marine civil engineering field, such as port and harbor facilities and offshore airport structures.

JDREA also aims to create a prosperous society by promoting marine civil engineering projects through research and development of advance engineering and construction techniques, contractual approach, safe work, disaster prevention, environmental conservation and international cooperation for development.

In addition, JDREA takes part in activities as a member of Japan branch of The World Association for Waterborne Transport Infrastructure (PIANC) and The International Association of Ports and Harbors (IAPH).

International Cooperation

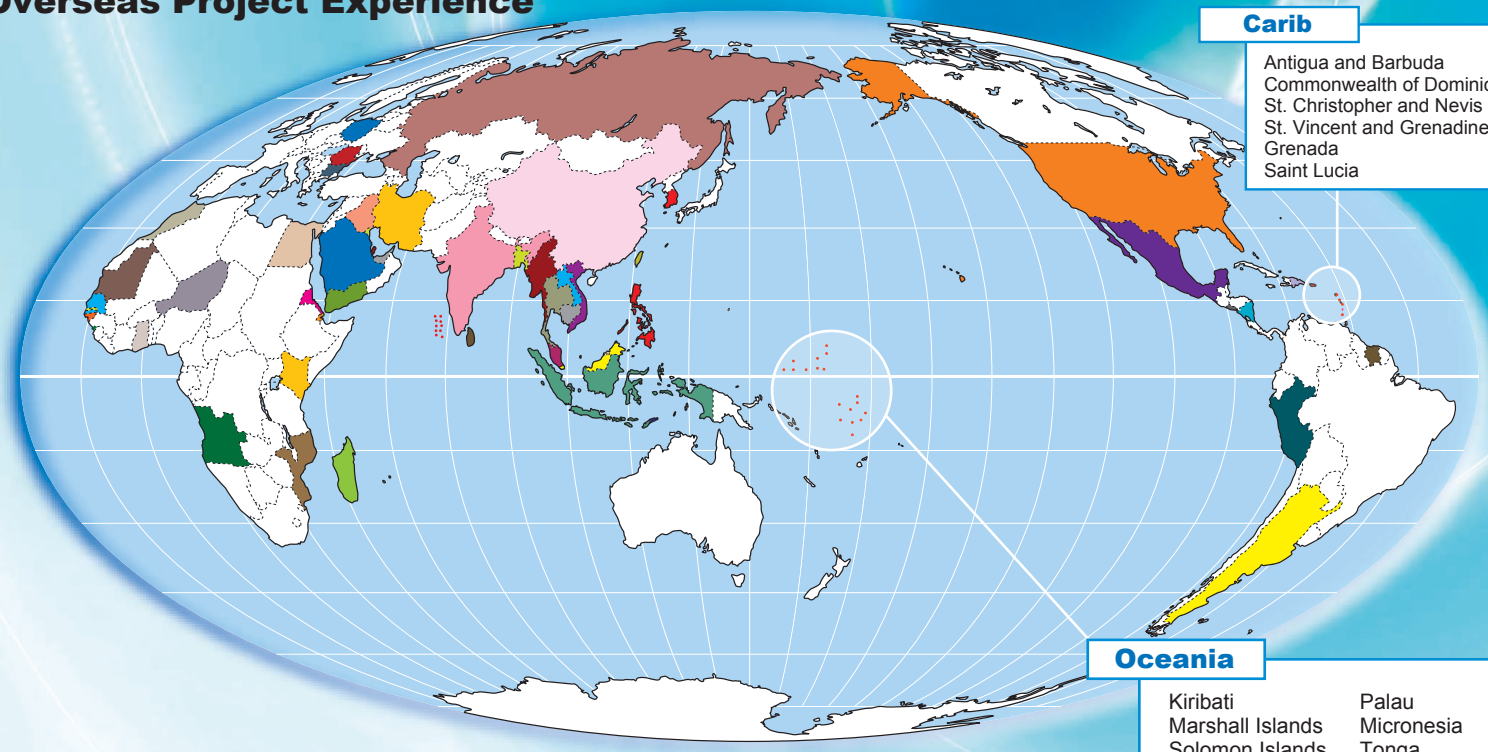
JDREA is firmly committed to contribute its technical advancements internationally and thus, aggressively focusing on the following activities:

- Providing training courses for the engineers from recipient countries to introduce Japan's port construction technologies under the sponsorship of Japan International Cooperation Agency (JICA)
- Assisting the Ministry of Land, Infrastructure, Transport and Tourism in the introduction of "Design Standard for Port and Harbor Facilities in Japan" to recipient countries
- Transferring of technical know-howto the local engineers through overseas projects of the member companies

During a Lecture of JICA Training Course

Trainees of Construction Site Observation

Overseas Project Experience



Carib

Antigua and Barbuda
Commonwealth of Dominica
St. Christopher and Nevis
St. Vincent and Grenadines
Grenada
Saint Lucia

Oceania

Kiribati
Marshall Islands
Solomon Islands
Tuvalu
Vanuatu
Samoa
Palau
Micronesia
Tonga
Fiji
Nauru

This map shows the countries and areas where JDREA members undertook projects.

Container Terminal at Pasir Panjang (Phase I)【Singapore】 1993 - 1998

Thi Vai International General Cargo Terminal【Vietnam】 2008 - 2013

Civil and Building Works for La Union Port Development Project【ElSalvador 】 2005-2008

Constantza Port, South Container Terminal【Romania】 2001 - 2004

Construction of Civil Works and Buildings under Mombasa Port Development Project【Kenya】 2012 - 2016

International Cruise Terminal【Singapore】 2009 - 2011

LNG Export Jetty Construction Project【Russia】 2003 - 2007

Pohnpei International Airport Runway【FMS:Micronesia】 2008 - 2010

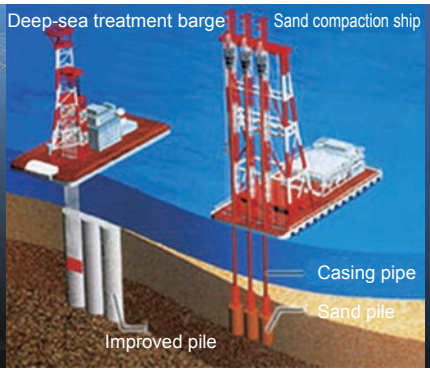
Bali Beach Conservation Project Package II【Indonesia】 2001 – 2004

Dredging , Reclamation & Ground Improvement Technologies

Dredging , Reclamation & Ground Improvement Technologies

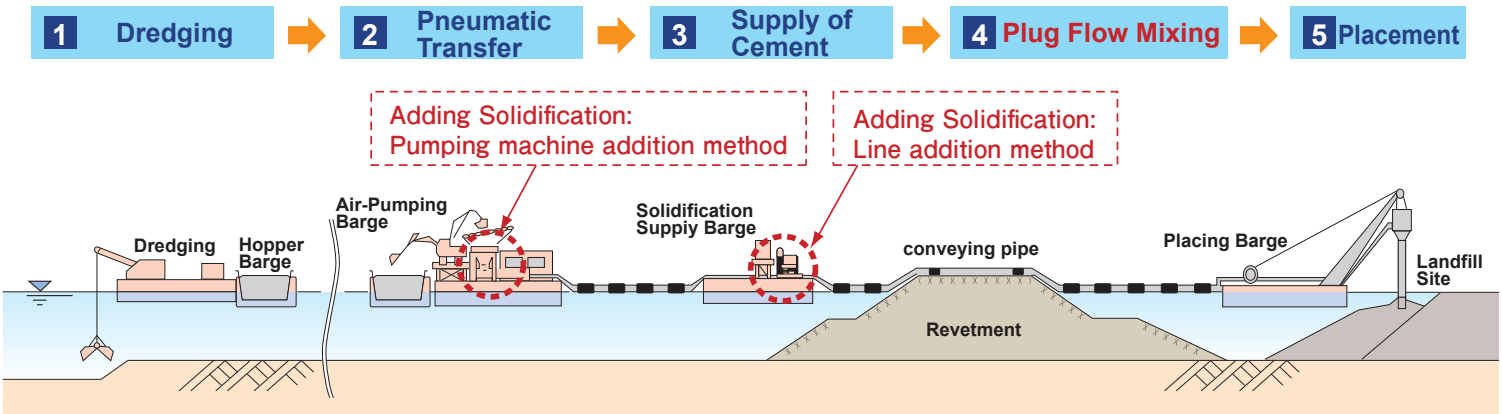
The artificial islands are reclaimed and constructed by filling soil into the area separated by revetment. In order to utilize the artificial island earlier, soil improvement technique such as compacting and stabilizing soil is a key to shorten the project. Various techniques were used for the construction of airport islands in Japan to overcome such strict conditions as deep water, soft ground and large scale rapid construction. Sand compaction pile method, vibrating compaction method and dynamic consolidation method etc. were adopted by JDREA contractors. Furthermore, the sophisticated settlement controlling system to measure the ground settlement and deformation were introduced in these artificial island projects. Therefore, these airports have been the best of the artificial islands in terms of scale and technology.

Kansai International Airport



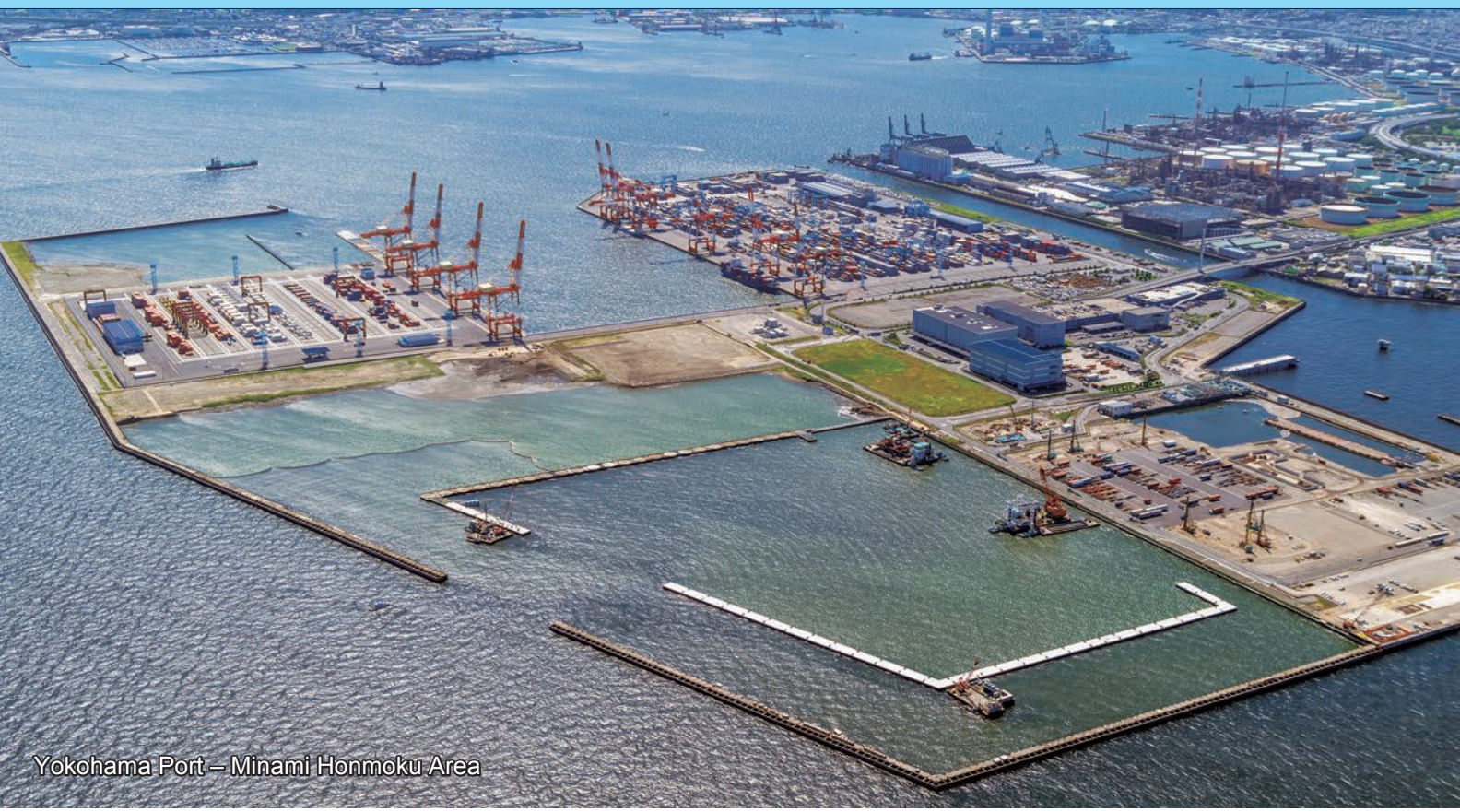
Soft Seabed Improvement Work Vessels

Chubu International Airport



Work Flow and Features of Dredged-soil Recycling System

Deeper Wharf & Rapid Construction Technologies



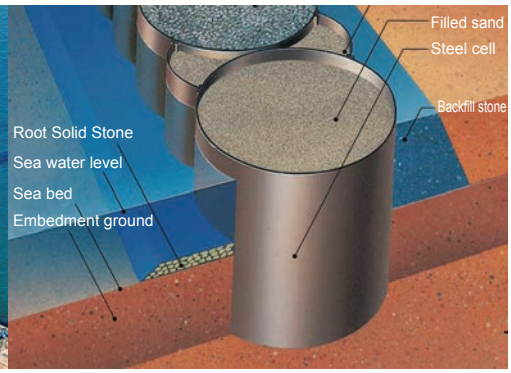
Deeper Wharf & Rapid Construction Technologies

The improvement of quay depth at Tokyo Port, Yokohama Port and Kobe Port is necessary under minimized construction period to accommodate the increasing size of container ships. The adoption of technology such as improvement of soft seabed, installation of steel cell and steel jacket was completely a construction time saving that extremely shorten the construction period.

Inland disposal of surplus soils from construction sites is becoming difficult due to environmental issue and limited dumping sites. Therefore, effective utilization of surplus soils for reclamation work is useful because it provides alternative disposal site in offshore with efficient containment and environmental friendly.

Sea-bed Improvement Works by Specialized Vessels for Sand Compaction Pile Method

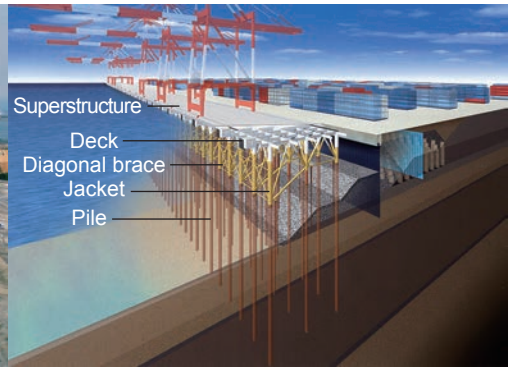
Installation Work of Steel Sheet Cellular Structure



Three-dimensional Perspective View of Cell-type Structure

Steel Pile Driving Works

Installation Work of Steel Jacket Structure



Three-dimensional Perspective of Steel Jacket Wharf

Integrated Development of Port & Industrial Zone


Kashima Port & Industrial Zone

Integrated Development of Port & Industrial Zone

Kashima Port & Industrial Zone is located approximately 80 kilometers northeast of Tokyo and one of the most popular industrial zone with steel, petrochemical, fertilizer and thermal power plants in Japan.
This zone is one of the 22 area developed under principle of the integrated development and has been proceeding to dredge the vast sand coast and construct the port and Industrial zone reclaimed using the dredged sand. This Integrated industry system with port development contributed to the tremendous economic growth as the driving force in postwar history of Japan.
For port construction facing the Pacific Ocean, Japanese latest technologies of that time for dredging, breakwater and so on has been used. Currently the port is still expanding.

Before Construction


Sand Dunes along Kashima Shore

in the early 1960's

Development of the New Port was Planned by the Method of Excavating the Dunes and Agricultural Lands.

in the early 1970's


Under the Development of the New Port and the Industrial Complex such as Iron & Steel Industry, Petrochemical Complex and the Thermal Power Station)

in the early 1990's


Under Full-scale Operation of Kashima Port & Kashima Coastal Industrial Complex

Photos are offered by Ibaraki Prefectural Government

Environmental Conservation Technologies


Okinawa Nakagusuku Port

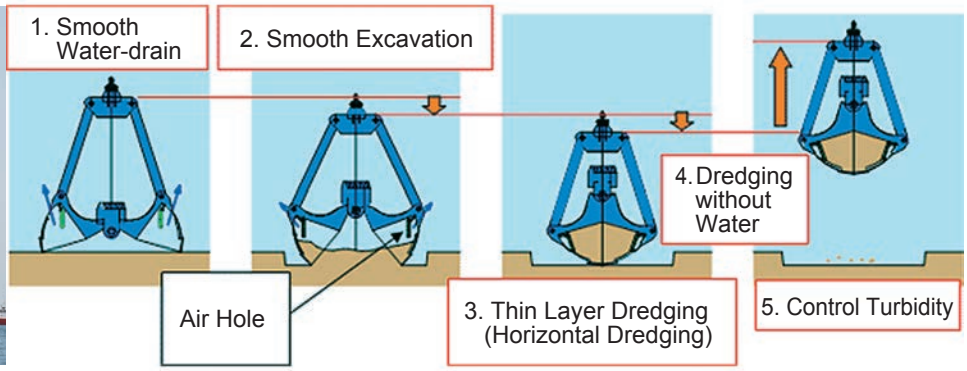
Environmental Conservation Technology

Since sea-water disposal yard is easily influenced by waves, construction work is progressed after waste is surely shut off with sea and problems of safety & environmental preservation are cleared.
Dredging work is carried out with pollution-prevented curtain fencing around dredging area not to worsen surrounding environment with polluted water.
And since most of sea-water disposal yards in our country are founded on weak ground, soil improvement is also important theme.
There are “Sand compaction pile method” and “Deep mixed disposal method” for soil improvement which are carried out to ensure safety of revetment and shutting water off.


Dredging Work with Sheet Protectors for Protecting Sea Pollution by Dredged Soil（Okinawa Nakagusuku Port）


Sea Surface Waste Disposal Yard in Tokyo Bay


Dredging Vessels with Enclosed-type Grab Bucket



Working Structure of Enclosed-type Grab Bucket

Sea

born from the Sea

grown with the Sea

live with the Sea