Platinum Partners

Dredging International
Marine & Waterway Contractor

Thanks to its multidisciplinary capabilities, the synergies in many projects and its integrated corporate structure, DEME has become a global solutions provider.

The geographical diversification of the order book and the contribution of all DEME specialisations in more or less equal proportions are promising features for DEME's activities in 2014. Next to its West-European home market, DEME maintained a high level of activity in the Middle East, Australia, Africa, Latin America and the Indian Subcontinent.

Safety is at the heart of all our operations and DEME is committed to an incident-free workplace, every day, everywhere. Last year, the Lost Time Incident Frequency Rate decreased considerably compared to 2012.

DREDGING AND LAND RECLAMATION

EUROPE

DEME's home market has always served as the developing and testing ground for new technologies with continuous efforts in the R&D departments. 2013 has been a busy year in the Benelux area, with the full range of dredging and supporting activities being carried out. In 2013, awards were granted for three beach nourishment works at the Belgian coast. These works will take place against the horizon of 2014 and are the first phases of the 'Vlaamse Baaien' project, initiated through a Public Private Partnership.

Last year, Dredging International completed all works at the crucial London Gateway Project and, as such, participated in the exiting transition of London Gateway from one of the largest construction sites in the UK and Europe to an enormous, state-of-the-art, operational port.

In Germany, Nordsee was active on the river maintenance dredging works on the Rhine, on the Elbe and near to the Wilhelmshaven Oil Refinery. Mid 2013, Nordsee was awarded a contract for wreck removal on the River Elbe, between Cuxhaven and Hamburg for the account of Wasser- und Schifffahrtsamt Cuxhaven. At the end of last year Nordsee obtained a contract for deepening works in the Port of Bremen.

MIDDLE EAST

In 2013, operations of the Middle East Dredging Company (MEDCO), the joint venture company of DEME, UDC and Qatar Holding, the investment branch of the Government of Qatar, were driven by two large, challenging projects in Abu Dhabi and in Qatar.

In Abu Dhabi, MEDCO completed the construction of two offshore artificial energy islands for ADMA-OPCO (Abu Dhabi Marine Operating Company) for the development of the Satah Al Razboot offshore oil field. The construction of these two islands 120 km farshore are a world first.

Abu Dhabi

Together with the engineering and design works related to the construction of these islands, the project team managed multi-disciplinary construction activities involving dredging and reclamation, soil improvement by vibro-floatation and dynamic compaction, pre-fabrication of concrete quay wall blocks and harbour construction, construction of breakwater and rock revetment, pre-fabrication and placement of accropodes.

Another challenge is the construction of the New Port, south of Doha in Qatar. The scope of the work includes construction of the new Naval Base on a near-shore artificial island north of the access channel. The project involves the dredging and dry excavation of more than 40 million m³ for the access channel (predominantly hard limestone rock material). Works include the construction of two breakwaters and the rock revetment for the edge protection of the Naval Base.

New Port Project Doha

AUSTRALIA

Works at the Western Basin LNG development in Gladstone were completed well ahead of schedule, allowing Chevron and all gas proponents to continue constructing the three LNG facilities on Curtis Island. The challenging Western Basin reclamation area is now a vast levelled area with hardly any activities.

Dredging International Australia's (DIAU) activities on the West coast of Australia are currently concentrated around the village of Onslow. These works, under commission from Bechtel/Chevron, are considered to be the largest dredging project ever carried out in Australia. The construction of this greenfield Wheatstone LNG port and access channel has deployed more than 15 marine units for approximately 2 years. The complete deepening of the 17 km access channel, the turning basins and the berth pockets must be completed by 2015. The extensive environmental efforts and monitoring of the surrounding water quality, in close co-operation with the proponent and relevant authorities, are part of our scope.

ASIA

At the end of 2013, DIAP has been awarded a contract for a land reclamation as an extension to Jurong Island for the account of Singapore Government's largest industrial landlord JTC (Jurong Town Corporation). This JIWE project shall be executed over the coming 5 years in 3 main phases.

In Vietnam, DIAP commenced in early April 2013 the deepening of the Soai Rap Navigation Channel (Phase 2) Project.

AFRICA

Among the highlights on the African continent is the successful continuation of the most extensive land reclamation works ever performed in Africa: the prestigious development of the EKO Atlantic City project in Lagos in Nigeria – called the 'Manhattan of Africa' – where 600 ha of land has been reclaimed thus far.

Under the umbrella of Bonny Channel Company, a permanent joint venture with the National Ports Authority of Nigeria, the yearly maintenance dredging, some marine services and wreck removal took place on the access to the LNG terminal in Bonny and Onne.

In Ada, East Ghana, important coastal protection works were executed. An innovative design of a temporary jetty construction resulted in the creation of a series of 7 to protect a 3 km long, most heavily affected coastline.

Ada, East Ghana

LATIN AMERICA

In Latin America, Dredging International completed at the very beginning of the year the dredging project of the deepening of the Pacific entrance to the Panama Canal.

Mid 2013, Dredging International signed an important contract with the American company Drummond, in Colombia for of dredging some 14 million m³ in the turning basin of the new jetty under construction for the export of coal, at Santa Marta. The project has a very fast track program and has been successfully executed.

Colombia

INDIA

Amongst others, International Seaport Dredging (ISD) carried out maintenance dredging works in Kattupali (near Chennai), Goa and Kakinada. Last year, ISD was also back to Dhamra Port where it carried out maintenance dredging pre and post monsoon.

In Sri Lanka, ISD successfully completed the offshore sand mining and onshore stockpiling activities in Colombo.

OFFSHORE MARINE SOLUTIONS

DEME's specialised marine and offshore construction companies GeoSea and Tideway saw their business expanding owing to a rapidly growing renewable energy market and further oil-and-gas related developments on several continents. The synergies of these companies allow DEME to offer total solutions for such complex projects as LNG-terminals or near and far shore wind farm installation.

GeoSea completed works on the C-Power wind farm, the Northwind wind farm and the Baltic 2 offshore wind farm. However, an interesting number of new assignments in the offshore wind business were added to GeoSea order portfolio such as works at the Godewind offshore wind farms, Westermostrough, Borkum Riffgrund 1 and Kentish Flats Extension offshore wind farm.

GeoSea also continued its drilling, piling and installation operations at Hay Point in Western Australia. A total of five jack-up platforms have been assigned for this complex and challenging project, involving the construction of a two km access jetty and a berthing jetty for coking coal supply. GeoSea also performed several geotechnical and geophysical site investigation campaigns.

The maintenance subsidiary of GeoSea, OWA (Offshore & Wind Assistance), has experienced a very active 2013, with both maintenance vessels Aquata and Arista operating from Ostend for REpower and Vestas. The larger vessels of GEOSEA's fleet have also operated for maintenance and reparation interventions.

Tideway's D.P. fall pipe vessels have been very busy in 2013 for the protection of pipelines and power cables, as well as with stabilisation works for several major oil and gas companies and in the field of renewable energy.

On the Total/Laggan Tormore Project, two major rock dumping contracts have been executed for the account of Subsea7 and Allseas. In the context of the work for the new Wheatstone LNG Project for Chevron in Western Australia, Tideway was awarded works for levelling the seabed and installing erosion protection measures. Additionally, a contract was awarded by Allseas and includes pipe pull operations for the Wheatstone landfall, also to be executed in 2014.

In northwest Venezuela, near Punto Fijo, TIDEWAY started to install a landfall for a pipeline for Saipem. Cardon IV is developing a gas field 90 kilometres off the coast at this location.

Tideway also obtained a job for the Venezuelan state oil company PDVSA. On behalf of Saipem, Tideway will carry out a landfall on the northern side of the peninsula for the Dragon gas field.

Scour protection works around mono-pile structures have been carried out on the Northwind Offshore Wind Farm and on the Gwynt Y Mor Offshore Wind Farm. On the Northwind Offshore Wind Farm, Tideway installed all 72 infield power cables, including trenching and burial.

ENVIRONMENTAL SOLUTIONS

DEME continues to have a strong presence on the market for environmental remediation. DEME Environmental Contractors (DEC) – Ecoterres, the environmental branch of the Group, has been very active in a number of European countries, both in developing new activities and in the actual execution of brownfield remediation, soil and sediment treatment and recycling.

In Belgium, DEC finished the first year of operation of the 'AMORAS' plant in the Port of Antwerp successfully. The 'AMORAS' project is a major design, construction and operation assignment for sediment treatment and storage in the Port of Antwerp, covering a period of 15 years.

The AMORAS plant in the Port of Antwerp

DEC's soil and sediment recycling centres in Kallo, Bruges, Heusden-Zolder, Zwijndrecht, Ruisbroek, Zeebrugge, Desteldonk and Zwijnaarde performed, once more, to full satisfaction.

At 'Terranova', the 140 ha redevelopment site in the north of Ghent, works continued throughout 2013 with the excavation and treatment of contaminated soil and groundwater purification. Half of the gypsum dump site (40 ha) was covered for building a new solar energy park (Terranova Solar). I Since last November, the former polluted site is now home to one of the largest solar parks in Europe, with 20 hectares of solar panels and an injection capacity of 15 MW. It will provide more than 4,000 households with green electricity.

Terranova Solar – Overview

In Sweden, remediation works for the Valdemarsvik fjord in South Sweden continued. In 2013, works included the environmental dredging and stabilisation of approximately 250,000 tonnes of chromium polluted sediments.

DEC's subsidiary company PURAZUR focuses on high-tech treatment of industrial waste water. In 2013, PURAZUR realised amongst others the physical-chemical waste water treatment plant of SRC Ruisbroek.

PROJECT DEVELOPMENT

DEME Concessions was founded in 2013 and aims to regroup all concessions of the DEME Group in the field of dredging and land reclamation, offshore wind energy, wave and tidal energy and offshore mineral resources.

Thorntonbank

On September 17, 2013, the **C-Power offshore wind farm** situated on the Thornton Bank was inaugurated. The 325 MW wind farm is the largest off the Belgian coast and will provide green energy to 300,000 households.

DEME's activities in the field of wind related energy are supplemented by its efforts in Europe to develop new systems to generate energy through wave and tidal action.

DEME Blue Energy (DBE) is involved in the Flemish research project FlanSea (Flanders Electricity from the Sea) together with the University of Ghent and 5 industrial partners. In 2013, the final stage of the project started by creating a real life lab in order to validate the theoretical control algorithms. As for tidal energy projects, both the Islay (Scotland) and Fair Head (Northern Ireland) have been granted with an agreement for lease for respectively 30 MW and 100 MW.

The entire DEME Group faces the future of worldwide development with confidence based on an innovative approach and dedicated to sustainable development.

'Creating Land for the Future' is our contribution to a better living world for future generations.

Activities of Jan De Nul Group in 2013

I. DREDGING AND MARINE WORKS

EUROPE

In **Belgium**, Jan De Nul Group dredged more than 15 million m³ of sand and sludge for the maintenance of the Western Scheldt and the Zeeschelde from Antwerp to Vlissingen. The dredged sediments were dumped at different, mostly shallow locations in the Scheldt based on a flexible dumping strategy. In the port of Antwerp itself, Jan De Nul Group also carried out maintenance dredging with a number of trailing dredgers. The port was until recently the exclusive domain of the Antwerp Port Authority. In the ports of Ostend and Zeebrugge, a total of 10 million m³ was removed as part of the five-year contract for the maintenance of the port and navigation channels. In addition, the Group dredged 1.7 million m³ for a further extension of the port of Zeebrugge. In late 2013 in Nieuwpoort, maintenance dredging was done for the maintenance of the port. Along the Belgian coast, contracts were obtained for beach replenishment in Middelkerke (900,000 m³) and Ostend (1,700,000 m³) and foreshore replenishment in Mariakerke (350,000 m³) as part of the 'Flanders Bays' project.

In **The Netherlands**, Jan De Nul Group was even more prominent than before in terms of coastal protection. At the location of the Onrustpolder near the Eastern Scheldt storm surge barrier, a trench wall and beach replenishment were implemented and in North Holland, south of the island of Texel near Den Helder, a trench wall was replenished. In all, 6 million m³ of material was brought in from the sea for this first phase of the four-year contract.

In **France**, Jan De Nul Group contributed to the construction of a new LNG terminal in the port of Dunkirk. For this contract, 2.6 km of embankments were built with 1.7 million tonnes of rocks and 6.5 million m³ of sand was dredged and rainbowed for the construction of a new port facility. This work was completed in mid-2013. Also in Dunkirk, preparations began in December for the beach replenishment works to reinforce the 'digue des Alliés' breakwater. In South-Western France, the Group dredged the new access channel to the Gironde estuary. For this new entrance channel to the port of Bordeaux, a total of 6.5 million m³ will be dredged at high sea. This work started in November 2013 and will be completed in late 2014 with the rainbowing of part of the dredged sand for the construction of a new terminal in Le Verdon-sur-Mer.

In **Germany**, Jan De Nul Group got back to work again, thanks to the extension of the existing 2011 maintenance contract for the access channels for Bremerhaven. In the port of Hamburg, the Group dredged out the sludge basin at the border between Hamburg and the State of Lower Saxony.

In late December, Jan De Nul Group obtained the contract for the deepening of the container terminal in the harbour of **Malta**.

AFRICA

In the harbour of Takoradi in **Ghana**, Jan De Nul Group is creating a fully new harbour basin over a period of 3 years. The existing breakwater is being extended by 1.1 km, the harbour is to be deepened to -16 m and a 300 m long, 16 m deep quay wall is being constructed. After mobilisation of the equipment, the works began in the second half of 2013, the first activity being the construction of the breakwater. By late 2013, the first 200 metres of the breakwater had been constructed.

In Pointe-Noire in **Congo-Brazzaville**, Jan De Nul Group carried out dredging works to deepen the existing harbour to -16 m. A total of 3.2 million m³ was dredged was as part of this contract. In addition to that, the customer gave Jan De Nul the contract for dredging out another 1.8 million m³. The dredging and rainbowing work was successfully completed in March.

The trailing suction hopper dredger 'De Laperouse' carried out maintenance work in **Sierra Leone** and in **Angola**. In Sierra Leone, Jan De Nul Group completed the five-year maintenance contract of the entrance channel at Pepel. In Angola, the Group carried out maintenance dredging in the port of Ambriz.

The cutter suction dredger 'Leonardo da Vinci' dredged up 700,000 m³ of very hard material in the harbour of Dakar in **Senegal**. The available depth in both the entrance channel and the harbour basin was deepened by two metres to -13 m.

CSD Leonardo da Vinci - Dredging of Access Channel - Dakar (Senegal)

AUSTRALIA

In 2013, Jan De Nul Group consolidated its operations in Australia. On the one hand, the Group successfully carried out the maintenance dredging of Port Hedland, the world's largest iron ore loading port, in five weeks time. On the other hand, after a 20-month tendering phase, the project for the new runway at Brisbane airport was awarded to Jan De Nul Group on October 10, 2013. The contract involves making the 360 hectares of swampy land ready for building the airport extension.

Wheatstone (Australia)

ASIA

In Tanjung Bin in **Malaysia**, Jan De Nul Group carried out sand extraction works for raising a 35 hectare site. In total, the vessel dredged up 2.2 million m³ of sand in an extraction zone at a distance of 145 km from the project site. The site was completed and delivered to the customer in May 2013.

The summer of 2013 was marked by the continuing story of Jan De Nul Group for the construction of the LNG port in Sabetta, **Northern Russia**. The Group completed the entrance channel and port basin for the LNG works port in 2013, with the objective of enabling crucial deliveries for the construction of the LNG plant. In a record time of barely 10 weeks, the Jan De Nul fleet, consisting of no less than 14 dredging vessels, dredged up 10 million m³ of soil.

TSHD Bartolomeu Dias - Sabetta (Russia)

TSHD Al-Idrisi, CSD Niccolò Machiavelli + SHB Tiger+ SHB, CSD Leonardo da Vinci + SHBs - Sabetta (Russia)

In **Myanmar**, Jan De Nul Group completed the dredging work in the entrance channel and turning basin in the port of Sittwe. This dredging work has now opened up sea access to the Indian State of Mizoram.

In Ha Tinh in **Vietnam**, the Jan De Nul Group fleet continued work on the brand new port, including an 8 km long entrance channel, on behalf of the Formosa corporation. The port basin and large parts of the channel have already been completed, and the rest of the project is set to be completed in 2014.

Ha Tinh Steel Mill Complex (Vietnam)

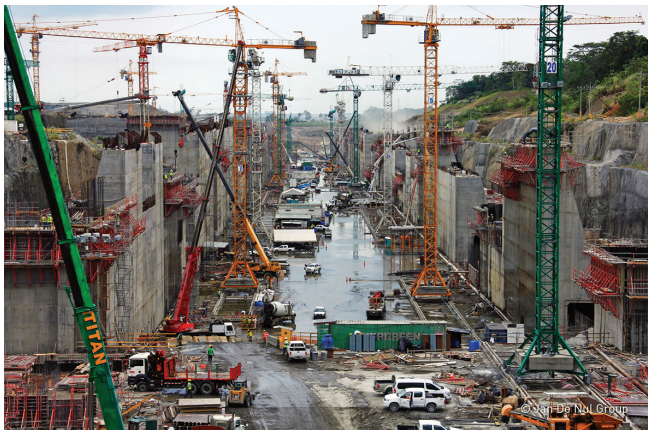
TSHDs Cristóbal Colón, Leiv Eiriksson and Vasco Da Gama at Ha Tinh Steel Mill Complex (Vietnam)

For maintenance work in the harbour of Manila in the **Philippines**, Jan De Nul Group mobilised the trailing suction hopper dredger 'Vitus Bering', which dredged the entrance channel, turning basin and mooring strip for the MICT quays up to a depth of -13 m. A total of 1.6 million m³ was dredged was as part of this contract.

In March 2013, Jan De Nul Group was awarded the contract for the land reclamation of Island 2B, a 260 hectare island off the coast of Kapuk Naga Indah in Jakarta, **Indonesia**. This project is part of an extensive coastal protection programme in the bay of Jakarta.

LATIN AMERICA

In 2013, Jan De Nul Group completed two large projects in **Panama**: the contract for the widening and deepening of the Atlantic access to the Panama Canal and the contract for the dry excavation and dredging of the Northern access to the locks on the Pacific side. The Group also started deepening the entrance channel, turning basin and berths at the Manzanillo International Terminal in the port of Colón. In the port of Balboa, Jan De Nul Group carried out maintenance dredging along the quay walls of PATSA.



Construction of Third Set of Locks (Panama)

In the **Dominican Republic**, Jan De Nul Group was responsible for maintenance work in the entrance channel and the Haina and Sansouci terminals in the port of Santo Domingo. In **Mexico**, the Group carried out maintenance work in the ports of Altamira and Tampico on the East coast and in Manzanillo and Guaymas on the West coast. Thanks to its presence in both countries at the right time, Jan De Nul Group was awarded its first contract in **Cuba**, a maintenance project in the port of Moa.

In **Colombia**, the maintenance and extension contract for the TC Buen container terminal in Buenaventura was carried out in early 2013. Immediately thereafter, Jan De Nul Group executed the dredging contract for the new Aguadulce container terminal of ICTSI in the same port. Capital dredging work on the installations of SPRBun, the third container terminal in Buenaventura, was also commenced.

Port of Buenaventura (Colombia)

In the port of Paraguaçu in **Brazil**, Jan De Nul Group carried out dredging work for the construction of a new dry dock. After the completion of this contract, part of the fleet went on to São Luís, where they were deployed for the removal of a small volume of rock from the terminal. Maintenance dredging work was also done along that same terminal and Pier 4. In the port of Tubarão and in Rio Grande do Sul, Jan De Nul Group was also responsible for a maintenance project in 2013.

In **Argentina**, the concession company Hidrovía S.A. continued the maintenance dredging work on the Río Paraná and Río de la Plata. There was continuous dredging over a total length of 1,400 km. Along the rivers, part of the fleet was deployed for maintenance on terminals in Villa Constitución and Diamante. Further south, in Buenos Aires, Jan De Nul Group carried out the broadening and capital dredging works on the entrance channel and harbour basin for the new Tecplata container terminal. In the port of Bahía Blanca, the Group continued the capital dredging work as part of the five-year maintenance contract.

In 2013, two dredging contracts were completed in the harbour of Callao in **Peru**: one for the 'Muelle de Minerales' ore terminal, and the other for APM's 'Muelle Norte' terminal. In Melchorita, maintenance was carried out on the LNG terminal.

In **Chile**, Jan De Nul Group completed the project in the harbour of Antofagasta where the rock remaining from the 2011 dredging campaign needed to be removed.

MIDDLE EAST

On behalf of the **Lebanese** Ministry of Transport and the port authorities, Jan De Nul Group completed the capital dredging work in the harbour of Beirut in time and within budget.

In 2013, the trailing suction hopper dredger 'Francis Beaufort' dredged out redundant sand in front of the DP World quay wall in the harbour of Jebel Ali in **Dubai**, storing the volume quayside for future use.

On behalf of Hyundai Heavy Industries, the backhoe dredger 'Jerommeke' constructed a breakwater around DAS Island, an offshore island at 200 km from the nearest harbour in **Abu Dhabi**.

SPECIALISED OFFSHORE SERVICES FOR THE OIL AND GAS INDUSTRY

Jan De Nul Group carried out rock revetments for the offshore Belwind II wind farm in the **North Sea**, at 46 km off the Belgian coast. The fallpipe vessel 'Simon Stevin' installed a three-part protective layer on at 33 m depth around the foundation of a 6 MW next-generation offshore wind turbine. The 'Willem de Vlamingh', having been altered to become a cable-laying vessel with a 5,400 tonne turntable, in mid-June installed an interconnector cable between the Northwind and Belwind wind farms. Thereafter, the vessel installed the export cable for the connection of the Northwind farm to the Belgian power grid. For this cable, a deep trench was dredged through the navigation channels of Zeebrugge and Antwerp. The cable was pulled to shore at Zeebrugge in August.

CLV Willem de Vlamingh - Northwind (Belgium)

CLV Willem de Vlamingh at Northwind Offshore Farm (Belgium)

In **Sweden**, Jan De Nul Group completed the contract for the design, construction and installation of 16 concrete foundations for a wind farm with 3 MW wind turbines. In 2013, the hoisting vessel 'Rambiz' installed the Gravity-Based Foundations (GBFs) with a weight of up to 2,000 tonnes on a levelled sea bed to a precision of 30 cm.

In the **Norwegian** part of the North Sea, Jan De Nul Group was responsible for the installation of a protected rock shoulder on top of a 12" export pipeline in the Knarr field at 410 m depth.

For the Wheatstone project in **Australia**, Jan De Nul Group dredged a 37 km long, 5 m wide trench for the installation of the pipeline. After the installation of the pipeline, Jan De Nul Group will backfill the trench with rocks and sand in 2014.

For the protection of the Gorgon and Jansz pipelines and umbilicals, also in **Australia**, the vessels 'Willem de Vlamingh', 'Joseph Plateau' and 'La Boudeuse' carried out rock installation works. In all, the vessels installed one million tonnes of rocks on 90 km of pipeline and umbilicals.

In **Myanmar**, Jan De Nul Group dredged a 4 km long trench for the installation of the Zawtika pipeline.

In July the fallpipe vessel 'Simon Stevin' set sail from Norway for Mexico with a cargo consisting of 32,000 tonnes of rock for levelling the route of an offshore pipeline.

In autumn, Jan De Nul Group completed two offshore projects in the Russian region of Sakhalin. For the first project in De Kastri, the Single Mooring Bouy, a loading point for crude oil, needed to be stabilised without disturbing the customer's operations. The second project, on the east side of Sakhalin in the Sea of Okhotsk, involved the backfilling of eroded zones underneath two offshore pipelines.

II. MARINE CONSTRUCTION WORKS

In Belgium, the DB contract for the construction of the new lock at Harelbeke was awarded to Jan De Nul Group. The urban development file was submitted in December 2013 and, pending the building permit, the Group started with the engineering and some preparatory work.

Near Liège, Jan De Nul Group continued to work on the construction of the lock at Ivoz-Ramet. Most of the concrete works were carried out.

The Deurganckdok lock in the port of Antwerp, the largest lock in the world, was one of the most popular attractions on Vlaamse Havendag (Flemish Port Day). Over 15,000 visitors entered the huge construction pit, half a kilometre long and 68 m wide, and with 25 m high chamber walls and lock heads.

In the second half of 2012, Jan De Nul Group signed the contract with the Ghanaian port authorities for the extension of the harbour at Takoradi, Ghana's oldest deep sea port. This project involves the construction of a 1 km long breakwater, the dredging of the entrance channel and turning basin for large ships and the construction of a concrete quay wall. Jan De Nul Group made all the difference in the tender by offering the customer a multidisciplinary approach with a comprehensive solution.

The Grupo Unidos Por El Canal, in which Jan De Nul is a minority partner, continued the construction of the new Post-Panamax lock complexes at the Atlantic and Pacific Ocean in Panama. Each lock complex contains 3 lock chambers of each 427 m long and 55 m width. One lock will be able to rise or lower the vessels by 9 m. Additionally, all chambers are fitted with large water saving basins that will reduce about 60 % of the water usage. By the end of 2013, 67 % of the construction works was completed. Jan De Nul Group was also subcontractor for the dry excavation of 3 million m³.

Early 2013 Minera Panama assigned the contract for the dry excavation works as part of the development of a new copper mine at the Atlantic Ocean in Central Panama to Jan De Nul Group. In very difficult circumstances – the site was only accessible over sea and in 8 months time a rainfall of 2,500 l/m² was recorded – the group constructed a 6 km long road in the jungle and executed 8 hectares of site preparation works. In total, 2 million m³ has been transported.

III. FLEET INVESTMENT

In August, Jan De Nul Group ordered a new vessel at the shipyard Uljanik Brodogradiliste in Pula, Croatia. This new multi-purpose vessel has a carrying capacity of 12,500 tonnes and a length of 138 m. The vessel will be suited for trenching for subsea cables and pipelines, for installing subsea cables and for installing rock onto the seabed.

Activities of PENTA-OCEAN Construction in 2013

We at Penta-Ocean Construction Co., Ltd. have grown and evolved to keep pace with the changing times throughout the more than 100 years since the company was established in Hiroshima Prefecture. In so doing, we have long fulfilled our mission of meeting societal needs, both domestically and abroad, through our diverse range of construction services, particularly those of our marine civil engineering segments where we leverage our expertise in harbour civil works projects such as those involving land reclamation, dredging and breakwater constructions.

THI VAI INTERNATIONAL GENERAL CARGO TERMINAL – VIETNAM

The Thi Vai International General Cargo Terminal-Contract Package 2 project was implemented through the joint efforts of the Governments of the Socialist Republic of Vietnam and Japan under an ODA loan (Special Terms for Economic Partnership Loan Package) from Japan International Cooperation Agency (JICA). The Loan Agreement was concluded between the Government of Vietnam and JICA.

The purpose of this project is to develop infrastructure related to the terminals at Cai Mep – Thi Vai areas in Southern Vietnam (Ba Ria-Vung Tau Province), in order to accommodate the increasing demand of cargo in Vietnam. The new port will be able to accommodate vessels of the 75,000 DWT and it is expected to serve as an international hub port in the long-term.

The project consisted of the construction and completion of a general cargo wharf (600 m long and 14 m deep), nine (9) approach trestles (each 20 m wide and 20 m long), a mooring and turning basin (450 m diameter and 12/14 m deep), soil improvement works, terminal yard (about 24.6 ha), operations building, amenity block, warehouse, maintenance shop, check gate, other office buildings, utility works, access road (new construction of 31.8 m to 38.6 m wide and 163 m long) and other facilities and ancillary works.

The terminal is located along Cai-Mep, Thi Vai River, with the site being located on the eastern edge of the Mekong Delta, which is mostly flat land with vast paddy fields and mangrove swamps. The site condition is biologically and geologically diverse with the majority of soil in the area being sediment deposits carried by the Thi Vai River. As such, the subsoil conditions along the river and its banks including the foreshore areas are extremely soft.

Ground improvement was very complicated, mainly due to differing subsoil conditions. Soil improvement methods employed consisted of pre-loading (PVD + Surcharge) and Deep Mixing Method (DMM). The DMM method, which has been highly developed in Japan, has proven effective for soil improvement and it was a great opportunity that this new form of technology was introduced for the first time in Vietnam.

PENTA-OCEAN'S WORKS IN VIETNAM

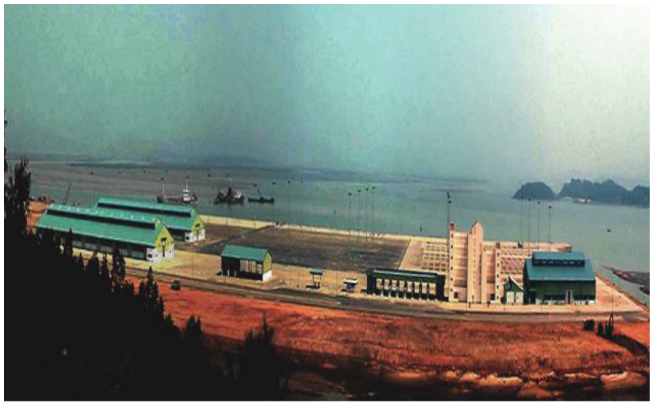
Penta-Ocean Construction initially established an office in the capital city of Vietnam, Hanoi, in 1995 some six years after the Vietnamese Government changed their economic policy to adopt a market economy, known as 'Doi Moi', with the expectation of short-term development in Vietnam becoming bigger due to its potential.

Since 1995 Vietnam has made remarkable progress and Penta-Ocean have assisted in this development being employed on some major port development projects in the country, as shown in the table on the next page.

'Hai Phong Port Rehabilitation' ~ 'Hai Phong Port Rehabilitation P2'

Project	Period	Main Scope of Work
Hai Phong Port Rehabilitation	1998-2000	Wharf (expansion): 150 m, Depth: -8.5 m, Reclamation: 62,000 m^3, Yard:36,000 m^2
Cai Lan Port Expansion	2000-2003	Wharf (expansion): 700 m, Depth: -13 m, Reclamation: 1,700,000 m^3, Dredging: 1,3 $milm^3$, Dyke: 700 m
Hai Phong Port Rehabilitation (Phase 2)	2004-2007	Dredging: 12,876 m^3, Reclamation: 180,000 m^3, Wharf (expansion): 350 m, Depth: -8.5 m
SP-PSA Thi Vai International Port	2007-2009	Wharf: 600 m, Depth: -14.5 m, Yard: 270,000 m^2, Dredging: 300,000 m^3, Soil Improvement: 240,000m^2
Thi Vai International General Cargo Terminal	2008-2013	Wharf: 600 m, Depth: -14 m, Yard: 250,000 m^2, Dredging: 160,000 m^3, Soil Improvement: 12,000 m^2(CDM)/246,000 m^2 (PVD)
Cai-Mep Thi Vai Channel Dredging	2009-2011	Dredging: 10.7 $milm^3$ (Depth: -14m/Total Channel Length: 37.5 km)
Lach Huyen Port Construction (Package 6)	2013-2017 (In Progress)	Reclamation: 2,436,000 m^3, Steel Pipe Pile Wall: 4,550 t, Soil Improvement: 42,600 m^2 (CDM)/564,000 m^2 (PVD)

Hai Phong Port Rehabilitation



Cai Lan Port Expansion

Hai Phong Port Rehabilitation (Phase 2)

SP-PSA Thi Vai International Port

Cai-Mep Thi Vai Channel Dredging

Lach Huyen Port Construction (Package 6)

As can be seen, initially Penta-Ocean's experience was limited to the north of Vietnam mainly upgrading existing ports. However, as Vietnam's growth resulted in overcapacity of existing hub ports in the Ho Chi Min area, Penta-Ocean's experience expanded to the south to include construction of 'SP-PSA Thi Vai International Port', which is located in Ba-Ria Vung Tau Province with investment from joint-corporation of local major port operator 'Saigon Port' and Singapore operator 'PSA'. This is a part of the total exploitation plan of 'Cai-Mep Thi Vai International Port' along Cai-Mep, Thi Vai River, similar to ODA project financially supported by JICA loan containing 'Thi Vai International Port General Cargo Terminal' and 'Cai-Mep Thi Vai Channel Dredging'.

In line with Vietnam's desire for enhanced and new port facilities with international competitive capabilities for accommodating large scale cargo vessels, this year 2013, construction of the north water gate 'Lach Huyen Port Construction' started with reclamation work ('Package 6') and will also comprise a wharf of 750 m long with depth of -14 m. It is the first project in Vietnam supported by the combination of ODA loan and private finance (PPP).

Penta-Ocean is now accelerating construction works in order to meet expectations and demands on time. We fully expect to continuously contribute to the development of Vietnam into the future bringing the wealth of experience that we have gained from our previous projects in Vietnam.

POHNPEI INTERNATIONAL AIRPORT REHABILITATION AND IMPROVEMENT PROJECTS
POHNPEI STATE, FEDERATED STATES OF MICRONESIA

Penta-Ocean recently completed two significant projects at Pohnpei International Airport in the Federated States of Micronesia (FSM). Found Between Guam and Hawaii, Pohnpei is just a speck on the map but will benefit from these important projects, which will help improve the operational safety and effectiveness of the island's lifeline to the rest of the world.

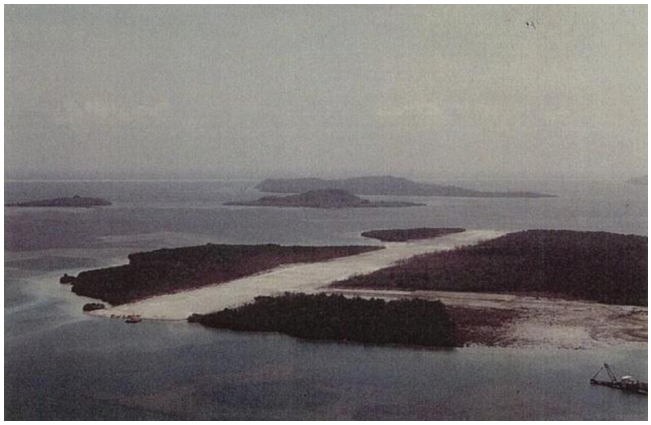
The projects have also enforced Penta-Ocean's commitment to the development of the Pacific islands. Penta-Ocean's history of working in Pohnpei dates back to 1968 when they constructed the original runway and the causeway access from the main town for the fledgling airport and have had a presence in this region of the Pacific Ocean constructing a number of beneficial projects over the years, right up to the present day.

The most recent projects completed covered improvements to bring Pohnpei Airport up to international safety standard, a project 95 % funded by the Federal Aviation Administration (FAA) through their Airport Improvement Projects (AIP) grants and the remainder of the cost covered by the FSM national and state governments, and a sister project, funded by a grant from the Government of Japan JICA Official Development Assistance (ODA), to extend the length of the Runway to accommodate larger aircraft and increase the capacity of the Terminal Building creating separate Arrivals and Departures Buildings.

Working in such a remote island presented some Unique challenges, not the least being logistical issues with material and spare parts supplies. The island geography itself posed further difficulties in dealing with very poor subsoil conditions while the climate of almost daily rainfall, averaging nearly 4,800 mm per year, provided other challenges. Although not a busy airport, most of the works were carried out during the night to avoid disruptions to daytime airport operations.

Crushed aggregates from the island quarry were exclusively used for all concrete and asphalt paving works. As there was no operational asphalt batch plant on the island, a unit was mobilised to Pohnpei together with all other heavy equipment, including marine fleet for coral sand dredging.

The projects ran concurrently, although administered as separate contracts, the scope of the FAA project was split into three phases which spread over a period of almost five years, while the ODA project was completed within two years.



Pohnpei Airport 1969

Pohnpei Airport 2012

ODA PROJECT: AIRPORT IMPROVEMENT PROJECT

The Runway length was increased from 6,000 ft (1,830 m) to 6,600 ft (2,010 m) with an additional 200 ft (60 m) long Blast Pad. Grab dredger and hopper barge mobilised for silt removal from deeper than envisaged reclamation area, coral sand fill dredged and transported to the reclamation site with soil improvement by vibro technique in the deeper fill zone. Works also comprised full depth asphalt pavement for the Runway extension and Turnaround, new airfield lighting, grooving to the extended Runway and adjustment of Runway markings, security fence and adjacent asphalt paved perimeter road.

The Terminal Building works comprised refurbishment of the existing combined arrival and departures building converting this to the departures terminal and construction of a dedicated arrivals building complete with new car parking facilities. New facilities provided within the terminal complex included backup generator, new fire-fighting system, x-ray baggage handling equipment, baggage reclaim carousel and new electrical, fire alarm and announcement systems.

FAA PROJECT: RUNWAY 9/27, TAXIWAY & APRON REHABILITATION (PHASES 1 TO 3)

Rehabilitation of operational areas included construction of rc ductbanks each side of the Runway and Taxiway, dedicated electrical room and backup generator room, installation of power cables, airfield lighting, directional signs, wind cones and beacon. Full depth paved shoulders constructed each side of the Runway and Taxiway, Runway surface overlaid and full depth paved Turnaround area constructed. Runway surface was grooved and precision markings installed. On the Apron, two concrete fuelling hardstands constructed, existing Apron overlaid, line markings established and four high mast lights installed. The final phase comprised fill and grading in the safety zones to improve drainage, shore protection, tree clearing for sight lines, installation of security fencing and adjacent road around the perimeter of the airfield.

PROJECT: AIRCRAFT RESCUE AND FIRE-FIGHTING FACILITY (ARFF)

The ARFF building is state-of-the-art and designed to meet the strict standards of the FAA. It was located in a mangrove swamp area requiring significant soil replacement and surcharging. Comprising 3 bays to house Oshkosh fire engines, a two-storey operational centre, including living accommodation with laundry and kitchen facilities for on-call emergency personnel, a conference room, an office, a training room, an exercise room and importantly the AFIS room. The ARFF also functions as a control room for the airport.

The building has many innovative features for use not only in emergency situations but also in communications and security measures. These features have brought the facility into line with other major airports and will ensure it remains functional for many years.

Toshiaki Matsumura
Manager
Public & Investors Relations Group

Impresa Pietro Cidonio S.p.A. in 2013

IMPRESA PIETRO CIDONIO S.p.A.

2013 has been a challenging year for Impresa Pietro Cidonio (IPC) S.p.A., especially for the ongoing works in the Port of Civitavecchia, where important steps have been successfully reached. Furthermore, the company has continued to invest internationally, showing its competitiveness and high professionalism.

ONGOING WORKS: PORT OF CIVITAVECCHIA

With a continuous presence in the Port of Civitavecchia since 1998, IPC has continued to be a key player in the construction of this important port that experienced a significant development within the last 15 years.

In March 2012 IPC, in joint venture with other important Italian companies, awarded an important tender for an amount of about € 130 million.

The works include the construction of two new basins of about 50 Ha for ferries and cruises (extension of quays of about 1.4 km) and naval services (extension of quays of about 1.7 km), as well as the extension of the main breakwater C. Colombo for a total length of 400 m. The new quays will be built by using reinforced concrete cellular caissons (about 100 caissons of a different size). The works also include over 1,000,000 m^3 of dredged material coming from the excavation of the new basins and the entrance channel. A new reclamation area, of a total of 13 Ha will be constructed and filled.

The works started in July 2012 and the expected date of completion is the beginning of 2015.

It is important to remark that in 2013 a variation order has been signed by the client in order to include new works, for a total amount of € 150 million. Below the updated works:

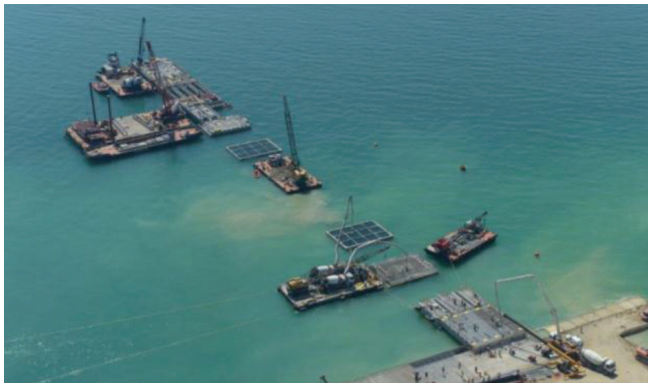
- New amount of main works: € 139.5 million
- New reclamation northern area: € 9 million
- New works of filling the areas behind the quays n. 27 and 28: € 1,960 million

In 2013, significant steps have been successfully completed: the filling areas behind the quays n. 27 and 28 for a total of 20 Ha have been delivered in July and the ferries dock n. 3, for a total length of 240 m, has been completed and delivered 6 months in advance to the expected date of delivery. The client was particularly glad that IPC successfully met its requirements.

Up to date, 65 % of the works has been completed, in duly time for delivery schedule.

Port of Civitavecchia: Aerial view of the ongoing works

Port of Civitavecchia: Ferry Dock – Construction of Lee Breakwater with caissons REWEC 3 type B



Port of Civitavecchia: Manoeuvring phases for positioning of caissons

Port of Civitavecchia: Reclamation works with dredging material

M.O.S.E. PROJECT

Since the last seven years the Company is strongly involved in the most prestigious marine project in Europe, known as 'M.O.S.E.', a Project launched to protect Venice and its lagoon from high tides and sea level rise. Within this project, in 2011 the company carried out construction works for a total value of € 40 million. 'M.O.S.E.' shall reinstate the lagoon's hydrogeological equilibrium and stop and reverse the deterioration processes that took place in the lagoon by eliminating their causes. The reduction of tidal levels in the lagoon and the protection of the urban settlements from exceptional high waters will be achieved by the installation of submerged mobile barriers for tidal regulation.

The flap-gates are 'mobile' because when tides exceed a certain level, an emission of compressed air empties them of water and the unhinged edge rises. They temporarily isolate the lagoon from the sea, blocking the flow of the tide. The inlets remain closed for the duration of the high water and for the time it takes to manoeuvre the flap-gates, a total of 4.5 hours. The housing consists of prefabricated concrete caissons which are inset in the lagoon floor and contain service tunnels and machinery. IPC, specialised in caisson construction, is involved in this prestigious project for a total amount of works of about € 260 million, of which € 160 million of the works have been executed up to December 31, 2013.

More specifically, the following works are presently ongoing:

- works in the Malamocco Inlet, related to the foundation basement of the sheet piles to allocate the concrete caissons, where the mobile barriers will be connected. The foundation basement is built through the placament and consequent vibro-compaction (by means of vibrating plate of 50 tonnes) of proper rubble mound;
- Precast of caisson of 'north shoulder' of the Malamocco Inlet.

The completion of the caissons casting was expected by April 2014 and since November 2013 IPC, together with Grandi Lavori Fincosit SpA, is carrying out the launching and installation of the caissons in the foundation of the Lido San Nicolò Inlet.

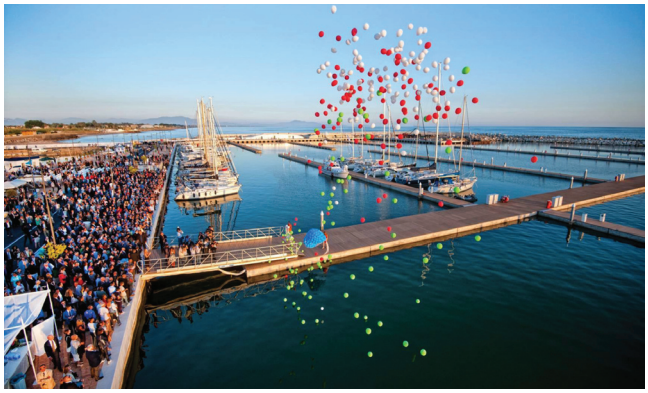
Venice: Bocca di Malamocco – Caissons precast plant

Venice: Bocca Lido San Nicolò – Artificial island

MARINA DI ARECHI

The construction of Marina di Arechi (Salerno, Italy), a marina for a total of 1,000 berths sized between 10 and 60 m, has been successfully completed. A total upland area of almost 9,000 m^2, (including commercial, retails, etc.), designed by the famous Architect Santiago Calatrava, has been conceived with plenty of open green areas, a space for entertainment and recreation and a vital provision of marine and customer services for visitors. Started in September 2010, the maritime works were successfully carried out. The opening ceremony occurred in June 2012. The marina has been completely delivered in December 2013.

Construction works of Marina di Arechi



Opening Ceremony of Marina di Arechi

RESEARCH ACTIVITY

Also in 2013, IPC continued to support research activities in maritime engineering and academic activities.

It is important to remark that in 2013 the Company has built and implemented the REWEC 3 caissons in the maritime works of the Port of Civitavecchia with eight active cells for the absorption of wave energy, under the patent of Wavenergy.it. Wavenergy.it LTD company is an academic spin-off company (see www.wavenergy.it) established with the purpose to work in the design, maintenance, control, monitoring, management and development of innovative devices for the production of electricity from energy associated to the sea wave motion. In particular, from its institution, the Wavenergy.it has been working in the development of the innovative REWEC3 (REsonant Wave Energy Converter) plants embodied into upright caisson breakwaters. The REWEC3s belong to the family of OWC (Oscillating Water Column) devices, with increasing performances for every wave conditions.

ABROAD ACTIVITY

In 2013 IPC has continued its commitment abroad, actively participating in international tenders. On a few occasions IPC has shown its competitiveness and final results are under examination.

Fabiana Maccarini
Impresa Pietro Cidonio S.p.A.

The Port of Rotterdam in 2013

On September 1, 2008, construction work started on a new part of The Netherlands. A few years ago, the province of South Holland's boundary with the North Sea was changed especially for the purpose by Royal Decree. It was all still in the future then. Now, more than five years after work on Maasvlakte 2 began, it has become everyday reality. The first phase of Maasvlakte 2 has already been delivered to the client, the Port of Rotterdam Authority and the new part of The Netherlands are now an official and integral part of the port area. The highlight of the past year was the official and festive opening by Melanie Schultz van Haegen, Minister of Infrastructure and the Environment. The waterways of Maasvlakte 2 are now open!

Opening Maasvlakte 2

Opening Maasvlakte 2 – Aerial view

COMPLETION

On April 17, 2013, PUMA, the joint venture between contractors Boskalis and Van Oord, delivered the first phase of Maasvlakte 2: on schedule, within budget and in accordance with the set quality requirements. For five years, over 2,000 people spent over 6 million hours working on the port expansion. 700 hectares of new commercial sites, 11 kilometres of seawall, 3.5 kilometres of quay wall, 24 kilometres of roads, 14 kilometres of rail and 560 hectares of port basins are now a fact. These operations formed the majority of the work involved in the construction of Maasvlakte 2.

MV2 ACCESSIBLE FOR SHIPPING

The absolute highlight in 2013 was the official opening by Melanie Schultz van Haegen, Minister for Infrastructure and the Environment. Maasvlakte 2 has formed an integral part of the port area since May 22, 2013. The area is accessible by road, rail and water. To mark the festive opening, a fleet of around 25 ships, varying from classic three-masters to a modern container vessel, were the first to officially sail to Maasvlakte 2 via the Yangtzekanaal. The public were able to access and watch the festive opening of Maasvlakte 2 both from the quayside and from a 20-metre high Ferris wheel. "Today we are opening the way for international shipping and trade. That's in keeping with The Netherlands. This is how we became great. With Maasvlakte 2, The Netherlands is opening the door to the latest generation of container ships. And we are offering space for the most modern terminals", according to the Minister as she opened the port.

LARGE NUMBERS

Maasvlakte 2 is an impressive project involving large numbers: 240 million cubic metres of sand were used to create new land, bring commercial sites to the right height and create 7.5 kilometres of beach and dunes. 7 million tonnes of hydraulic stone, 20,000 concrete blocks, each weighing over 40 tonnes, and 150,000 tonnes of clay were incorporated into the 3.5 kilometre long hard seawall. Around 300,000 cubic metres of concrete were used in the construction of the quay walls. In order to complete the port on time, Boskalis and Van Oord deployed dozens of trailing suction dredgers, suction cutter dredgers, stone dumping vessels, backhoes, bulldozers, dumpers and various other equipment over the past five years. At the busiest period in the sand operations,

there were sometimes as many as 12 trailing suction dredgers at work simultaneously. The heaviest piece of ordnance used was the Blockbuster, a special crane developed specifically for the construction of the block dam. This 1,200 tonne equilibrium crane was capable of shifting a weight of 50 tonnes 63 metres from the heart of the mobile chassis.

WELL WITHIN BUDGET

Extra good news in the past year was that PUMA and the Port of Rotterdam Authority succeeded in completing the first phase of Maasvlakte 2 in line with the plans and well within budget. The project has turned out to be around € 150 million cheaper than estimated. In 2006, it was estimated that phase one of Maasvlakte 2 would cost € 1.7 billion. On top of this, as is usual with such projects due to the complexity and scale, a sort of 'contingency sum' was budgeted: an extra sum of € 200 million for major disappointments and deviations from the original plan, i.e. scope expansions. That brought the budget to €1.9 billion. It now looks as if the first phase will cost € 1.55 billion. The work is turning out to be € 150 million cheaper than estimated and there is no need to use the 'contingency sum' of € 200 million.

READY IN 2014

Maasvlakte 2 is not ready yet. Construction of the Colorado Viaduct at the access to the ECT and APMT terminals on the current Maasvlakte is in full swing. After the opening in 2014, traffic to the new APMT terminal on Maasvlakte 2 will travel via the Colorado Viaduct. Construction of the APMT and Rotterdam World Gateway container terminals is also on schedule. Both will be operational by the end of 2014. In addition, a lot of work is going into fitting out the Prinses Margriethaven as a service port on Maasvlakte 2. The Port Authority is building a main pontoon, which will form the basic facility for providing nautical services in the area. The jetty will also serve as an emergency pontoon with access for an ambulance. In addition, berths will be built for the Nieuwe Maze, RPA vessels and the Hydrography service. The service port is expected to be ready in 2014.

Maasvlakte 2 – Aerial view

LONG-TERM VIEW

For the coming five to ten years, there will continue to be an inland lake at Maasvlakte 2. The 300 ha commercial site that could still be created there will be realised when required. For the time being, the Port Authority can manage with the 700 ha already created. Meanwhile, the Port Authority is positioning dolphins for ship to ship handling. This is a rapidly growing market, for the liquid bulk sector in particular (mainly oil that is shipped from Russia to Asia via Rotterdam) and dry bulk (mainly grains). The dolphins can also be used for offshore activities. The Port Authority is investing around € 10 million in these dolphins, at which ships can moor and which will become operational next year.

FUTURELAND ATTRACTS HALF A MILLION VISITORS

The creation of a new piece of The Netherlands and the construction of the most modern port in Europe is a grand and impressive project. To involve the public in all this, the Port of Rotterdam Authority opened FutureLand in 2009. This is the information centre about the construction of Maasvlakte 2. Visitors are informed in an educational and fun way about the port expansion and all related aspects. Guided tours and boat trips are organised through the new ports so that people can experience the port expansion from close quarters. FutureLand has already welcomed more than half a million visitors. It is open all year round, free of charge, for all ages. Situated on the edge of the current Maasvlakte, it provides views of Maasvlakte 2 as it evolves. For more information and opening times, visit www.futureland.nl.

FutureLand

Van Oord, Dredging and Marine Contractors in 2013

Van Oord

Marine ingenuity

Van Oord is a leading international contractor specialising in dredging, marine engineering and offshore projects (oil, gas and wind). These markets are driven by global long-term developments resulting in an increase in maritime transport, a rising energy consumption, urbanisation in coastal areas and a changing climate. Van Oord is an independent family business and employs about 4,500 professionals worldwide. Its modern fleet consists of more than a hundred vessels and other specialised equipment.

DREDGING

December 2, 2013 – The Hollands Noorderkwartier Regional Water Board and the Department of Public Works and Water Management intend to award the Van Oord (50 %) - Boskalis (50 %) joint venture a contract to reinforce and maintain the Hondsbossche and Pettemer Sea Defence from Petten to Camperduin, the northern stretch of the Dutch coastline. The contract with a value of approximately € 140 million comprises the construction and maintenance of the new sandy coastline for 20 years. The project is part of the second national High Water Protection Programme. The contract was signed on December 11, 2013. It will commence early 2014 and will encompass sand replenishment for the construction of a beach and dunes. The new coastal area offers room for nature and recreation. After completing the project on December 31, 2015, the Van Oord - Boskalis joint venture will be responsible for maintaining the coastline for another 20 years. The replenishment activities will be carried out with four trailing suction hopper dredgers depositing 40 million cubic metres of sand sourced from sea.

October 11, 2013 – A consortium consisting of Van Oord and BAM International has been awarded the contract for the design and construction of Phase 2A of the new container terminal for APM Terminals in Moín, Costa Rica. The total contract value amounts to US$ 460 million, which is split between Van Oord and BAM International on an almost equal basis. It will take the consortium approximately three years to complete the project. The consortium will be responsible for the construction of the new terminal and marine access. The scope of work for Van Oord consists of the construction of a 1.5-km rock breakwater, reclamation of an area of 40 hectares, including soil improvement works and the dredging of the access channel and turning basin. Van Oord will deploy a trailing suction hopper dredger, a cutter suction dredger and rock installation equipment. BAM International will construct the 650-metre quay wall, as well as the pavement, associated buildings and all utilities. In 2011 APM Terminals signed a US$ 992 million 33-year concession contract with the Costa Rican government to design, finance, construct, operate and maintain the new Moín Container Terminal on the Caribbean coast. 80 % of the country's maritime commerce is handled in the current port complex of Puerto Limon/Moín. APM Terminals will develop a world-class sustainable container terminal that modernises the port system to help Costa Rica achieve its economic ambitions. Not only will it increase the country's international trade competitiveness, the terminal will reduce logistics costs through higher operating efficiency and enhance Costa Rica's container cargo security reputation. The new port in Moín will attract additional international investment, create new jobs and business growth benefiting the country and region. The features and auxiliary facilities of the terminal, including the gate complex, will set new standards for customers, improve their logistics chain and reduce costs. The container handling equipment will be eco-friendly, featuring the latest developments in energy efficiency to reduce emissions.

April 12, 2013 – Van Oord's newest addition to its fleet will depart for western France for its first assignment. Pursuant to a contract with the Grand Port Maritime de la Rochelle, Artemis will be deepening the harbour basin and dredging a trench in the access channel to the harbour. Approximately 500,000 cubic metres of very hard rock and clay will be dredged and Artemis was built especially for dredging work on hard ground. The contract for the vessel's design, construction and delivery was signed with IHC Merwede on December 20, 2010. Pieter van Oord, CEO: "Our investment in two self-propelled cutter suction dredgers and two large backhoe dredgers has significantly bolstered our position on the dredging market. This is in line with our strategy to have a very strong position in all segments of the dredging market." Artemis is a robust and strong ship. An exceptional feature is its hydraulically buffered spud carriage, which will permit it to continue to work even in

poor weather conditions. Air springs that have been installed under the deck house are also special. They will minimise noise and vibration. "It is very important to us that our employees have a pleasant work environment", says Pieter van Oord. Artemis is a sister vessel to Athena, which was delivered at the end of 2011. Van Oord: "Building two similar ships will significantly improve the efficiency of our operations." Athena is currently being successfully deployed on the Ichthys LNG project in Darwin, Australia.

OFFSHORE (OIL, GAS & WIND)

August 2, 2013 – Van Oord announced its intention to acquire an equity stake of 10 % in the Gemini offshore wind park. The day before, Northland Power Inc. (NPI), the Canadian producer of sustainable energy, announced that together with Siemens Project Ventures GmbH (Siemens), HVC N.V., Typhoon Offshore B.V. and Van Oord Dredging and Marine Contractors B.V., it will be developing, constructing and operating the Gemini offshore wind park. The share distribution is as follows: NPI 55 %, Siemens 20 %, Van Oord 10 %, HVC N.V. 10 % en Typhoon Offshore B.V. 5 %. The total equity capital contributed by the parties amounts close to € 500 million. The further required capital will be financed by banks. As majority shareholder NPI is taking a leading role during the phases of further development, construction and operations. The Gemini wind park will be built 60 kilometres from the coast of Dutch Schiermonnikoog island, an area with excellent wind conditions. The construction of the Gemini wind park will start early 2015. Construction will take place in the period 2015-2016, after which the project will be fully operational in 2017. The 600 MW wind park consists of 150 wind turbines, each with a capacity of 4 MW. Following construction, the wind park will supply electricity to more than 785,000 households.

Van Oord will be involved in the Gemini project in two ways: as a project shareholder and as an EPC contractor (engineering, procurement and construction) during the building of the wind park. The EPC contract, with a total value of approximately € 1.3 billion, involves supplying and installing the foundations, the entire electrical infrastructure, including the off and onshore high-voltage stations, the cables and installing the Siemens wind turbines. Van Oord will deploy the dedicated developed offshore wind turbine transport and installation vessel Aeolus for the construction of this wind park. The total Gemini project construction costs amount to € 2.8 billion.
The above shareholders are taking steps to come to financial close to the project, which will involve the financing by the banks. The project is expected to reach a financial close in 2014.

May 7, 2013 – Van Oord has been awarded two pipe lay projects for its new shallow water pipe lay vessel Stingray. The total value of these contracts is approximately US$ 80 million (more than € 60 million). In Ulsan, Korea, Van Oord has been awarded the new SPM (Single Point Mooring) construction project for the S-Oil refinery. The pipeline installation started on May 6, 2013 and consists of dredging a trench, the installation of 42" pipeline and the installation of a PLEM (Pipe Line End Manifold system). The second award is for the replacement of Shalung No. 1 Offshore Crude Oil Pipeline, for the Taoyuan refinery CPC in Taiwan. This project is expected to be executed in Q2 and Q3 of 2013. Shallow water pipe lay vessel Stingray complements Van Oord's wide range of services to the offshore industry. Van Oord offers a one-stop shop of services – including dredging, pipeline installation, backfilling, engineering and procurement – to the oil and gas industry in shallow water. This integrated approach is in line with Van Oord's growth strategy for its offshore business unit. Moreover, it strengthens its position as EPC offshore contractor.

January 22, 2013 – Van Oord has been awarded the construction of the offshore wind park Luchterduinen. The wind farm will be located 23 kilometres from the Dutch coast between Noordwijk and Zandvoort. Client is the joint venture Eneco-Mitsubishi Corporation. The 43 wind turbines will have a combined capacity of 129 MW and will generate green electricity for nearly 150,000 households. Construction will start in July 2014 and will be completed after the summer of 2015.