

JDN

2018

Corporate Social Responsibility



Jan De Nul
GROUP

JDN²⁰¹⁸

Corporate Social Responsibility

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PREFACE

Over the past few years, we've made great strides with our CSR policy and associated reporting. As the expectations of our stakeholders constantly evolve, we also continue to fine-tune our CSR ambitions.

In preparing this report, which we periodically issue, help us to define priorities and to keep abreast of the expectations of our stakeholders.

Our stakeholders expect us not only to maintain control over our activities, but also over our contribution to society. To work safer, manage risk, control our activities, maintain quality and support our employees in adopting the corporate culture, we initiated the ITA (Imagine - Think - Act) programme.

We decided to use the UN Sustainable Development Goals as a compass for our CSR ambitions, which – in turn – have been established according to the GRI (Global Reporting Initiative) matrix.

In the same way as ITA, which has become an integrated part of working life for all Jan De Nul employees, CSR should be part of our way of working: i.e. in an environmentally friendly and socially responsible manner and according to both our own and international standards.

That is why we've structured our report around three topics: 1) reducing our impact on air and water, 2) investing in human capital and 3) innovation as a driving force. This report describes progress, in detail, on these topics over the past few years. This approach and these results have been made possible thanks to the confidence of our stakeholders and the passion of our employees.

Corporate social responsibility is both a learning and a permanent improvement process. This report gives a good picture of where we are at this moment on our CSR journey.

Meanwhile, we continue to work on specific ways to further develop our social responsibility. We look forward to hearing your opinion on this. It will allow us to learn and improve step by step.

The Board of Directors

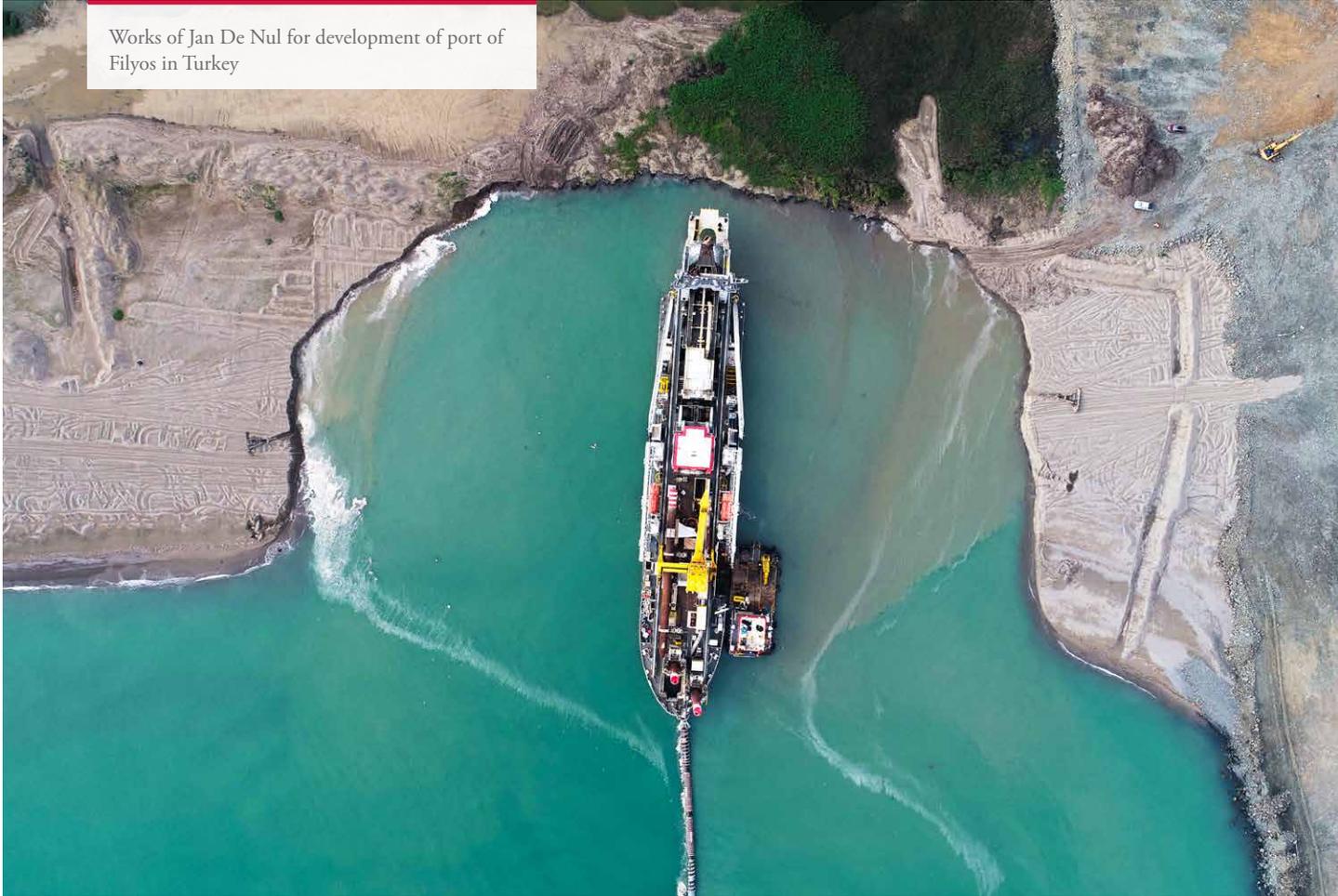
SDG COMPASS

In 2015, the United Nations defined 17 ambitious Sustainable Development Goals or SDGs. We use these goals as a compass for our CSR policy. More specifically, our current policy focuses on eight of these goals (red arrows). Each of our three CSR pillars (see p. 22) will be introduced by the specific SDGs to which we wish to make a substantial contribution.



- 3. Good health and wellbeing
- 7. Affordable and sustainable energy
- 8. Decent work and economic growth
- 9. Industry, innovation and infrastructure
- 11. Sustainable cities and communities
- 12. Responsible consumption and production
- 13. Climate action
- 14. Life below water

WHO WE ARE



CORPORATE ACTIVITIES

Innovation, expertise & sustainability

Modelling on water and on land.

From complex offshore services for both the renewable and fossil energy sector, to large-scale dredging and land reclamation projects at the interface between water and land, to all kinds of civil engineering and environmental works. Thanks to its permanent investments in people and own equipment, and the intensive cooperation between the various divisions, Jan De Nul Group has been able to deliver the engineering and execution of complex multidisciplinary projects from start to finish.

Time and time again, in a sustainable manner.

Civil works

Civil works: the heart of Jan De Nul Group. Even today, it is still an important part of our activities, with the focus on large-scale and complex projects requiring an overall project approach tailored to the specific needs of our clients. From design and execution, often including financing, and many years of maintenance, ranging from the construction of locks, bridges, tunnels, schools and residential care centres to architectural masterpieces.

State-of-the-art machines and equipment combined with experienced engineers with comprehensive knowledge and expertise result in detailed designs and innovative construction techniques. Through the integration of Soetaert NV, Jan De Nul Group has also become an expert in complex foundation, sheet piling and soil improvement techniques. As a result, we can honestly say that Jan De Nul Group is one of the absolute top civil players in Belgium.

Sustainability is an important priority during our construction and civil engineering works. Throughout the years, the traditional construction industry has evolved towards an innovative and ecological business. Obviously, Jan De Nul Group takes the lead in this evolution.

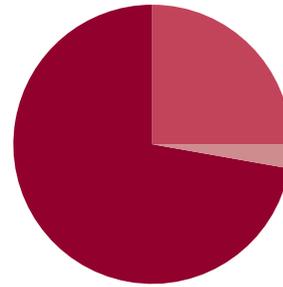
Dredging and marine works

Jan De Nul Group executes dredging and land reclamation projects throughout the world, ranging from the design, development and maintenance of ports and capital dredging works in access channels, to coastal and shore protection works, to land reclamation, beach replenishment and environmental dredging projects. We do it all. Often, these dredging activities are part of a comprehensive port infrastructure project entrusted by the client to one contractor. The expertise of our Civil Works division allows us to offer a multidisciplinary approach. As a result, Jan De Nul Group is able to execute large-scale projects all by its own within the pre-set execution terms.

Jan De Nul Group owes its position as global leader above all to its technical know-how and permanent investments in a comprehensive, high-performance, modern and geographically located fleet. The group focuses on large-scale and complex projects without losing sight of local opportunities.

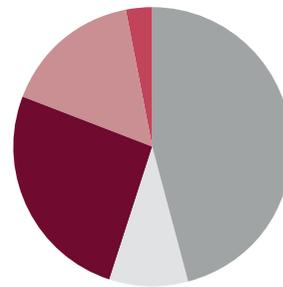
Also the dredging industry allows the transition to sustainability! Through port extension projects, for instance, local economies are supported and the increase in trade leads to increased prosperity.

Land reclamation activities are given an additional function. Climate is changing, that's something we can no longer ignore. Our coasts and low-lying areas are under threat by rising sea levels. Through the correct positioning of sand, coasts and shores are protected against erosion and the advancing water. Sometimes, the land is given



TURNOVER ACCORDING TO OUR ACTIVITIES PLAN | 2018

- **21%**
Civil works
- **4%**
Environmental works
- **75%**
Dredging and offshore works



JDN GROUP TURNOVER ACCORDING TO REGION | 2018

- **19%**
Asia & Middle East
- **1%**
Australia
- **56%**
Europe
- **7%**
Afrika
- **17%**
America

extra protection through the construction of breakwaters (e.g. in Benin, see p. 54-57), coastal nourishment, groynes...

These activities are executed by state-of-the-art vessels equipped with innovative technology enabling ships to work in a more energy-efficient, accurate, safe and sustainable way. Also our Ultra Low Emission Vessels (ULEVs) are an excellent example of how we minimise our impact on air quality (see p. 28-29).

For all our projects, the environmental criteria and regulations are strictly monitored by MARED, our marine environment division, throughout all project stages. In this way, the impact of our interventions on the marine environment is fully understood and allows us to plan sustainable execution.

Offshore services

For many years now, Jan De Nul Group offers specific offshore services for the installation of subsea structures for the different energy markets. A fleet containing a number of state-of-the-art multifunctional ships, combined with international teams of highly skilled specialists, produces innovative results for customers. Here as well, Jan De Nul Group applies an integrated approach, from design to execution, to deliver a creative overall solution. This approach ensures that specific and technically difficult works are executed with great precision, resulting in an efficient, high-quality and sustainable final result.

The offshore services can be subdivided into seabed intervention, installation services for offshore wind farm, the installation of subsea cables and subsea rock installation projects.

Obviously, our offshore wind installation work fit perfectly within our sustainability efforts in terms of energy and climate. The climate objectives benefit from our offshore construction services. Through the execution of renewable energy projects, such as our involvement in building various offshore wind farms worldwide, but also by installing subsea cables between member states to allow efficient energy exchange, Jan De Nul Group contributes to a sustainable energy supply system, using its knowledge, expertise and specialist vessels.

Environmental works

Jan De Nul Group participates actively in the remediation and/or redevelopment of polluted sites, be it industrial sites, dumpsites, ports, canals or waterways.

The focus here is on the sustainable remediation and redevelopment of cleaned up sites. By offering an overall solution that takes into account both the economic and ecological aspects of a project, we promote sustainable remediation. We also offer sustainable redevelopment of industrial sites, for instance by transforming former pro-



duction sites into sites for renewable energy (photovoltaic panels, wind energy...), extracting biogas, creating or restoring nature reserves... This creates win-win solutions for both the environment and the client.

With its "Circular solutions for a better planet", Envisan, the Environment Division within Jan De Nul Group, can offer the necessary expertise to be able to face these redevelopment challenges.

For the treatment of excavated soils and/or sediments, Envisan turns to its own specialised centres, with the valorisation of these soils/sediments into secondary raw materials being an important link in our sustainable approach.

In this way, Envisan can offer solutions for very complex projects and deliver a significant contribution to improving the environment.

Through PSR Real Estate Developers NV, the Environment Division can also be engaged for the innovative reuse and revitalisation of existing sites, which fits within a sustainable and contemporary vision on urban planning and project development. PSR, or 'Partner in Site Reconversion', focuses on the acquisition, remediation, reconversion and sustainable development of underutilised and often con-



Toulon, CPEM fysicochemische installatie

taminated sites, creating new agreeable sites for residential, economic, commercial and recreational purposes.

Our daughter companies PSR Real Estate Developers and Envisan stand for innovative processing technologies and environmental technology solutions; great stepping stones towards a circular world.

2018

6,458

employees

617

locally recruited employees for various projects worldwide

337

new employees for offices and projects worldwide

75

nationalities

200

projects

37

countries

87

vessels

158

auxiliary vessels

+500

heavy equipment

4

treatment centres

IMAGINE-THINK-ACT

“

ITA is your guarantee for sustainable, safe, creative and successful solutions that are tailored to your specific project”

Board of Directors

We are ITA!

What started as an awareness-raising programme became the way in which we work, the core of who we are and, at the same time, your guarantee for a successful project! We apply operational guidelines in civil engineering designs, during dredging works and for designing a new ship but also for the development and introduction of our CSR policy.

Every employee of Jan De Nul Group knows that good preparation and operational control are crucial for a successful and safe project, improved procedures and, last but not least, satisfied people: our clients, the environment and our employees.

“ITA is your guarantee for sustainable, safe, creative and successful solutions that are tailored to your specific project.” (Board of Directors)

Our management fully supports this operational approach and is convinced that our success depends on our ability to correctly assess, and control our risks and opportunities, to enable us to work at all times in an efficient, safe and sustainable manner.

Following the ITA programme launch in 2015, we developed several tools to introduce the ITA approach to all our employees, and to ensure its application as an operational standard during the execution of our activities. Through the following actions and initiatives, ITA has increasingly become a way of working for every employee.

- From 2017 JDN started training ITA ambassadors. These ITA ambassadors now support and embody ITA dynamism within the company. Following selection, employees are given intensive training and immersion to become an ambassador. We are proud to say that we now have almost 400 ITA ambassadors.
- Awareness-raising campaigns focussing on seven critical operations.
- The corporate video #WEAREITA, a spontaneous no-nonsense reflection of Jan De Nul Group's true identity, placing some of our ITA ambassadors in the spotlights.
- The ITA Challenge already led to many inspiring improvements. Ships and projects worldwide took turns in showing us their IMAGINE-THINK-ACT working methods and in communicating how they came up with more efficient, safer and better operational solutions.

We were also honoured and recognised for our safety approach on several occasions. In 2017, we won the Safety Award, which is awarded annually by the IADC (International Association of Dredging Companies). In 2018, we won 3 IADC Safety Nominations.

This is what ITA does!

- **IMAGINE.** We always keep in mind what we wish to achieve: our final goal, the perfect result. At the same time, we never lose sight of potential risks and opportunities.
- **THINK.** Based on this, we discuss and draw up a detailed plan, about which we communicate clearly and comprehensively with all parties involved.
- **ACT.** Only then, we start with the execution of the project, making sure that we never lose sight of our final goal. If we notice that something is not going as it should or that some procedures can be improved, we are not afraid to interrupt the works. We will consult once again and adjust our plan.

STOP & RETHINK!

We will stop a job, consult once again and adjust our plan.

ITA.JANDENUL.COM



IMAGINE
THINK
ACT





Business ethics

Code of Conduct

Jan De Nul Group delivers complex civil works, challenging marine and environmental projects and pioneering solutions in the offshore and renewable energy sector, across the globe. Thanks to our highly qualified employees and permanent investments in people and in our own equipment, we are currently a leading expert in these activities. Our ambition for the future remains simple: working closely with our clients, we want to deliver results that produce a satisfied customer.

To maintain and strengthen our position as a global player, we plan to continue delivering exceptional results while managing our activities as a responsible and reliable company. The behavioural rules described in our Code of Conduct serve as a guide to achieve this goal and build good working relationships with all our partners that are critical to our success.

The Jan De Nul Code of Conduct describes our vision of ethical and respectful business practices as well as the values, behavioural standards and commercial practices that Jan De Nul Group expects from its employees, partners, suppliers and subcontractors. Every employee, regardless of his or her job title, must work according to these rules and must inspire others to do the same. The Code of Conduct acts as a reference for everyone working with or for us. Our code of conduct can be found on our website.

QHSSE Policy Statement

Next to the behavioural rules that have been established in our Code of Conduct, the QHSSE policy statement creates a framework for achieving particular safety goals and safe working practices.

The policy statement defines the vision and mission of Jan De Nul Group, our values and how we implement these QHSSE values. We want to deliver our projects in a socially responsible way, paying careful attention to local communities, the environment and the various stakeholders involved in our activities: our own employees as well as clients, suppliers and subcontractors. This policy has been translated in several languages.

Certificates and labels

Quality, health, safety and the environment are priorities for Jan De Nul Group. The QHSSE team works every day on achieving or upholding our high standards and on making employees aware of potential changes to our activities that are needed to succeed. The following table gives an overview of the most important certificates and their scope. The final version of the ISO45001 standard for Occupational

Health & Safety was published on 12 March 2018. This new standard will replace the OHSAS 18001 standard. Organizations that are OHSAS 18001 certified have three years from the time of publication to switch.

It is the intention of Jan De Nul Group to have the conversion audit to the new ISO45001 standard carried out by the end of 2019.

CERTIFICATES AND LABELS	JAN DE NUL ENTITY
VCA	Algemene ondernemingen Soetaert NV, Soiltech NV, Envisan NV, Jan De Nul NV
ISO 9001:2015	Jan De Nul Group
ISO 14001:2015	Jan De Nul Group
OHSAS 18001:2007	Jan De Nul Group
Achilles Care System	Soil remediation works (Envisan NV)
Safety Culture Ladder Certification scheme version 4.0	Jan De Nul Group
Achilles FPAL Certificate of Assessment	Jan De Nul Group
CO ₂ performance ladder	Jan De Nul NV Bagger Benelux
Achilles UVDB Certificate of Qualification	Jan De Nul Group



The steering group of the CO₂ performance ladder.

Awards and Prizes

Our approach and our continuous strive for innovation and excellence is also recognised and acclaimed by external parties. Below, you'll find a selection of prizes awarded to the company, a specific division or a project in the past 2 years.

AWARD	PROJECT	YEAR	JDN GROUP / DIVISION	CATEGORY
Lloyd's List SAMEA Award	Ultra Low Emission Vessels (ULEV)	2018	Corporate level / Technical Department	Environment / Innovation
DPC Innovation Award	Port dredging project (Taiwan)	2018	Project	Innovation / Sustainability
SPEX Safety Award	Offshore project Malampaya (Philippines)	2018	Project	Safety
DPC Innovation Award	Sediment treatment (Malta)	2017	Project / Envisan	Quality
DPC Innovation Award	Pipeline optimisation transport	2017	Corporate level / QHSSE	Safety
BIM Award	Princess Beatrix lock (THV)	2017	Corporate level / Civil works	Quality

CSR APPROACH

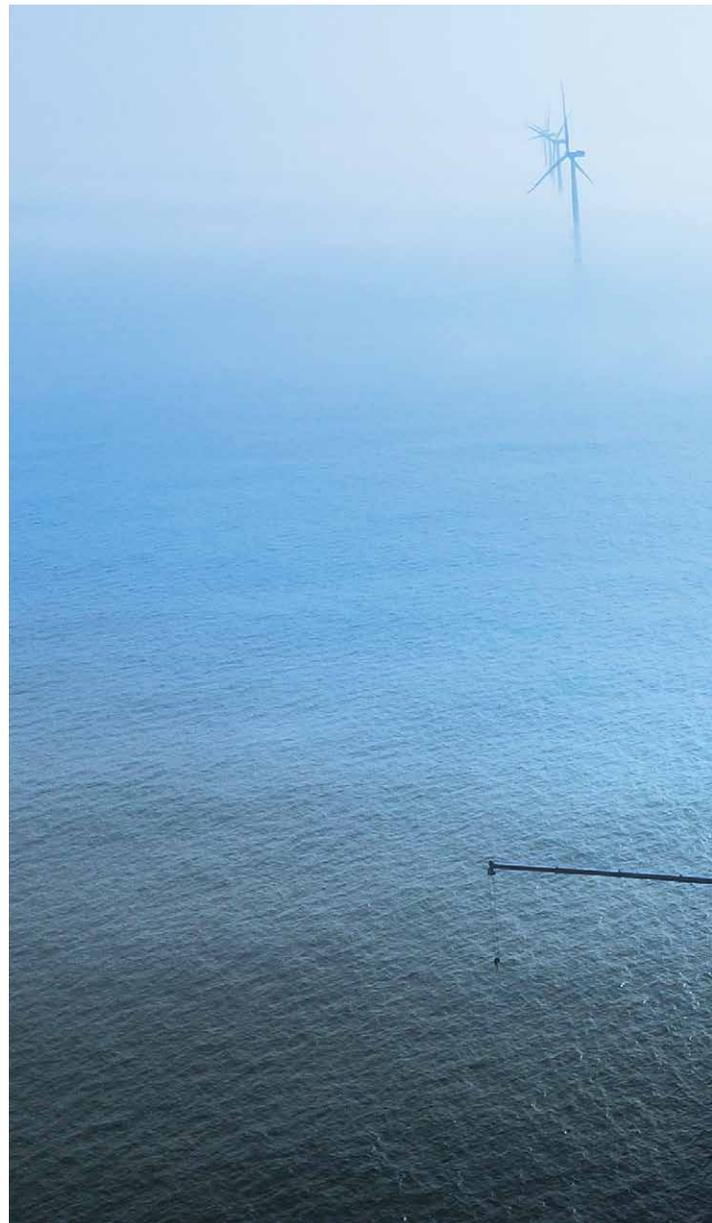
Jan De Nul Group in a world in transition

Efficiency and quality have always been important drivers within Jan De Nul Group. This is necessary to be a good employer, warrant a favourable investment climate and foster innovation, three major objectives for Jan De Nul Group since the company's beginning.

Sustainability projects or initiatives originate from within the Jan De Nul culture, our gut feeling, our ITA (Imagine, Think, Act) programme (see p. 14-15), and from our constant drive to do better and to excel. CSR projects originate from a natural reflex. We now wish to communicate more clearly and in a more structured way about our CSR initiatives and results. This CSR report is an important step in this process.

The world in which we live and work is changing at a blistering pace, driven by several intricately linked trends. Major global trends that accelerate the challenges in terms of social economy, environment, health and safety. These trends have both a direct impact on communities as well as an impact on our clients and on the projects that we deliver for them. It is important to understand this position in order to be able to anticipate the challenges and opportunities that come with these trends.

This is why Jan De Nul Group will resolutely pursue a structured high-quality CSR policy that we will further develop in the next two years. A steering committee, representing and reflecting all segments of the company, supports our CSR coordinator. Both our supporting services and the different business units are actively involved in the further development and structuring of our sustainable entrepreneurship initiatives. Furthermore, this organisational structure allows a direct link with management so that a clear CSR vision and strategy is developed and implemented from both a top-down and bottom-up approach.



CSR STRATEGY

About our CSR report

In Spring 2017, Jan De Nul Group published its first CSR report covering 2016 and will now report on a two-yearly basis. This report contains a transparent overview of our most relevant intentions, realisations and goals in terms of Corporate Social Responsibility in 2017/2018.

For this report, Jan De Nul Group refers to the GRI index (Global Reporting Initiative) to clarify the report and our new CSR survey. In the years ahead, we will continue to report on our sustainability efforts according to the GRI standard.



Corporate sustainability issues

We've checked through a non-exhaustive inventory of initiatives and projects that can be classified as sustainability-related against the 5 sustainable development Ps: People, Planet, Prosperity, Peace and Partnerships. This starting point enables us to define our sustainable development efforts and establish our 'As Is' situation.

To this picture, we want to add the P of Pleasure because we are convinced that passion and enthusiasm are very important to put a sustainability policy into practice

within a business context. What motivates and inspire our employees? What are they passionate about?

This analysis resulted in three distinct pillars that represent a solid basis for further steps in the development of our sustainability policy and its implementation within our various divisions. Our corporate sustainability issues are: 'Reducing our impact on air and water' (p. 25); 'Investing in human capital' (page 39); and 'Innovation as driving force' (p. 51). Focusing on these three issues within our 4 divisions and their respective activities, ensures the integration of CSR across Jan De Nul Group.

Our 3 CSR pillars

1. Reducing our impact on air and water

Our group activities are intricately linked with various ecological issues relating to air and water. We are well aware of this. Over the years, we've set up separate but also structural initiatives to reduce our impact.

Further in our report, we will provide you with a concise survey of our interventions and projects as well as a more detailed description of our ULEVs (Ultra Low Emission Vessels) and example like the land reclamation project in Monaco to show the importance of this pillar within Jan De Nul Group.

2. Investing in human capital

Our management is absolutely convinced: "our employees are of paramount importance". Jan De Nul owes its success to its employees and since our humble beginnings; we have made every effort to ensure their safety, health, training and support. We do not limit our efforts to our company sites, but also include the social impact of projects on local communities and incorporate any findings into project results.

Later in this report, the human capital pillar is discussed and sketches a general picture, focussing on the further development of our KPI department (Knowledge, Processes & Innovation). We will also discuss in detail how we handle 'Local Content' and what the value add is to humanity and society.

3. Innovation as driving force

Thanks to our comprehensive expertise and committed employees, we are prepared to take on complex challenges. To offer innovative solutions to our clients, we have cross-division fertilisation coupled with state-of-the-art technical equipment, that promotes innovative and pioneering solutions, to specific questions.

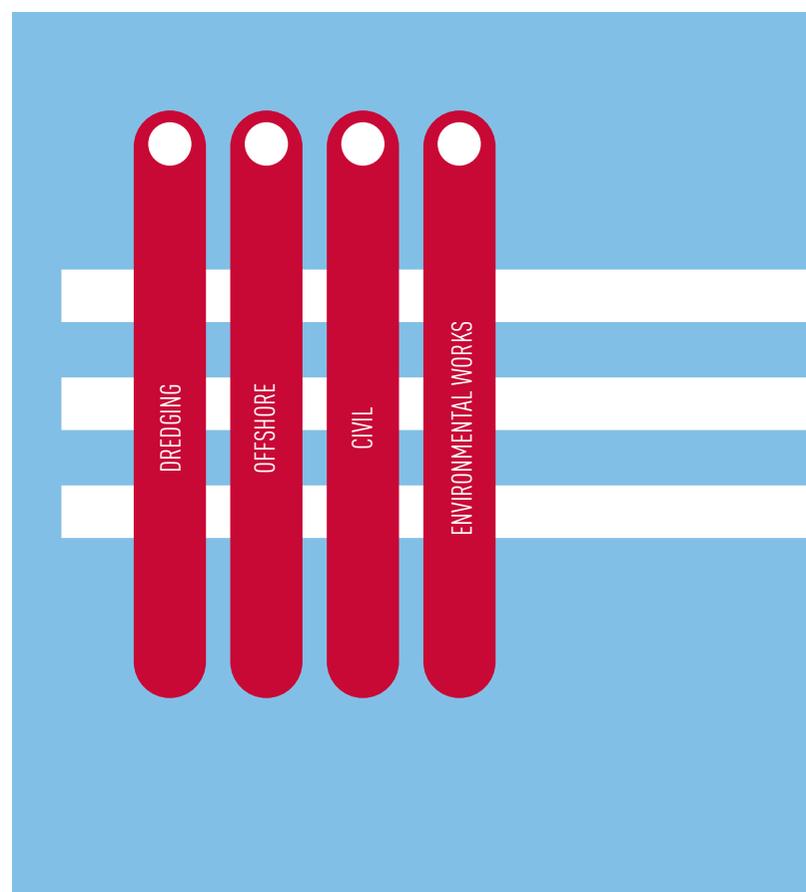
This third pillar is illustrated by a project in Benin where we had to offer an innovative solution to tackle the consequences of erosion along the west coast of Africa. Closer to home, our Environment Division delivered a state-of-the-art solution for the remediation of the BARCO site in Kortrijk, which in a later stage became a fine example of urban development.

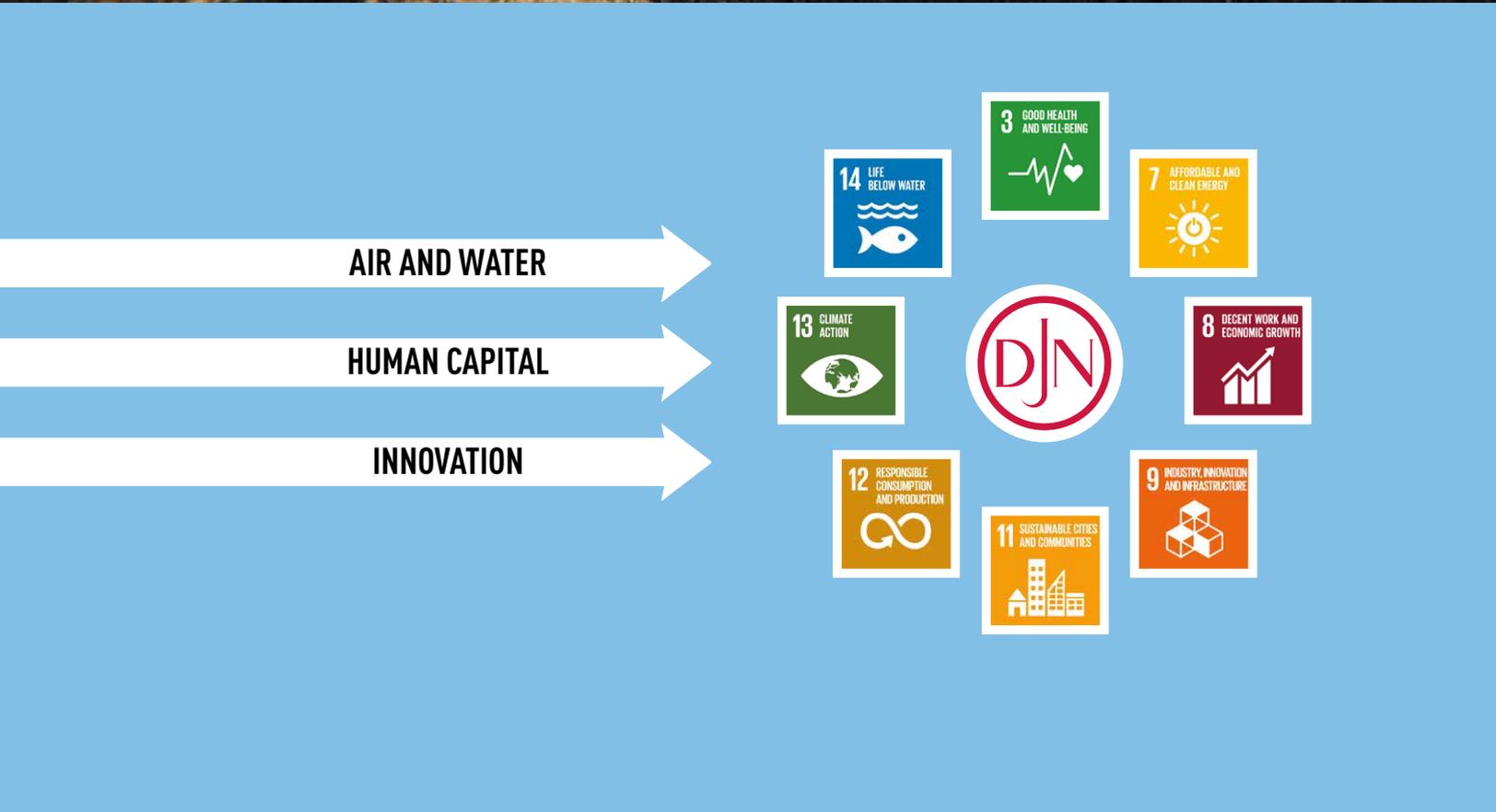
The SDGs as our compass

In September 2015, the United Nations General Assembly adopted the Sustainable Development Goals or SDGs. The SDGs were launched under the motto 'time for global action for people and planet'. The SDGs start from the assumption that not only governments, but everyone, can contribute to their delivery. Companies can take the lead in this delivery. The 17 goals include, among others, human rights, economic growth, peace, safety and the climate. We use them as a compass for our CSR policy. The current sustainability pillars leading to concrete actions within our different divisions, deliver a substantial contribution to eight specific SDGs. The other SDGs are also incorporated throughout our operations. We are well aware of the broader role that we can play in our contemporary society.

In 2014, Envisan, our Environment Division, successfully implemented the Voka Sustainability Charter, a recognition for our approach and the steps that we take toward a sustainable corporate policy. The criteria for this recognition are the five Ps and seventeen SDGs.

Currently we focus on the eight goals included in the schedule below, but throughout the wider activities within Jan De Nul Group, we make significant contributions to the realisation of all 17 SDGs.





SDG COMPASS

The first pillar of our CSR policy – reducing our impact on air and water – delivers major contributions to the following four SDGs.



- 3. Good health and wellbeing
- 7. Affordable and sustainable energy
- 13. Climate action
- 14. Life below water

REDUCING OUR IMPACT ON AIR AND WATER



Our ULEv ships, with the typical blue funnel, in the shipyard in China

AIR

Air quality, air pollution and greenhouse gases are high on the agenda and everyone's concern, wherever in the world this may be. Jan De Nul Group takes its responsibility seriously and focuses on three different tracks: reduction of our CO₂ footprint, construction of renewable energy plant and post-treatment of vessel emissions.

Reduction

Obviously, reducing our CO₂ footprint comes with different implementations across our various divisions and departments. Monitoring the consumption of energy and fuel – in our offices, warehouses and workshops, on our sites, in our dredging and offshore projects or in our treatment and processing centres – is essential to obtaining both ecological and economic awareness. It is also necessary to be able to formulate targets to reduce our CO₂ emissions to the maximum extent possible.

For our fleet, CO₂ emissions are monitored both on a technical and operational level. On a technical level, we design our vessels to keep the resistance as low as possible and we continuously update and optimise the guidelines for the use of engines. On an operational level, we map the best possible shipping routes and plan our dredging production as efficiently as possible.

For dredging works and permanent offices in the Benelux, we've achieved level 4 within the CO₂ performance ladder. In the course of this certification process, we made several efforts (cf. box text on p. 30).

Our civil division applies very high standards for its on-site equipment, keeping their fuel consumption as low as possible. The civil division is also working on a new standard for its construction site sheds. Furthermore, we started in 2019 with the implementation of the CO₂ performance ladder principles, including among others an ISO14064-1-standardised verification of the CO₂ records of our civil activities in the Benelux. The offshore division is now working on a CO₂ standardised verification.

Jan De Nul NV subscribed to the Commuter Fund with a bicycle leasing project, putting the awareness of employees about sustainable mobility on the agenda.

Offshore Wind Construction

The offshore wind farms that we design and build contribute to the global availability of renewable energy. But also on a more local level, at head office and in the business units in Flanders, we are committed to generating our own energy needs through solar panels and wind turbines. Furthermore, in 2020 we've committed to the purchase of local green energy for our buildings and supporting services within Benelux.

For our civil construction projects that also include a maintenance period after the acceptance of the works, the energy supply is studied very carefully. We will, for instance, soon install a wind turbine generating the energy for our lighting maintenance operations alongside the A11 highway.

Post-treatment of vessel emissions

Jan De Nul Group is always one step ahead and rises to the challenge in the fight against pollutants and greenhouse gases. We invest in exhaust gas treatment systems that are revolutionary within the marine industry. This puts us well on track to meet future European standards. The ships that have been equipped with a ULEv post-treatment system is extensively discussed below.



ULEv: THE SKY IS THE 'CLEAN' LIMIT

When designing new vessels, Jan De Nul Group focuses on air quality and climate issues through the intensive treatment of their exhaust gases. We talk about 'Ultra Low Emission Vessels' or ULEvs. With this system, Jan De Nul Group is an absolute frontrunner.



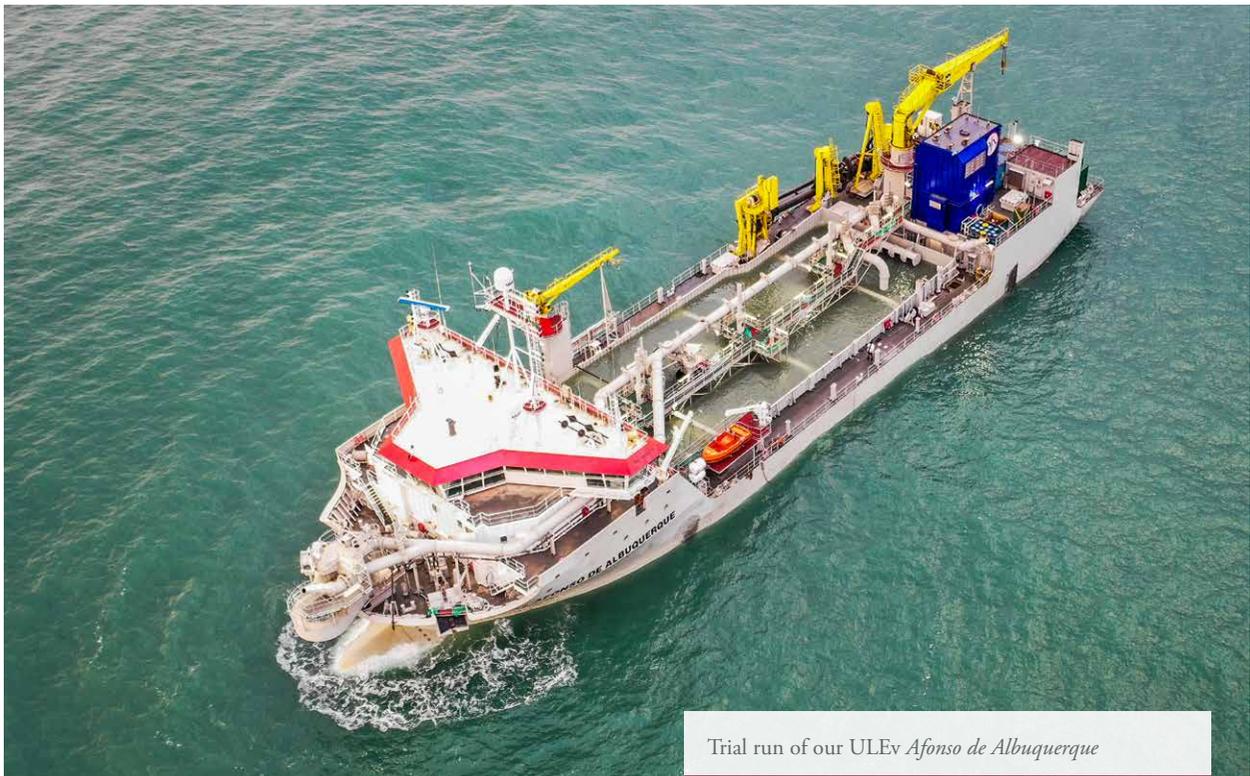
Because our dredging and marine construction works are a niche market within the shipping industry, we have chosen ULEvs to operate with diesel engines fitted with exhaust gas treatment systems. We are often operating in densely populated areas such as in ports, alongside coasts and in rivers and are thus directly responsible for air pollution. Considering this fact and driven by our ecological consciousness, we started looking for the best available technology (BAT) to reduce our impact on the climate and air quality. Yet, we were still missing a framework. We found this in the EU Stage V standards, which very recently, have been adopted by the European Parliament. These emission standards for inland navigation vessels are stricter than those of the International Marine Organisation (IMO) and represent the high reference standard for our newly built ships.

THE WORKING METHOD OF THE ULEvs



Swiss quality

This technology used in our ULEv was developed in the 1990's to provide cleaner air for workers building tunnels under the Swiss Alps. For tunnel working, the result was that all vehicle and heavy machinery exhaust gases had to be filtered. And it's this filter technology that we now apply in our new ships. Because for us, the conclusion was simple: whatever engine technology or clean fuel you use, you will always need an exhaust gas treatment system to meet the strict pollution/emission standards. These filter systems have already proven their reliability in several other



Trial run of our ULEv *Afonso de Albuquerque*

industries. And as we often work in densely populated areas, we feel compelled to address the air quality issue and meet the strict Euro Stage V inland requirements.

Technology

To meet the strict EU Stage V requirements, we treat/filter exhaust gases in two phases. Firstly, exhaust gases are fed through a Selective Catalytic Reduction (SCR) system to reduce NOx. By adding Urea (Adblue) to wet the catalyst, the NOx emission is reduced to Nitrogen gas and water, which enables us to meet the low Stage V standard for nitrogen dioxide. Because a 'clean' sky is the limit, we then feed these exhaust gases through a Diesel Particulate Filter (DPF). Our DPF filters are VERT-certified and warrant their proper operation with this Swiss quality label. In this way, we filter out particulates, up to 99% of all soot particles (carbon black) and nanoparticles from the exhaust gases. As such, we not only minimise the impact of our vessels on the quality of the air but also on the environment.

No LNG, no scrubbers, no residual products

It has been proven that an engine fuelled by LNG, and particularly under variable loads, emits a dramatic amount of nanoparticles and methane gas and does anything but meet the Stage V standard. Recent research has shown

that these nanoparticles or fine dust really are silent killers. Once they're in your body, they behave like Trojan horses, finding their way to the brain and liver, among others, where they can do a lot of harm.

LNG would reduce the climate impact but one tends to forget the unburnt methane. The emissions of an LNG engine are currently under no IMO regulation whatsoever. That's why we are not following this trend.

We also decided not to use scrubbers. Scrubbers are in fact a kind of luxury showers in the chimney, through which the exhaust gases of heavy fuel oil are led and, in the meantime, sprayed with seawater. The sulphur is 'washed' as it were. But because the contaminated water, the residual fraction, is discharged into sea, the problem is merely shifted from air to surface water.

It's exactly for all the above reasons that we've resolutely chosen to install an exhaust gas treatment system with double filter. We focus 100% on our newly built vessels. Meanwhile, we already have five ULEv vessels that are about to join our fleet and also the ships that are currently on the drawing board will be ULEv!

CO₂ performance ladder

With the dredging division and our permanent establishments in the Benelux, we've acquired level 4 on the CO₂ performance ladder. We now aim to highlight our absolute target to reduce our CO₂ emission by moving on to the top of the ladder: level 5!

The CO₂ performance ladder is an auxiliary tool or management system that helps companies to reduce their CO₂ emission. Business processes and projects (across the chain) have much to gain in terms of energy saving, the efficient use of materials and renewable energy.

Since 2012, Jan De Nul Group publishes annual CO₂ emission reports that are part of the CO₂ performance ladder certificate. The latest report, published in 2018, discusses the results of 2017. The results of 2018 will be published in 2019. The report describes the limits, conditions and objectives and presents the direct and indirect emission results (scope 1 and 2) for our offices, dredging projects and support departments (including offshore support) of Jan De Nul NV within the Benelux.

Lloyd's Register verifies the limits, emission inventory and emission numbers bi-annually according to ISO14064-1.

The following items have been quantified:

Scope 1

Natural gas (heating of buildings), fuel for ships, fuel for company cars (office and project staff), heating oil (internal traffic/generators/heating of buildings)

Scope 2

Air miles (staff), fuel for private cars, electricity consumption

Scope 3

Rental cars (staff), commuter traffic (staff), cabs (staff), transport (mobilisations and distribution)

Reduction targets 2018

- 7.5% reduction of our fuel consumption during the execution of projects in 2018 compared to the estimated consumption (scope 1).
- 10% reduction of our CO₂ footprint by 2025 compared to 2017 for natural gas, fuel consumption of company cars and heating oil (scope 1).
- Use of green power (purchased green energy + green energy production by our own solar panels) representing at least 10% of our total energy consumption (scope 2).
- 10% reduction of the CO₂ emission of rental cars in 2019 compared to 2015 (scope 3).
- 10% reduction of the CO₂ emission of commuter traffic by 2019 compared to 2015 (scope 3).





WATER

Jan De Nul Group is aware of the impact of its activities (dredging and offshore works) on the quality of surface waters and their ecosystems and biodiversity.

Mared

Because we regularly operate in environmentally sensitive areas, Jan De Nul Group has set up Mared (Marine Environment Department). This department supports and monitors projects throughout the different project stages so that the impact on water quality and sensitive habitats is reduced and kept under control. Mared's tasks include, but are not limited to, monitoring the turbidity, water quality impact, noise, and waste management. At their disposal they have high-tech measuring equipment generating highly accurate results. But Mared also performs proactive research into methods to limit the negative impact of our activities to the maximum extent possible and to improve our performance in protecting ecosystems.

Waste management plan

Jan De Nul Group is committed to reducing all our waste streams, including on board of our vessels, so as to minimise the waste volumes to be treated or disposed off. Our waste reduction policy includes waste prevention, maximum reuse of waste, recovery of raw materials and recycling. All Jan De Nul vessels meet the requirements of the MARPOL Convention to reduce sea pollution and they all have their own specific waste management plan.

Remediation

Envisan, our Environment Division, has many years of experience and knowledge in executing soil and ground-water remediation projects. As such, they are able to tackle complex multidisciplinary projects and offer innovative solutions. These projects often require an intensive and integrated approach combining civil engineering, hydrogeology and environmental technology. Their expertise and knowledge also turns Envisan into the ideal partner of Jan De Nul to devise innovative customised solutions for specific dredging projects.

Our projects in Monaco and Oulu (Finland), which are discussed in more detail below, are good examples of customised solutions.

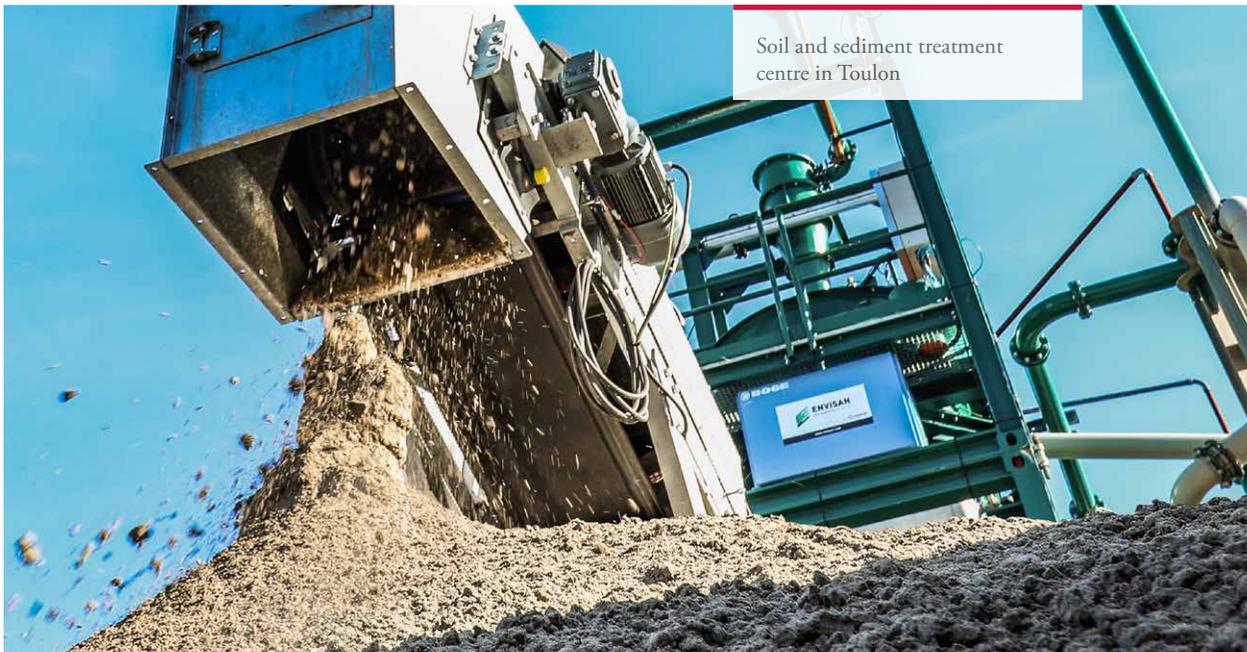




MONACO EXPANDS INTO SEA

Monaco is the world's most densely populated state! So, it should be no surprise that the principality decided to increase its inhabitable territory by expanding into sea, while paying due consideration for the nearby nature reserves. The project involves dredging, rock installation, land reclamation and remediation works! A complex challenge that fitted Jan De Nul Group like a glove.





Envisan, circular solutions for a better planet

In the dredging stage of the Monaco project, Jan De Nul Group's Environment Division Envisan played a major part in the treatment of polluted sediments. The soil and sediment treatment centre in Toulon, which was opened in 2015, has already remediated more than 100,000 tonnes of polluted sediments from Monaco.

In view of maximum valorisation, polluted sediments are brought to Toulon and pumped into a large lagoon, where the first step is to allow natural dewatering. Subsequently, the material is pumped to a physical-chemical separation plant, where it is subdivided into partial fractions such as sand and very fine clay. This is done by passing the sediments across hydrocyclones. The filtered sand can then be reused. The sand fraction represents by far the largest volume and is mainly reused in road construction projects. As the pollutants settle

on the smaller fraction, the clay fraction needs further treatment. The water is extracted using filter presses and treated in the on-site water treatment plant, after which the purified water is discharged into sea. In the end, only a minimal residual fraction of dry matter is left that cannot be purified. This fraction is brought to a licensed land fill site.

The major challenges for the treatment centre in Toulon were its capacity and the close alignment with our dredging activities. To prevent delays, efficiency was a top priority and the time of stay of the sediments in the centre was kept as short as possible. As a result, we dredged using an eco-friendly gripper, which ensures that the sediments arrive at the centre with a maximum content of dry matter, requiring less time in the lagoons.

Envisan is the go to organisation for treating polluted sediments so that a major part can be reused. In this way, we help make a significant contribution to the circular economy.





Involvement of Mared

Close to the project area in Monaco, there are two nature reserves with eelgrass and red corals that could not be affected by the works under any circumstances. A perfect job for Mared, our environmental experts.

Before the start of the project, a Mared team was on site to monitor the water quality and the condition of eelgrasses and corals. Based on its own readings, literature, biological studies and specialist input from an external expert, limits were agreed upon and we were able to convince our client that the environmental impact of our dredging works would be manageable. We established turbidity, light transmission and sedimentation limits: parameters with a direct impact on the growth and health status of eelgrasses and corals.

These strict requirements to protect the biodiversity of these nature reserves turned

Monaco into a challenging and complex project. The acquisition, processing and analysis of the readings at the measuring buoys is an important part of the project. Both the turbidity and sedimentation must be monitored critically and rigorously. Measuring buoys in the sensitive areas measure the turbidity of the water and the light transmission to the plants. In addition, the content of sedimentation measuring pipes is subjected to weekly lab analyses. Finally, photographs of tiles on the seabed are made for allow a rapid visual inspection. In this way, the difference in sedimentation can be rapidly assessed.

To provide open communication, all monitoring information is continuously available in real-time through an online link with follow up weekly consultations. The environmental aspects and the work of our environmental experts are crucial for the project in Monaco.



OULU

Oulu, the northern most port in Finland, is situated just below the Arctic Circle. As an important logistic link for Northern Europe, Jan De Nul Group has contributed to the further development of this port. The town of Oulu is a starting point for major traffic arteries to supply the north of Scandinavia and Russia. Deepening the port channel was needed to be able to provide access and welcome larger cargo ships.

For three months, the trailing suction hopper dredger *Alexander von Humboldt* and the cutter suction dredger *Fernão de Magalhães* deepened the sea channel, the access channel and the harbour basin to 12.5 metre. In all, the ships dredged two million cubic metres of sand, clay and rocks.

Harold Heffer, project manager of Jan De Nul Group: “The project started in late summer and had to be completed before winter conditions would freeze up the port. Thanks to excellent cooperation with the port authorities, and the use of innovative techniques for treating the sea water in a settling basin, we could deliver the project within time and according to the strict environmental requirements.”

The Finnish authorities imposed very specific and strict environmental requirements in terms of turbidity, the measure of suspended particles in water. In this project, the dredged materials included very heterogeneous glacial deposits with a high proportion of clay particles that were difficult to settle. To be able to execute this project within the pre-set standards, we worked intensively together with several environmental experts from within Jan De Nul Group. Together with the client, we developed a working method that completely met all requirements. The method entails a very accurate, precisely metered addition of some specific chemically active substances that enhance the natural bonding of particles and thus result in a faster settling. Furthermore, we suspended large underwater silt curtains in the settling basin to slow down the water even further and ensure that the settling of particles could be kept entirely within this basin.



SDG COMPASS

The second pillar of our CSR policy – investing in human capital – delivers a significant contribution to the following three SDGs.



- 3. Good health and wellbeing
- 8. Decent work and economic growth
- 11. Sustainable cities and communities

INVESTING IN HUMAN CAPITAL



Jan De Nul Group's human face

Jan De Nul Group is well aware of the fact that its employees are the key to success. We are highly committed to their safety and well-being, among other investments through a permanent training programme (see p. 43: Knowledge and lifelong learning) in an environment where health and safety are top priorities. Furthermore, we always try to increase our commitment to, and positive impact on, society. We do this all across the world but, obviously, the social commitments of a global family business like Jan De Nul Group also have solid local roots (see p. 46: Local Content).

Safety first!

Safety is at the very top of our agenda wherever people are involved. No job is ever too important that it cannot be done safely. We make every effort to anchor the JDN safety culture strongly within our various projects and throughout the entire organisation, including our subcontractors.

In recent years, within the scope of our ITA programme, we focused our efforts, among others, on seven 'Critical operations' on board ships and on project sites. We established very specific rules and procedures and extensively informed all employees involved using various media channels. The distribution of visual material was complemented and further explained in toolbox talks.

For JDN projects we wish to engage the right parties to ensure the proper and safe execution of our operations, so we improved the pre-qualification process for subcontractors and made safety a more important part of the assessment criteria.

These efforts have borne fruit as shown in the tables on the right. Our safety efforts have also been recognised when our offshore department obtained the Safety Culture Ladder Certificate – Level 3.

Accidents related to work activities

MARINE DIVISION

YEAR	WORKING HOURS	FREQUENCY RATE *	SEVERITY RATE **
2014	11,226,753	1.60	0.053
2015	12,075,285	1.24	0.072
2016	12,621,408	1.51	0.070
2017	12,097,122	1.24	0.037
2018	11,517,711	0.35	0.009

OFFSHORE DIVISION

YEAR	WORKING HOURS	FREQUENCY RATE *	SEVERITY RATE **
2014	1,477,628	0.00	0.000
2015	1,073,163	0.93	0.157
2016	2,298,166	0.00	0.000
2017	2,156,807	0.46	0.009
2018	3,482,516	0.00	0.000

CIVIL DIVISION

YEAR	WORKING HOURS	FREQUENCY RATE *	SEVERITY RATE **
2014	1,469,662	17.69	0.610
2015	1,552,873	15.45	0.233
2016	1,692,713	7.68	0.186
2017	2,002,843	10.98	0.392
2018	2,070,727	13.52	0.508

ENVIRONMENT DIVISION

YEAR	WORKING HOURS	FREQUENCY RATE *	SEVERITY RATE **
2014	137,891	21.76	0.334
2015	136,999	14.60	0.277
2016	139,097	21.57	0.906
2017	160,408	18.70	0.249
2018	148,392	20.22	0.694

* Frequency rate (lost time incidents per 1,000,000 working hours)

** Severity rate (number of lost days per 1000 working hours)



War for talent!

The HR department is constantly looking for new employees to join our teams. In future, the 'War for Talent' will become an even bigger challenge. Branding is an important tool during this 'War.' We also work together with educational institutions to be able to track talents earlier and, on the other hand, to contribute to their education through work placements, master's theses and doctorates. New candidates are screened for their qualities without any form of discrimination. Our employees are a reflection of our society. Diversity is a priority. The number of nationalities employed by Jan De Nul Group, at any given time, varies between 75 and 80, depending on the number of sites abroad.

KNOWLEDGE AND LIFELONG LEARNING

Jan De Nul Group fosters talent and helps colleagues to develop themselves and flourish. We strive for flexible and agile employees who are encouraged to think about their contribution to the company, both today and tomorrow.

Well-trained, motivated and committed people are not only an asset to the company, they benefit from it as well.

To this end, we set up the KPI department in May 2016. KPI within JDN, stands for 3 powerful words: Knowledge, Processes and Innovation.

Knowledge

When we talk about training, education and lifelong learning, we think about knowledge. Detecting, preserving and passing on knowledge. In this way, the company and its employees are ready for the future and the challenges that we face. This is a crucial task and challenge for the KPI department.

'Knowledge' includes two components: the JDN Academy as internal training centre and the Expert Academy as knowledge portal.

The final goal of the JDN Academy is managing and organising all internal and external training programmes. The Academy offers individual training programmes, career coaching and an environment to share and improve knowledge for all JDN employees.

This umbrella organisation set up by the KPI department promotes increased quality and efficiency. The purpose is to prepare employees (both existing and new) even better for their future role and, at the same time, enable them to meet colleagues from other departments. The training courses are geared to the individual careers of our employees, offering them a tailored training path. In this way, lifelong learning is encouraged.

Because our employees are active worldwide, easy access to training is essential. It is in this context that in 2018 we launched the eAcademy: an online e-learning platform! In the coming years, our library will be considerably expanded with very



diverse titles, from classes about diesel engines to IT-classes.

In 2017 and 2018, we achieved an average of 16 training hours per employee per year, with an average of 5 internal and 11 external hours.

The Expert Academy is our online knowledge portal and is growing rapidly. Through this portal, we want to collect and record many years of corporate knowledge and expertise and quickly spread it. We try to avoid having essential information remaining only within a select group. By making this information available to all employees, we equip them to manage challenges in a tender or project phase, in an informed, thoughtful and efficient manner.

“These joint moments with colleagues are very important to become even better at my job!”

Customised training!

Jan De Nul Group has a specific working environment with sites and vessels across the world. This makes it difficult to build working relationships between crew, operational staff and the support services in our head office. We also observed that the exchange of knowledge among equivalent functions became increasingly difficult.

The JDN Academy focuses on training project staff as well as support services from the head office. We also encourage initiatives to share knowledge and expertise between different levels and functions. The Sandfield Master, Welder Foreman and Multicat Skipper days are excellent examples of inclusiveness. In other words, training courses for all our personnel.

These three courses, each run over several days, as training programmes for employees that are active in a specific function on sites abroad. The training courses and shared experience are rated particularly valuable by all attendees, with the added value of rapidly increased efficiency and distinct and specialised topic appreciation.

During these training courses, employees are gathered in one location, creating space and time for training, exchanging of experiences, getting to know one another and consulting with colleagues from across the company. Topics discussed during these days include, but are not limited to, safety, innovation, corporate culture, daily business operations and team building.

The open communication culture is important for the development of our employees and of the company as a whole. In this way, we promote optimal internal communication, which is indispensable to bringing projects to a successful conclusion.

Below are a couple of enthusiastic reactions that clearly show the success of these training sessions:

“I am glad that this kind of knowledge sharing and training is organised and hope that in future it will get a permanent place on the calendar.”

“It’s great that our opinions are listened to.”





LOCAL CONTENT & COMMUNITIES

With 'Local Content', we strive for the participation of local communities in our projects whenever this is contractually possible. We achieve local content on one hand, by engaging local companies, services and people and, on the other hand, by training the local population. We have seen this approach lead to the further development of local skills and have a positive impact on the local economy and welfare.

But we also aim to create added social value during our projects. We think about how we can cater to some specific needs of local communities. To this end, we work together with local NGOs or actively search for opportunities ourselves.

Subcontractors

Local subcontractors are selected after a detailed technical and commercial screening process that is driven by agreed technical, financial, quality and safety requirements. If needed, we deliver additional training courses to local contractors to ensure they are clear on the project objectives, and that the highest quality and safety standards apply to them.

Local workers

Jan De Nul Group is committed to the recruitment of local employees to help make a positive contribution to local employment, economy and prosperity. Obviously, we do not make compromises with regard to the quality and safety standards, and a certain prior knowledge is required. Following recruitment, a bespoke training programme is set up to provide the necessary knowledge and qualifications required to execute the tasks at hand.

Jan De Nul Group has many years of experience in engaging local services and workers for the execution of its projects. Below are some examples of the past two years:

Klaipeda is a seaport in Lithuania where we performed maintenance dredging works in the harbour. Given the specific location with shallow areas and the scope of the ships deployed for the job, it was not easy to execute particular sections with our own equipment.

For this, we engaged the services of local contractors. Dredging these specific shallow sections was done by way of a sweeping process. These are intervention works on the shallow seabed, where a small tug 'scoops up' the sediments and moves them to an area where dredging with a hopper dredger is possible. For these works, we successfully engaged local subcontractors.

Also for several projects in **India**, we reached out to the local jobs market. The local Jan De Nul office engaged among others local employees for various functions (accounting, cleaning service, logistic processes...). For the JNPT Phase II project in Mumbai, executed in a joint venture with Boskalis, the office building was erected by a local Indian contractor and the marine survey works were performed using local vessels.

Support from local communities

A serene, respectful relationship with local communities is only possible after information sessions about our activities. We always strive for a good interaction between the local community and Jan de Nul Group. Respect and responsibility are key concepts in a positive relationship. Jan De Nul Group is a major international player with a strong social commitment, both locally and internationally. Our generous sponsoring policy for various initiatives is testament to this community interaction.



Benin, local engagement on many levels

In Benin, we built two underwater breakwaters to protect the coast against erosion. The execution of these works will, on a macro level, give a boost to coastal tourism and, in turn, to the local economy, though having a more stable and useable beach .

In addition, we committed ourselves to the logistic support of a local school in Avlékété, where our activities were based. Pupils and teachers were provided with didactic and recreational materials.

We also support the NGO 'Medics without Vacation'. These physicians, paramedics and technicians spend their holidays doing voluntary work in Africa. A local Jan De Nul team supported partner hospitals in sub-Saharan Africa with logistics and technical help to supply biomedical devices.





FIT on board!

'A healthy mind in a healthy body' is not an empty concept for employees of Jan De Nul Group. In 2016, we structured our initiatives concerning health and exercise under the FIT heading. The comprehensive internal Food, In balance and Training & Sports programme has in recent years been further developed and structurally embedded within the permanent workplaces of the company.

Given the nature of our corporate activities, a large number of our employees work on board ships worldwide and here we equally strive for a healthy working environment. In the spring of 2018, we launched the project 'FIT on Board' with a large-scale survey. The purpose of the survey was to create involvement in our FIT story and to figure out how we could implement FIT on board of our vessels.

The results from this successful survey were discussed with the captains of the ships and priorities were defined. Equally, the survey results also brought a better understanding of how life on board is perceived by our staff, an absolute prerequisite to being able to assess the impact of actions and to adapt them to the specific needs on a vessel. Below, we've listed the priorities, which will be converted into an action plan in view of improving the health, wellbeing and working environment of our nautical members of staff.

FOOD:

Expanding the range of healthy snacks.

IN BALANCE:

Offering contemporary forms of relaxation, both individually and in groups.

TRAINING EN SPORTS:

More sports equipment on board, depending on the possibilities available on our different ships.

SDG COMPASS

The third and final pillar of our CSR policy – innovation as a driving force – delivers a significant contribution to five SDGs.



- 7. Affordable and sustainable energy
- 9. Industry, innovation and infrastructure
- 11. Sustainable cities and communities
- 12. Responsible consumption and production
- 13. Climate action

INNOVATION AS A DRIVING FORCE

Innovation as a common thread

Our way of life has indisputable effects on the long-term viability of our world and forces us to look at the world and its challenges from a different perspective. These observations drive us to deliver innovation.

We've already explained how we will control our energy consumption and reduce pollution in our emissions. We closely follow the rapidly evolving technologies in terms of renewable energy in general and offshore wind farms in particular. We also commit ourselves to actively think and engage with our clients, subcontractors and suppliers to explore how our activities can be made more efficient and sustainable by joining work groups and research programmes. Within the environment and civil division, circularity is an important theme. Below, you'll find a detailed description of a couple of examples from within our environment division.

Innovation is an important pillar of our CSR policy. Jan De Nul Group is well aware that innovation is essential to reduce costs, work in a sustainable manner and find solutions to new challenges. As a result, we have set up innovation internal work groups with representatives from all divisions and relevant departments and the KPI department (see p. 43) works hard on improving, encouraging, supporting and nurturing innovation within the company.

In 2018, we had:

7 x

External innovation projects and

7 x

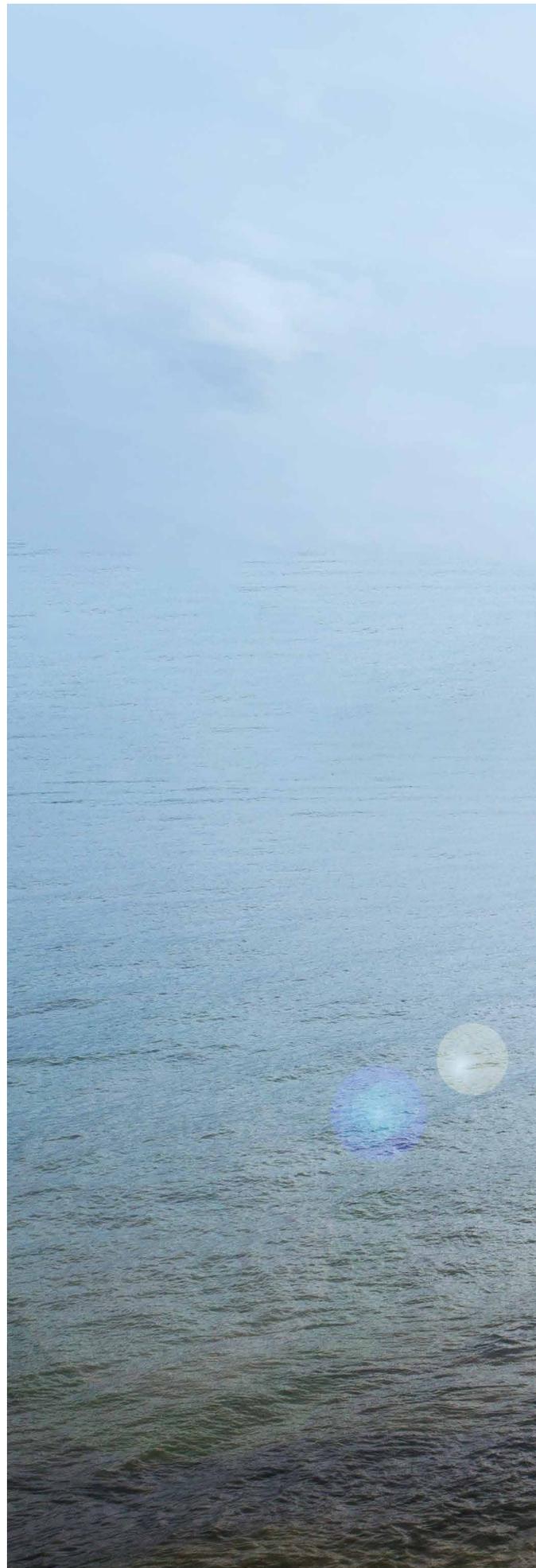
Internal innovation projects, monitored

16 x

Master's theses from Jan De Nul Group, and organised

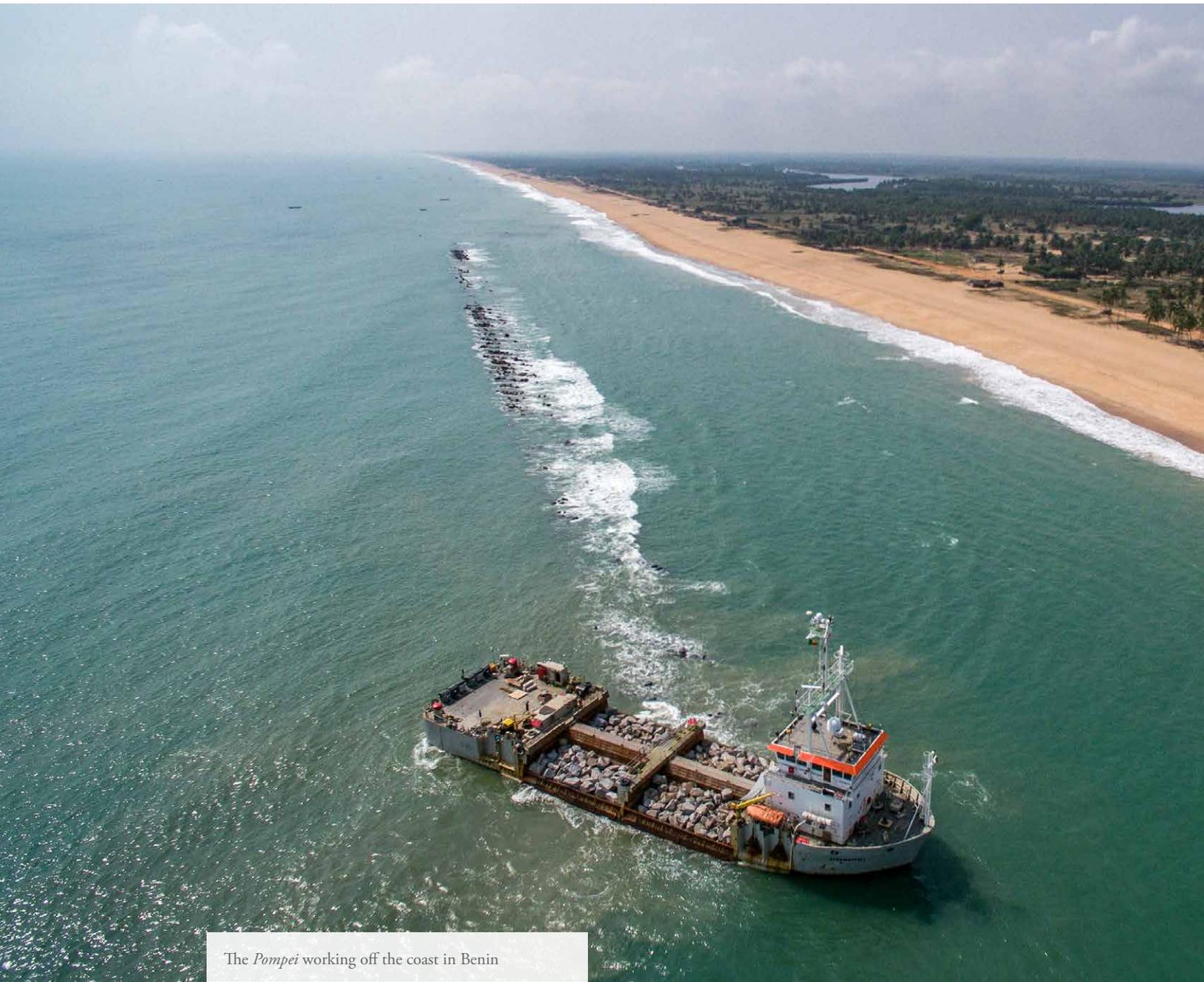
8 x

Operational Control meetings in which small but significant, innovation improvements were conceived and initiated.





If it does not exist, we create it ourselves! Rentel, Belgium



The *Pompei* working off the coast in Benin

CONCEPTUAL DESIGN IN BENIN

For the ‘Project Development and Conceptual Design’ (PDCD) department, innovation is a daily activity.

The analysis of requirements, interfaces and constraints and the close cooperation with experts from various disciplines is a breeding ground for new ideas and innovative solutions.



Nature-based solutions

Sustainability will always play a part somehow but innovation can also refer to other aspects. Thanks to its knowledge and expertise, Jan De Nul Group is able to change gear and solve potential bottlenecks.

For quite a few years, 'Nature-Based Solutions' (NBS) have become an important tool within the environment department to address environmental and social challenges. Nature-based solutions (NBS) is the collective term for building methods that make use of natural materials. Nature is the oldest and longest running trial-and-error lab of the past couple of million years: so why would we try to

reinvent the wheel? The answer to many problems is in our natural capital: building with, to the benefit of and like nature.

In Benin, the challenges to be addressed can be linked to climate change, restoration of biodiversity, natural disasters... NBS take the functions and performances of ecosystems as a basis for addressing (climate) problems. We are, among others, one of the leading partners within the 'Coastbusters' project, a joint project of four Flemish companies, supported by the Flemish Agency for Innovation and Entrepreneurship (VLAIO). VLAIO is working on a solution for the erosion of sand stocks along the Belgian coast and as an example Jan De Nul Group is building a reef with living organisms off the coast of De Panne.

Innovative sustainable breakwater

With the same focus on innovation and sustainability, we also execute coastal protection projects across the world. These projects not only provide protection against natural disasters and climate change but also enable local communities to set up social and economic activities. As such, we create a win-win situation: a better standard of living for the local population and a sustainable solution for fighting erosion in sensitive coastal areas. The breakwater project in Ouidah in Benin is a good example of this approach.

The project in Benin typifies the approach of Jan De Nul Group: in search of a solution for the specific problem of coastal erosion. In Ouidah in Benin, we conceived and developed a sustainable and innovative concept and we are now in the process of building the solution. First, we went through a comprehensive design and research phase, including the execution of model tests.

The vulnerability of the sandy beaches along the West-African coast to erosion, is caused by the continuous impact of strong ocean waves lashing the coastline at an angle. This generates the transport of sand along the coast from west to east. Human interventions such as the development of coastal ports and the construction of flood-control dams in rivers, disrupt the sand balance, causing problematic erosion in several places. This erosion has a major impact on the social and economic activities of local communities and may result in the loss of homes or even the relocation of entire communities.

Without a suitable human intervention, this erosion will be enhanced by climate change and rising sea levels. Conventional solutions such as groynes or seafronts, rather than addressing the symptoms, often displace the problem rather than solving it, or may even be detrimental to the ecological or tourist development of coastlines.

Bearing all this in mind, we set to work and succeeded in proposing and working out an innovative and sustainable solution: the construction of an underwater breakwater





parallel to the coastline and beach nourishment as a remediation measure. These interventions protect the coastline against the ocean waves and allow tourist and economic development. The underwater breakwater absorbs part of the wave energy, offering protection against erosion, but does not represent an obstacle for the natural sand transport system, which is preserved.

The concept is inspired by nature itself, particularly coral reefs, which are typically located in shallow water just off the coast and have proven their capacity to offer protection against strong waves. We have extensively studied the effect of these reefs on pounding ocean waves so as to fully understand which factors are decisive when designing an artificial reef as a coastal protection structure.

The design that we came up with is a textbook example of building with and not against nature. The solution is a sustainable flexible structure that can be adapted to future evolutions such as rising sea levels, climate change or new insights or developments.

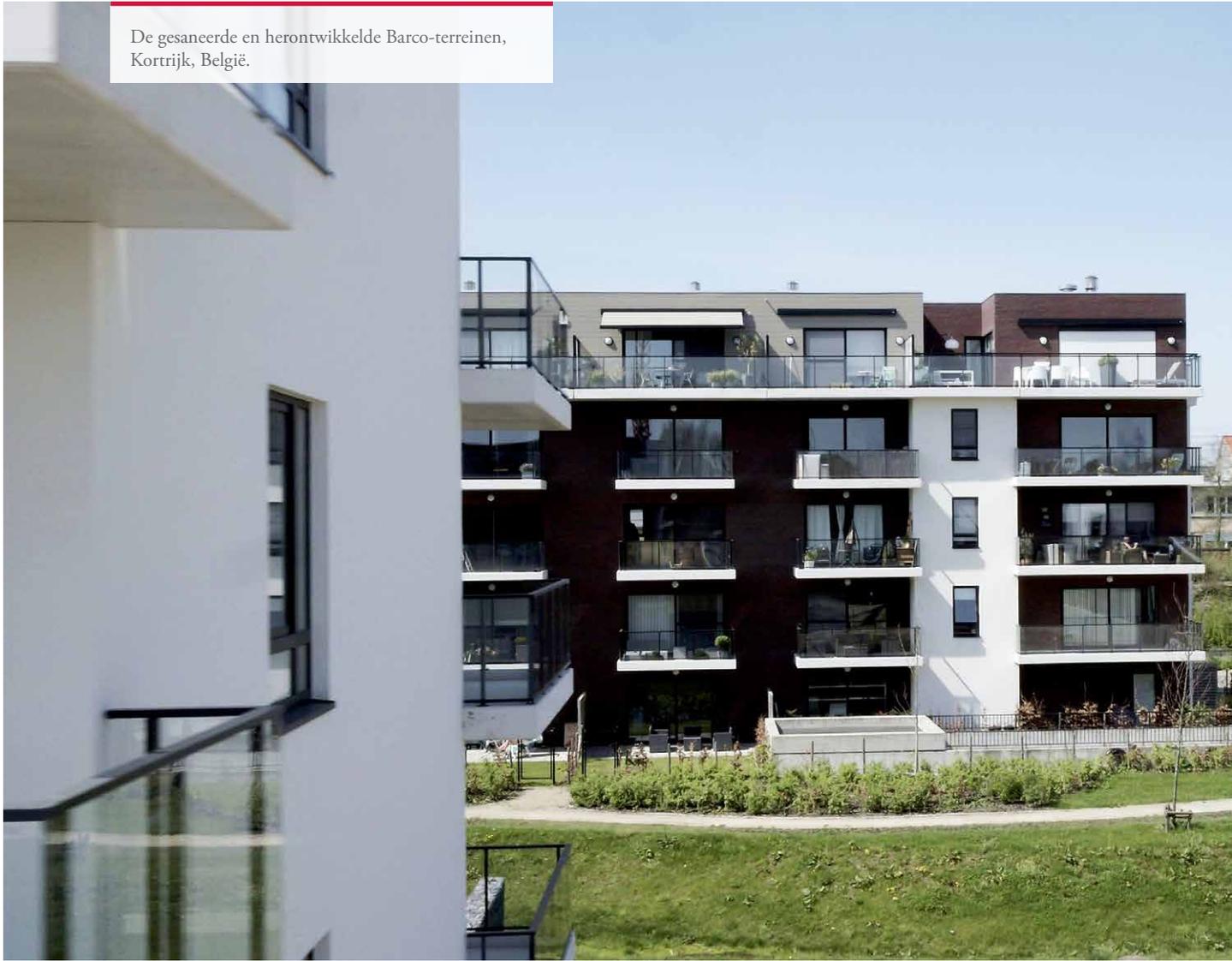
It is also an innovative project, for two reasons.

Firstly, this coastal protection concept has never before been designed or built on such a large scale: two underwater breakwaters of four and two kilometres long respectively. Therefore, the construction was preceded by a comprehensive preparation and design phase with – first – an on-site geotechnical and geophysical field study. Based on the resulting insights, conceptual engineering studies into the stability and performance of the breakwater and its impact on the environment were undertaken, supported by numerical simulations. Finally, we set up a test phase with physical model tests, during which the breakwater and beach were tested on a smaller scale in wave pools.

Secondly, the construction method itself was innovative. The installation of the breakwater's large rocks had to be executed just below the water level, in the same wave conditions as those causing the coastal erosion, and in shallow water. The solution: the execution of the rock installation works with the side stone dumping vessel *Pompei*, which was converted for this particular project and equipped with a reinforced double hull protecting the vessel against damage caused by rocks.

This project offers concrete proof that innovation is an ideal tool for developing sustainable projects.

De gesaneerde en herontwikkelde Barco-terreinen, Kortrijk, België.



BARCO SITE

The main activity of PSR is brownfield development, the redevelopment of un(der)used and often contaminated sites. This is often also the starting point for the revaluation and sustainable development of a whole environment. We have in-house knowledge and expertise for remediation projects. Envisan, our environment division, can assume the treatment of soils and contaminated groundwater. The former BARCO site in Kortrijk is a fine example of this. Moreover, the specific and typical challenges with this project resulted in an innovative approach.

The technology company Barco established itself in Kortrijk in 1941 with a production site. Barco developed into a global player and left the original company premises more than 10 years ago. The site, including the buildings and remediation obligations, was sold to PSR, the partner par excellence for redeveloping this heavily contaminated site.

In close cooperation with our environment division Envisan, we created a solid foundation for remediating the contaminated site in view of its redevelopment.

The many years of industrial activities at this location had caused severe soil and groundwater pollution. To complicate things even more, the site was located in the middle of a residential area, close to a railway line and not all buildings were empty! We developed and implemented an innovative remediation concept.

Innovative step-by-step approach

Pending the demolition of the site buildings, we applied a control measure. By installing two screens of pump sumps, we made sure the pollution could not expand. We

SOILUTIONS

Envisan, our environment division, does indeed deliver circular solutions including 'soilutions' for a better planet. In every project, maximum reuse is our final target.

We are no ordinary contractors, with customers thinking of us as experts delivering unique innovative solutions for the treatment of polluted soil and sediments. Our in-house R&D department makes sure Envisan continues to innovate. For the project in Oulu, for instance (p. 35), the project concept was established and developed after a comprehensive study. Envisan is an authority in this field. In future, Envisan will focus even more on innovation.

Envisan has developed own innovative solutions and has every right to distinguish itself as such. We should not be afraid to identify and reapply these solutions. Because it is precisely our innovative approach that makes us an ideal partner. This can be done on a stand-alone basis (as in Oulu), but also in support of, or in cooperation with, other Jan De Nul Group companies.

Because new types of pollution require new solutions. Time and again, Envisan makes a difference with circular 'soilutions'.

meticulously monitored the pump flow rate and ground-water level to prevent sedimentation at the nearby railway track.

In a second stage, following the demolition of the buildings, we excavated local contamination cores on the site, discharging the soil to be purified to a recognised soil treatment centre. In that same stage, we placed extraction filters and pump sumps on the site near the contamination cores and connected them to a mobile purification plant. The positioning of filters and sumps was geared to the location of the future roads and public car park. After a few years, we conducted additional core analyses and a pilot test to check if a biological remediation process would be feasible. In a third stage, which ran parallel with the on-site construction works, we placed extra filters or sumps where needed and completed all underground works with due care. Recently, the fourth stage was launched, in which for the groundwater plume we switched to a more sustainable biological remediation. To this purpose, nutrients (carbon source) were added to the pumped water and injected into the soil through permanent injection filters, thus stimulating and feeding soil bacteria to break down the contamination in a natural way. This ingenious recirculation technique not only led to an efficient biological remediation of the deeper groundwater but also shortened the remediation period.

The step-by-step approach not only enabled an early start of the soil remediation works and warranted its continuity, it also prevented the local soil pollution from slowing down the redevelopment. Furthermore, we didn't stick to the first chosen technique and anticipated the market evolution at an early stage, abandoning the pump & treat system and – wherever possible – switching to core excavation with a biological groundwater treatment.

Meanwhile, the as the redevelopment of this derelict site neared completion, we succeeded in creating extra living space on the site, in a sustainable and circular way.



WIND ENERGY IN THE FUTURE

Offshore wind energy is the future and we are well aware that we must continue to innovate to maintain our market position. Below, we outline two research projects in which, next to other partners, Jan De Nul is closely involved.

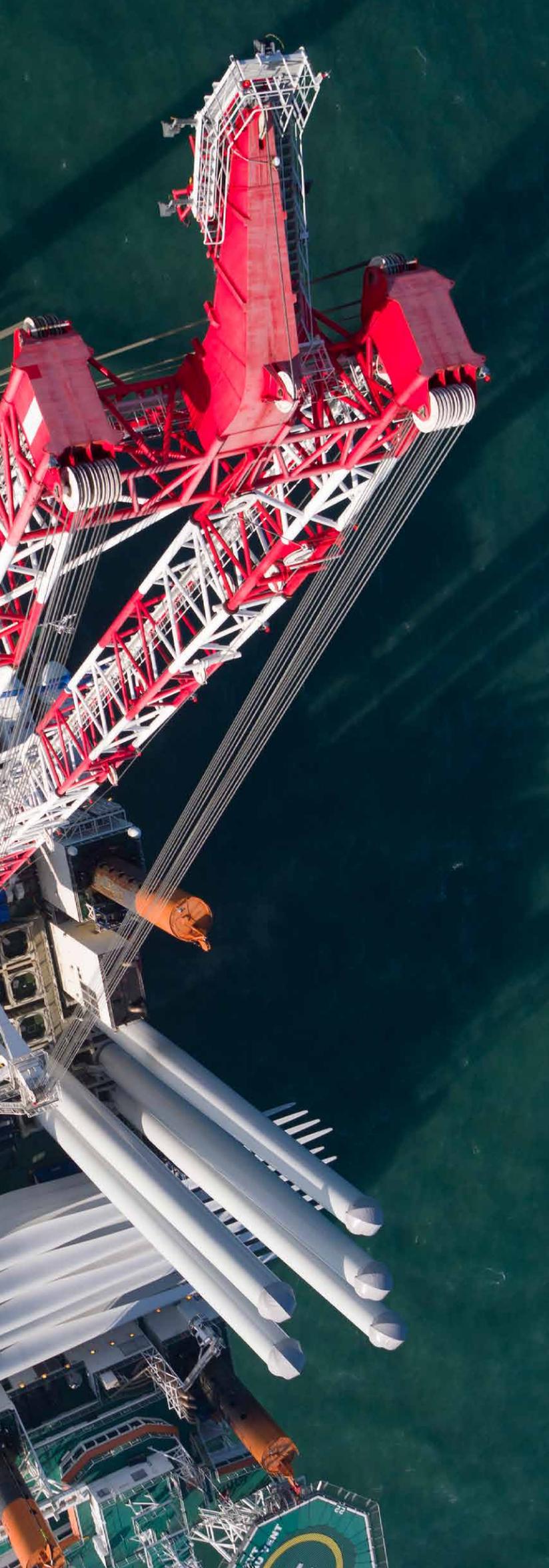
HyPE-ST (Hydraulic Pile Extraction Scale Tests)

Industry joins forces to study the sustainable decommissioning of offshore wind turbines.

Wind turbines at sea do not last forever. So how can we decommission the foundations safely and efficiently? This is an important issue within the sustainability context! The HyPE-ST project partners are working on an experimental study, conducted in the laboratories of knowledge at institute Deltares, and funded by the Dutch Economy and Climate Ministry. The project aims to prove that the hydraulic extraction concept is a feasible option for decommissioning monopiles. These are huge piles driven straight into the soil and act as a foundation for offshore wind turbines. Monopiles are steel piles with a large diameter and open outer end that vary in size but can be up to 100 metres long and may weigh up to 2000+ tonnes. So far, decommissioning these offshore piles was done by cutting them off a few metres below the seabed. As a result, dozens of metres and hundreds of tonnes of monopile steel are left behind in the seabed. The study looks at innovative and smart technologies to remove the entire pile. This will enable the steel to be recycled and contribute to a circular economy.

The research partners examine whether the piles can be removed from the sea bed by applying water pressure, a technique known as 'hydraulic extraction'. The pile is sealed at the top after which seawater is pumped into it. It is expected that the pressure will eventually push the pile from the seabed. The first results are expected in September 2019.





The HyPE-ST research project is a Joint Industry Project, with project partners Deltares, DOT BV, IHC IQIP, Jan De Nul Group, innogy and the ECN division of TNO. HyPE-ST is also a GROW project where GROW is a joint research programme that initiates, researches and accelerates innovations in offshore wind energy.

Horizon 2020 – ReaLCoE

The ReaLCoE project is a European project and aims to fully utilise the potential of offshore wind energy and, as such, become a direct cost competitor to conventional fuels sources on the electricity generation market.

The project will be a frontrunner in the development of next generation offshore wind turbines, seeking double power capacity, a longer operational life span, lower installation costs and lower service and maintenance requirements.

The robust, reliable and modular construction of turbines makes it easy to adapt wind turbines to different markets and customer requirements. A successful development of the 12+ MW turbine will be followed by the installation of a prototype in a real offshore environment by 2021. This installation should validate the concept and pave the way for the next generation of (modular) wind turbines with superior capabilities.

The consortium partners combine various offshore industry disciplines so as to be able to use efficiency gains and save costs.

SDG COMPASS

Looking to the future, Jan De Nul Group will continue to use the SDGs as a compass, and together with our stakeholders, we continue to further develop and refine our CSR approach and policy.



- 3. Good health and wellbeing
- 7. Affordable and sustainable energy
- 8. Decent work and economic growth
- 9. Industry, innovation and infrastructure
- 11. Sustainable cities and communities
- 12. Responsible consumption and production
- 13. Climate action
- 14. Life below water

CSR AS A NEVERENDING PROCESS



BRIDGE TO...

Jan De Nul Group bridges the gap to an even more sustainable policy. To this purpose, we reach out to all our stakeholders.



As previously mentioned, Jan De Nul Group is committed more than ever to a structural sustainability policy. We have the ambition to evolve towards an even more sustainable business and to anchor this in our business management. In the next two years, we will focus on a number of action points to pursue the course that we've taken.

Dialogue with stakeholders

We will seek the input of all relevant stakeholders to integrate their social, economic and environmental concerns into our CSR strategy discussions and action plan. The commitment of these parties will provide us with input to control risks and identify new opportunities.

Goals and ambitions

Over the next few years, we will focus our sustainability efforts on issues that matter to our stakeholders, our business, the industry and society. This material exercise will establish the issues that have priority and identify the right perspectives for our action plan. The sustainability performances that we strive for and realise will be published in a report drawn up according to the GRI standard.

Isabelle Herteleer
CSR coordinator

GRI TABLE

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Strategy

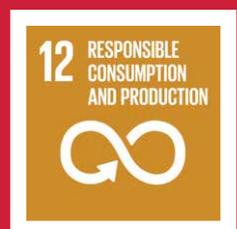
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Ethics and integrity

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GRI 300 ENVIRONMENTAL TOPICS

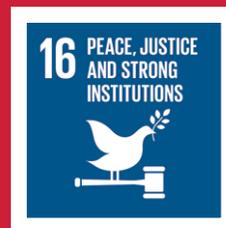
ORGANIZATIONAL PROFILE

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This is our second CSR report. The reporting period covers calendar years 2017-2018. In future, this report will be published every two years in view of communicating about our CSR policy.

For all questions regarding this report, please contact: csr@jandenul.com

This report is also available in Dutch, French and Spanish.

