

Sustainability Report 2019



Port of
Antwerp

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Chamber of
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Antwerp-
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Alfaport

Sustainability Report 2019

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Sustainable growth at the service of society

The years 2017 and 2018 were bumper years for the port of Antwerp. Our activities grew, while industry rolled out a new wave of investments across the port. Not only did our added value as an economic hub on a world scale and engine for the Flemish and Belgian economy see significant success, but the results were also achieved under a long-term strategy for sustainable growth. Care for the port and its surroundings also became an increasingly prominent factor.



Jacques Vandermeiren
CEO Antwerp Port Authority

The growth curve at the port of Antwerp is obvious to anyone reflecting on the years 2017 and 2018. In 2018 the port transhipped 235.2 million tonnes of maritime goods: a growth of 5.1 per cent and the sixth record year in a row. This growth was evident for all types of cargo. A good half of the goods entered or left the port by container, with 11.1 million TEU also hitting a historical record.

How does this economic growth sit with the pathway to the sustainable port of the future?

Jacques Vandermeiren (CEO Antwerp Port Authority): "In everything we do we endeavour to make the greatest possible sustainable contribution to society. The bumper years 2017 and 2018 confirmed our position as a world port and our contribution to employment and welfare in Flanders. Just as important is that we achieved this growth without a significant increase in our environmental emissions. Hence our production and logistical processes saw ever-increasing efficiency, being a feather in the cap for all companies in the port area. We secured our economic position, while still acting upon our responsibility with respect to the environment and the climate, caring for our employees and people living in the vicinity, and contributing to a fairer world. Close cooperation – with companies, the authorities, local communities, knowledge institutions, NGOs – also enabled us to further build on a sustainable port platform with the necessary attention to society."

Stephan Vanfraechem (director of Alfaport Voka): "As a large industrial area we take responsibility for making a positive contribution to sustainable industrial entrepreneurship and minimising any impact we may cause. We are part of the solution. It pleases me to see that an increasing number of companies in the port area have put sustainability on the agenda. Numerous innovative projects have seen the light of day in recent years. These are not only green projects such as investments in renewable energy, there are also initiatives with people and society in mind such as sustainable

employment. Sustainability has become a driver for business plans. As a result, we are increasingly succeeding in bringing our vision of sustainability into practice as one indivisible concept on the port platform."

Peter Van de Putte (director of the Scheldt Left Bank Corporation): "Dialogue with our stakeholders has also been a priority here in previous years. The 'State of the Waaslandhaven for people living in the vicinity', a new initiative that we launched in 2018, reflects our ambition to keep our neighbours on the left bank even better informed about our activities, while involving them with challenges such as mobility. Our sustainability approach therefore involves the whole of society: not only the port players, but also the people."

What part does this report play in the port's transition pathway?

Vanfraechem: "Just like the whole transition pathway, we also base our sustainability reporting on the port community. The challenges we are set



In everything we do we endeavour to make the greatest possible sustainable contribution to society."

Jacques Vandermeiren



Peter Van de Putte
director of the Scheldt Left Bank Corporation

to face are indeed not insignificant, and without cooperation we will not succeed in rising to them. Monitoring set indicators shows us the areas where we are scoring well as a port platform, while also clarifying the domains in which we must do better. This fifth sustainability report follows the latest standards of the Global Reporting Initiative and has again been validated externally. We utilise this approach to improve our quality process year after year while acquiring new insight into reporting methodologies. We also inspire companies in the port to themselves start working on sustainability reporting."

Van de Putte: "The sustainability report is also an important tool for our stakeholder dialogue. In this edition, we devote extra attention to transparent and open communication about our successes, but also to the points requiring improvement and the challenges. At the end of 2019, we will be organising a session with our stakeholders relating to these challenges. The sustainability report hence serves as a guide for our transition."

Vandermeiren: "The sustainability report is a touchstone for our ambition to create a sustainable added value for society in as many areas as possible. For the first time, we have compiled the report around the five pillars of sustainable development – Prosperity, Planet, People, Peace and Partnerships: a reflection of our integrated approach. We use clear infographics to show how we put our contribution to the Sustainable Development Goals (SDGs) of the UN into practice. A next stage is drawing up port-specific objectives against which we can compare our sustainable performance. With our business plan as the springboard, we want to take the lead here in the coming years from the Antwerp Port Authority."

“The first industrial steam network in the port, ECLUSE, is in place.”

Peter Van de Putte

The port of Antwerp wants to be an innovative launchpad. What achievements in previous years contribute to this goal?

Van de Putte: "The first industrial steam network in the port (ECLUSE) is in place. On an annual basis, this green energy grid ensures a reduction of 100,000 tonnes of CO2 emissions and supplies at least 5 per cent of all green heat produced in Flanders. But the importance of this extends even further: ECLUSE's shining example smooths the way for other cooperative projects on renewable energy in the port."

Vandermeiren: "We have equipped the port with shore power for inland waterway vessels and river cruisers, and our own fleet also uses shore power. Offering shore power to seagoing vessels is one of the priorities for the coming years. We are also pushing the boundaries of the circular economy. We are building an experimental site to convince companies to test and scale up new technologies. In a first demo session on CCU (Carbon Capture and Utilisation) the potential of green methanol

“The port must evolve from an analogue to a digital port to stay competitive worldwide.”

Stephan Vanfraechem



Stephan Vanfraechem
director of Alfaport Voka

will be investigated. With such projects, we take further steps towards becoming an integrated, efficient and circular port, where industrial players and sectors can work together across the boundaries of their operations."

Vanfraechem: "The port must evolve from an analogue to a digital port to stay competitive worldwide. We joined with a large number of enterprises in launching NxtPort as an innovative smart data sharing platform to streamline maritime and logistical processes in the port of Antwerp. The sustainable potential is enormous, because digitisation of the port processes, with the restriction of the physical document flow, would have a positive effect on the environment and can lead to even higher efficiency."

Vandermeiren: "Our active sustainability policy is also having knock-on effects at other ports. An example is how our sustainability reporting inspired the international maritime sector to commit to the SDGs. In 2018 this led to the signing of the World Ports Sustainability Program Charter."

What challenges must be met in the coming years and how is the port community preparing for these challenges?

Van de Putte: "Accessibility and reachability of the port are of fundamental importance to continue to secure our position as a world port. The queue problem in and around Antwerp comprises a significant bottleneck for road traffic. The modal shift must be effected in the coming years to prevent the port from literally becoming deadlocked. We must further bolster goods transport by rail and inland waterway in the coming years - that is a priority. We will also continue to take measures to make freight transport by road more efficient. Efforts are also required from other parties because port transport represents but a quarter of lorry traffic on Antwerp's main roads. Work on the Oosterweel Link will aggravate traffic congestion in the coming years but relieve it in the longer term."

Vanfraechem: "The port's vitality also depends on the extent to which we are able to fill shortage occupations and prepare our employees for the digital future. Our efforts concerning recruitment, training, refresher courses and education will continue relentlessly. I see improving our image as an attractive employer for the young generation as an important challenge for the coming years."

Vandermeiren: "The port offers an important springboard for the climate transition. That's something we must put all our efforts into. We must not only live up to our own climate commitments, we must also develop products and technologies that will cut emissions elsewhere in the world apart from our own. The world is evolving at record pace and the future is unpredictable. Innovation is the key to a sustainable future at the port."

Our performance in sustainability in 12 highlights

1



In 2018, **235.2 million tonnes of goods** were transhipped in the port: a growth of **5.1%**. The total tonnage of **produced goods** reached an all-time record of **67 million tonnes** in 2018. Industrial investments increased, to a total amount of **3.4 billion euros** in 2017.

4



ECLUSE, the **first green heat distribution network** in the port, is operational. The installed capacity for **renewable energy** has increased to **262.83 MWe** in 2018. **Onshore power supply cabinets** are available at 9 locations.

7



Since its launch in 2017, **500,000 passengers** have used DeWaterbus as an alternative to the car. Cycling to work has also risen sharply: from 6% in 2016 to 16% in 2018.

10



Via the **employer branding campaign 'You. The port. The world.'** we put the port in the spotlight as an attractive employer and we build a community around the people who work in the port.

2



The growth of 2017 and 2018 was achieved **without a significant increase in our environmental emissions** (NO_x, SO₂, particulates and CO₂). Energy consumption decreased by **2.3%**, despite the growth of our activities.

5



2,494 discounts for green ships were granted to shipowners. We have taken concrete steps in offering alternative fuels such as **LNG and hydrogen**. The first electric inland navigation ships and ships that run on hydrogen called at the port of Antwerp.

8



With the Grenspark Groot-Saeftinghe, efforts are being made to create a **robust nature park of 4,500 hectares**.

11



By charting the share of certified cocoa present in the port, we participate in **Beyond Chocolate**, the partnership that works towards a sustainable Belgian chocolate chain, and we pay attention to the role of ports in the entire supply chain.

3



Companies from the port are contributing to the first circular and **climate-neutral industrial site** in the country, Blue Gate Antwerp. With a demonstration project on **Carbon Capture and Utilisation (CCU)**, we are testing the production of green methanol in our **circular experimental site**.

6



The port of Antwerp is the first in Europe to introduce **Zero Pellet Loss**, a unique collaboration between industry, logistics and transport to prevent plastic granules from ending up in the environment.

9



We launched the **NxtPort data platform** to make maritime and logistical processes even more efficient.

12



With the signing of the **World Ports Sustainability Program** at the Port House and the launch of the **chair in Sustainable Transformation**, we inspire the international port community regarding sustainable development.

Our strategic priorities

The world in which the port of Antwerp is operating is changing fast, and we will be facing major challenges. To stay resilient we continue to strengthen our home base while retaining our global perspective as a world port.

Working on five strategic priorities means we are building today on the port of tomorrow.

Sustainable growth

We are developing the port to continue our position as an economic hub. In diversifying our activities, we retain the added value and keep employment up to scratch while strengthening the port's social support. We achieve our growth with respect for people and the living environment.

Smooth mobility

Smooth mobility and better accessibility are absolute priorities if we want to stay attractive as an economic partner and employer. We work proactively on sustainable mobility and alternatives for both freight traffic and commuting. During the major works on the Oosterweel Link we will also be doing everything we can to have the traffic flow as smoothly as possible.

Innovation and transition

The port of Antwerp wants to be an innovative launchpad. Working on the transition to a low-carbon and circular economy will enable us to keep to the international climate commitments while we further develop a sustainable port platform. Wholeheartedly committing ourselves to digitisation and data sharing will make our supply chain increasingly high-performance, more efficient and safer too.

A safe home port

We make sure that the port of Antwerp is an attractive and fully safe location for our employees, customers and suppliers. We are busily investing in selection, training and support for our employees to prepare ourselves for the wave of automation and the greying of the population.

A cluster working together

We smooth the way between current and new partners and stakeholders to together rise to future challenges such as mobility, talent, sustainability and higher efficiency.

Our sustainability targets

Prosperity

Building on welfare and wellbeing with economic development and an eye for innovation, optimisation and added value

Peace

Contributing to a peaceful, just and inclusive society by means of transparency and dialogue

Planet

Tackling environmental challenges such as the climate, air quality and floating debris in a proactive, responsible and critical way

People

Creating a healthy, dignified working environment with attention to a sustainable career for all employees

Partnership

Adding substance to sustainable policy for the future by cooperating with parties in and around the port of Antwerp

About this sustainability report

This report is the fifth sustainability report from the port community of Antwerp. With this report, we as the port community report on our joint efforts and results in the field of sustainable development.

License to operate

Just like the previous editions, the report is a shared effort of the Antwerp Port Authority, the Scheldt Left Bank Corporation and Alfaport Voka. Working on the pathway towards a sustainable port as a port community as opposed to as separate organisations is a deliberate choice. This sustainability report also came into being through intense cooperation with our stakeholders: companies, local authorities, society and neighbours. Within the context of our 'license to operate' we see it as our responsibility to inform them in a transparent manner about our impact, while making them partners in the sustainability efforts on the port platform. At the same time, we want to use our sustainability report to inspire all companies in the port area to incorporate sustainable development in their corporate culture more than ever.

Sustainable development as a continuous process

Sustainable development is an ongoing process and does not stop with the publication of a sustainability report. Between two reports we actively consult our stakeholders to analyse and evaluate our data and give shape to new projects. In the intermediate year we present the Sustainability Award of the port of Antwerp community. With this award we crown a project that has contributed to the SDGs in a particularly notable way. In 2018 the specialist jury selected three finalists: Ashland Specialties Belgium, BASF

Antwerpen and Compagnie Maritime Belge (CMB). Based on the points awarded by the jury and the result of online voting by the general public, CMB won the award with the Hydroville shuttle, the first passengers ship powered by hydrogen. The jury decided that CMB played a pioneering role with this promising and future-oriented project, and that the initiative can work as a catalyst for other players on the market. All projects submitted enjoyed publicity in a brochure and through multimedia communication. At www.sustainableportofantwerp.com anyone involved or interested can follow how the port is putting sustainable development into practice on a daily basis.

Data and data coverage

In this fifth sustainability report we report on data up to and including the end of 2018. Economic and social data from the annual accounts and social audits filed at the National Bank of Belgium are included up to and including 2017. Activities from 2019 are sometimes included to illustrate recent developments. The data used are based to the extent possible on official statistics. Bodies such as the Flemish regulator of the electricity and gas markets (VREG), the Research Institute for Nature and Forest (INBO), the Public Waste Agency of Flanders (OVAM), Valipac, the Flemish Environment Agency (VMM) and the interuniversity Centre of Expertise for Research and Development (ECCOOM) made data available.

Methodology

This sustainability report is drawn up in conformity with the international Global Reporting Initiative standard (GRI, 'In accordance with the Standards' core). The GRI guidelines and methodology were adapted to make the reporting framework suitable for the port of Antwerp. Only the generic indicators relevant in a port context were taken from the GRI list. They were supplemented by port-specific indicators from official sources and other external organisations, always in accordance with the GRI guidelines.

When drawing up each sustainability report we add new, relevant indicators and scrap irrelevant indicators. Accordingly, in this edition the number of passengers transported by the 'Waterbus' and the 'bicycle bus', waste sorting by the companies and the percentage of stored sustainable cocoa were added as indicators to be followed up. The Container Barge Efficiency Indicator was scrapped.

This sustainability report was validated by an external auditor. Validation was carried out according to the 'International Standard on Assurance Engagements' (ISAR) 3000, a model developed for the certification of non-financial data. The certified indicators are checked throughout the text. (✓)

OUR ECONOMIC ACTIVITIES

In 2017 and 2018, the Port of Antwerp's economic activities grew for the fifth and sixth consecutive year, with an increase in all freight types and a new wave of investments. This growth affirms Antwerp's attractiveness as a global player and home port to the largest integrated chemical cluster in Europe. It also highlights the importance of the port as a driving force of the Belgian and Flemish economies.

In recent years, we have laid the foundations for increased sustainable development by:

- working on increasing the capacity of containers
- developing structural solutions to the mobility issue
- focussing on the energy transition, innovation and digitisation.

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Sustainable growth

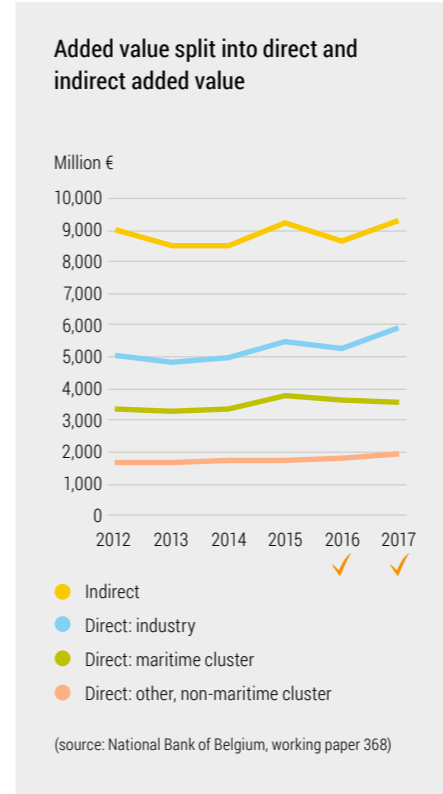
We are committed to sustainable development, so that we can maintain our position as a global port. Our added value has increased across the board in recent years, with industrial activities seeing the most growth. The number of jobs at the port has also increased slightly in recent years. New investments prove that our port remains an attractive location for companies.

Added value

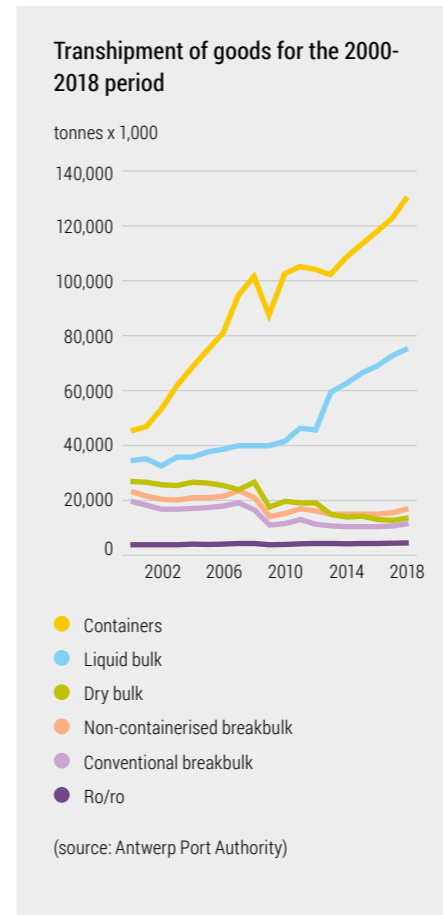
In 2017, the port of Antwerp achieved an added value of EUR 20.8 billion (✓). This means that the port provides 4.8 per cent of the Belgian and 8.0 per cent of Flemish GDP. After a low point in 2013 and a decline in 2016, we are now once again achieving growth.

industry (production, storage and transport companies), with a new record turnover of EUR 5.9 billion in 2017. Material handling, which provides significant added value, also showed an increase for the umpteenth year in a row. Within the maritime cluster (shipping agents and forwarding agents, ship owners, material handling, maritime trade, shipbuilding and repairs), there was a slight decline in added value in 2017.

Both direct (through activities at the port) and indirect added value (through port-related activities) increased compared to 2016. Once again, the largest contribution to direct added value was from the port



Maritime cluster	Industry	Other, non-maritime cluster
<ul style="list-style-type: none"> Shipping agents and forwarding agents Freight handling Ship owners Port Authority Miscellaneous 	<ul style="list-style-type: none"> Chemicals Petrochemicals Other industries 	<ul style="list-style-type: none"> Trade Land transport Other logistics services



Transshipment of goods

2018 was the sixth record year in a row for the transshipment of goods. Total transshipment amounted to 235.2 million tonnes, with growth in all cargo types. This above-average growth shows that our strategy in terms of maritime accessibility, infrastructure and rates is performing admirably.

The total transshipment of breakbulk (conventional breakbulk, non-containerised breakbulk and roll-on/roll-off) increased slightly. Breakbulk transshipment is essential for the port of Antwerp: it contributes a high added value, with a positive effect on employment.

The strongest growth is seen in freight container traffic and liquid bulk. The increase in freight container traffic has been a worldwide trend in recent years. An increasing amount of goods once transported in bulk are now in containers, – just consider sugar and steel products, for example. The growth of freight container traffic in the port of Antwerp increased to 130.9 million tonnes or 11.1 million TEU (Twenty-foot Equivalent Unit). Liquid bulk goods showed strong growth figures with an increase to 75.8 million tonnes. This growth is mainly attributable to transshipment of oil derivatives and chemicals.

Dry bulk transshipment has gone up again (to 13 million tonnes) after having declined in the past few years. This was the result of an increase in fertiliser, sand and gravel transshipment as well as a doubling of coal transshipment. This latter is due in part to maritime coal traffic being redirected to Antwerp instead of Germany, a result of the extremely low water levels on the Rhine caused by drought in the summer and autumn of 2018.

Logistics

Many incoming goods are initially processed before they leave the port. This concerns measuring, weighing, repackaging, labelling and even assembly. The port of Antwerp has over 615 hectares of covered warehouses. Furthermore, there is an additional 7.2 million m³ of tank storage capacity at storage and distribution companies and 5.4 million m³ of storage capacity at refineries. Compared to fifteen years ago, these figures have increased considerably; however, since 2016 they have remained more or less unchanged.

The available storage space at present is for the most part occupied. Additional storage capacity is needed where freight containers are concerned to be prepared for the ever-increasing speed with which port activities are developing. This will also play an essential role in enabling the port to maintain its international leadership position and to continue ensuring job security and prosperity in Flanders. With the approval of the plans to expand the port in May 2019 (see box), there are once again new future prospects.

Green light for additional container capacity

On 17 May 2019, the Flemish government approved the draft preference decision for the development of additional container capacity at the port of Antwerp. By 2026, the container capacity will increase by nearly half, accounting for the management of over 7 million additional containers. The capacity will be partially accomplished through the infill of existing docks, including additional quays at different locations. There will be one new dock, which will only be developed on the south side. The polder village of Doel will continue on as it is. The government's decision was preceded by an integrated study and an in-depth participatory process.



Employment

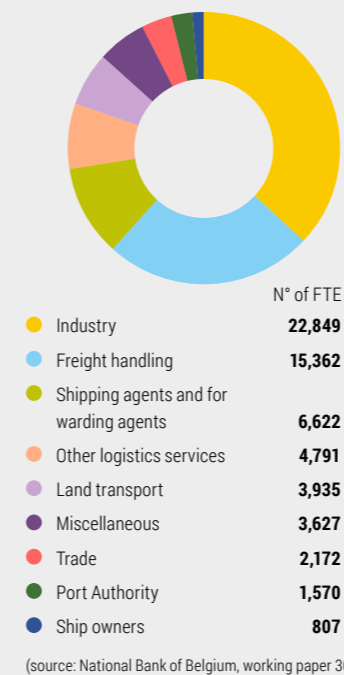
The port of Antwerp employs a total of over 140,000 people on a full-time basis (FTE). This makes the port by far the largest employer in the region. In 2017, there were 144,182 direct and indirect employees. Of these, 61,735 were FTE and had jobs directly linked to port activities, and of which the greatest percentage (37% and 25% resp.) belonged to industry and material handling. 82,447 FTEs were employed in a port-related job (✓).

The number of jobs at the port has remained stable in recent years. After a slight decline in 2014 and 2015, the number of jobs began to increase again in 2016. In the 2017 Sustainability Report (figures for 2015), we cautiously linked the slight decline in direct employment to increasing digitisation and automation of business processes. That employment at the port is on the increase again proves that the evolution towards a digital port – a must in maintaining our position on the international stage – does not have to have a negative effect on employment. However, the content of the jobs is likely to change as a result, and jobs that were once primarily based on operational activities

will become automated and be replaced by more strategic jobs that require analysis, processing and additional actions.

Many jobs at the port are difficult to fill. On the one hand, this is due to the imbalance between supply and demand for technical profiles throughout Belgium. However, tailbacks in and around Antwerp also threaten to make the port less attractive as a workplace. The perception barometer (see 'Our society') demonstrates that young people continue to see the port less as an essential economic driver for a prosperous and sustainable future. To safeguard our economic vitality, we make it a priority to market the port as an innovative, sustainable and attractive employer.

Direct employment in the various port sectors in 2017 ✓



144,182 FTE ✓
employment in 2017

61,735 FTE
directly linked to
port activities

82,447 FTE
port-related
jobs

Expansion of Waaslandhaven generates 400 new jobs

Over the course of 2017 and 2018, the Scheldt Left Bank Corporation (SLBC) secured seven new concessions at the Waaslandhaven. The expansion will create between 400 and 450 new jobs.



The recently constructed Waasland Logistics Park, which is in full expansion, will have the newest concessionaires. On 21 September 2018, the Metalon family business was the first to occupy a new build, a warehouse complex measuring around 18,000 m². Not too far from there, transport and logistics company Aertssen Logistics is constructing a brand new distribution centre for construction and agricultural machinery. The 14-hectare site will also house a new head office for the group's logistics department. Tyre wholesale distributor Agrityre, metalworker Detavernier and transport companies S'Jegers Logistics, Van Gucht and Roosens will also be constructing new buildings at various locations on the left bank of the Scheldt.

Local businesses

"The majority of the concessions secured recently were granted to local companies establishing themselves in the Waaslandhaven for the first time or are expanding an existing establishment there," says **Boudewijn Vlegels**, SLBC Chairman. "In the meantime, some of the new jobs have already been created. Three of the concessions we secured in 2016 were also put into use in 2018: the Kebony, Tabaknatie and DP World sites."

Investments

In recent years, industrial investments at the port of Antwerp have once again increased, amounting to EUR 3.5 billion in 2016 and EUR 3.4 billion in 2017 (✓). This proves that the port of Antwerp remains a worthwhile location for global industry. Our central

location in relation to the major European consumption and production centres, our high productivity and the premium quality of our storage, transshipment, distribution and transport companies remain key assets. Antwerp also has high appeal because it's home to Europe's largest (petro)chemical cluster and is pro-actively involved in the energy transition.

A small selection of investments made in 2018

Two billion euros: that's how much six major companies invested in the port of Antwerp in 2018. This wave of investment confirms Antwerp's attractiveness as an economic driver and as the largest chemical cluster in Europe.

The port operator **DP World Antwerp** will increase the capacity of its Antwerp Gateway terminal at the Deurganck dock by more than a third. The group's aim in expanding is to be adequately prepared for the expected growth in freight container traffic: from the current 2.5 million containers per year to 3.4 million units in 2023.

The petrochemical company **Borealis** intends to build one of the largest propane dehydration plants (PDH) in the world. The plant will be located on the existing Borealis site in Kallo and has a planned production capacity of 750,000 tonnes per year.

The Japanese chemical giant **Nippon Shokubai** expanded its Zwijndrecht location with two new production sites. The plants will produce acrylic acid and superabsorbent polymers (SAP) respectively for nappies. Both plants have a capacity of 100,000 tonnes per year.

In 2018, the British chemical company **INEOS Oxide** had four large ethylene oxide storage tanks shipped to Antwerp. The new tanks are part of a EUR 100 million investment programme aimed at significantly expanding INEOS' ethylene oxide storage capacity.

Oiltanking/AGT is building the largest butane tank in Europe at the port of Antwerp. This will make it possible for INEOS to purchase butane all over the world and store it at the Scheldt Port. The new tank doubles the capacity of the terminal on the left bank of the Scheldt from 138,000 m³ to 273,000 m³.

The Japanese group MOL Chemical Tankers is joining forces with the terminal operator SEA-Invest. The new **Sea-Mol** joint venture is investing 300 to 400 million euros in the construction of a tank terminal for liquid chemicals. The new investment should create at least one hundred jobs.



Investment in research and development

In 2017, companies at the port of Antwerp invested EUR 22.5 million in research and development. The industry invested EUR 14.1 million, the maritime sector (shipping agents and forwarding agents, material handling and ship owners) EUR 982,000 and a further EUR 7.4 million were invested by other non-maritime sectors (trade, land transport and non-maritime logistics services). In reality, the share of R&D investment is even higher: the overall figure does not include expenditure on employees directly tied to the R&D departments. R&D investments of sites outside the port have also not been taken into account.

The number of companies in the port engaged in their own research and development has gone up again in recent years to 76 companies in 2016-2017. The non-maritime cluster saw the greatest increase.

An accessible port

One of the port of Antwerp's major assets is its favourable location: deep inland and close to the major centres of production and consumption. The downside is that the port is located at a heavily used traffic junction. A radical modal shift from road transport to inland navigation and rail is sorely needed. This is essential for ensuring the port's accessibility and the flow towards the hinterland.

Shipping

The increase in maritime transshipment is accompanied by more shipping traffic headed towards the port. In 2018, 14,595 seagoing vessels docked in Antwerp, an increase of 2.6 per cent compared to 2017. This growth also goes hand in hand with the expansion in shipping. In 2018, there were 622 seagoing vessels with a capacity of more than 10,000 TEU (+ 17% compared to 2017), including 410 with a capacity of over 13,000 TEUs (-1% vs. 2017) and even 48 of over 20,000 TEU.

Number of calls by ships

	N° of calls by seagoing ships	Ships 10,000 - 13,000 TEU	Ships > 13,000 TEU
2010	14,783	39	52
2018	14,595	212	410

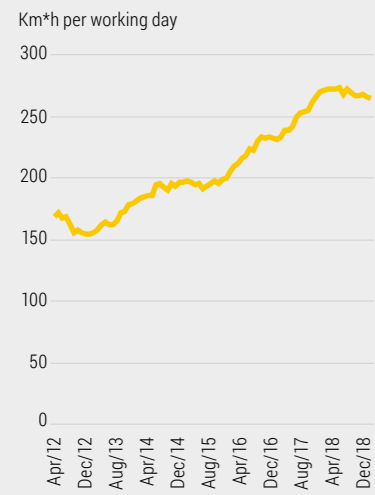
New ultra-large container ships welcome in Antwerp

The port of Antwerp welcomed an impressive number of ultra-large container ships in 2018. Several brand new ultra-large container ships (ULCS) visited the Scheldt Port during their maiden voyage.

Megamax ships have a capacity of approximately 20,000 TEU, which makes them the largest container ships in the world. The terminals at the Deurganck dock, MSC PSA European Terminal (MPET) and Antwerp Gateway, are well equipped to accommodate ULCS. The recently built Cosco Shipping Taurus, the Murcia Maersk and the Ever Golden, among others, called at the port of Antwerp in 2018. The smooth handling of ultra-large container ships is nothing but good news for the port: last year's freight container traffic recorded a growth of 6.2 per cent, good for a total of 11.1 million TEUs.

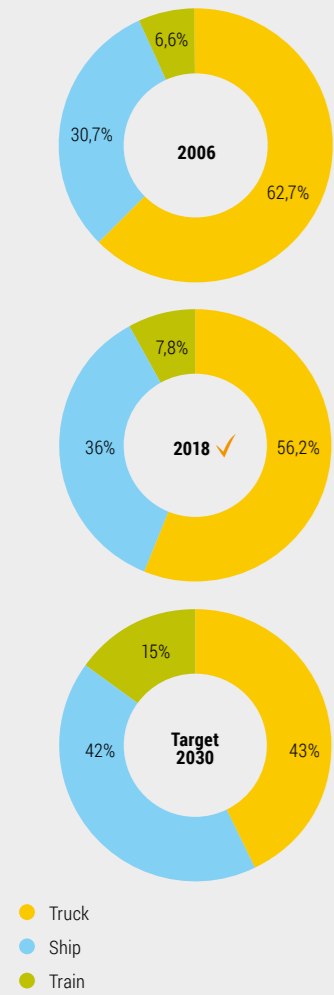


Annual moving average of congestion on the main roads of Antwerp



(source: Flemish Traffic Centre)

Relative proportions of containers carried by the respective modes of transport



(source: Antwerp Port Authority)

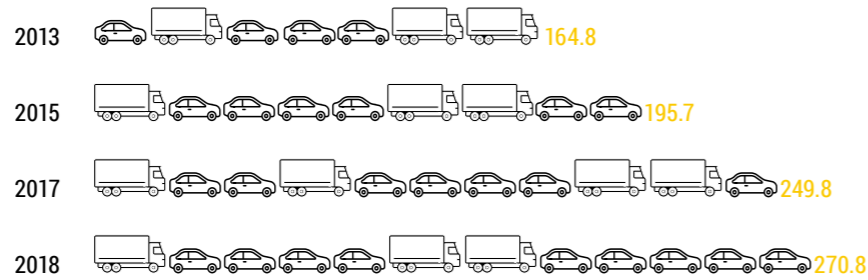
Congestion

Tailbacks on the main roads around the port have increased sharply in recent years, up by 64 per cent in 2018 compared to 2013. The trend in Antwerp differs from the rest of Flanders, where tailbacks haven't increased with the same intensity. As of mid-2018, the congestion rate seems to have levelled out.

The congestion rate was at its worst in May 2018, with a moving average of 274.4 km/h. This means that in the previous twelve months there was an average of 274.4 kilometres of tailback every working day for one hour.

A significant amount of traffic on Antwerp's main roads is comprised of through traffic. Only 4.5 per cent of freight traffic is related to port transport. The completion of the Oosterweel Link, which will close the Antwerp ring road, will only partially solve the problem. In the coming years, as a port community, we will increase transport by rail, inland waterways and pipelines and optimise transport by road.

Degree of congestion on the main roads of Antwerp, in moving average of number of km*h per working day



Modal split

The modal shift reveals that liquid bulk goods are mainly transported by pipeline and water and dry bulk by rail and water, while a large proportion of freight container transport is by road. For this reason, we are pursuing an active policy of increasing the percentage of freight containers transported by rail and inland navigation.

In 2018, over half of the freight containers going to and from the port (56.2%) were transported by road. 36 per cent of the freight containers were transported by ship and 7.8 per cent by rail (✓). By 2030, the percentage of road transport should fall to 43 per cent in favour of inland navigation and rail. In this respect, rail transport needs to double and inland navigation needs to slightly increase.

In the period 2018-2020, the Antwerp Port Authority will set aside EUR 1.4 million for projects that ensure more efficient freight traffic to and from the port. There are seven funded initiatives that combined prevent almost 250,000 truck trips. These are projects that promote inland navigation and rail transport and increase the efficiency of road traffic. The results are measured quarterly and are currently on track.

Employees at the port are also impeded by the long tailbacks. The Antwerp Port Authority and port operators are committed to sustainable modes of transport for commuting (see 'Our employees').

Freight transport by road

The number of freight containers transported by road has remained stable in recent years and hovers around the 56 per cent mark. To ensure that the port remains easily accessible, not only does the number of trucks need to be reduced, but road transport also has to become more efficient. Several initiatives are under way to achieve this, but new initiatives constantly need to augment these. At the annual Port of Antwerp Mobility Event, a

network event on port mobility, terminal partners, train operators, producers and receivers of goods exchange new, sustainable mobility solutions related to freight transport. SLBC devotes attention to mobility and solutions to the mobility problem on a regular basis, during the half-yearly State of the Waaslandhaven.

We developed a truck guiding system to guide freight traffic smoothly and

efficiently through the port area. By keeping terminals open at night, we also cut down on road traffic (see box). On the web page 'Mobility: towards an accessible port', carriers can find up-to-date information on the region's roadworks and alternative routes to reach the port. The port operators are also engaged in their own initiatives to cluster transports, so that their transport runs more efficiently.

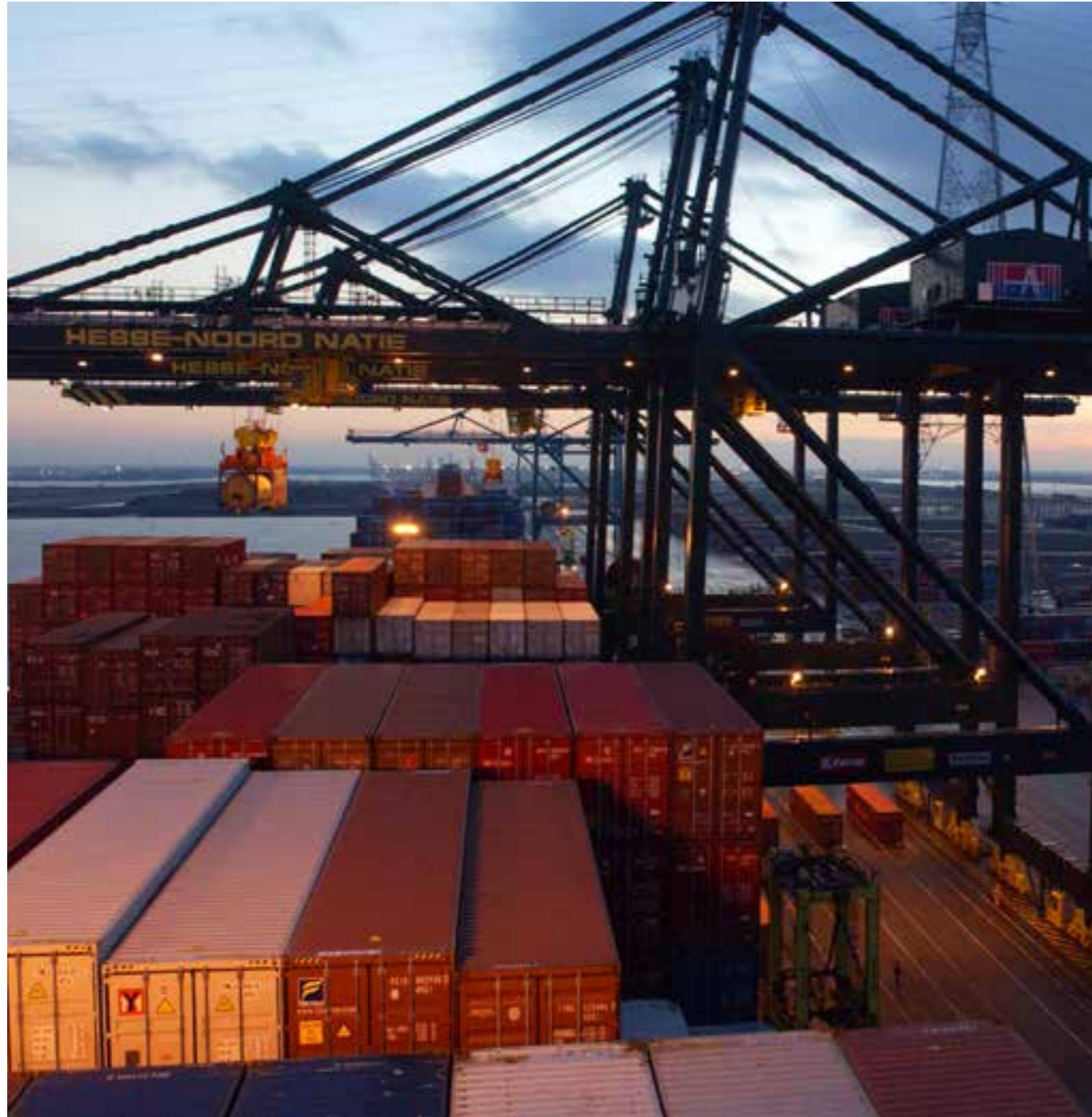
Hakka platform prevents empty truck trips

The Antwerp start-up Hakka intends to prevent 120,000 truck trips a year in and around the port. A new application for cooperation between carriers should lead to fewer journeys with an empty load compartment.

Many trucks come and go with empty containers. For some time now, Hakka NV has managed a digital exchange platform for freight container transport to solve this issue. Carriers can visit the platform to request or offer space on their trips. This gives companies insight into the empty kilometres travelled by fellow carriers. This way, smaller transport companies can also optimise their freight container transport, something that large companies are often able to arrange internally.

From now on, via the new 'Matching' app, the platform also offers suggestions for optimised freight container transport. 'A specially developed algorithm analyses the requests made by carriers on the platform. The system then calculates the best routes and suggests the most economical and efficient trip. Because trips display automatically, companies no longer have to search manually,' says **Yannick Spillemaeckers**, Managing Director at Hakka. 'This transparency, combined with clear communication, ensures that as few trucks as possible are required to travel by road with an empty freight container in tow.'





Deurganckdok around the clock

Providing night logistics is a potential solution for dealing with peaks in freight container transport at terminals and by road. It will help alleviate the road network in Antwerp and Waasland during rush hour.

Since 2017, some of the container terminals on the left bank of the Scheldt have been open from 5 a.m. on Monday through 5 a.m. on Saturday. By remaining open at night, terminals seek to provide their customers with even better service. What's more, it ensures better distribution of transport on the roads. Whether remaining open at night can be expanded to the terminals on the right bank of the Scheldt is currently being considered.

Inland navigation

The number of freight containers transported via inland navigation has been on the upswing since 2009. The relative share also increased until 2013, but has remained fairly constant since then, with a share of 36 per cent in 2018. By 2030, our objective is to increase the share of inland navigation to 42 per cent.

Inland navigation action plan

To achieve this objective, we consulted with all stakeholders to draw up an action plan in 2018 that would improve cooperation between every link in the logistics chain and increase the efficiency of water transport. Themed working groups developed the action plan, refining its content over the course of forty workshops. The plan revolves around three main pillars: planning and cooperation, clustering transport volumes and digitisation.



Danser Group: innovation in inland navigation

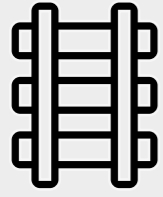
Danser Group, one of the largest intermodal operators in Europe, is launching two new inland navigation transport concepts. The project could achieve annual savings of 26,000 truck trips to and from Antwerp.

Proposal 1: Corridor between northern France and Antwerp

In a corridor system, a container ship calls at all ports along a certain route or 'corridor' on a regular basis, for example on a weekly basis. As a result, loads shift from the road to inland navigation. This modal shift has several advantages: the reduction of CO2 emissions, an increase in the reliability of arrival times and the best possible utilisation of the robust sea and transit functions of participating ports.

Proposal 2: hub & spoke concept along the Brussels-Scheldt Maritime Canal

The *hub & spoke* concept is originally from the field of aviation and refers to a transport and distribution system in which goods are collected at a single node or 'hub'. From there they are forwarded to their destination via 'spokes'. The advantage to this approach is that the same number of ships can achieve a greater number of connections (via a transshipment at the hub). Moreover, direct connections between destinations where the demand is lower are often unprofitable. The hub's presence would reduce the distance to these destinations.



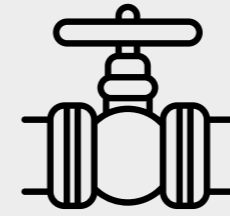
21,379,994 tonnes
in 2018 ✓

Rail transport

Transport of freight containers by rail has been on the decline since 2013, but in recent years has steadily begun to increase again, reaching more than 21 million tonnes in 2018 (✓), which accounts for 7.8 per cent of total freight container transport. This is contributed by, among others, the improved access at Linkeroever via the Liefkenshoek railway tunnel. That said, the share of rail transport in the port's total hinterland transport remains too limited. By 2030, that share needs to double to 15 per cent.

Rail transport is not only sustainable, but also fast and reliable and suitable for heavy loads and hazardous transports. With an extensive railway network spanning over 1,000 kilometres of track on its terrain, the port of Antwerp already has the necessary infrastructure to enable the growth of rail

transport. The Antwerp Port Authority set up Railport to remove as many of the obstacles standing in the way of a choice for rail transport as possible. Railport coordinates all rail activities at the port and sets up projects with various partners (other rail operators, Infrabel, etc.) to improve the performance efficiency of rail transport at the port and to other European hubs. Railport's partners (including Alfaport Voka, essenscia and SLBC) are also working on simplifying regulations, modernising the railway infrastructure and bundling transport volumes. The exchange of information between railway actors and terminals also requires improvement, and it was for this purpose that the 'Rail Traffic System' digital pilot project was launched.



45 million tonnes
of liquid products
were transported via
pipelines

Pipelines

An 870 km network of pipelines serves the tank storage companies of the Antwerp (petro)chemical cluster, altogether accounting for nearly 90 per cent of all transport of liquid goods at the port. In 2018, nearly 45 million tonnes of liquid products were transported via pipelines at the port and to and from the port area. Pipelines aren't just a safe, reliable and environmentally friendly means of transport for short distances; they're also a sustainable choice for the supply and distribution of chemical products in Belgium and neighbouring countries. Pipelines also help shift transport away from the roads.

At the end of 2017, the Antwerp Port Authority took over the management of part of the pipeline network from the Nationale Maatschappij der Pijpleidingen (Belgian National Pipeline Company). The Antwerp Port Authority made this acquisition to facilitate the exchange of residual heat, hydrogen and steam in addition to the (petro)chemical products that are already being transported, which accelerates the port's transition to sustainable energy.

DP World opts for rail transport

Terminal operator DP World is targeting an increase in its rail offering to 10 per cent by 2020. This modal shift would reduce the amount of truck trips per year by 50,000.

To facilitate the transition to rail, DP World intends to improve current railway products and attract new services. For example, a new rail link with Stuttgart could offer a sustainable transport alternative for the German car industry. There will be an increase in connections to Switzerland from four to six trains a week and new lines will be opened to France and to North Sea Port (Ghent-Vlissingen-Terneuzen).

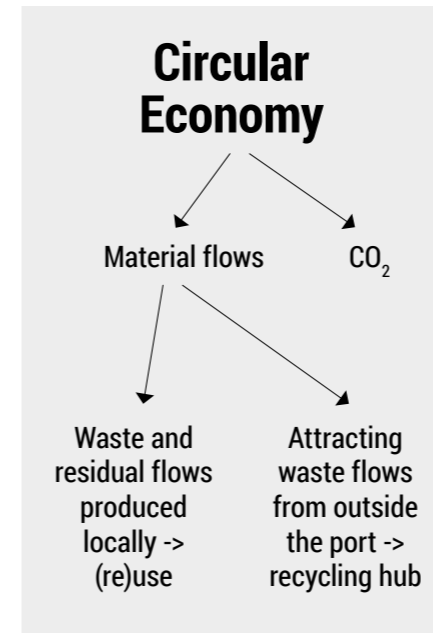
Savings on time

"In future, Antwerp Gateway will be connected to existing French rail connections. That will make it possible for us to transport products from Antwerp to France in two days' time, which means a time saving of three days," says **Steve Declercq**, Chief Business Officer at DP World Antwerp. "The 'Swiss Train to Zurich and Basel', launched in July 2018, is also a tremendous success. By 2020, 10 per cent of DP World's transport activities must be by rail." The current rail project is part of an Open Project call by the Antwerp Port Authority and receives funding from the Antwerp Port Authority and the Flemish Government.



Transition to a circular economy

Flanders is an international leader in the circular economy and the port of Antwerp plays an active role in this. We focus on circular flows of materials and raw materials, circular chemistry and a circular carbon economy. By closing raw material loops, we work towards developing the port as a logistical crossroads and catalyst for the circular economy of the future. The port also needs to be made systematically circular to safeguard and further develop our market share and interest as a chemical-industrial cluster.



67.5 million euros
circular economy investments (material flows) in 2017

The port's circular economy

The port creates all kinds of opportunities to develop a circular economy. Our extensive chemical cluster, waste processing companies, logistics facilities and spacious storage facilities create opportunities to share transport and land and for by-products and waste to be (re) used from one company to the next. The development of recycling hubs is another prospect and is the missing link in high-grade closed cycles. These hubs organise the return logistics of end-of-life products and recycle sorted and pre-treated waste

flows into new materials. The hubs can form the centre of new value chains, which convert valuable flows into usable raw materials. CO₂ is another waste product that can serve as a building block for new substances or products. That's also why we are launching innovative CO₂ projects – to ensure that we are a leader in the low-carbon economy. Read more about this in 'Our planet'.

Roadmap to a circular economy

The port partnered with the Public Waste Agency of Flanders (OVAM) to draw up a roadmap for the circular economy, which charts the possibilities for developing the port into a circular hotspot. It illustrates how the port area can be developed

into a recycling hub for plastics and metals. Further implementing the circular economy at the port will be based on this roadmap.

Investments and added value

The added value of the activities within the circular economy (material flows percentage) has steadily gone up in recent years and in 2017 it reached a value in excess of EUR 363.6. After a slump between 2010 and 2014, circular economy investments increased again to EUR 67.5 million. These figures are based on an analysis carried out by the National Bank of Belgium for companies classified under NACE codes 33 (repair and installation

of machinery and equipment), 38 (waste collection, treatment and disposal activities; materials recovery) and 39 (remediation activities and other waste management services). The figures show that the circular economy in the port of Antwerp is growing, but do not give a complete picture of all circular activities. In absolute terms, the circular economy represents a limited share of the added value.

Spearhead cluster Catalisti

Catalisti is located at the offices of the Antwerp Port Authority, and its mission as a spearhead cluster is to catalyse the transition in the chemical and plastics industries to accelerate the introduction of sustainable chemistry to the market. The platform was set up at the end of 2016 and since then nine patents applications have already been made and are being processed. In the spring of 2019, the spearhead cluster Catalisti was given

a lead coordinating role in the 'Moonshot programme' by Minister Philippe Muyters. The Flemish Government is earmarking EUR 400 million through this programme for promising technological innovations, which will be a major boost to the transition to a CO₂-neutral Flanders by 2050 and which can later be exported to the rest of the world.



Belgium's first circular company site

At the former Petroleum Zuid site in Hoboken, Blue Gate Antwerp is under construction. It will be Belgium's first circular and climate-neutral business park. Blue Gate is a joint project by environmental company DEC, real estate agent Bopro, AG VESPA and Participatiemaatschappij Vlaanderen (PMV). The site attracts companies from the cleantech, chemical and logistics sectors that specialise in sustainable production, distribution and research & development. The unique location, south of Antwerp on the Scheldt, offers a host of opportunities in terms of access and logistics. What's more, the business park's strategic location fosters cross-fertilisation between newly developed processes and upscaling at port production companies.

Eco-effectiveness is at the heart of this concept, i.e. producing the same high-quality end products, but with fewer raw materials. Companies are working

with like-minded entrepreneurs to set up circular streams at the micro and macro level. Blue Gate Antwerp will create two to three thousand new jobs. Local residents will also be able to benefit from an upgrade of the public space, green zones and upgraded historical heritage.

Logistics company Van Moer and project developer Montea, among others, will have their offices at Blue Gate. BlueChem (see box), the incubator for sustainable chemistry, and Blue_App, the open innovation platform for sustainable chemistry at the University of Antwerp, are also housed there. On 19 November 2018, the UN recognised Blue Gate Antwerp as an 'SDG Pioneer'.



Sustainable chemistry with BlueChem

The port of Antwerp is one of BlueChem's strategic partners. BlueChem will be the first Belgian incubator for sustainable chemistry to open its doors in 2020 at Blue Gate Antwerp, the innovative and CO₂-neutral business park. BlueChem offers promising start-ups, growth companies and open innovation projects the infrastructure and services they need to grow as industries.

BlueChem is a collaboration between industry, government and knowledge institutes. The incubator has the ideal infrastructure with private offices, flexible workstations, fifteen labs, extensive services, financial support for lab equipment and facilities and direct access to knowledge and expertise within an extensive network of chemical companies, research centres and all five Flemish universities. BlueChem focuses on the valorisation of waste and by-products, process optimisation and the development of renewable chemicals and sustainable materials.

Belgian Scrap Terminal: from scrap metal to new raw materials

The Belgian Scrap Terminal Group processes over a million tonnes of scrap metal into new raw materials every year. In doing so, the family business reintroduces heaps of waste into the economic cycle.

Belgian Scrap Terminal (BST) acquires materials for its activities throughout Europe, from end-of-life equipment to industrial scrap. The Belgian site in Kallo can shred and process up to 2,000 tonnes of metal per day, the equivalent of several hundred end-of-life vehicles. These are milled into new (metal) raw materials that are delivered to the customer's specifications.

Water transport

"At BST, we continuously invest in new recycling and environmental technologies. We consciously choose water transport to reduce our environmental impact. The port of Antwerp is a fantastic location", says CEO **Caroline Craenhals**. "Our quays welcome lighters, coasters and even bulk carriers of up to 55,000 tonnes a couple of times a month. 97 per cent of the end-of-life vehicles that end up on our site can be recycled. Thanks to our extensive experience and innovative machinery, we are able to process materials ecologically into new raw materials that are in demand worldwide."



Indaver seeks to transform plastic waste into chemicals

Plastic represents a substantial proportion of our waste. Waste management company Indaver is working on new technologies to transform end-of-life plastics into new raw materials for the chemical industry.

By 2035, it's essential that at least 65 per cent of household waste in Europe be recycled. As a waste manager, Indaver is dedicated to taking significant strides forward in the field of plastic recycling. "We are working on a new technology to break down end-of-life plastics into smaller hydrocarbon chains. We use thermal molecular recycling to produce new raw materials for the chemical industry", says **Erik Moerman**, Indaver Business Development Manager. "The end product of the planned P2C installations (*plastic to chemicals, ed.*) must become a fully-fledged 'green' substitute for petroleum-based raw materials."

Chemistry to the rescue

Indaver was set up in the 1980s from among several chemical companies operating at the port of Antwerp. Since then, it has offered sustainable waste management and disposal solutions to large chemical industries aimed at maximum material and energy recovery. Erik Moerman: "There's nothing wrong with the current recycling technologies; however, if there are too many impurities in a waste flow, the technology is bound to hit a brick wall. By working at the molecular level, down to the chemical bonds, our objective is to overcome these barriers."

Indaver manages and processes industrial and household waste at specialised facilities in Belgium, the Netherlands, Germany, Ireland and France. The company aims to create maximum value from waste by extracting as many raw materials as possible that are capable of replacing primary raw materials and by supplying third parties with the energy released during processing.

Digital innovation

Technological developments are moving at breakneck speed. The port must evolve from an analogue to a digital port to continue playing its role as the largest economic driving force in Flanders. Technologies for a smart port, data sharing, autonomous vehicles, drones: in recent years we've worked hard on our goal to become a digital frontrunner.

Digital communities

Transparent and secure data exchange, digitisation of logistical processes – cooperation is the key to making the port of the future a reality. It's for this reason that the port community is fully committed to community building.

- The **NxtPort** data platform was set up at the initiative of the Antwerp port community and Alfaport Voka (see box). In 2017, the Antwerp Port Authority contributed capital to the NxtPort platform to support the development of the port into a data-driven cluster.
- In 2018, the Antwerp Port Authority signed a contract with **PortXL**

International, the scale-up accelerator that works with start-up companies from all over the world. In partnering with PortXL International, the Antwerp Port Authority aims to bring maritime scale-ups into contact with companies at the port of Antwerp to accelerate the introduction of innovative technologies. The programme explicitly focuses on scale-ups that can put a serviceable port-related product on the market within a year. Interested companies were able to start applying in the spring of 2019.

- In 2018, the city of Antwerp, the Antwerp Port Authority, the University of Antwerp, imec and Agoria

founded **The Beacon**, a business and innovation hub with offices and services for IoT solutions (Internet of Things) developers. At the Beacon, technology corporations, start-ups, scale-ups and researchers all converge to develop robust IoT solutions for industry, logistics and smart cities. The community makes up an IoT ecosystem with numerous international connections and is the perfect springboard for launching new tech products. The proximity of the city of Antwerp, the port and industry ensure that innovations can easily be brought to market.

The NxtPort data platform ensures more efficient logistics

NxtPort centralises data at every step in the supply chain. Next, smart use is made of the data and it is shared in an effort to develop sustainable and efficient transport solutions.

There are thousands of interlinked processes at the port every day. Goods have to be transported from inland navigation ships, trains or trucks to a quay, from a quay to another truck, train, inland navigation ship or other seagoing vessel at breakneck speed. Every player in these processes has access to data, but this data is not always shared as efficiently or effectively as possible, leading to inefficiencies and delays.

NxtPort bundles the data of various players at the port. In turn, they can share this data with other players in the logistics chain via the platform in a controlled manner. Software developers can use this data to optimise the logistics chain at their customers' request. Assisted by NxtPort and via a use case, terminals can gain insight into how the import cargo will be collected during the unloading of a seagoing vessel. This improves their planning related available capacity and employees and makes it possible for them to avoid queues.



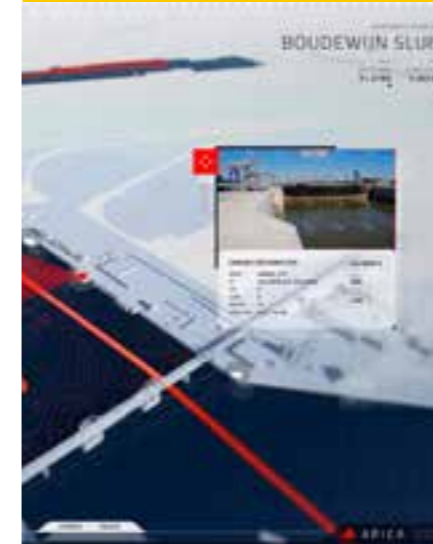
Internet of Things

The 'Capital of Things' is a joint effort by the City of Antwerp, the port of Antwerp, the University of Antwerp and the imec research centre that has been under way since the spring of 2018 to develop an ambitious and distinctive ecosystem around the Internet of Things (IoT). This intricate innovation network operates based on five spearheads, of which 'the smart port' is one. By creating a digital network that spans the entire port area, we can manage the port faster and more efficiently and offer new services to companies and local residents. Better management of infrastructure and goods, monitoring the environmental parameters and monitoring safety are all potential benefits.

Blockchain technology in goods management

The introduction of digital technology has brought a revolution to the doorstep of freight container and other goods handling, which has traditionally been a paper-intensive process. The Antwerp start-up T-Mining has developed a digital platform for the safe and efficient release of freight containers at the terminal, based on blockchain technology. In recent years, the technology has undergone extensive testing. For example, containers of fruit from New Zealand were provided with digital phytosanitary certificates that were transferred via block chain technology, instead of sending paper certificates by courier. The new method has now been

APICA: a digital copy of the port



The Antwerp Port Authority has a wealth of digital data at its disposal. The virtual port assistant APICA displays all of this data at once in a digital 3D model of the port.

The Antwerp Port Authority closely monitors all activities in the port area, which is why it has so much data at its disposal. What ships are at which docks and in which locks? How high is the water level? What is the status of the workforce at the various port services? And is the air quality still good? The Antwerp Port Information & Control Assistant (APICA) now consolidates these data in a *digital twin*, a digital 3D map with real-time data on the port.

Decision-making support

"For the time being, APICA only contains real-time data. In the long run, we would also like to add historical data," says Project Officer **Wim Wouters**. "From that point on, we'll also be able to carry out simulations that predict what will happen in certain situations. However, unlike artificial intelligence systems, APICA will not make its own decisions. It is a decision-making support mechanism that can help manage the port more efficiently. In future, the port community will also be able to use APICA and add data to it."



The autonomous bearing vessel Echodrone reaches every corner of the port

The Echodrone is an autonomous bearing vessel that carries out depth measurements in hard-to-reach places at the port. It does not have sensors but draws its navigational data from the cloud.

The *Echodrone* was developed in cooperation with the automation company dotOcean. It efficiently complements the crewed bearing vessel Echo, which carries out depth measurements throughout the port to ensure safe passage for shipping. The autonomous bearing vessel is smaller than the Echo and can easily be deployed around busy container quays. The Antwerp Port Authority will use even more autonomous vessels in future, including for underwater inspections and other measurements.

The Echodrone in action: youtu.be/f0bW7J8Xg_k

refined into a commercial product to which as many terminal operators, forwarding agents, carriers, etc. as possible can connect. The Antwerp data platform NxtPort, which collects data from a wide variety of port players, is already working with T-Mining to make document flows more secure and efficient and to prevent data fraud.

Smart quayside walls

Digital cameras and sensors were installed at the Deurganck dock last year to help ships dock correctly at the area reserved for them. The digital support ensures that ships have no trouble parking and don't cross the confines of their berths. This ensures that the capacity of the quayside walls is maximised.

Smart inspections

A significant amount of maritime infrastructure, locks for example, is underwater, making it difficult to inspect its condition. Defects are only discovered when problems occur, which has a huge impact on the port's operations. It's for this

reason that the Antwerp Port Authority is actively working on smart inspections:

- We implement Waterview: a computer model based on artificial intelligence that recognises quayside walls, fenders, ladders, etc. and detects damage at an early stage.
- Since 2018, an autonomous bearing vessel has moved through the Deurganck dock to carry out surveys on the commercial berths (see box). This provides us with better insight on the actual water depth of the berths.
- Finally, we use a 3D model of the Kieldrecht lock for preventive maintenance activities: a maintenance team 'goes underwater' virtually to find out where a defect is.

Autonomous vessels

Crewless vessels are a must in a digitally connected port. While the technology may still be in its infancy, we are on the threshold of a major evolution. The port of Antwerp aims to make Flanders a leading region for autonomous vessels, which is why the government, academia and Dock and ports created the Flanders on the Automated Shipping Track (FLOAT) platform in 2018.

In 2018, a first test run was carried out with De Tuimelaar. The Antwerp Port Authority made this test vessel available to Seafar, a company that develops technology to remotely control automatic inland navigation vessels. Crewless navigation with automated ships can make inland navigation more attractive as a mode of transport and create new opportunities in small-scale freight shipping.

To make the port area even safer, more efficient and smarter, the port partners are developing a network of autonomous vessels (such as the bearing vessel Echodrone) and autonomous flying drones. The Antwerp Port Authority is opening up the port area as a living lab, where innovative initiatives, ideas and projects can be safely demonstrated in a real industrial environment. The objective is to have a network of automatic drones by 2020, among others to monitor the skies and water throughout the port area. By that time, a network of autonomous vessels will have to be up and running to improve the efficiency of underwater inspections, water level measurements and quality monitoring.



Challenges and future prospects

- **Ensuring spatial capacity** remains a key condition for achieving sustainable growth. That is why a solution must be found to tackle challenging spatial planning projects, such as the Schijns Logistics Park and the Verrebroek Dock and get them back on track. For the spatial planning project concerning additional container capacity on the left bank of the Scheldt (ECA), a draft preference decision was made, but the challenge lies in continued development of the project. In partnership with all stakeholders, our aim is to meet the container capacity requirements with as little impact as possible on the environment – mobility and climate, for instance.
- Designing a structural solution for **port accessibility** is one of our greatest challenges ahead. The modal shift must be effected in the coming years to prevent the port from literally becoming deadlocked.
- We want to remain at the cutting edge of **innovation** and wholeheartedly take hold of the opportunities offered by the circular economy and digitisation. Maritime and industrial companies also need to continue investing in research and development and innovative concepts at the port of Antwerp.

OUR PLANET

Economic activity in the port of Antwerp has undeniably had an impact on the environment and the climate. With efforts from the whole port community, over the past ten years we have succeeded in reducing our ecological footprint. We have improved our environmental performance by:

- reducing our emissions to the air and ensuring better local air quality,
- selectively collecting waste and working on preventing plastic waste from getting into the sea,
- using a specific species protection programme to conserve the fauna and flora in the port area while allowing it to develop,
- increasing the renewable energy production capacity in the port by 89 per cent in five years,
- making transport greener.

At the same time, we realise that we still have a long way to go to achieve the CO2-neutral port of the future. A thorough energy transition and the introduction of innovative technologies are required to achieve international climate ambitions in the long term and secure the future of our companies.

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Reducing our environmental impact

The port's environmental impact has remained stable in recent years, while economic activity has continued to grow. Various measures have ensured that this growth has had no major impact on the air, water and soil. As the largest polymer port in Europe, we are acting upon our responsibility in the fight against plastic pollution. We are also actively tackling nuisance issues such as noise and litter.



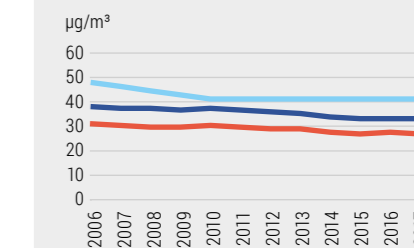
Reducing our air emissions

Nitrogen oxides

In 2017 all sectors in the port together emitted slightly less than 20,000 tonnes of NO_x, accounting for 15 per cent of emissions in Flanders. Of this total, almost 11,200 tonnes resulted from emissions from industry, refineries, electricity production and gas distribution. The rest originated from traffic, off-road, trade and services, agriculture, horticulture and households. NO_x emissions have been falling since 2005. Shipping (seagoing and inland shipping together), industry and the energy sector are responsible for the majority of NO_x emissions. In 2017 emissions from these sectors fell by 5 and 19 per cent respectively compared to 2016, while those from the energy sector increased by 0.4 per cent.

The drop in emissions is reflected in a drop in the NO_x concentration in the port of Antwerp. The NO_x concentration in the air is not, however, fully in line with

NO_x concentration, annual average for the Antwerp port area and Flanders



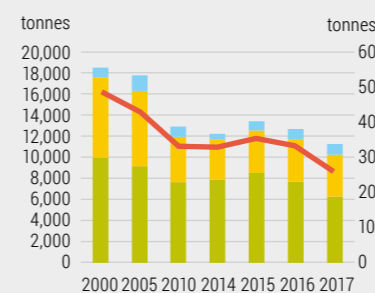
Legend:
 ● EU annual threshold
 ● Port of Antwerp
 ● Flanders

(source: VMM)

the drop in emissions. This is due to the long distances travelled by NO_x pollution: increased pollution from abroad can negate any local decrease in NO_x emissions and vice versa.

Estimated emissions of nitrogen oxides (NO_x) by the energy, refinery and industrial sectors in the port of Antwerp

Right-hand axis: NO_x emissions per production index

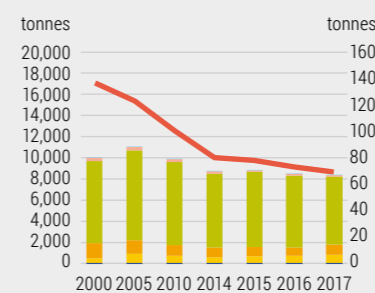


Legend:
 ● Energy (electricity generation & gas distribution)
 ● Refineries
 ● Industry
 ● NO_x emissions industry per production index

(source: VMM; source production index: Voka Chamber of Commerce Antwerp-Waasland)

Estimated emissions of nitrogen oxides (NO_x) by the other sectors in the port of Antwerp

Right-hand axis: NO_x emissions per cargo index



Legend:
 ● Agriculture and horticulture
 ● Freight handling (= off-road construction)
 ● Seagoing ships & barges
 ● Road & rail transport
 ● Trade & services
 ● Domestic
 ● NO_x emissions per cargo index

(source: VMM; source cargo index: Antwerp Port Authority)

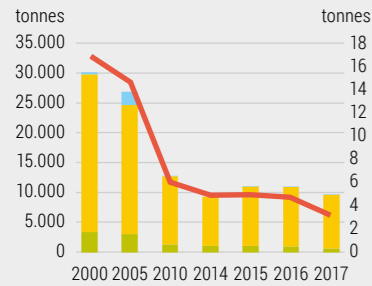
European Emission Control Areas

Since 1 January 2015 seagoing vessels passing through ECA areas (Emission Control Areas) recognised by the IMO (International Maritime Organisation) may only use fuel with a maximum sulphur content of 0.1 per cent, the so-called SECA standard (Sulphur Emission Control Area). The standard had already been 1 per cent since 2010. The effect of tightening up the sulphur standard for ship fuels in the North Sea and the River Scheldt is already clearly visible in the calculations of SO₂ emissions at the port, that have fallen strongly since 2010.

The countries around the North Sea and Baltic Sea have in the meantime also been pressing for stricter rules on nitrogen emissions. A NO_x Emission Control Area (NECA) will be in place by 1 January 2021. Each ship built after 1 January 2016 that sails in the NECA zone must comply with the stricter TIER III NO_x emission standard. Tightening up the regulations will have a further positive effect on air quality.

Estimated emissions of sulphur oxides (SO₂) by the energy, refinery and industrial sectors in the port of Antwerp

Right-hand axis: SO₂ emissions per production index

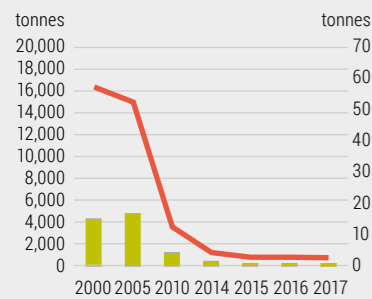


- Energy (electricity generation & gas distribution)
- Refineries
- Industry
- SO₂ emissions industry per production index

(source: VMM; source production index: Voka Chamber of Commerce Antwerp-Waasland)

Estimated emissions of sulphur dioxides (SO₂) by the other sectors in the port of Antwerp

Right-hand axis: SO₂ emissions per cargo index



- Agriculture and horticulture
- Freight handling (= off-road construction)
- Seagoing ships & barges
- Road & rail transport
- Trade & services
- Domestic
- SO₂ emissions per cargo index

(source: VMM; source cargo index: Antwerp Port Authority)

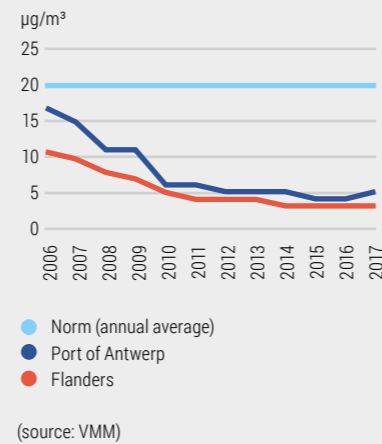
Sulphur dioxide

In global terms, SO₂ emissions in 2017 amounted to less than a third of emissions in 2000. Emissions fell strongly up to 2014 before stabilising. The biggest improvements were seen in the energy sector (particularly at refineries), shipping and industry. In this period the tightening up of Flemish emission standards led to higher performance flue gas treatment at the refineries. SO₂ emissions from this sector did increase slightly again in 2015-2016, to fall again a little in 2017. Shipping has demonstrated a fall in emissions since 2010, a consequence of tightening up the sulphur standard in ship fuel (see figure).

The SO₂ concentration in the port of Antwerp had been falling since 2006, but rose again slightly in 2017 (by 1 µg/m³). The Flemish Environment Agency (VMM) gave the following possible explanation for this in its report Air quality in the port of Antwerp and the Antwerp agglomeration (2017): "This is possibly a result of stopping using a number of measurement locations with low concentrations, for instance Beveren – Meerminnendal (R823), Antwerp – Luchtbal (M802) and Doel (R830), so the average for the remaining measurement stations increased without the concentrations actually rising."

Compared to 2006 the SO₂ yearly averages

SO₂ concentration, annual average for the Antwerp port area and Flanders

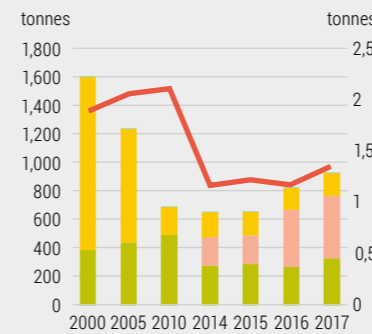


(source: VMM)

have fallen by more than two-thirds. They are far below the critical level for the protection of vegetation, and the value recommended by the World Health Organisation (WHO) of 20 µg/m³. This trend runs parallel with the evolution towards better air quality in the rest of Flanders. The WHO daily recommended value was however exceeded at different measurement stations (VMM, 2018. Report on Air quality City & Port in 2017).

Estimated emissions of particulates (PM₁₀) by the energy, refinery, industrial and bulk handling sectors in the port of Antwerp

Right-hand axis: PM₁₀ emissions per production index

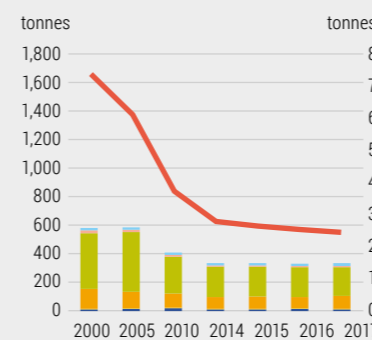


- Energy (electricity production & gas distribution)
- Refineries
- Bulk handling
- Industry
- PM₁₀ emissions industry per production index

(source: VMM; source production index: Voka Chamber of Commerce Antwerp-Waasland)

Estimated emissions of particulates (PM₁₀) by the other sectors in the port of Antwerp

Right-hand axis: PM₁₀ emissions per cargo index



- Agriculture and horticulture
- Freight handling (= off-road construction)
- Seagoing ships & barges
- Road & rail transport
- Trade & services
- Domestic
- PM₁₀ emissions per cargo index

(source: VMM; source cargo index: Antwerp Port Authority)

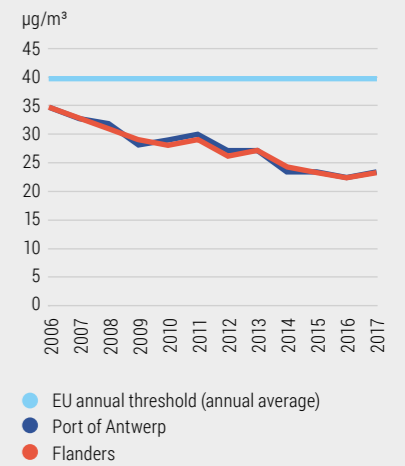
Particulates

Emissions of particulates (PM₁₀) fell considerably in the 2000-2014 period. For emissions from the energy sector this was mainly the consequence of better flue gas cleaning at the refineries following the introduction of more stringent emission standards at Flemish level. Of the other sectors the strongest decrease was seen in shipping. This was mainly attributable to tightening up the SECA standards in 2010 and 2015 (see above).

Since 2014 dry bulk companies processing a quantity above the reporting limit have been obliged to draw up an annual particulates report. This includes an estimation of their diffuse emissions, (only) based on the throughput of dry bulk goods. No account is taken of the emission-reducing measures taken by these companies to reduce particulate emissions with the theoretical calculation. Actual emissions are, in other words, lower. Since these diffuse emissions are included among those from the industry sector, it appears that the sector emits more particulates while in reality this is only a theoretical reporting. A (significant) rise in particulate emissions can also be attributable to the increase in throughput at certain companies, or the fact that companies exceeded the reporting threshold from one year to the other.

The increase in emissions since 2015 could be the cause of the slightly higher (+1µg/m³) particulate concentrations in the air in 2017. However, an identical increase in the annual average particulate concentration was measured in the rest of Flanders. The FEA gives the following possible explanation for this in its report *Air quality in the Port of Antwerp and the Antwerp*

PM₁₀ concentration, annual average for the Antwerp port area and Flanders



(source: VMM)

agglomeration (2017): "Meteorological conditions have an influence on the PM10 concentration. The prevailing wind direction in 2017 was south-westerly, more so than in the reference period (1981 -2010). Total precipitation was lower than the normal value over the whole 2017 year. The first half of the year in particular was dryer than normal. The month of April was indeed exceptionally dry. Then the month of December had abnormally high precipitation. The number of days on which there was precipitation was normal. These aspects possibly contributed to the increase."

Emission-reducing technology

Ships are sometimes fitted with emission-reducing technologies to comply with emission regulations. Scrubbers clean the emission gases and remove SO₂ and particulates; catalytic reduction systems reduce NO_x in the exhaust gases. The number of ship arrivals with emission-reducing technology increased in 2018 from 394 to 579 (✓), corresponding to approximately 4 per cent of ship arrivals (compared to 2.8 per cent in 2017).

Since 2007 the North Sea area has been in a SECA zone where the tightening up of the sulphur standard for ship fuels has been in force (see above). In 2020 there will be a worldwide restriction of the sulphur content in ship fuels. Scrubbers can offer

a solution here. They scrub the exhaust when use is made of cheaper, high-sulphur fuel so emissions comply with the standard. Then, however, the ships do have to dispose of the scrubbing water. As a port community we encourage the use of clean fuels, while also working on ensuring clean surface water. This is why there is a ban on discharging water from scrubbers on all Flemish inland waterways. Ships that cannot put their scrubber in a 'closed loop' – where they only discharge at sea – are then bound to switch to more expensive low-sulphur fuels.

Reductions for green ships

The port of Antwerp rewards green ships that go beyond the legal obligations as regards air emissions with a reduction of port charges. The greener the ship, the bigger the reduction. The number of reductions increased from 1,759 in 2017 to 2,494 in 2018 (✓). As a comparison: only 500 reductions were given in 2014.

The reduction is calculated based on the Environmental Ship Index of the International Association of Ports and

Harbours. It identifies seagoing ships that as regards NO_x, SO₂ and CO₂ emissions perform better than the standards of the International Maritime Organization. Efficient ships or ships fitted with a shore power connection enjoy a bonus. Fifty-two ports work together in offering these reductions. It is then also financially advantageous for shipping companies to use greener ships.



Greener transport for clean air

A sustainable port with clean air, everyone wins. This is why the port of Antwerp community is encouraging companies and employees to opt for sustainable transport.

In 2016 and 2017 the Antwerp Port Authority joined up with Alfaport Voka and the Scheldt Left Bank Corporation to work on the awareness-raising campaign 'Clean air in the port. We're going for it'.

Luc Van Espen, technical manager environment at the Antwerp Port Authority: "We wanted to cut the number of polluting lorries and passenger cars with this awareness-raising campaign. We stimulate everyone to voluntarily switch to greener lorries and cars to help ensure better air quality. We are currently taking measurements to see if the situation has improved."



Brabo boatmen receive electric ships

Boatman and pilot company Brabo comes up with a world's first: a fully electric mooring vessel. The company wants to make half its fleet electric in due course.

Brabo's new electric mooring vessel can sail independently for four hours. This autonomy allows recharging in good time and use during a shift lasting twelve hours. The boatmen use the new mooring vessel as an assistance vessel while berthing and unberthing seagoing vessels. "We are ready for the future with our first electric vessel", says commercial director **Koen De Groof**. "In due course, we hope to make half our fleet consisting of 45 mooring vessels electric."

Not more expensive

Brabo was already considering sailing on electricity or hybrid power eight years ago. At the time it did not appear possible because of the size of the technical installation and the limited space available in the vessel. "An electric vessel costs barely more than a ship with a combustion engine", continues Koen De Groof. "We are considering switching to hydrogen for ships that must cover longer distances." Brabo has now been operating for 88 years and recently received a new concession for eight years. The boatmen carry out approximately 36,000 orders each year.

Gyproc opts for environmentally friendly transport

Plasterboard manufacturer Gyproc set to make its transport greener. The company is switching to LNG trucks, and will also be transporting loads by inland waterway shipping.

For the switch to LNG trucks Gyproc is working with Group-GTS, that also has an establishment in Kallo. "We are together moving towards changing from diesel to LNG for our domestic transport. We will then make our own contribution to ensuring more sustainable transport and a clean port", says CEO **Rini Quirijns**. "LNG is also less expensive than diesel for the distances in question, and with the same driving performance."

One inland waterway vessel = 13 lorries

Besides LNG trucks, Gyproc is also working on other ways to make its transport more sustainable. The company uses inland waterway vessels to deliver raw materials and transport finished products. Gyproc also recently switched to a new type of inland waterway vessel: the Pallet Shuttle Barge. "The new ships were specially developed to efficiently transport goods on pallets. These range from construction materials to rolling containers and consumer goods", explains Rini Quirijns. With one Pallet Shuttle Barge with a carrying capacity of 300 tonnes, Gyproc takes thirteen lorries off the road per trip.



Taking care of the waterways, oceans and the environment

Plastic pollution

Plastic pollution of the oceans, also known as the plastic soup, is a worldwide challenge. As the most important polymer port in Europe for the production, handling and distribution of pellets, we help to tackle this environmental issue at source. In 2017 we were the first European port to sign the Operation Clean Sweep charter.

The Operation Clean Sweep programme is an initiative from PlasticsEurope to prevent litter from arriving in seawater. Companies taking part in the programme commit themselves to help achieve zero pellet loss. We set up the Zero Pellet Platform within the context of Operation Clean Sweep. In this multi-stakeholder platform, the industrial, logistical and transport sectors join forces to prevent small plastic grains from the polymer chain from arriving in the water or in other places where they do not belong.

To achieve this, the Antwerp Port Authority is working with essenscia, Voka – Chamber of Commerce of Antwerp-Waasland and PlasticsEurope. Some fifteen companies from the production and logistical polymer chain have already committed themselves to achieve 'zero pellet loss'. Weekly monitoring clarifies where pollution occurs and where measures may be required. We have been regularly organising big clean-up activities since 2017. In 2017, 2018 and the first quarter of 2019, 3.4, 3.3 and 3.3 tonnes of pellets respectively were removed from the environment. There is still no reduction, so an extra reason to take further action. On the platform, the partners exchange experiences and good practices, while we together look for ways to prevent the loss of pellets.

Floating debris

Floating debris affects the ecosystems in the River Scheldt and the oceans. It can also cause damage to ships, the port infrastructure and the natural world. This is why floating debris boat Condor regularly sails out to remove accumulated debris from the water in the port. A team from the Antwerp Port Authority removes the waste on the banks of the River Scheldt. The amount of floating debris collected in recent years has fluctuated depending on how frequently the Condor sails out. Despite awareness-raising activities, there is still no evidence of a reduction in floating debris (✓).

Litter

Litter spoils the living environment and is a source of major irritation for many people. The port community is tackling this problem with specific measures and awareness-raising activities. The Antwerp Port Authority monitors cleanliness based on the cleanliness index: an indicator of the presence or absence of litter, fly tipping, weeds and damage to the street infrastructure. We establish the causes of litter based on the results and we take measures: more frequent waste collections, extra rubbish bins, public information signs and so on.

On average the port area achieves a good cleanliness score. Since 2016 the score has permanently stayed above 80 points, the lower limit for a good score. The average score rose from 87.9 points in 2017 to 89.2 points in 2018, an improvement of 1.5 per cent. At street level there are still certain areas to work on that we tackle by monitoring and detection.

Litter? No thanks

The port of Antwerp is not immune from litter. Besides remediating activities, the programme also regularly includes prevention and clean-up actions.

In cooperation with the 'Mooimakers' OVAM campaign we have added the words 'Thank you' to the familiar 'Keep it clean' signs next to parking areas. Photos of plastic cups and sandwich packaging were placed under the sorting instructions on rubbish bins.

Companies cleaning up

The 'Port Clean-up' campaign launched in March 2019 encourages port companies to organise activities themselves to combat litter and waste. The Antwerp Port Authority offers them communication material and practical support.

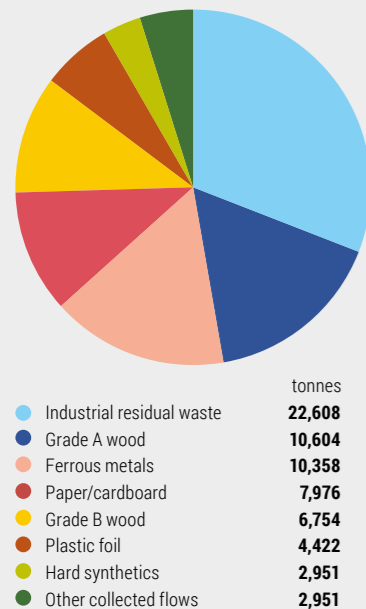
On 22 March 2019 the staff from Van Moer Logistics collected litter from their sites in Zwijndrecht, Zellik and Arendonk. Together they filled more than forty rubbish bags. On 8 June 2019, on World Oceans Day, the employees from jeans producer Wrangler got down to work on a clean-up activity on the River Scheldt in Lillo. The Scheldt Left Bank Corporation regularly organises litter collection in Doel. They also recruited

A clean nature area

Each year the Antwerp Port Authority, Natuurpunt and Mooimakers organise a clean-up activity in the Galgeschoor nature area where many birds arrive to breed. Tidal eb and flow means drifting waste can easily choke up the salt marshes. During the latest clean-up activity on 9 March 2019, 440 volunteers – port employees, people living in the vicinity and members of nature associations – pulled up their sleeves to make the area measuring some 100 ha litter-free.



Relative proportion of the various collected industrial waste flows in the port of Antwerp



(source: Valipac)

Sorting industrial wastes

Companies in the port of Antwerp sort their industrial waste better than the Belgian average. This appears from the survey of industrial wastes that Valipac has drawn up since 2017 for fifteen different waste material flows in Belgium. This involves industrial residual waste, paper and cardboard, wood (grade A, B and C), plastic foil, EPS (Isomo), hard synthetics, plastic, metal and drink cartons, metals (ferrous, non-ferrous and mixed metals) and glass (round, flat and hazardous glass).

In 2017 there were 270 collection points (companies) in the port of Antwerp where waste was collected by a collector affiliated to Valipac. Only industrial waste was collected at just 8 per cent of the companies (compared to 51 per cent in Belgium), with selective collection at 92 per cent of the companies. On average 2.98 waste material flows were separately collected per company, compared to 0.8 for Belgium. A total of 46,568 tonnes of waste was sorted by the 270 companies, accounting for 67 per cent of the total quantity of waste. Across the whole of Belgium this share amounted to 64 per cent. The biggest collected flows were grade A wood, ferrous metals, paper and cardboard, grade B wood and plastic foils.

Waste from inland waterway shipping

The amount of oily and greasy waste, waste from loading and 'other shipping company waste' from inland waterway vessels in the port has stayed stable in recent years.

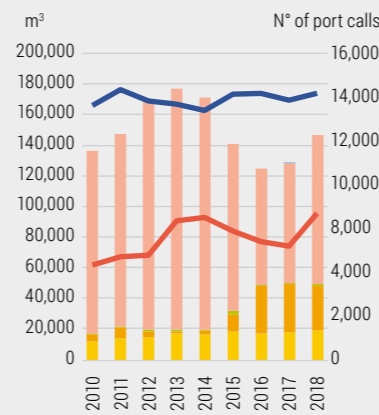
The Antwerp Port Authority ensures the collection of the oily and greasy waste and loading waste from inland waterway shipping. This is done using three waste areas and with an environment boat to remove oil/water mixtures from the ship's hold (bilge water). Approved waste collectors take the collected shipping company waste to a licensed processing plant. The port also has degassing installations to degas fuel tanks on ships in an environmentally friendly manner.

More and more fractions of non-hazardous shipping waste are being separately collected for recycling purposes. Since 2018 foils, hard plastics and polystyrene foam have also been individually collected, so a total of more than 66 per cent of non-hazardous shipping waste is collected separately (✓). In the future the Antwerp Port Authority wishes to further extend the selective collection of waste material flows such as soft plastics from inland waterway shipping.

We always separately collect hazardous shipping waste based on its properties and recycling potential. The number of hazardous fractions collected has increased from six to twenty since 2010.

Annual quantities of ship's waste and cargo residues delivered in the port of Antwerp by seagoing vessels.*

Right-hand axis: number of port calls for which a waste contribution was paid, and the number of calls for which waste was offered for collection.



- MARPOL VI
- Oil and oily water (MARPOL Annex I)
- Ship's sewage (MARPOL Annex IV)
- Chemicals (Marpl Annex II)
- Ship's garbage (MARPOL Annex V)
- Total n° of port calls for which a waste contribution was paid
- Total n° of port calls with MARPOL declaration

(source: Antwerp Port Authority)

* The columns represent the different types of waste as laid down in the MARPOL treaty.

Waste from maritime shipping

The waste from maritime shipping arriving in the port consists of residual waste, sanitary water, chemicals and oil-bearing waste. In 2017 the total volume of shipping waste collected increased by 3 per cent compared to 2016. The year 2018 saw a further increase of 14 per cent to 146,201 m³ of waste (✓). The biggest increase was in oil-bearing waste and sanitary water. The amount of chemicals collected has increased rapidly since 2014 and the trend continues.

There are different approved port receiving facilities in the port for the collection of shipping waste and loading residues. Ships are not bound to deliver their waste there. We use a financing system with each ship contributing according to 'the polluter pays' principle to encourage shipping companies to do this. They pay a waste payment for each ship. The shipping companies are given a discount if the ships hand in their waste. This is how we want to prevent ships from dumping their waste in the sea. Only ships always sailing the same route and that can demonstrate that they hand in their waste elsewhere can obtain an exemption.

Restricting noise pollution

The port community works on keeping the noise load to a minimum. The noise of the port activities can indeed have an impact on people living in the vicinity. Companies have set noise levels in their permit so they take noise-limitation measures such as enclosing installations.

Every five years the Antwerp Port Authority establishes the noise load in the port area in conformity with the 2002 European directive. A noise level map, created using a dynamic noise model, shows a

summary of the noise level in the whole port area. From the calculations it appears that traffic on the motorways around the port and on the Antwerp ring road is the primary cause of the noise load. Noise pollution from industry is significantly lower because the companies are further away from the residential areas. Compared with the noise level map from 2013, some sources of noise have appeared and disappeared, but is there no increase or decrease in the total noise load.

Survey of collected industrial waste flows in the port of Antwerp*

Reference year 2017	Valipac	Port of Antwerp	Logistics sector	Other sectors
Number of companies	140,793	270	103	167
Number of companies with industrial residual waste only (unsorted)	72,478	23	6	17
% of companies with industrial residual waste only (unsorted)	51%	8%	6%	10%
Average number of selective flows	0.8	2.98	3.24	2.82
Total tonnage of industrial residual waste (unsorted)	1,400,444	22,608	9,585	13,023
Total tonnage of sorted waste flows	2,506,800	46,568	24,189	22,379
Proportion of sorted waste flows, based on the total tonnage	64%	67%	72%	63%

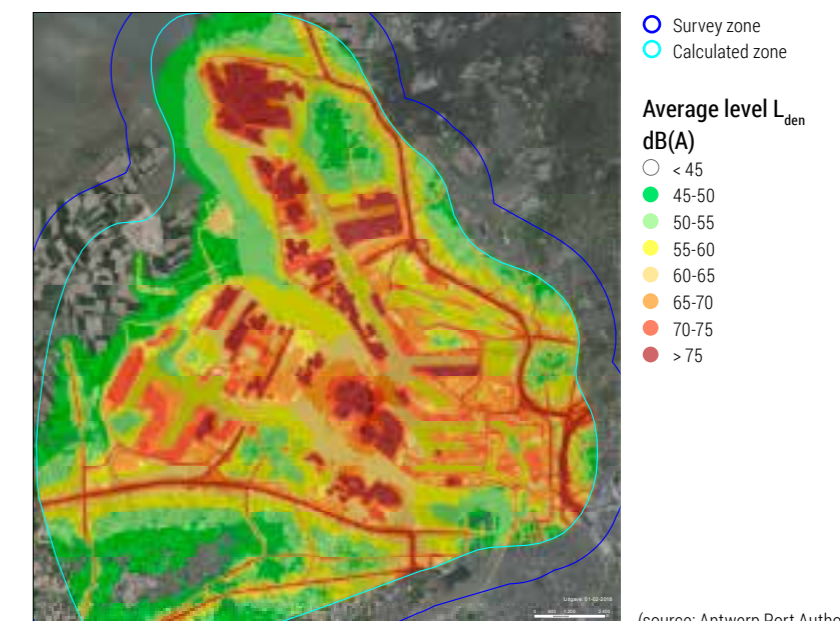
(source: Valipac)

* 'Valipac' refers to all companies included in the Valipac database. The three right-hand columns refer to the companies in the port.

Complaints

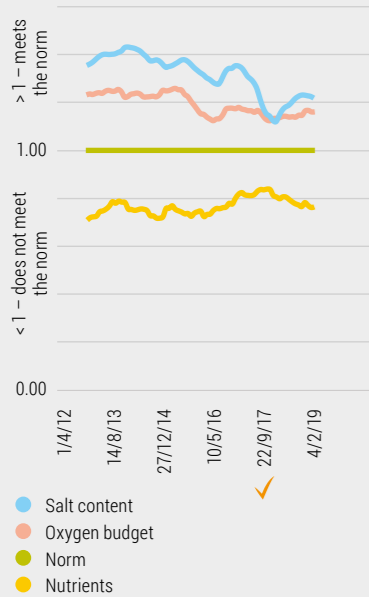
Light, dust, waste, noise, odour, suspect persons: if port users or people living in the vicinity have a problem with something, they can get in touch with the report point at the Antwerp Port Community at www.portofantwerp.com/nl/meldpunt. All complaints are centralised there so we can deal with them more efficiently.

Noise level map 2017, based on data from 2016 (day, evening, night)



(source: Antwerp Port Authority)

Running average of water quality in the Antwerp docks, compared to the norms laid down by the Integral Water Management Decree (norm = 1). The values were measured at three locations.



Sustainable use of water resources

Physico-chemical water quality

The water quality in the docks is not only important for fauna and flora, it is also vital for companies. They use the water from the docks in their production process, to clean tanks, etc. We monitor three parameters to assess the quality of the water: the oxygen condition, the nutrients (nitrogen and phosphorous) and the salt level. The decree on Integral Water Policy imposes water quality standards for these parameters.

On average the oxygen condition of the water in the Antwerp docks has been sufficient over the past two years. The oxygen conditions were less optimal during the summer months of 2017 and 2018, as a consequence of the drought and high temperatures.

The salt level also meets the water quality objectives, but we note an increase since 2013. This is a consequence of the lower supply of freshwater because of long dry periods in the catchment area. Research into the impact of increased salt levels on the ecosystem in the port showed that flora and fauna are not (yet) suffering as a result. The impact on companies also appeared minimal. It is clear that changing climatic conditions are having their effect on both salinity and oxygen conditions. We will be monitoring both parameters in the coming years with the necessary attention.

The total phosphorous and total nitrogen concentrations still do not achieve the objectives in the decree. A slight improvement has been noticeable in recent years. A large part of the nutrients is, however, supplied through surface watercourses. This means it does not result from port activities but from agriculture. The Flemish government is taking measures such as the Fertiliser Action Plan and the integrated approach to nitrogen (PAS) to tackle the problem of nutrients in surface water at source.

Chemical water quality

The chemical water quality is based on twelve high priority substances from the European Water Framework Directive (Cd, Hg, Pb, Ni and eight PAHs): substances with which problems have been identified in the past with possible emission sources in the port area. The concentrations of the substances remained more or less stable in the 2012-2018 period, with six to eight measurements each year with the standard being exceeded. In 2018 for 4 of the 36 measurements the measured value exceeded the permitted standard (✓). We are now looking to see where the emissions come from and how we can tackle them.

We continue to closely monitor the water quality in the docks to keep the impact of port activities on water quality in the River Scheldt as low as possible.

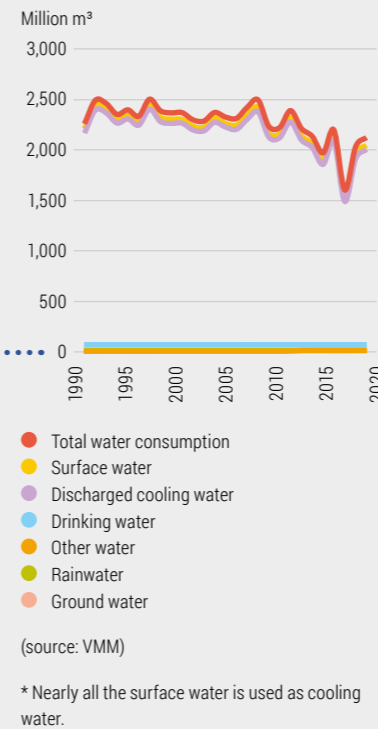
We also monitor the bed. After dredging, contaminated dredgings are disposed of. The dredged material goes to the Amoras dewatering facility. A water treatment facility upgrade means Amoras can also process water originating from seriously contaminated dredgings. Tackling the contaminated bed means there is less impact on the water above.

Water consumption

In 2018 the port community consumed 2.1 billion m³ of water, 15 per cent less compared to 2008 (✓). The large majority of the water used (94 per cent) is cooling water for the Doel 1 nuclear reactor, in 2018 accounting for 2 billion m³ per year (✓). This is water from the River Scheldt that is largely discharged again after use.

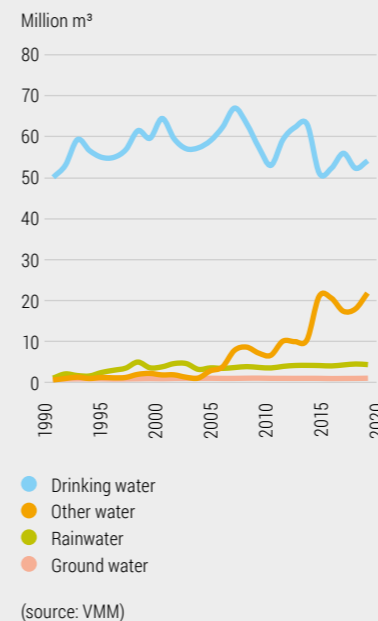
The other 4 per cent of water consumption accounts for 122.4 million m³ per year and is used for all sorts of industrial applications. It consists mainly of mains water supplied by the water companies water-link and Evides Waterbedrijf (NL), or surface water, groundwater or rainwater that the companies recover themselves.

Total surface* and mains water consumption by companies in the port of Antwerp in 2018 ✓



(source: VMM)
* Nearly all the surface water is used as cooling water.

Mains water, groundwater, rainwater and other* water consumption by companies in the Antwerp port area in 2018 ✓



(source: VMM)
* 'Other water consumption' is mains water supplied from the Netherlands and water produced by industrial water supplier Induss (now part of water-link).

Port companies working on sustainable water use

As the first in Flanders, chemicals giant Bayer Agriculture (formerly Monsanto) in Lillo received a golden EWS certificate (European Water Stewardship) in 2015 for sustainable water management.

The company carefully detailed its water consumption and spent eighteen months developing water-saving measures. The end result was savings of 1 million m³ litres of water. Since 2017, two-thirds of waste water has also been recovered.

Consuming less drinking water can also be achieved by using more rainwater. Container handler **PSA Antwerp/MPET** invested in a large-scale rainwater installation in 2018. Wells with a volume of some 20,000 litres of water were connected to each other under the ground on the left bank. All rainwater pipes from the maintenance buildings run into the wells. The company cleans large machines such as container cranes with free rainwater: a measure that saves 3 million litres of drinking water each year. The used water is then purified and discharged again clean.

The chemicals company **Ashland** also collects rainwater, and not only on its own premises but also at the neighbouring company DP World. No less than 64 million litres of rainwater is used to dilute waste water each year. After biological purification the water is returned to the natural world. With this project Ashland won a nomination for the second Port of Antwerp Sustainability Award.

Decontaminating and redeveloping contaminated land

Much land has been contaminated in the port in the past. We are tackling this historical contamination together with the Public Waste Agency of Flanders (OVAM). Our aim is to eliminate risks to people and the environment, while at the same time exercising care with the space available for economic development in the port area. We rehabilitate risk-entailing contaminated soils and develop them anew.

The OVAM wants the cleaning of all historical soil contamination in Flanders to have at least started by 2036. In a first step companies, including the Antwerp Port Authority, must make an inventory of risk-entailing land, as Flemish soil laws prescribe. A soil examination on this land must show if decontamination is needed. A total of 2,458 pieces of land in the port area must be investigated by 2036. Between 2016 and 2018 we succeeded in completing

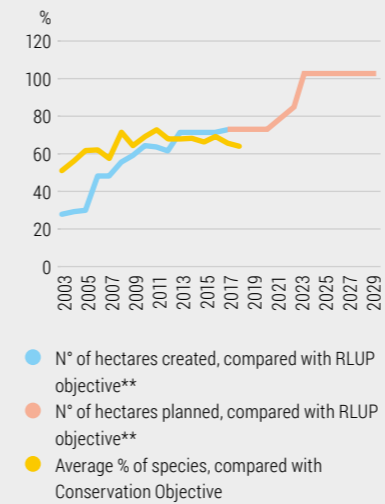
a whole series of soil analyses. The number of plots investigated hence rose from 1,249 to 1,319. No further measures are required for 1,097 of the plots. We are therefore on schedule to achieve the OVAM's target.

A nice illustration of our vision of redevelopment is the metamorphosis of the old Petroleum-Zuid site to the sustainable Blue Gate Antwerp industrial estate by DEME, Bopro, the local authority company AG VESPA and PMV. Blue Gate Antwerp received the 'SDG pioneer' certificate from the United Nations for the integration of Sustainable Development Objectives in all phases of the project (see 'Our economic activities').

Preserving the nature of the Scheldt

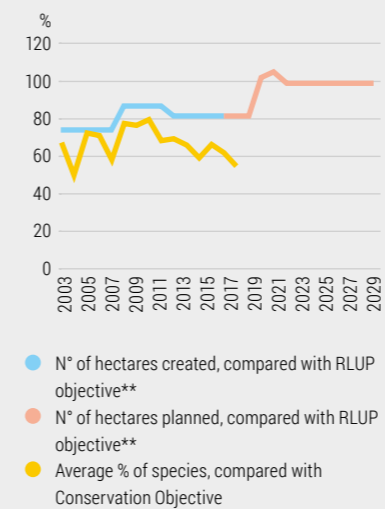
The port area includes an expansive and unique natural world, with a large part lying in a European protected area. In recent years the development of new natural areas in the port has stagnated, so the bird population has fallen. We did succeed in improving the quality of the habitats already in place (by creating pools for example), so protected plants and animal species can better prosper.

State of conservation of bird species* versus surface of conservation area on the Scheldt left bank
Percentage set against Regional Land Use Plan (RLUP) objective



(source: INBO)

State of conservation of bird species* versus surface of conservation area on the Scheldt right bank
Percentage set against RLUP objective



(source: INBO)

* The degree of conservation of bird species is the average percentage and standard deviation of the n° of birds counted, set against the lower limit of the Conservation Objective for each species.

** The objective for nature development was determined within the context of the Regional Land Use Plan for port development on the Scheldt left bank. Since the RLUP was withdrawn in 2017, no alternative validation framework has been forthcoming so the objective set in the RLUP is provisionally retained.

European protected natural areas

The estuary of the River Scheldt is one of the most valuable delta systems in Europe. Various parts of it form part of Natura 2000, the European nature network for protecting and conserving the European natural world. The port community also works on the conservation of this European ecosystem. European conservation objectives were established for 21 target species on the left bank of the Scheldt and 8 target species on the right bank. While the average percentage for the target species under the preservation objectives was still increasing in 2016, we then see a decline on both banks of the Scheldt.

This is explained by the stagnation of the surface of newly realised key nature areas, so the populations of target species are also no longer growing. That is a consequence of the choice, within the context of further port development, to work on new areas and hence carry out less maintenance in the temporary natural areas. The regional land-use plan for port development has been approved for the right bank of the River Scheldt. The project with which nature compensation must take place is, however, suffering a delay. The land-use plan for the left-hand bank of the Scheldt has been rejected. The development of new natural areas has consequently stopped on both banks of the Scheldt.

The previous relationship between the development of natural areas and the population clearly shows the importance of robust natural areas, both to achieve nature compensation and realise the conservation objectives.

Ecological infrastructure

In 2000 the Antwerp Port Authority, the Scheldt Left Bank Corporation (SLBC) and Natuurpunt signed the "Antwerpse Haven Natuurlijker" charter. The partners committed themselves to create an ecological network infrastructure measuring over 600 hectares – 5 per cent of the total surface of the port area – without affecting the development and operation of the port. The ecological network in the port comprises key areas, corridors and stepping stones, that together create a sustainable living environment for ninety protected species of plants and animal.

A species protection programme was set up in the port of Antwerp in 2014 to protect the fauna and flora. Its first work involved ensuring the sustainable conservation of fourteen protected plant and animal species. This concerns species typical for the port such as the sand martin and the natterjack toad, and protected fauna such as rare orchid species. The species were selected so 76 so-called 'hitchhiking' species also benefited from the protection of the 14 umbrella species.

In 2018 the objective of obtaining some 600 hectares of ecologically functional area had been almost 93 per cent achieved (✓). In 2017 that was 70 per cent. The rise is attributable to additional structural measures taken in the past two years, such as reproduction pools for the natterjack toad and nesting boxes for bats. Ecological mowing management also created functional areas for the natural world.

The SPP also creates a scenario in which the Agency for Nature and Forest from the Flemish government can permit derogations from the prohibitions in the Species Decree. The Ecological Infrastructure network safety net and the measures in the SPP enable solutions for protected species on developing industrial sites. At the end of the first SPP (2014-2019) the port community gave the scheme a positive evaluation along with a number of observations. A second SPP (2019-2024) is being prepared in the meantime.



Hotspot for orchids

The raised land at the port of Antwerp offers opportunities to species that do not or barely occur elsewhere in Flanders. Rare lime-loving species such as orchids are among the species finding a home on the calcareous dredged material.

Helleborine, the marsh helleborine, the common twayblade and the common spotted orchid have all been seen in the port since 1973. The early marsh-orchid, heath spotted-orchids and sword-leaved helleborine were seen in the port for the first in 1984. The southern marsh orchid has been a familiar sight in Kallo since 1996, and the first bee orchid was discovered in 1993. The fen orchid, with European protection, was first found in 2007 in Verrebroek and since then has been counted each year by staff from the Research Institute for Nature and Forest (INBO).

The rarest orchids, the marsh helleborine, fen orchid and sword-leaved helleborine, are included in our Species Protection Programme. These three species were selected as umbrella species: measures we take for these species indeed also benefit a large number of other, so-called hitchhiking species.

Source: Natuurpunt



Green Deal to boost biodiversity

On 20 September 2018 the Scheldt Left Bank Corporation, the Antwerp Port Authority, DEMA and Gyproc signed the 'Companies and Biodiversity' Green Deal. They want to together expand biodiversity on the port site and strengthen its hold.

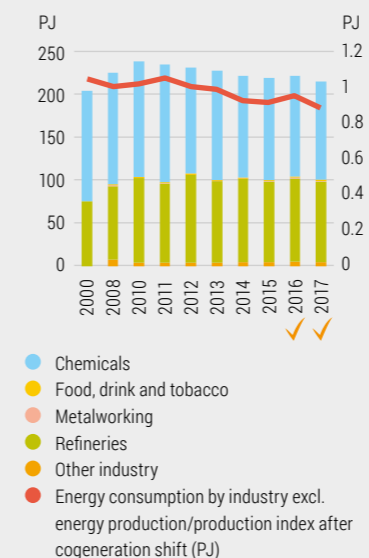
The partners want to use info days and informal contact to get as many companies as possible to sign up to the scheme. A nature-friendly management plan was drawn up for Logistiek Park Waasland, an area that is currently being developed. The plan shows interested companies what possibilities there are to create a green infrastructure and the associated aspects for attention. Logistiek Park could create a total of 29 hectares of green infrastructure including verges, a wadi, green belts and buffers.

Energy and the climate

The port of Antwerp houses Europe's largest integrated fuel and chemicals cluster. This is associated with high energy intensity and emissions of greenhouse gases. The port community has taken energy-efficiency measures in past years while investing in renewable energy to reduce our impact on the climate. We are also planning more specific projects such as a shift to a multi-fuel port and our own tugs working on methanol to also enhance the transition to sustainable energy.

Energy consumption by manufacturing industry

Right-hand axis: total energy consumption related to the production index



(source: Antwerp Port Authority based on data from Elia, Fluxys, EANDIS, INFRAx, VITO, FPS Economy; source production index: Voka – Chamber of Commerce Antwerp-Waasland)

Ever-increasing energy-efficiency

Energy consumption at the port fell in 2017 by 2.3 per cent compared to 2016 from 247.7 PJ to 242 PJ (✓). Energy consumption in the manufacturing industry (being total consumption without energy production) fell from 220.7 PJ to 214 PJ, while the production index rose from 233 to 246 (✓).

This demonstrates that the companies at the port are constantly improving their energy-efficiency; they more often re-use residual heat for example. But companies can save even more energy by further

optimising their processes. Digitisation and artificial intelligence can help in cutting energy consumption even further. Cooperation between companies can also offer many opportunities. A surplus of energy at one company can often be useful at another. Integrating and coordinating processes allows residual energy to be used and fewer fossil fuels are then needed. The success of the ECLUSE steam network is the best proof of this.

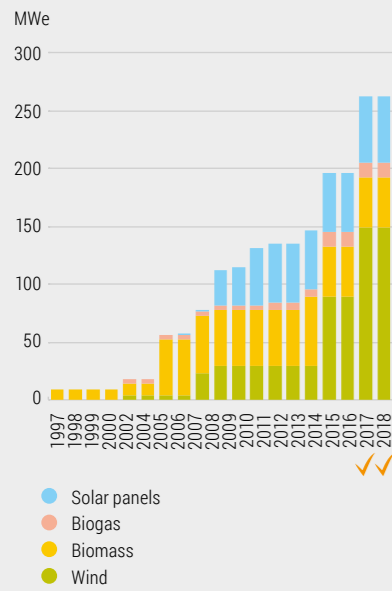


ECLUSE: first industrial steam network at the port

On 15 March 2019 ECLUSE celebrated the opening of the first large-scale industrial steam network in the port of Antwerp. The network will drastically reduce CO₂ emissions from a number of chemical companies.

The ECLUSE steam network is the result of cooperation between Indaver, SLECO, the Scheldt Left Bank Corporation, FINEG, Fluvius and water-link. The network transports steam originating from the incineration of waste materials to six chemical companies at the port. They then no longer need to create steam in separate steam boilers for their production processes. On an annual basis this represents a reduction of no less than 100,000 tonnes of CO₂ emissions at the companies using the steam. The project also supplies at least 5 per cent of all green heat produced in Flanders. The whole ECLUSE piping network is approximately 5 kilometres long and is largely aboveground.

Installed renewable energy capacity



(source: VREG and Antwerp Port Authority)

Investing in renewable energy

Renewable energy installed power has increased in recent years from 112.6 MWe in 2009 to 262.83 MWe in 2018. Wind energy made the biggest contribution (57.0% of the installed power in 2018), followed by solar power (21.5%), biomass (16.6%) and biogas (4.9%).

'Wind aan de stroom' (W@S), the project in which the Antwerp Port Authority, SLBC and 'Groene Energie Haven Antwerpen' (GEHA) together built 21 wind turbines between 2014 and 2018, provides installed power of 63.4 MWe. On the left-hand bank of the Scheldt logistics group Katoen Natie has also installed wind turbines on its site,

while dredging and environment group DEME has a small-scale wind turbine. On the right-bank of the Scheldt, Flemish wind energy company Vleemo has erected some thirty turbines.

The trend towards more renewable energy will increase in the coming years at full pace. We are currently looking at new options and suitable locations to generate renewable energy, without this having negative consequences for the natural world and economic activity.



Waaslandhaven welcomes extra wind turbines

Waaslandhaven brought four new wind turbines into use in 2018. Project partnership 'Wind aan de Stroom' wishes to strongly increase this number by 2022.

In 2016 and 2017 'Wind aan de Stroom' (W@S) started operating 17 wind turbines in the Waaslandhaven. The green energy generated by a number of wind turbines is consumed on-site by industrial companies at the port. The others inject their production into the electricity supply network. The year 2018 saw the addition of a further four turbines. These are larger than those erected previously and produce approximately 8,000 MWh per year, compared to 7,500 MWh from the previous turbines. The 21 wind turbines now at Waaslandhaven supply enough energy to sustain 55,000 families. 'Wind aan de Stroom' hopes to significantly increase this number by 2022.

ADPO tests solar thermal power installation



Genk energy company AZTEQ is building pilot installations with parabolic mirrors in Genk, Antwerp and Ostend. The new technology does not produce electricity (as solar panels do) but green heat. Logistics company ADPO is among those working on the project.

Solar thermal power installations use parabolic mirrors to concentrate sunlight, with temperatures increasing to 400 °C or more. The high-quality heat can be used for industrial processes at breweries or chemical plants. Today, such companies draw their heat from the incineration of gas or oil, but solar thermal power is completely green.

Heating liquids

AZTEQ is currently working on three pilot projects, each with a different application. In Antwerp the logistical company ADPO in Kallo will take heat for the storage of heated liquids. It needs temperatures of over 140 °C for this. The parabolic mirrors are to be installed above the company's car park, above a railway line and under a high-voltage line. The AZTEQ project will cost a total of 1.425 million euros, with 819,000 euros financed by the Flemish government.



Hydroturbine at sea lock

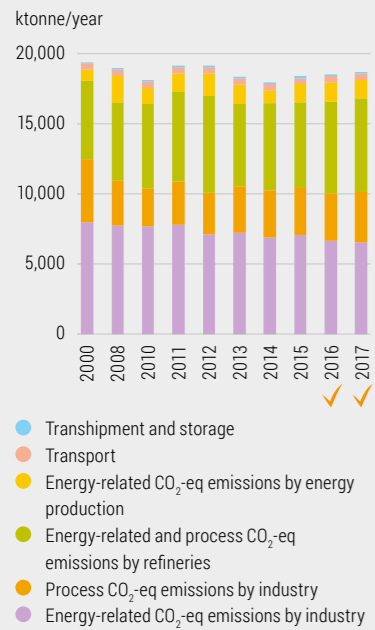
Seven sea locks keep the water level in Antwerp docks stable. A hydroturbine can use the flowing water from the locks to generate electricity.

The tides in the River Scheldt mean the river's water level varies from that in the docks. Seven sea locks keep the water level in the docks stable, while ensuring that smaller ships can also be loaded or unloaded at any time. The port of Antwerp now wants to cleverly use the water in the outlet channel that controls the water level in the docks.

Power from flowing water

"In the Kallo lock we are testing a hydroturbine that can convert the power of the flowing water into electricity", explains maintenance engineer Matthias Lootens from the Antwerp Port Authority. "We install a turbine with a vertical shaft in an outlet channel. The screw uses the force of the water from the lock to generate energy. A generator supplies electricity and the lock can operate energy-neutral." If testing is successful, the Antwerp Port Authority will also consider fitting the Kieldrecht lock with hydroturbines.

Emissions of CO₂, CH₄ and N₂O (based on emission factors and Global Warming Potential per IPCC 1996) by different sectors in the Antwerp port area



(source: Antwerp Port Authority on basis of VITO study 2011/TEM/R/56)

Emitting fewer greenhouse gases

With total emissions of approx. 18 million tonnes CO₂-eq (excluding shipping), the port of Antwerp is responsible for approximately 16 per cent of the Belgian CO₂ emissions¹. The emissions are attributable to energy, industry, oil refining, transshipment and transfer and transport.

Between 2016 and 2017 greenhouse gas emissions at the port increased by 1 per cent from 18.46 to 18.65 million tonnes CO₂-eq per year (✓). Compared to the year 2000, emissions in 2016 and 2017 were 4.5 and 3.5 per cent lower respectively.

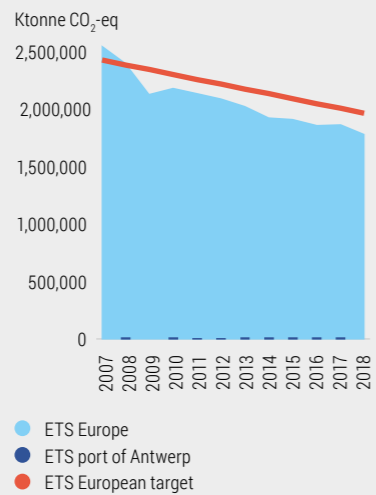
An important distinction must be made between the ETS and non-ETS sectors (see box). Some of the emissions at the port are controlled at Flemish level, but emissions from the most energy-intensive sectors are regulated by the European Emissions Trading system (ETS). The European regulation of EU-ETS means the rules within the EU are equal for each energy-intensive installation or activity, and emissions from the installations are not linked to the country in which they operate. In the port approx. 80 per cent of total greenhouse gas emissions are covered by the ETS.

Greenhouse gas emissions from the ETS sectors in the port of Antwerp increased from 14.64 million tonnes CO₂-eq per year

in 2016 to 15.11 million tonnes CO₂-eq per year in 2017. That is a consequence of the combination of a thriving economy and new investments and developments in the port of Antwerp. The Antwerp companies are world leaders in the field of energy efficiency and therefore attract new investments to satisfy European market demand. This results in higher local CO₂ emissions and higher prices of ETS tradeable emissions (see box). Under the ETS, extra emissions are compensated by a reduction in CO₂ emissions elsewhere in Europe from sectors with a high CO₂ intensity (for example lignite- or coal-fired power plants in Poland, the Netherlands and Germany). The investments and developments in the port of Antwerp will ultimately lead to an overall fall in CO₂ emissions in Europe.

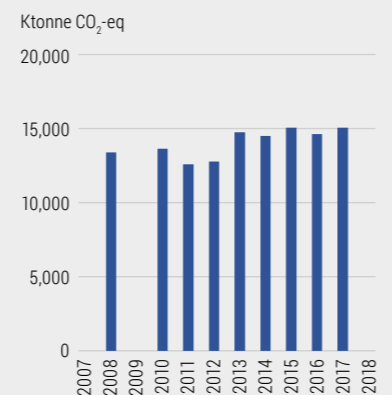
Emissions from sectors such as transport, construction, waste treatment and the non-ETS industry are not covered by the ETS system. Among these sectors in the port area, emissions fell from 3.82 million tonnes CO₂-eq/year in 2016 to 3.55 million tonnes CO₂-eq/year in 2017, with increasing production and growth. EU countries have concluded a best-effort agreement to reduce those emissions: the European Effort Sharing Decision (ESD). National emission objectives are then imposed on each country to be met by 2030.

EU ETS emissions of CO₂, CH₄ and N₂O (CO₂-eq emissions in tonnes/year), EU target 2030 and emissions by ETS sectors in the Antwerp port area



(source: Antwerp Port Authority based on VITO study 2011/TEM/R/56)

CO₂-eq emissions by ETS sectors in the Antwerp port area



(source: Antwerp Port Authority)

The European Emissions Trading System

In 2005 the European Union introduced the EU Emissions Trading System (ETS) to reduce emissions of greenhouse gases in the industrial and energy sectors. The system specifically applies to power stations, oil refineries, steel producers, metal producers, manufacturers of cement, slate, glass, ceramics, pulp, paper, acids and organic chemical construction materials in Europe.

This involves a total of more than 11,000 installations spread across Europe, which together are responsible for 45 per cent of emissions of European greenhouse gases. The installations need an emission allowance for each ton of CO₂ they emit. The total number of permitted emissions is established beforehand and may not be exceeded. The number of allowances is limited, but companies may trade the emissions between each other.

The European Union thoroughly reformed the ETS in 2018. The new regulation comes into effect in 2021. From then on 2.2 per cent fewer emission allowances will be for sale at the auction each year. As a consequence, the European ETS sectors will emit 43 per cent fewer greenhouse gases in 2030 than in 2005.

Lean & Green forwarders emitting less CO₂



Lean & Green Europe is a European programme for sustainable logistics. Those taking part in the programme commit themselves to reduce their CO₂ emissions by 20 per cent in five years. The three Antwerp forwarders Ahlers, Gosselin and Jas Forwarding already received a Lean & Green Award in 2018.

Drastically cutting CO₂ emissions is no simple matter for forwarders because they do not dispose of a fleet themselves. A part of the objective can be achieved by internal measures: carpooling, switching lights off when not needed, requesting sustainability guarantees from suppliers, etc. For forwarders, lower CO₂ emissions are particularly a question of planning efficiently and offering customers transport solutions with a lower impact on the environment.

Environmentally-aware options

Antwerp forwarders Ahlers, Gosselin and Jas Forwarding each play their own parts in the Lean & Green endeavours, but they all see benefits in a thorough modal shift: from road transport to transport by rail or inland waterway shipping. They are working towards more environmentally-aware options by informing customers on CO₂ emissions associated with certain options. New technologies also allow forwarders to better visualise their transport flows so they can be organised more efficiently. For the efforts the three forwarders have already made, they have each received a Lean & Green Award.

(1) Total net emissions for Belgium (2017): 114,280.49 CO₂-eq kT (source: National Inventory Submissions, UNFCCC)

Facilitating the transition

The climate transition is one of the biggest challenges for the current economy. We want to play an important part here in view of our position as a large energy and chemicals cluster, a large consumer of energy, and a pivotal hub of logistic chains for the import and export of primary and secondary raw materials. The Antwerp Port Authority is mobilising the different sectors in the port area to give shape to the transition with concrete projects.

Experimental site for demonstration projects

The port of Antwerp is set to accommodate an experimental site for demonstration projects on circular chemicals and sustainable fuels. With this experimental site we want to attract demonstration units and pilot projects that concentrate on the development of innovative technologies for the chemicals or fuel sector. The experimental site will lower the bar for companies to test new technology and scale it up in the port of Antwerp.

Carbon Capture & Utilisation (CCU)

Carbon Capture and Utilisation (CCU) is regarded as one of the most important technologies in the transition to a sustainable port. CCU is the process where one captures and cleans CO₂ – possible from chimney stacks at industrial installations – before turning it into useable products and/or chemicals. By adding green hydrogen to CO₂ it is then for example possible to produce green methanol. The Antwerp Port Authority concluded a cooperation agreement with five partners from the electricity, chemistry and fuel industry to bring this innovative concept to life. Together they are preparing the launch of a first demo in Antwerp. The potential is great: the port uses 300,000 tonnes of methanol per year for chemical processes and as additives in fuel. The port could prevent just as many tonnes of CO₂ from being emitted in the air per ton of produced methanol. Green methanol could also be used in the future as a sustainable fuel for both tugs and the ordinary road traffic.

Covestro uses CO₂ as a raw material for mattresses

Chemicals company Covestro uses carbon dioxide to sustainably produce plastics for mattresses. This innovative method results in a lower consumption of mineral oil.

Each day large quantities of carbon dioxide escape from buildings, cars and factories. Covestro wants to turn these waste gases into a new source of raw materials. Together with the Rheinisch-Westfälische Technische Hochschule in Aken, Covestro developed a catalyst that can convert pure CO₂ into raw materials for mattresses. The products are already on the market. The company is also working on applications such as sports floors and elastic textile fibres.

But Covestro wants to go further, and has now joined with fourteen partners from seven countries including the universities of Ghent and Leiden in researching how flue gas from the steel industry can be used to produce insulation foams and coatings. Tests at laboratory level are already highly promising. Next comes testing on an industrial scale in South-France, where a Covestro establishment is located next to an ArcelorMittal steel plant. The new project is being supported by the European Commission.

Trendsetter

Markus Steilemann, CEO of Covestro: "Using raw materials efficiently is part of a more sustainable future. Using carbon dioxide as a raw material means we as company need less mineral oil. At the same time we offer a circular solution to the climate problem. Our innovation is driven by sustainability, and that is where we want to be and stay as a trendsetter."

Hydrogen as a sustainable energy source

Renewable hydrogen will be an important energy vector in the future for various sectors. In electricity production, heat production, transport and the chemicals sector, hydrogen will have to play its part in meeting the need for alternative energy where other sources are unsatisfactory or less efficient. A piping system or backbone is needed to enable the wide use of hydrogen in the form of hydrogen gas, and other hydrogen carriers such as methane and methanol. It must be adequately sized and accessible for all sources and buyers.

Renewable hydrogen will mainly be produced based on wind and solar power.

In view of the limited potential for this on Belgian soil, Belgium will probably have to import hydrogen by pipeline, for example from Dutch offshore wind farms or by ship from sunny regions.

With a strong Belgian partnership the Antwerp Port Authority is developing a vision on the use of hydrogen: what must the piping system be like, when and how can this be built, what are the prospects for importing renewable hydrogen, how can we effectively use hydrogen (tugs powered by methanol, power-to-methanol demo, bunker facility for alternative bunker fuels, etc.)?

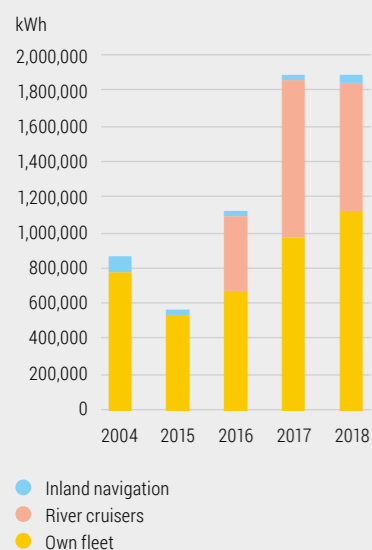


Hydrogen boat wins award

Hydrogen is the energy source of the future for shipping group Compagnie Maritime Belge (CMB). Their Hydroville, a passenger shuttle running on hydrogen, won the 2018 Sustainability Award.

With the Sustainability Award, the Antwerp Port Authority, the Scheldt Left Bank Corporation and Alfaport Voka encourage companies in the port to develop sustainable projects. The prize was awarded for the second time in 2018 and went to CMB's Hydroville shuttle. This innovative vessel running on hydrogen serves for commuting purposes in the port. "The Sustainability Award is a boost for us", says **Alexander Saverys**, CEO of CMB. "With investments in new sustainable technologies we want to get our company and the Antwerp maritime cluster ready for the future. We develop innovative vessel designs and low-carbon energy sources to put our stamp on international shipping."

Shore power consumption based on green energy supplied in the port area and river cruisers in the Kattendijk dock



(source: Antwerp Port Authority)

Reducing shipping's impact on the climate

LNG as blueprint for alternative fuels

The port of Antwerp has been offering LNG as an alternative fuel for shipping since 2013. The use of LNG rose from 68 tonnes in 2016 to 750 in 2018. The door to the use of hydrogen, methanol and electrical energy is also open.

Where LNG bunkering originally took place by road tankers, the first LNG bunker ships (with Amsterdam or Rotterdam as home ports) will have permits by the end of 2019 to bunker in the port of Antwerp. In 2020 the port of Antwerp will be receiving its first bunker ship that will initially refuel inland waterway vessels and small coastal ships. This is an important step on the way to also making LNG available in larger volumes for deep sea shipping.

Now that LNG as a clean alternative fuel has arrived, we are taking the first steps in the further transition of our bunker market to renewable energy sources such as hydrogen, methanol and electrical energy. The Antwerp Port Authority is making preparations to integrate these alternative fuels in the local bunker market by 2023.

Shore power for better air quality

The port of Antwerp offers shore power as an alternative energy source for berthing inland waterway vessels. With shore power, ships alongside can switch off their engines and turn to a local electricity supply. Doing this not only reduces emissions of NO_x, SO_x and particulates in the port. We also want to connect the shore power installation to sustainable energy sources to reduce CO₂ emissions.

The Antwerp Port Authority is setting an example itself: it is equipping its basic structure and suprastructure for dredged material and tugs with facilities for shore power and LNG bunkering. Shore power consumption from its own ships has increased significantly since 2015, from some 540,000 kWh in 2015 to around 1,100,000 kWh in 2018. Use by river cruisers has also increased, but showed a small drop in 2018. Shore power consumption by inland waterway shipping has fallen since 2015. In 2018 this amounted to approximately 32,300 kWh. Use was free in 2015 in the pilot project phase, that explains the higher consumption.

Shore power facilities have already been available at nine sites at the Noordkasteeldok for a longer time for its own fleet, inland waterway vessels and river cruisers. The port is now already preparing to supply deep sea shipping. We grant reductions to encourage shipping companies to switch to greener ships.

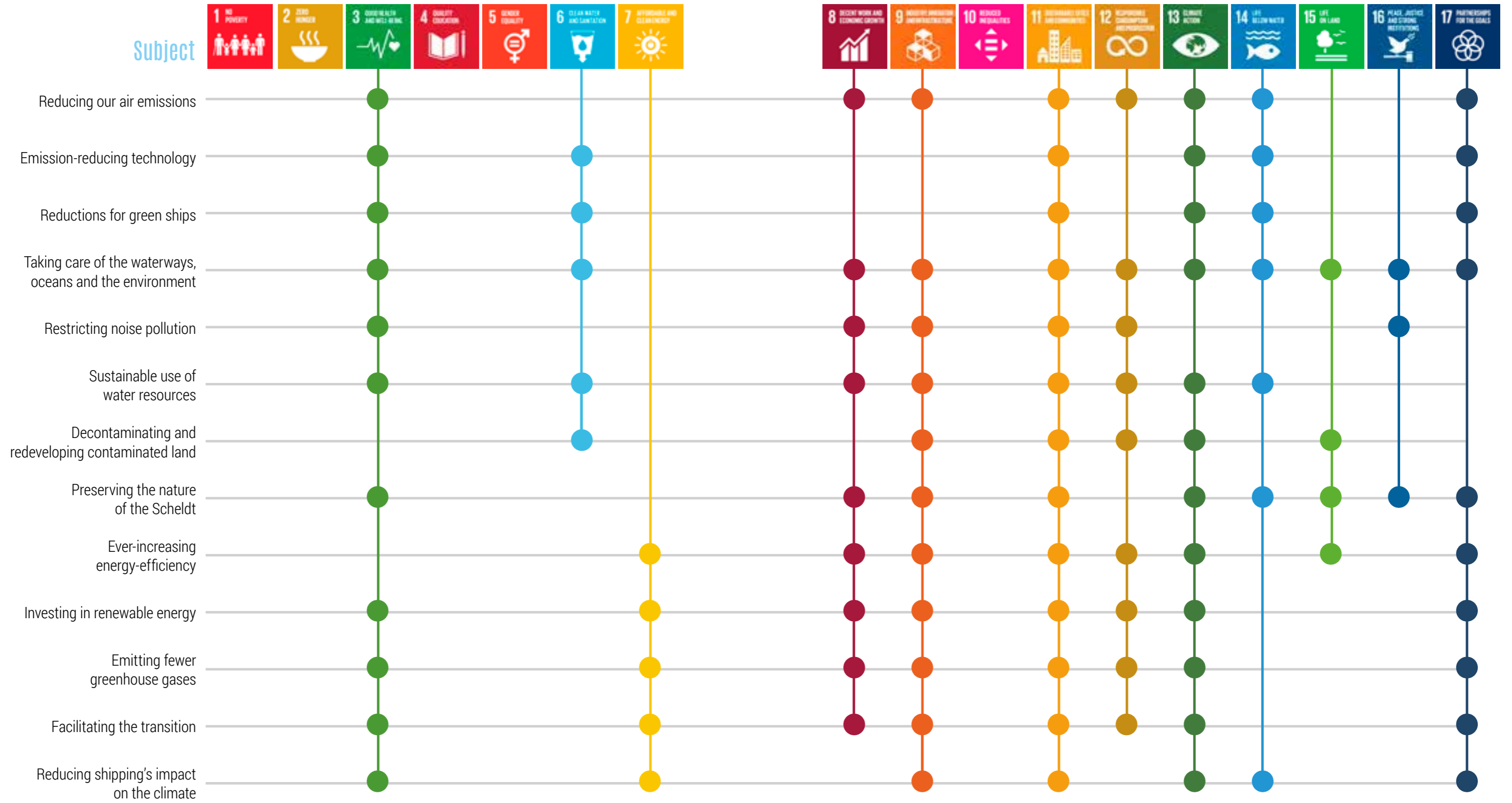
Towards a more sustainable maritime sector

The Antwerp Port Authority is a supporting member of the Think Climate coalition coordinated by PIANC (The World Association for Waterborne Transport Infrastructure). It strives for increasing awareness of the challenges associated with climate change in the maritime sector. It increases the resilience of the port by working with other ports and exchanging information to prepare the sector for the low-carbon world of the future. In this way the port of Antwerp also remains competitive in a world with a strong climate policy.

Challenges and future prospects

- The efforts of the whole port community have strongly improved **air quality** in and around the port over the last ten years. Recent years have, however, seen a certain stagnation. To cut emissions even further, the development of shore power facilities for inland waterway shipping and later also for maritime shipping is the most important challenge. These facilities must be attractive and cost-effective.
- Despite the measures companies have taken, our approach in the fight against **plastic pollution** has not yet demonstrated the required results. We will bring the partners concerned together to work on extra activities to reduce pellets in the environment.
- Further nature development is also needed to achieve the European objectives on the **conservation of protected species**. At the same time we must maximise the quality of the areas already provided so they make a positive contribution to achieving the objectives. We have barely made progress here in recent years, and the tide does not seem ready to turn in the future.
- The biggest challenge ahead of us is the transition to **sustainable energy sources**, the transition to a **circular economy** and the introduction of **innovative technologies**. We now already offer alternative fuels to shipping, but we want to further expand what we offer in the future. We see LNG as an interim solution, but also see perspectives in methanol and hydrogen. With the experimental site that will be operational in 2021, we will be encouraging the development of new technologies for further upscaling in the port of Antwerp. In the coming years we also expect that important progress will be made in the field of CO₂ capture and re-use (CCU), so CO₂ in the air will disappear and be used beneficially.
- To achieve our national **emission objectives** the non-ETS sector must further reduce its CO₂ emissions. We are on the right track. Emissions are falling, but constant efforts are required.

How do we give shape to the SDGs?



OUR PEOPLE

The port offers an attractive workplace where people's safety and well-being come first. We understand that commuting is a key factor in the recruitment and retention of workers. As a result, one of our priorities is to promote alternative modes of transport to cut down on the amount of time employees are stuck in tailback.

In recent years, we've accomplished the following:

- increased our workforce
- reinforced collaboration through port-related training courses and training centres
- maintained an uninterrupted focus on safety and well-being at the companies
- further expanded and promoted the provision of alternative modes of transport

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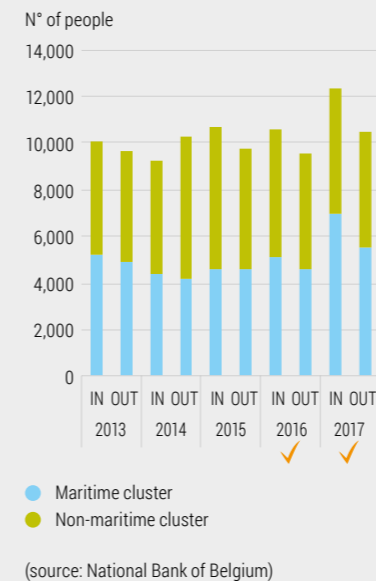
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Working at the port

The number of jobs at the port has gone up in recent years; however, vacancies for logistics employees are especially hard to fill. We've joined forces with several job and training organisations to help fill jobs on the shortage occupation list. By offering training throughout careers, we ensure that our employees' knowledge is up to date and we keep up with trends such as digitisation.

Personnel turnover in the port of Antwerp in the maritime and non-maritime sectors



Employee turnover

With 140,000 direct and indirect jobs, the port of Antwerp is by far the largest employer in the region (see also 'Our economic activities'). Starting in 2015, the number of jobs at the port has multiplied, such that there has been a greater inflow of employees than outflow for three years

running. This trend is crystal clear for 2017, especially in the maritime cluster: 6,878 people were recruited, while 5,497 employees handed in their resignations. In the non-maritime cluster, 4,893 left while 5,335 joined. (✓).

Filling shortage occupations

For years now, the port and the logistics sector have struggled with a structural deficit in qualified workers. The sector needs well-trained and educated employees to properly manage the expanding flow of goods. However, these people are difficult to find. Logistics and maritime salaried positions such as forwarding agents, customs clerks, dispatchers and shipping agents are especially troublesome to fill. What's more, technological developments and globalisation make these jobs increasingly complex, which only makes the search for suitable candidates harder. Too few young people decide to study logistics and jobseekers don't end up at these jobs or don't know enough about the sector. It's for this reason that the port community organises a host of initiatives to promote port employment and attract new talent.

Since 2012, the Antwerp Port Authority, Alfaport Voka, the City of Antwerp, VDAB, the Province of Antwerp and Logos have joined forces at the Talentenstroom talent centre. Talentenstroom helps port operators find employees and guides young people and jobseekers towards targeted training and exciting work at the port and in logistics. Among others, the talent centre

organises different job events and raises enthusiasm among young people, job seekers and career counsellors via sectoral and job information and testimonials.

In 2018, The Antwerp Port Authority, Alfaport Voka, Talentenstroom and Talentenfabriek organised their first job event during the Part of Antwerp port festival. During the event, jobseekers could, for example, apply to participate in workshops at over forty companies from the port of Antwerp. The event was so successful that it will be repeated in 2019.

The Scheldt Left Bank Corporation funds the annual cross-border job fair in the border region organised by EGTS Linieland van Waas en Hulst. Over 80 companies took part in the 2019 edition, which represents more than a thousand vacancies. EURES Scheldemond (a cross-border partnership targeting employers, jobseekers and cross-border workers in the regions of Antwerp, East and West Flanders, western North Brabant and Zeeland) launched the GrensMatch app (Border Match). This new app makes it easier for jobseekers and employers in the border region to find each other.

Alfaport Voka uses a digital platform to develop the port's branding as an attractive employer. In doing this, it develops a port-oriented community, connecting employees at the port and inspiring new employees about their port jobs.

To cope with the growing number of jobs in the maritime sector, CEPA, the employers' organisation for port workers, has conducted major recruitment campaigns and boosted training capacity. Efforts to attract more casual workers also made it easier to fill temporary jobs.

Together, Portilog and Randstad offer practical training courses that prepare jobseekers for jobs in the logistics sector. A survey of the students in 2016 showed that over 80 per cent of them actually began working as a logistics employee, customer service employee, assistant shipping agent or counter clerk at one of the Flemish ports after the course had finished.



GrensMatch promotes jobs in the border region

A large number of companies at the Waaslandhaven (Waasland Port) are looking for qualified employees. The purpose of the new GrensMatch app is to match future regional employees with jobs in the border region.

GrensMatch is a recruiting app that makes it easier for employers and jobseekers in the Belgium-Netherlands border region to find and contact each other. Interested candidates create a profile with their work experience, skills and preferred profession. Employers looking for employees in the border region can view the profiles.

Unlocking potential

"Employees in the border region don't always know where to find the right vacancies. Conversely, many port employers and employers in Waasland are looking for people with specific expertise or skills. GrensMatch helps these two groups find each other, so that the region's workforce potential can be capitalised on more efficiently", says **Nancy Vandersnickt** at the Scheldt Left Bank Corporation. The new app was developed by EURES Scheldemond in collaboration with the VDAB, the Employee Insurance Agency (UWV) and Den Doelder Recruitment.

www.grensmatch.nl



You. The Port. The World.

The target of the employer branding campaign, 'You. The Port. The World.', is to promote the port as an attractive employer and to develop a port worker-oriented community. The digital channels focussed on port jobs make it possible for readers to 'experience' a job at the port.

Alfaport Voka and the port operators are developing a community that empowers the 'us feeling' to showcase the port as an attractive workplace. A variety of communication and social media channels are using the #myjobisbetterthanyours hashtag to share easily accessible information about the port and centralise the current vacancies. You won't only spot interesting jobs on the jobsindehaven.be website and the Facebook page – you also find employee testimonials, information about activities, videos about employee experiences, etc. Every week a different company manages the Instagram page to introduce future employees to the ins and outs of different port operators.

www.jobsindehaven.be

Dual learning

Secondary schools work with port operators to offer dual learning, i.e. a combination of learning at school and working in a company. The specific knowledge that young people cultivate through this method helps fill the port's shortage occupations. At the same time, various higher education institutions in

the region are setting up port-specific programmes. Starting with the 2019-2020 study year, chemical group BASF and AP University College are also organising the first full bachelor programme that doubles as an educational and hands-on learning path (electromechanics).



GTI Beveren gets students interested in the port

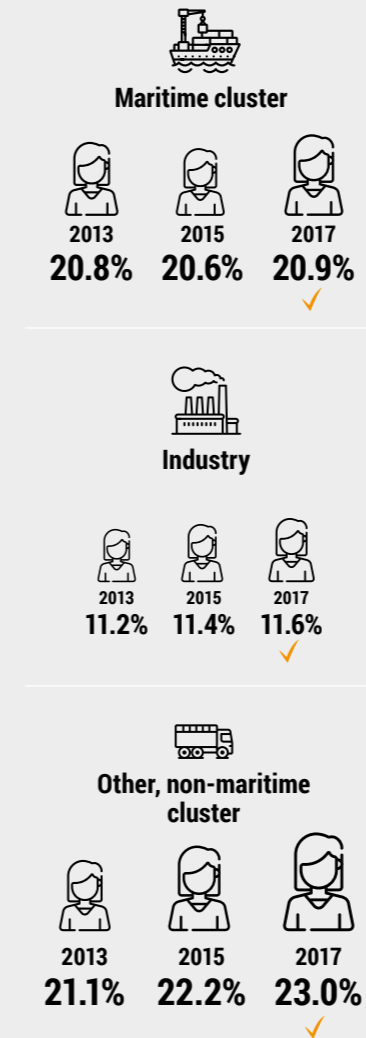
To make it easier to fill difficult vacancies, port companies have been partnering with the GTI (Municipal Technical Institute) in Beveren for a few years now. Every year, students graduate from the technical institute in Port Engineering.

During their seventh year of studies, students enrolled in the GTI Beveren's Port Engineering programme are prepared for a job at the port. This avenue of study and training was started eleven years ago at the request of a number of large port companies. They were looking for employees who could maintain lifting and hoisting equipment such as port cranes and forklift trucks. The students combine their lessons at school with an eight-week work placement and different seminars at companies.

Win-win

"Our collaboration with port operators is positive for both them and us," says Director **Pascal De Rop**. "Our partner companies ensure that our students are always able to practice on state-of-the-art equipment and machines, which ensures that their knowledge and skills are completely up to date. That also means that a Port Engineering degree offers a high degree of job security. Our students often already have a job offer in pocket even before they've graduated."

N° of women employed in the port



Diversity

The port community pursues a workforce that reflects the active population in the region: the male/female ratio, the ratio of different age groups, the ratio of people with and without a migration background, etc.

The male/female ratio is currently the only diversity indicator that we monitor at the port level. In the maritime sector, the proportion of women remains stuck at 20.9 per cent, and 11.6 in the industry (✓). That means that the port is still a workplace that mainly attracts men; however, the number of women has risen somewhat in recent years. On the one hand, the high amount of men in the port sector can be explained by the men's tradition of the Joint Committee for Port Workers (PC 301). On the other hand, right now technical and operational positions at port companies mainly attract male candidates.

Diversity in the workplace hasn't become a reality yet at the port. The port is by no means a reflection of the composition of the region's working population. That's why we are working with organisations that lower the threshold for young people with a migration background and introduce them to jobs at the port.

Alfaport Voka makes an effort to portray a diverse group of people in its promotional films, to attract as diverse an inflow of employees as possible. The Antwerp Port Authority is creating a more diverse, inclusive communications and brand policy and has started up a network for women at the port.

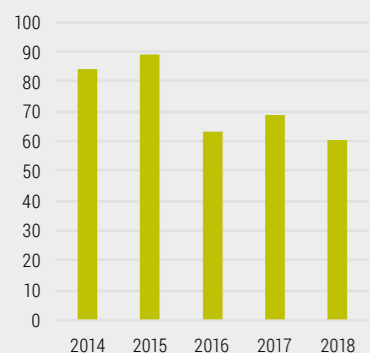
Training and refresher courses

In the current rapidly evolving economic context, refresher courses and in-house training play a crucial role. Employees must have the requisite knowledge and qualifications to be able to continue working at the port in the long term. The port operators work with organisations and training centres that offer specialised training and refresher courses targeting the specific competencies required at the port. Employees are also encouraged to broaden their horizons, with communications or other soft skills that remove constraints on their career growth. That way they are equipped for a lifelong

career in the various companies and sectors in the port area.

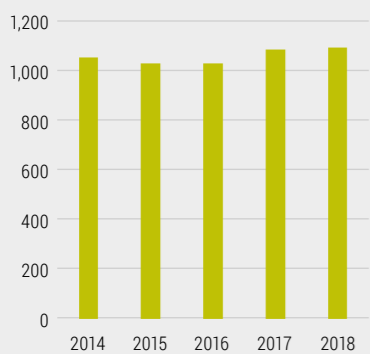
The number of training hours remains stable across time, both in the non-maritime and in the maritime sector. However, the figure for the non-maritime sector is significantly higher than that of the maritime sector. The average number of training hours for each employee in the non-maritime sector went up in 2017 compared to 2016 from 36 to 39 hours a year. In the maritime sector, the average number of hours decreased from 17 to 16.

Total number of occupational accidents at the Antwerp Port Authority involving absence from work



(source: Antwerp Port Authority)

Total number of occupational accidents involving absence from work among the employee contingent under Joint Committee PC 301.01



(source: CEPA)

Well-being and occupational safety

It is essential that every employee at the port be able to work in a safe environment. Occupational safety is a top priority for the port of Antwerp community. Since 2017, CEPA, the employers' organisation for port workers, has been setting up additional initiatives to raise safety awareness in companies. It lends companies support for organising targeted actions to improve the safety culture within the company. Companies are also taking measures at their own discretion to increase the safety of their employees. Many companies have an ongoing, permanent focus on safety. By taking this approach, they go beyond stand-alone initiatives and convert their safety policy into their own safety programmes.

By 2020, the success of these initiatives needs to have halved the number of occupational accidents compared to 2012, with zero fatalities, as set out in the Joint Global Prevention Plan. However, in recent years the number of occupational accidents has failed to go down, instead remaining stable. This indicates that greater focus on safety investments in the workplace is needed.

The number of sick leave days at the Antwerp Port Authority and among the contingent of port workers (PC 301.01) has remained stable in recent years. Employees at the Antwerp Port Authority are absent for an average of 11 to 12 days due to illness, while for port workers this ranges from 15 to 16 days. This means that absenteeism due to illness remains a point of focus.



DEME chosen to be most attractive employer

In 2019, DEME was voted the most attractive employer in Belgium for the third time. Having won previous awards in 2012 and 2017, the maritime engineering company once again scored at the top of the ranking.

The survey was conducted among 14,000 people between the ages of 18 and 65 by HR service provider Randstad. Of the respondents aware of DEME, 56 per cent said that they would 'gladly to very gladly' work for the company. DEME's scores are particularly good in terms of job security, future prospects, job content, working atmosphere, use of the latest technologies and pay and benefits.

'This award is a fantastic recognition, both for our company and our employees. First and foremost, our company owes its success to them,' says **Luc Vandenbulcke**, DEME Group CEO. 'At DEME, we want to attract and retain the best people in the sector. We give our employees the opportunity to work on ground-breaking projects and develop their careers in an innovative environment.'

iNoses identifies hazardous gases at the port



Strange odours at the port can have various causes: degassing of ships, loading or unloading activities, normal residues produced by industrial processes, etc.

To detect unpleasant odours in time, the port manages a network of iNoses. These innovative tools measure volatile organic compounds in the air and provide an indication of the nature of the substance. The network is currently being rolled out and by the end of 2019 around fifty iNoses will have been installed.

Increasing safety

"The iNose is an innovative technological solution that increases the security level at the port," says Port of Antwerp's **Pieter Vandermeeren**. "The virtual noses can provide our response teams with support during incidents and eventually play a role in the enforcement of degassing regulations. Combined with other data, such as the location and movement of ships, the presence of ship cargoes and weather conditions, we are able to detect the source of hazardous gases and warn employees in the area."



Lanxess Belgium wins its first Safety Award

Lanxess, the international speciality chemicals group, awarded its first CEO Safety Award. The prize went to the Belgian Lanxess site in Lillo-Antwerp for its excellent approach to occupational safety during shutdowns.

On 14 March 2019, Lanxess CEO Matthias Zachert presented Lanxess Lillo with the very first Safety Award for the 'Safety of external contractors and employees during shutdowns' project. All of the project's participants were incredibly well prepared for a three-week maintenance shutdown of a plant. Around 600 contractors received targeted training to increase their safety. Ultimately, the shutdown and related works went through without any occupational accidents involving sick leave. "For us as a chemicals company, the safety of our plants and processes is a top priority", **Matthias Zachert** said during the award ceremony. "The winners provide an excellent example of a solid safety culture and a fantastic team spirit that transcends the chain of command and company borders."

Commuting

One out of every four employees working at one of the port companies travels to and from work using a sustainable mode of transport, either by collective transport, bike, car-pooling or public transport. In particular, there's been a sharp rise in bike use: from 6 per cent in 2016 to 16 per cent in 2018. We'd like to boost this percentage by 2030 and we're launching several initiatives and campaigns to make that happen.



Working in your own region

Many port of Antwerp employees don't live all that far from where they work. Over 16,000 people live in the city of Antwerp itself, which means that 8 per cent of Antwerp residents work at the port. In the surrounding municipalities, the port's impact on total employment is considerably larger, with Stabroek being the frontrunner, where 35 per cent of the inhabitants are employed at the port.

Working in one's own region has a host of advantages. The sustainable modes of transportation to and from the port offer employees all kinds of different options for limiting their commute time. Through targeted communications campaigns and community branding, we foster a sense of community among the people who live and/or work in the port's vicinity and give our employees a sense of pride about their port job (see also 'Our society').

Place of residence of employees

- Number of inhabitants employed at the port of Antwerp
- Proportion of working population, per municipality



Congestion-free, sustainable commuting

In past years, Antwerp has reigned supreme when it comes to tailbacks. The volume of traffic on the ring road and in the Kennedytunnel goes up every year. On top of this, the huge amount of road works, such as those on behalf of the Oosterweel Link, cause additional delays. Due to the rise in tailbacks, the port's accessibility is a problem that affects an increasing number of people and businesses. Companies are finding that suppliers and customers have more difficulties reaching them, but that there's also a risk of losing their employees, who are on the lookout for more accessible jobs. Potential employees don't apply for jobs because they're put off by long commutes. That means that tailbacks also threaten to have an impact on the port of Antwerp as an attractive employer.

Furthermore, as a port community, we shoulder our responsibility by promoting

sustainable commuting to and from work for all our employees. It's something that has to be done, because currently around three quarters of the port's nearly 60,000 employees continue to commute to and from work by car every day. Both individual companies and the Antwerp Port Authority are developing a range of alternative modes of transport. We encourage public transport and promote alternative modes of transport such as cycling, collective transport, transport by water and initiatives such as carpooling. Over the next few years, there are four strategic projects that will stand out: DeWaterbus, the Bike Bus, collective bus transport and the shared e-bike system.

Alfaport Voka and the Antwerp Port Authority organise meetings twice a year (one on the left bank and one on the right bank) to properly inform companies about

road works in the port area and to mutually work out solutions for the mobility issue. The organisers and participating companies exchange expertise and experience on alternative modes of transport with regard to commuting. In the same context, the Scheldt Left Bank Corporation (SLBC) organises the 'State of the Waaslandhaven' twice a year to discuss, among others, solutions to the mobility problems with the companies.

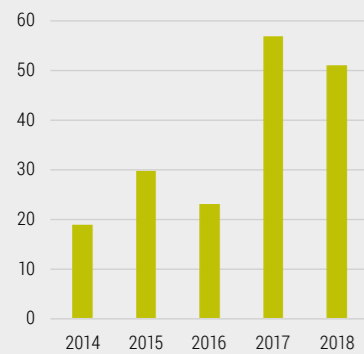
The congestion rate increases the demand for flexible working and teleworking. An increasing number of companies are making the option of working from home or working flexibly available for the jobs that permit it. Work that doesn't correspond with a particular place or hours has also increasingly become more common.



Voka consolidates options for accessible work

The www.bereikbaarwerk.be website consolidates all the information on (planned) roadworks and their potential impact on the port companies in a single location. The website also offers companies an overview of all available options for alternative commuting: cycle routes, the Bike Bus, public transport, car sharing, etc. An accessibility manager provides custom advice. The website is an initiative of Alfaport Voka and Voka – Antwerp/Waasland Chambers of Commerce.

N° of accidents on the way between home and work occurring to employees of the Antwerp Port Authority



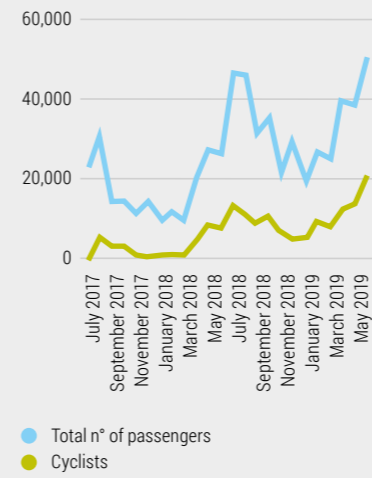
(source: Antwerp Port Authority)

Commute-related accidents

The number of commuting accidents has increased in recent years, especially among Antwerp Port Authority employees who cycle to work. That means that there

is a downside to more employees travelling sustainability by commuting by (e-)bike.

N° of DeWaterbus passengers for both Scheldt routes



(source: Antwerp Port Authority)

DeWaterbus

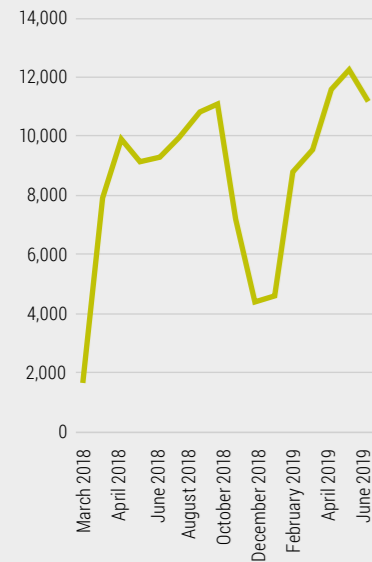
DeWaterbus ('The Water Bus') has been in service since 1 July 2017 and provides an alternative means of public transport for commuting to both city and port. DeWaterbus is legally recognised as public transport, making it possible for employers to reimburse DeWaterbus commuting costs. The project began with the southern route, but soon expanded to include a northern route to the port. Since 18 February 2019, an eastern route across the Albert Canal has also been available. The DeWaterbus network will continue to expand even further over the next few years, with additional berths on the northern route.

On the one hand, DeWaterbus serves as a 'bus' and transports people across a certain distance. On the other, its role is also as a 'ferry' or virtual bridge – a quick alternative to cross the Scheldt, instead of a kilometre-long detour along pedestrian or bike tunnels.

Since its launch in July 2017, DeWaterbus has transported over 500,000 passengers. In the second year, the number of users doubled, both in the winter and in the summer. The nearly 20,000 users in January 2019 and over 45,000 during the summer confirm the usefulness of DeWaterbus as a sustainable mode of transport for commuting and tourism in and around Antwerp.



N° of bike bus passengers



(source: Antwerp Port Authority)

Bike Bus

The port has excellent cycling infrastructure. However, in the past cyclists were often forced to make a detour of 30 kilometres, because the Tijsmanstunnel and the Liefkenshoektunnel aren't accessible to cyclists. The Bike Bus, which has been operational since 2018, has put an end to that. It transports commuters free of charge with their bikes through the two tunnels between the left and right banks.

In its first year, the Bike Bus transported 95,702 passengers. In May 2019 there was a record number of passengers: 12,315 commuters in a single month, i.e., over 500 people per working day. The Bike Bus travels a daily route of 8 to 9 kilometres through the two tunnels, at a rate of four times an hour during peak hours, and once an hour during off-peak hours.

Collective e-bike system

The port encourages employees to commute by bike, both for short and for longer distances. An increasing number of companies are rolling out bike leasing systems for their employees. Alfaport Voka and Voka – Antwerp/Waasland Chamber of Commerce have already organised information sessions to inform companies about this. The Antwerp Port Authority is also looking into possibilities for developing an e-bike network and to promote the combination of the new e-bike network with public transport. Public transport takes employees as far as the outskirts of the port. There they could then borrow an (e-)bike to cover the last few kilometres to work.

Collective bus transport

Public transport is limited at the port. Several large companies do use their own bus transport to transport employees to and from their workplaces. Companies organise this transport on an individual basis or join forces. The Industriebus (I-Bus) transports Covestro, Evonik, Ineos, Lanxess, Bayer and Inovyn employees to and from work on a daily basis. The buses first call at a limited number of stops in the vicinity of Antwerp and then take the quickest route to the port. In addition, over 100,000 commuters use the Pendelbus (shuttle bus) every year, based on an initiative by the Antwerp Port Authority and SLBC.

The Antwerp Port Authority is now seeking to combine all these initiatives into a single large and efficient bus network that offers even better service. In the next phase, the plan is to open up this collective bus transport to all companies operating at the port.

Optimisation of infrastructure

Infrastructure needs to be adapted for other modes of transport to become more popular than cars. For example, work is under way on the free bus lanes in and towards the port.

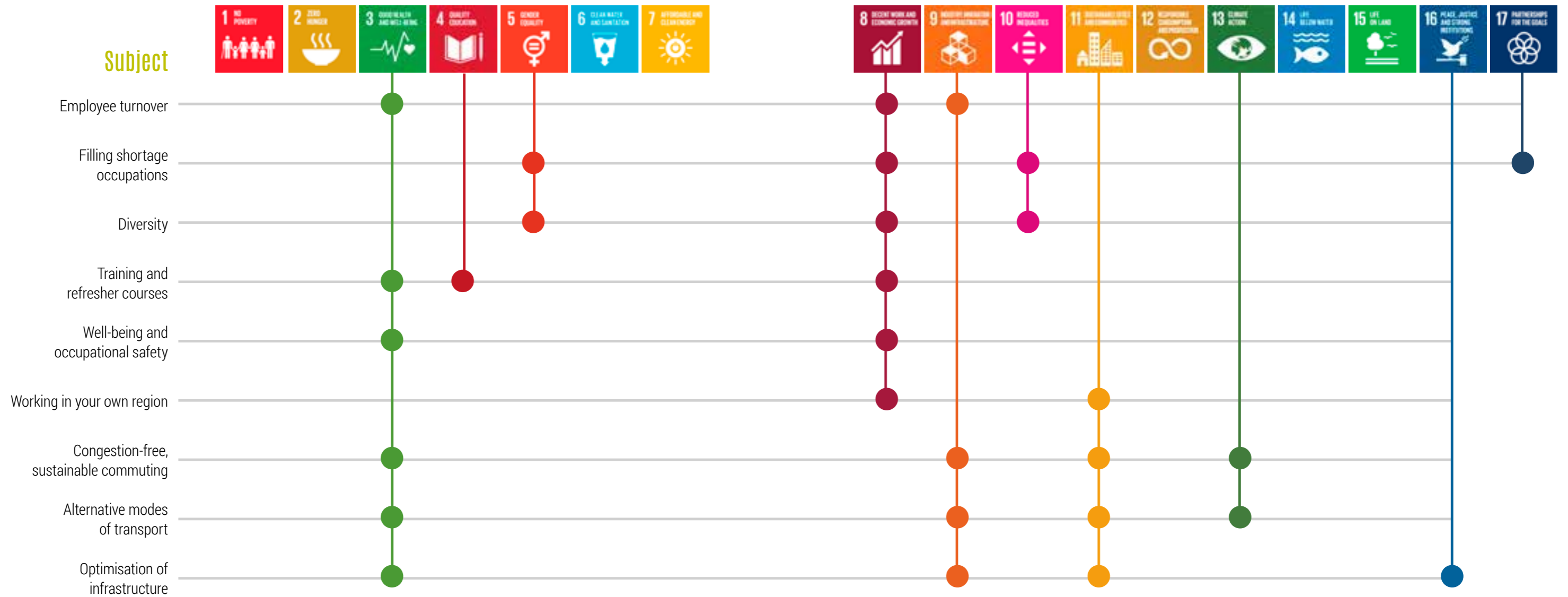
To stimulate bike use, the port has quite an extensive bike network. We've adapted the bike infrastructure in recent years at various locations to improve cyclist comfort and safety. A full bike lane has been provided throughout the Royers lock. Throughout the port area, we are making level crossings safer by modifying the bike path so that it crosses the rails at right angles.

There is also an online hotline, where port infrastructure users can report problems, defects or unsafe situations.

Challenges and future prospects

- The port's vitality depends on the extent to which we are able to find a solution to **shortage occupations**. Recruitment of new profiles, training, education and refresher courses will be needed more than ever to accomplish our **digital goals**. In this way, we also create career security on the port platform and assist our employees with growing into the jobs of the future.
- To maintain our image as an attractive employer, we also need to provide a powerful response to the **mobility issue**. In view of the works on the Oosterweel Link and mounting tailbacks on Antwerp's main roads, we will intensify our efforts to develop and promote alternative modes of transport even further for the commute to and from work.
- Despite all efforts, the number of **occupational accidents** has not dropped sufficiently. Analysis and monitoring of workplace safety remain an ongoing, paramount point of focus.

How do we give shape to the SDGs?



OUR SOCIETY

The port of Antwerp aspires to sustainable growth, in harmony with the community and environment in which it operates. Over the past two years, we have invested in our ties with the local residents and the spatial environment by means of information and communication, working alongside schools and municipalities, and welcoming everyone to Havenland. Safety is a top priority in our port. It gives our stakeholders confidence and ensures that businesses can continue to base themselves in Antwerp.

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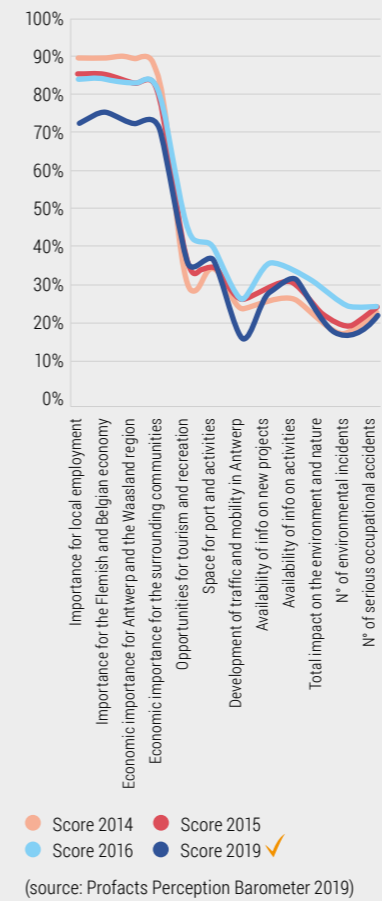


The port and its surroundings

We take our responsibilities with regard to the people who live in and around the port area very seriously and offer them insights into the port itself. We inform them about our activities, impact and plans. We use participation projects to offer people a chance to have their say in relation to projects which will have a major impact. Despite all of our efforts, however, our scores in the perception barometer have fallen for the first time in years.



Average score given by around 1,000 people asked: "Imagine the port of Antwerp was given a performance report. What score would you give for each of the following aspects?"



Perception barometer: young people are not so enthusiastic

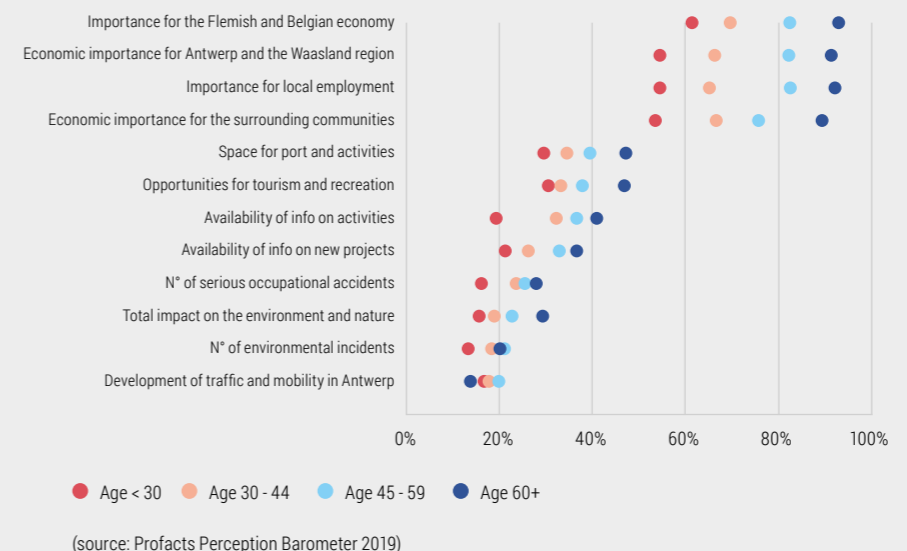
We use the perception barometer to ask thousands of people who live or work in the port region to provide a score for the port's performance in relation to employment, environment and nature, economic activities, mobility, employment safety and communication.

This year, local residents gave the port a high score for its role as an employer in the region (74%) and its role as an economic motor (77%, 74%, 72%, depending on the region). The port's scores for recreation (37%), mobility (17%) and impact on the environment and nature (22%) were significantly lower. It is notable that the port's performance in almost all areas has been scored lower than in previous surveys. In particular, the scores for local employment, the importance of the port for the Flemish and Belgian economy and the situation with regard to traffic and mobility in and around Antwerp have reduced significantly. The value that the people around the port attach to the parameters mentioned has also fallen (figures available in the digital report on www.sustainableportofantwerp.com). The value of the port as an employer and its economic value have substantially

reduced over time. The importance of 'risk points' (traffic and mobility, overall impact on environment and nature, number of environmental incidents) has remained stable.

The overall perception of the port among young people (under the age of 30) is less positive than those over 30. The positive perception increases according to age. The generation gap is most significant when it comes to economic importance and the importance for local employment (55% in the under 30 age group compared to 93% in the over 60 age group). Those over 60 only give mobility a lower score than other age categories. Youngsters also place less importance on the topics surveyed than older people. The difference is most substantial when it comes to the traffic and mobility situation in and around Antwerp (47% in the under 30 age group compared to 90% in the over 60 age group). Young people also gauge the importance of the port for the Flemish and Belgian economy as much less significant than those over 60 (56% as opposed to 92%).

Average score given by around 1,000 people with respect to port-related topics, divided by age category ✓



Lessons from the perception barometer

The most recent edition of the perception barometer shows that we have to continue to tell the port's positive story to local residents. Our local stakeholders must, once again, feel involved in the port.

In our communication, over the coming years, we will pay particular attention to **young people** as it is clear that we need to focus on and highlight the benefits and added value of the port. They were not part of the emergence of industry in the port and did not experience the corresponding employment and prosperity and, as a result, they are less appreciative of the port than the older generations. They are also more critical of the activities and image of the companies.

Environment and mobility will be more significant than ever when it comes to the perceptions of the people from the surrounding area. Both aspects are given a low score but are seen to be important by the target group.

Building support: communication and participation

Information and dialogue with locals

The days when the port stood alone are long gone. Local residents are kept well-informed and require a co-management role in projects. In general, people attach greater importance to sustainability, open spaces, nature and a healthy environment and are more critical of industry and substantial projects.

Whether this relates to new port developments, nature, mobility or inconvenience, we continuously focus on offering accurate information and open communication to the people in the area. Both Antwerp Port Authority and the Scheldt Left Bank Corporation (SLBC) actively communicate with the local population via direct contact moments, themed information events in the various municipalities, publications such as 'Haven en Goed' and 'Halo', websites and social media channels. The sustainability efforts by the port community and the

website www.sustainableportofantwerp.com are actively promoted to the local population. People can also approach us directly with questions about any general inconvenience, new developments, mobility and so on.

In order to maintain our licence to operate, we maintain a respectful relationship with local residents. In 2019, SLBC started a new annual initiative: the 'Staat van de Waaslandhaven' (State of the Waasland Port) for neighbours, derived from the six-monthly 'Staat van de Waaslandhaven' (since 2014, this has been an organised networking moment for business leaders in the Waaslandhaven). During the first meeting, local residents were able to find out about SLBC and were offered information on mobility in and around Waaslandhaven. There was also an opportunity to ask questions and express concerns.

Discussion with stakeholders

Discussions with our stakeholders have been structured using a series of working groups for many years.

There is a working group for each of the sustainability themes, within which Antwerp Port Authority, SLBC, Alfaport Voka and the involved stakeholders' results, actions and challenges are discussed. In addition to the continuous dialogue, every two years there is also a general stakeholders meeting. During the discussions, we use workshops and presentations to evaluate the results of the report and look at the challenges of the future. After publication of the last sustainability report in 2017, these discussions were not held and the challenges were only followed-up in the individual working groups. The results of the sustainability report will be re-evaluated during the stakeholders meeting.

Employees as ambassadors

The port area is much more than a collection of companies and functions as a motor for employment. The people who live and/or work in the port area are inextricably linked to the port platform. We want to ensure that they are proud of this fact. We aim to build and support a community around the port in order to strengthen the sense of community and highlight the benefits of the port itself. In the municipalities around the port area, an average of one in three people work in the port (see also 'Our people'). They support the identity of the port as ambassadors and reinforce the positive message about the port and its activities. Alfaport Voka also uses the campaign 'You. The port. The world.' to focus on the port's employer branding (see 'Our people').



Citizens help to define the future of port expansion

Committed co-management in relation to important developments leads to quicker, widely supported and more effective results. In the past year, there have been several important decisions regarding the expansion of port capacity on the Linkeroever (left bank) and the retention of the polder village Doel. Although these issues encountered delays, the participative process eventually ensured progress was made.

In order to realise necessary additional container capacity at the port of Antwerp, the Flemish Government began a 'complex project' in 2016 in order to investigate various future scenarios. In so doing, the government aimed to find a supported solution as quickly as possible and simultaneously avoid legal conflict. All of the various parties, i.e. the Antwerp Port Authority, local citizens, local authorities and the action committees Doel 2020 and Straten-Generaal, were involved in the process. Alongside economic importance, the topics of quality of life, the environment, agriculture, mobility, safety and heritage were also covered. Every Flemish person was able to have their say and sign up to the port's future scenario via the website www.havenvandetoekomst-antwerpen.be. This approach led to the approval of the design-preferred decision with the retention of the Scheldedorp Doel, in May 2019.

Havenland, 1001 x amazing

In the port area, there are numerous aspects to experience; maritime elements, logistics and industrial activities, valuable heritage, the polder landscape, the rare natural environment with various cycle and walking routes, and last but not least, the Scheldt as the main artery for the area. The initiative 'Havenland' involves the Antwerp Port Authority, the Scheldt Left Bank Corporation, the Government of Flanders, the Department of Mobility and Public Works, the Agency for Nature and Woodland, EGTS Linieland van Waas en Hulst, the relevant municipal

councils and many other local partners opening up the recreational values by means of one umbrella body. All sorts of welcome, visit and viewing opportunities are reconciled with one another and combined with all-encompassing initiatives such as welcome gateways, transport over the water (e.g. DeWaterbus), connective bicycle routes and so on. Havenland is the result of the study 'Plan voor onthaal en recreatie voor het havengebied Antwerpen' (Welcome and recreation plan for the port area of Antwerp).

In 2018, the website www.havenland.be was also launched; this provides an overview of all recreational opportunities in the port area. From spring 2019, communication has been further expanded with the aim of positioning Havenland in the market as a recreational, educational and informative attraction even more firmly, under the motto '1001 x verwonderlijk' (1001 x amazing).



Take a walk around the port

On 3 and 4 November 2018, the first Run & Walk event was held in Havenland. Participants enjoyed the stunning natural environment, against the backdrop of the port of Antwerp.

The first Havenland Run & Walk comprised a unique night-run (or walk) on Saturday evening and a refreshing morning run/walk on Sunday. The course led participants through the nature and along the water around Kallo, taking them along the Rietveld Kallo, past the Sint-Marie Fort and through the centre of the village. The port served as the constant backdrop to the other features. At least 2,600 walkers and runners headed for Kallo on 3 and 4 November; a fantastic turnout for the first event. The evening run, in particular, attracted lots of participants: around 1,200 took part, according to organiser Golazo Sports. 'The walking route was also extremely popular. The weather conditions were excellent and the backdrop of the port appealed to many of the participants. We will definitely repeat this initiative.'



Four access gateways; for everyone and anyone

Four welcome gateways already welcome visitors to Havenland every day. They highlight the spatial cohesion in the area and reinforce the port as a recreational and tourist attraction.

Havenhuis

The 'Port House' in Antwerp is the head office for the Antwerp Port Authority and is an important symbol of the port. This innovative landmark forms a bridge between the port and city. On average, each year 30,000 visitors are shown around; this includes students and tourists, but also top politicians and representatives from ports and industry both at home and abroad.

The entire Havenhuis, with its eye-catching glass upper levels, is a metaphor for the port of the 21st century; a port that is ready for the future. With its new main location, the Antwerp Port Authority aims to contribute towards the urban development of the Eilandje and promotes the port as an economic gem for Antwerp and Flanders.

MAS Havenpaviljoen

The MAS Havenpaviljoen, at the foot of the Museum aan de Stroom (MAS), is a free visitor centre for the Antwerp Port Authority. An enthusiastic team answers questions and helps visitors find their way around the vast port area. The Havenpaviljoen provides interesting facts about the port, fascinating excursions,

workshops, birthday parties and much more.

Lillo Port Centre

The Lillo Port Centre was founded in 1988 by the province of Antwerp and welcomes thousands of visitors each year. The Port Centre aims to provide people, and primarily young people, with information about and an introduction to the port's activities, its role as a driver of prosperity and a top location for a fulfilling job.

Hedwigepolder Information point

The Prosperpolder information point offers visitors an overview of the Hedwigepolder project from the Sigma plan. Two polders on both sides of the Belgian/Netherlands border are being 'handed back' to the Scheldt in order to create a valuable tidal, natural area. A large visualisation, animated film and virtual-reality glasses bring the project to life. The information point also serves as a base for excursions in the future Grenspark Groot-Saeftinghe, which is currently under development.

Visitors can also discover Havenland via the water bus which departs from Fort Liefkenshoek.

Building a cross-border nature park

On the border between Flanders and the Netherlands, one of the largest tidal nature reserves in Western Europe is under development. The 'Grenspark Groot-Saeftinghe' will connect various natural areas with one another: the Drowned Land of Saeftinghe, the Hedwige-Prosper project, the Doel polder and the Prosper polder. This will create a robust nature hub of approximately 4,500 hectares. The European Regional Development Fund and the project partners will make 2.8 million euros available for the development of this unique natural area.



The project centres on the restoration of biodiversity, improvement of the tidal natural habitat and the eco-hydrological recovery of the areas inside the dikes. Activities between 2016 and 2019 included the excavation of pools for the natterjack toad, the installation of bat boxes and a breeding island being covered with shells. Not far from Paal, the old gully pattern was restored in order to create a resting and drinking point for birds within the dikes. Several farmers grew specific crops in order to develop the environment of the western marsh harrier.

Project partners, however, don't just invest in the biodiversity of the border park. The perception of and support for the park are also monitored. Various natural areas will be developed as recreational zones in the long term. This will include walking and cycling routes with a view of the port. Residents, farmers, businesses and councils are all contributing towards the border park. The region's stakeholders, for example, have set ten challenges over the past few years, including the development of twenty regional products and the observation of two hundred different bird species. This approach ensures broad support and offers new opportunities for ecological-economic developments.



Havenland classes: the port through a child's lens

Discover the port of Antwerp and all its facets? No problem, via the brand new Havenland classes. During a three-day event, youngsters from the second grade of secondary school are offered an opportunity to really get to know the port.

The Havenland classes were developed within Havenland and are part of the Port Centre's educational offering. They are specifically targeted at pupils. The three days in the port offer a varied programme of educational and other exciting activities. A port visit, a tour with a 'phonography workshop' (taking photos with your mobile phone) and a visit to the Drowned Land of Saeftinghe are always part of the programme. Tutors can add further optional activities and create a programme that is more customised to their group.

Last year, GTI Beveren, IDCO De Dames and PITO Stabroek tested the first versions of the Havenland classes. Pupils from the GTI told the newspaper: "We had already learnt about the port but it's completely different to see it close up. I was really impressed by the large ships and cranes. The photo task, where we had to take various photos of the port, from a boat, was fantastic."



40,000

school children and students visit the Port Centre each year

Education

In the Lillo Port Centre, there have been numerous educational initiatives over the past few years. The centre welcomes around 40,000 school children and students each year, from primary school to higher education, to explain all of the port's various facets in an interactive manner. Since spring 2019, youngsters from secondary school have been able to operate a container terminal by programming and managing it within a brand new LEGO Port Studio. This allows them to perfect their STEM skills (Science, Technology, Engineering and Mathematics)

in a genuine port environment while simultaneously developing insights into a product's route from the moment it arrives in the port, to the moment it leaves for its final destination.

In 2018, there was also our first trial project focussing on Havenland classes (see box). On the basis of feedback, the three-day event will be further refined. In autumn 2019, we will organise a second test series in order to start the definitive programme in spring 2020.

Our contribution towards peace and justice

With a positive view of society, the port community would like to make a difference and contribute towards a peaceful and fair world. We support numerous community projects, champion inclusive employment and ensure the use of fair production chains.

Support for social associations

Many associations with a community purpose, but also sports and cultural events, can count on financial and logistical support from the Antwerp Port Authority, the Scheldt Left Bank Corporation and/or companies in the port. The Antwerp Port Authority, for example, provides financial support to the De Steenschuit employment association which offers long-term unemployed and disadvantaged individuals the chance to learn new skills. We also give used computers a second life via social projects. These are just a few of our initiatives.

Diverse sports clubs receive sponsorship, including the Port of Antwerp Giants and Remant Basics Melsele (basketball), Topvolley Callant Antwerpen and Asterix-Avo (volleyball) and football clubs RAFC and Waasland-Beveren, but also the youth divisions of more local clubs such as KSK Kallo and the G team of Waasland-Beveren.

On a cultural level, we also support a range of projects, associations and activities, e.g. the White Raven project which supports disadvantaged school children, and Cantabile which offers concert experiences to young piano virtuosos. We also support the Vereniging voor het Welzijn van Zeelieden (Association for the Welfare of Seamen) and Goose Pulling in the Polder.



Port-jobs-for-a-day supports charity

On 18 October 2018, twenty-five pupils from secondary school worked for a day in the Antwerp Port Authority. Their wages, EUR 50 per student, were donated to a Plan International project for young girls in Ecuador.

Youth organisation YOUCA encourages pupils to work together to create a sustainable and fair society. During the annual YOUCA Action Day, 15,000 Flemish and Brussels-based young people from secondary schools, committed to working for a day and getting a taste of what industry is all about. Twenty-five working students worked in the port of Antwerp and donated their wages to a project that support poor girls in the port city of Guayaquil in Ecuador. The Antwerp Port Authority was happy to help.

Introduction

"Students are our workforce of tomorrow. It is vital that they are aware of important social topics, such as climate, welfare, peace and cooperation" says **Sven Peeters**, HR assistant for the Antwerp Port Authority. "In 2017, we welcomed four YOUCA students; in 2018 we accommodated twenty-five. We offer youngsters an educational day in the port and introduce them to how we work. In so doing, we offer our support to a valuable social project."

Inclusive employment

The Scheldt Left Bank Corporation regularly works alongside businesses from the social economy which maintain green spaces. Other companies in the port of Antwerp also provide opportunities for social employment. The transport company Van Moer, for example, offers jobs to people with a physical disability. Logistics company Katoen Natie actively recruits employees who are disadvantaged in terms of accessing the regular labour market, such as poorly educated individuals, older people or people who cannot (yet) speak a good level of Dutch. Chemical company BASF supports people

who are the first in their family to go through higher education, in their efforts to tackle social inequality.

This enables the port community to offer learning and working opportunities to disadvantaged groups of people. We offer them jobs which focus on strengthening competencies. This allows the employees to gain new skills which will, in turn, help them transfer to the regular economy.

The Antwerp Port Authority also employs well-educated people who speak foreign languages.

Support for the South

We offer our expertise in support of all ports in the South. For example, we have sustainable relationships with ports in West-Africa, for whom we are the biggest provider of services.

Port of Antwerp International (PAI), a consultancy and investment subsidiary of Antwerp Port Authority, coaches ports in Africa but also in India, Brazil, the Middle East and South East Asia on sustainable development methods. The expertise of the Antwerp Port Authority and from across the port community is used for these projects.

In 2018, the Antwerp Port Authority and PAI concluded a collaborative partnership with the Belgian development agency Enabel to advance the development of ports in emerging countries. We support the port authorities in improving efficiency by means of advice, training and improvements to the infrastructure.

This strengthens the logistics chain and a country's competitive position and leads to extra jobs. A good example is the collaboration with Benin in the context of modernising the port of Cotonou.

The Antwerp Port Authority, Alfaport Voka and CEPA (the employers' organisation for port labourers) have also had a structural partnership with Mercy Ships for the past few years. This international organisation carries out free surgical interventions for the poorest sections of society on the hospital ship the Africa Mercy, off the coast of Africa. We not only provide financial support to Mercy Ships; in spring 2017, we opened the doors of the Havenhuis for the exhibition Stories of Mercy. Visitors were able to find out about Mercy Ships and experience the world of patients and volunteers. The three partners also support the project 'Business for Business' which supports companies in Africa financially and otherwise.



Beyond Chocolate: all together for sustainable chocolate

In the new partnership Beyond Chocolate, the chocolate sector is joining hands with governments, retailers and intermediary organisations for sustainable and fair Belgian chocolate. A workshop at the start of 2019 offered an opportunity for the logistics companies that store cocoa in the port of Antwerp to exchange ideas about their role in the sustainable chocolate production chain.



20%
of the stored cocoa in the port is certified (2018)

Belgium is one of the largest importers of cocoa in the world. Every year, the port of Antwerp processes over 300,000 tonnes of cocoa beans. These are destined for the Belgian chocolate sectors as well as companies in Germany, the Netherlands and other EU countries. Almost 600,000 tonnes of Belgian chocolates are exported annually. The port cares deeply about creating a sustainable chocolate industry.

Liveable incomes

"The partners of Beyond Chocolate are committed to issues such as tackling child labour, deforestation and providing local cocoa producers with a living wage," explains **Anthony Vanoverschelde** from sustainability organisation The Shift. "The Belgian domestic chocolate brands are becoming more sustainable and producers of non-Belgian chocolate are also coming onboard." By 2025, all of the chocolate that is produced and/or processed in Belgium must be certified or have been produced using cocoa products from the company's own sustainability programmes. By 2030, the aim is to have halted all deforestation as a result of cocoa production for the Belgian chocolate sector and all cocoa producers which supply a raw material for Belgian chocolate must earn a living wage.

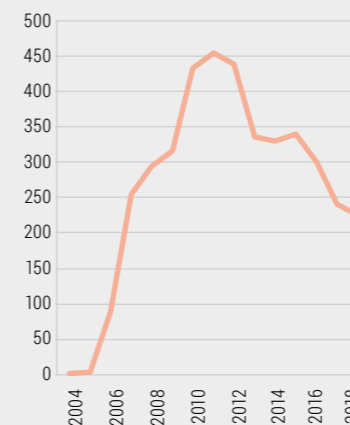
As a logistics link in the cocoa chain, the port of Antwerp is only too happy to support these aims. The companies in the port support their customers with their choice of sustainable, certified cocoa and expect to see significant increases as a result of the Beyond chocolate charter. In 2018, 20 per cent of the stored cocoa in Antwerp was certified. Worldwide, this share is between 22 and 37 per cent. In order to improve this percentage, we will also play an active role in the dialogue with the chocolate sector, certification mechanisms and other links in the production chain, over the coming years. Other aspects of chain sustainability such as liquid transport, contributing to chain transparency via blockchain and optimising logistics process will also be reviewed.



A secure port

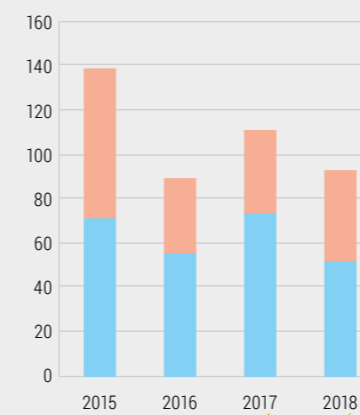
Safety is a top priority in our port. We continuously focus on ensuring that we offer the safest possible environment for shipping, our employees, local residents, businesses, leisure visitors/tourists and other visitors to the port area. At the same time, the port is exposed to external risks. Prevention is clearly the first step but an adequate response to incidents is just as important.

N° of security-related incident reports



(source: Antwerp Port Authority)

N° of recorded oil incidents



(source: Antwerp Port Authority)

Preventing incidents

Security-related reports

The reporting system of the federal Shipping Police and the system used by the Port Captain's Service received 224 reports relating to security in 2018. These reports covered security breaches and non-urgent, potentially threatening situations such as the presence of drones, damage to fencing and suspicious behaviour. The number of reports reduced in 2018 by 25 per cent compared to 2016. The services concerned investigated the reports and then improved the security procedures on this basis.

Since the start of 2018, there have been three incident coordinators working for the Port Captain's Service. Their task is to improve the effectiveness of the (nautical) security chain by implementing prevention measures which reduce the chance of incidents in the port area and within the businesses concerned. They also take measures to keep the impact of incidents to a minimum and investigate the causes. They carry out this task alongside other divisions of the Antwerp Port Authority. The incident coordinators are available 24/7 to their own organisations as well as to support the (public) emergency services during incidents.

Bunker operations

In order to prevent incidents, there are thorough inspections during bunker operations and transshipment processes. These inspections help to reduce the

number of oil incidents during bunker activities and increase safety awareness. As a result of an internal reorganisation, just four checks were carried out in 2018 (there were 975 in 2016). From 2020, the number of bunker checks will be stimulated once again. Personnel training is ongoing.

Oil incidents

In 2018, there were 93 reports of oil incidents, 52 of which involved a known perpetrator (✓). The number of reports reduced in 2018 by 16 per cent compared to 2017 (✓). The main causes of incidents were loading and unloading operations. Other incidents occur during bunker operations or after high rainfall (when oil ends up in the docks from sewerage pipes), as a result of historical ground contamination that ends up in the dock water via groundwater, due to leaks from ships or installations and due to a lack of precautionary measures by port users.

In 2018, the overall cost for interventions as a result of oil incidents amounted to EUR 914,902. In 2015, an external service was appointed to clean up oil spillages in a suitable and, where possible, ecological manner. Every two weeks after minor incidents or immediately after a major incident, the Antwerp Port Authority and the service provider evaluate the cleaning work. Prevention of oil pollution is also high on the agenda.

Security network

The port of Antwerp has a security network in which public and private partners work very closely; this encompasses the police, customs, Veiligheid van de Staat (State Security Service), federal emergency planning service, disaster coordinators, fire brigade, port facility security officers,

safety managers, CEPA (the employer's organisation for port labourers) and other security stakeholders. The security measures and intense collaboration reduce the port's vulnerability to situations which could pose a risk to employees and local residents.

Security and incident exercises

All terminals that receive international shipping must fulfil the ISPS code (International Ship and Port Facility Security Code). This code sets out security measures for onboard the sea-going vessels and at locations where they are moored at a quay. It defines areas such as guidelines and procedures for monitoring and closing the quay and the identification obligation. In order to retain their certificates, ISPS port facilities must hold a security exercise once a quarter and a major exercise once a year, which test the various procedures simultaneously. The Port Captain's Service support them in relation to drawing up the exercise file. In 2018, 86 per cent of the port facilities subject to ISPS carried out a

thorough annual exercise. At a number of facilities, e.g. with little international maritime shipping, a quarterly exercise was sufficient. A number of facilities were not in order and received a warning. Almost all of the facilities were satisfactory during the quarterly exercises (✓). The Port Captain's Service also organises at least one multidisciplinary port security exercise each year. In 2018, this involved a three-day disaster scenario, PortEx2018 (see box).

At the start of 2019, the city of Antwerp and the Antwerp Port Authority organised a disaster exercise in the port area (see box).



Disaster exercise PortEx2018 focuses on worst case scenario

Security is one of the strategic priorities for the Antwerp Port Authority. That is why the Safety and Security Service organised a three-day emergency plan exercise under the name PortEx2018 in May 2018.

PortEx2018 was a multidisciplinary site and policy exercise based on a worst case scenario that could affect the port of Antwerp, such as a shooting or an accident involving a ship full of chemical products. On the first day of the exercise, the emphasis lay on gathering and sharing information. The second day focussed on a provincial coordination exercise in Antwerp and East-Flanders. The last day centred an operational exercise which involved the effective participation of the emergency and intervention services.

All of the participating parties, including the Antwerp Port Authority, the services of the governor of Antwerp, the emergency services and a few large companies in the port, were satisfied with how the exercise was handled.

Disaster exercise AHoy 2.0 simulates collision with river cruise ship

In 2018, Antwerp welcomed 768 different river cruises with a total of 94,678 passengers onboard. It is, therefore, extremely important to prepare for an incident involving these ships.

On 15 February 2019, the city of Antwerp and the Antwerp Port Authority organised disaster exercise AHoy2.0 which simulated an incident with a river cruiser in the port area. The scenario encompassed a collision between the river cruiser and a fictional cargo ship which rendered the first ship unmanageable due to water penetration. Around 120 passengers and crew had to be evacuated across the water. Three hundred helpers and support workers were used for this exercise. The Antwerp Port Authority used four ships and fifteen personnel to support the emergency services.



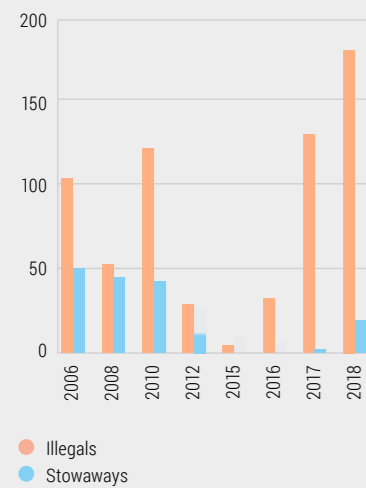
Information systems

Since 2014, the port has had a Neighbourhood Information Network (BIN). The information system can be used by the BIN coordinator and the police to send preventative or urgent messages to companies in the port area. Companies that identify suspicious and/or criminal situations, e.g. they suspect drug smuggling or human trafficking, loading theft or illegal transport or trafficking, can pass on this information immediately. The Port BIN includes over seven hundred members and won the World Ports Sustainability Award in the 'Safety and Security' category in 2019.

The government can also send urgent information and advice to all business managers in the port via BE-Alert Port. BE-Alert Port is only activated in the event of potential emergency situations and upon request by a mayor, governor or the National Crisis Centre.

Both BIN and BE-Alert Port work within the BE-Alert platform from the federal government's Crisis Centre.

N° of illegals and stowaways recorded by the Shipping Police



(source: Shipping Police)

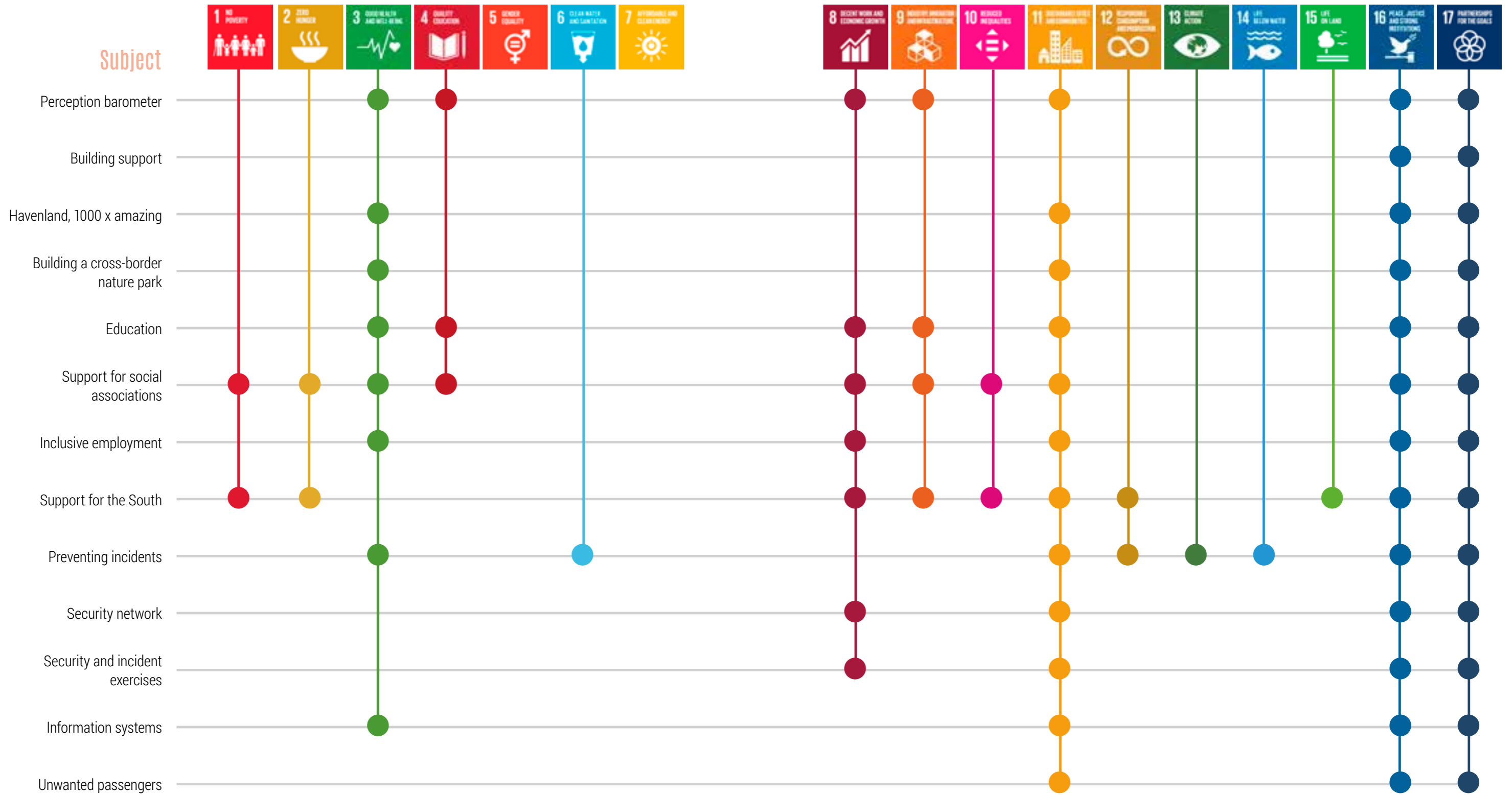
Unwanted passengers

The number of unwanted passengers in the port of Antwerp rose in 2018 to 209 persons. The lowest number (22) was registered in 2015. A distinction is made between stowaways (persons who travel illegally on the ship) and illegals (person who try to depart illegally with a ship). The significant increase in the overall number of unwanted passengers is a result of the migration crisis. Nevertheless, the numbers are low compared to the coastal ports with ferry lines. The majority of the persons concerned (up to 85%) joined a lorry by mistake and wanted to head to Zeebrugge or Calais.

Challenges and future prospects

- The results of the perception barometer compel us to focus on the perception of the port by local residents. Our policy regarding the environment and mobility requires further attention. The general perception among our largest target group, i.e. young people and potential new employees, must be improved. This requires a **focused communication approach** from the entire port community.
- We will continue to work on maintaining a **respectful relationship** with the people who live and work in and around the port. Information sessions, discussions moments and intensive communication remain a spearhead of our strategy for informing people in good time about any inconvenience while simultaneously focussing on the advantages of the port (e.g. with respect to perception). Our efforts regarding innovation and sustainability must also be highlighted more fervently.
- Safety remains a top priority. By 2020, we will have improved **maritime safety** with extra supervision on the water, on the land and in the air. The Antwerp Port Authority, in consultation with the port community, evaluates major security risks so that it can anticipate these and other threats more effectively in the future. We also continue to improve our **security network** of public and private partners. We remain alert to unwanted passengers who enter our ports and draft action plans where necessary.

How do we give shape to the SDGs?



OUR PARTNERS

In order to formulate solutions to local and global challenges such as climate change, mobility, migration and social integration, we work alongside a whole range of partners. We use partnerships at every level to work with governments, businesses and social organisations on creating a sustainable port for the future.



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Collaboration within the port platform and in the region

Businesses joining forces

The businesses on the port platform work together in various ways. They nudge each other forward with new developments, via partnerships. The Antwerp-based business Qpinch, for example, has developed a new technology to extract CO₂-neutral steam from residual industrial heat. After a trial project on the Indaver site, chemical company Borealis will apply the innovation in its factory in Zwijndrecht. The installation at Borealis will produce 1.5 megawatts of steam. This means an annual saving of 3,300 tonnes of CO₂, which equates to the emissions from over 2,000 passenger vehicles.

More and more businesses in the port are creating win-wins by exchanging industrial (residual) flows. The steam network ECLUSE has allowed six businesses in the port to use steam that waste-processor Indaver produces as a result of its daily activities. The steam is transported very efficiently, at high temperatures (400°C) and under high pressure (40 bar). The network can transport up to 160 megawatts of steam and reduces the CO₂ emissions from the participating companies by 100,000 tonnes per year. This top quality closure of cycles enables processes to become more sustainable and reduces costs. Inspirational examples such as ECLUSE reduce the threshold for

companies to test innovative technologies and join circular demonstration projects.

By charting the residual flows from various companies and sectors, the Stakeholdersoverleg Haven, Industrie en Logistiek (Stakeholders' exchange for Port, Industry and Logistics or 'STHIL') is investigating new synergies. These may be located within the port but collaboration with companies from other regions is also possible. The chemical cluster, for example, could be a significant customer for recycled components that are obtained from waste flows elsewhere in Flanders. The port's logistics companies could also play a part in the circular chains that are created within Flanders.

The Antwerp Port Authority participates in various collaborations with businesses in the hinterland. The project 'Haven en Hinter' (Port and Hinter) is an initiative from the Antwerp Port Authority, the Scheldt Left Bank Corporation, the Agency for Innovation and Entrepreneurship (VLAIO), De Vlaamse Waterweg, Interwaas en de provincies (Flemish Waterways, Interwaas and the provinces) and Provinciale Ontwikkelingsmaatschappijen Antwerpen en Oost-Vlaanderen (Provincial Development Companies for Antwerp and East-Flanders). The partners aim

The port community

The basis of our sustainability policy is a structural partnership between the Antwerp Port Authority, the Scheldt Left Bank Corporation and Alfaport Voka. The collaboration began in 2010 as a response to the economic crisis of 2007-2009.

Since 2012, we publish a collective sustainability report every two years to monitor and publicise our progress in relation to sustainability. Simultaneously, we encourage businesses in the port to make their own sustainability efforts. In 2016, we created the bi-annual Port

of Antwerp Sustainability Award for innovative contributions towards a sustainable port. The next award will be presented in 2020.

As a port community, we continue to build on the sustainable port of the future and on creating broad support among our stakeholders and in the area. Our joint 'Vision 2030-2050' for sustainable growth in a changing local, regional and global context is inspired by the United Nations' sustainable development goals (SDG's).



to use industrial and logistics zones effectively and reconcile the distribution and allocation policies in the regions Antwerp, Waasland, Flemish-Brabant and the Kempen. The increasing scarcity of suitable industrial sites is putting operators of industrial areas under pressure to ensure the right activity is allocated at the right location. With this partnership, the operators wish to examine how the strategic vision of the Beleidsplan Ruimte Vlaanderen (Policy plan for spatial Flanders) can be implemented.

Several Antwerp companies also support and strengthen one another with respect to mobility and transport. The online matching tool Hakka helps transport companies exchange containers and prevent empty trips. This is not only more efficient; it also prevents congestion and leads to lower CO₂ emissions. The action plan for inland waterway container transport engages various terminals to work together more readily, combine cargoes and digitalise their processes. One central cell, Antwerp Terminal Services, now drafts planning for loading/unloading operations for lifters for PSA, DP World and MPET container terminals. All of these measures should lead to the optimisation of inland waterway container transport.

More cooperation also leads to greater safety underway. Voka, the chamber of commerce for Antwerp-Waasland, organised intensive discussions between eleven businesses and road managers of the Scheldelaan regarding adaptations to the bicycle infrastructure, among other things. The result: by spring 2020, the bicycle infrastructure will be safer at important crossroads and business access points. At certain locations, there will also be a two-way bicycle path along the Scheldelaan, on the side of the business entrances. As a result, cyclists will no longer have to cross the road or make a U-turn. A few crossroads will also be made safer, e.g. with a separate cycle path. This makes cycling to work more appealing and will accelerate the modal shift for the home/work journey.

Finally, businesses are also helping one another with sustainability by exchanging information and ideas. BASF, for example, actively shares its expertise about biodegradable and partial bio-plastics with businesses that wish to use organic waste as a raw material. The LinkedIn group Sustainable Port of Antwerp combines these and other sustainable initiatives in the port.

Local collaboration

We are joining hands with the managers of the surrounding municipalities to work in a more sustainable manner. The Antwerp Port Authority launched DeWaterbus in 2017, an alternative mode of transport for those who wish to travel to Antwerp from the surrounding municipalities. The roll-out was implemented in close collaboration with the municipalities where the bus docks. The original southern route has now been expanded to include northern and eastern routes. DeWaterbus is developing from a recreational transport method into a top quality alternative for the home/work journey.

Along with Natuurpunt, the largest nature conservation organisation in Belgium, the Antwerp Port Authority and the

Scheldt Left Bank Corporation have been involved in a structural collaboration to develop nature in and around the port, since 2001. With the project 'De Antwerpse Haven natuurlijker' (Antwerp port more natural), we are creating a functional network of natural key areas, stepping-stones and corridors in line with European conservation aims, without posing a threat to the port's economic development. This enables us to protect valuable natural habitats and species, such as the natterjack toad, the sand martin and the peregrine falcon. We are working with farmers on the Linkeroever on optimising the choice of crops that are both economically appealing and also offer foraging areas for bird species such as the western marsh harrier.





Research and education

Many of the businesses in the port invest in research and development by funding doctoral research at the Flemish universities. At the University of Antwerp, the Antwerp Management School has set up the Chair for Sustainable Transformation, with the Antwerp Port Authority, Randstad and BASF. This study programme teaches future (business) leaders how they can take on global challenges and develop a positive, sustainable dynamic on the basis of industry.

The port is also joining forces with various other educational institutions (see also 'Our people'). A great example of this are the Havenland classes, a three-day school excursion focussing on the port.

Havenland organises this trial project in collaboration with the municipality of Beveren, SLBC and the EGTS Linieland van Waas en Hulst. With lesson packs, tours and excursions, we show school children and students the importance of the port for the local and global economy and demonstrate the roles on the work floor that could be available to them at a later date.

Future employees can also join the talent development body 'Talentstroom'. The Antwerp Port Authority, Alfaport Voka, the city of Antwerp, VDAB, the province of Antwerp and Logos are working together to refine their targeted training for a job in the port (see also 'Our people').

Belgian sustainability network

The Antwerp Port Authority has been an active member of The Shift for some years. The Belgian sustainability network unites over four hundred companies and organisations to focus on the transition to a sustainable society and economy under the motto 'Connect. Commit. Change'.

Jacques Vandermeiren, CEO of the Antwerp Port Authority, is a co-founder of The Shift and succeeded Thomas Leysen as chair of the sustainability network in 2018.

The Antwerp Port Authority regularly takes part in workshops and educational networks where organisations can exchange their experiences with specific sustainability topics, such as shared mobility, climate-friendly investments, the Beyond Chocolate charter and so on. Various other businesses in the port are also active within The Shift.



International partnerships

As a result of structural discussions with other ports in north-west Europe, both bilateral and via the North West European Port debate for example, we are now cooperating on the search for opportunities and solutions to the challenges that ports have to face. Improving the railway and inland waterway connections to countries such as Poland, Czech Republic and Hungary are important, recurring themes. The policy regarding emissions from shipping, via SECA and NECA zoning, was also formed in this context.

The Antwerp Port Authority is working together with the city and province of Antwerp, De Lijn, NMBS, Lantis and Traject on the European project Civitas Portis. This encompasses 33 partners from 5 European port cities focussing on innovative solutions for improving the accessibility of their cities and ports. The

emphasis lies on exchanging solutions which could be useful to other cities. Initiatives provided by Antwerp include 'Slim naar Antwerpen', DeWaterbus and the bike bus. Many European port cities are currently facing very similar challenges; how can the movements of residents, commuters, visitors, and freight be harmonised more efficiently? The project won an award in 2019 from the World Ports Sustainability Program (WPSP) in the category 'Community outreach' (see box).

We are also working with cities and ports on other continents. From the basis of the International Networks & Relationships service, the Antwerp Port Authority is actively working on collaboration with respect to sustainability. Via the World Ports Climate Action Program, part of the WPSP, the ports of Amsterdam, Antwerp, Barcelona, Bremen and Bremerhaven, Busan, Gothenburg, Le Havre, Long

Beach, Los Angeles, New York/New Jersey, Rotterdam and Vancouver are implementing concrete measures to help to reduce climate impact from shipping.

At the end of 2018, the Antwerp Port Authority and its subsidiary, Port of Antwerp International, concluded an agreement with Enabel in order to support ports in developing countries with sustainable development. The objective is to implement the Sustainable Development Goals (SDG's) in practice. This involves an expansion of existing cooperation with Açú (Brazil), Duqm (Oman) and Cotonou (Benin). The programmes at the APEC-Antwerp/Flanders Training Center, an international training institute for port and maritime matters, also focus on the exchange of expertise, with the ultimate aim of making port activities more sustainable.



World Ports Sustainability Program signed in Antwerp

On 12 May 2017, the International Association of Ports and Harbors (IAPH) launched the World Ports Sustainability Program (WPSP). Leading global sector organisations signed the WPSP charter on 22 March 2018 in Antwerp.

The WPSP was created as a platform where ports can share their best practices with respect to sustainable development, and as a network for starting and sharing collective projects. The inspiration came from the international working group for sustainability reporting which was chaired by the Antwerp Port Authority. The WPSP provides concrete interpretations for the SDG's from the UN and strives to realise sustainable growth and development via five themes: future-proof infrastructure, climate and energy, social integration, safety and security, and good governance and ethics.

Over 100 countries

Initiator IAPH, the European Sea Ports Organisation, the American Association of Port Authorities, the World Association for Waterborne Transport Infrastructure PIANC, the International Association of Dredging Companies, the International Cargo Handling Coordination Association, Ports Australia and the Baltic Ports Organization have all signed the WPSP charter. Together, they represent almost one thousand ports, port-related businesses and organisations from over one hundred countries. With this charter, the international port community is committed to sustainable growth and development. This engagement is also central to the annual IAPH conference which will take place in Antwerp in 2020.

Awards

The WPSP presents a sustainability award each year in six categories; these are called the World Ports Sustainability Awards. The port of Antwerp won two of the six prizes in 2019: the Civitas Portis project and the neighbourhood network BIN both won global recognition.

Challenges and future prospects

- Over the coming years, in order to ensure the development of Antwerp is sustainable, we will focus further on **partnerships** and the **exchange of expertise**.
- **Collaboration between businesses** in the port will become even more important for realising a sustainability transition, e.g. through the circular economy (reuse of residual flows) and the use of sustainable transport. From the basis of the port community, we will offer **maximum support** to these types of partnership.
- We will work more closely with nearby ports in order to find solutions to issues such as **climate change**. We are thus researching options for collectively capturing and storing CO₂. On a global level, we are also working alongside other ports and the shipping sectors in our efforts to reduce the emissions of greenhouse gases by ships. The International Maritime Organisation called for this in 2019.

Colophon

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