Forests and ecosystems can play a vital role in helping tackle climate change.

RESPECTING NATURE

Our Powering Progress strategy means respecting nature by protecting the environment, reducing waste and making a positive contribution to biodiversity.

OUR APPROACH TO RESPECTING NATURE

Protecting the environment has been an integral part of the way we do business for many years as set out in the Shell General Business Principles and Shell Commitment and Policy on Health, Security, Safety, Environment and Social Performance.

In 2021, as part of our Powering Progress strategy, we launched Respecting Nature, which sets out our environmental ambitions around biodiversity, water, circular economy and waste, and air quality. Our Respecting Nature commitments step up our approach to managing the impacts of our operations on the environment. They also aim to extend our approach with our supply chain, for example, with commitments around plastics and circular economy.

We adopted short-term goals and also set environmental ambitions for 2030 and later. Our new requirements are being embedded into our systems and processes. Accountability for delivery of this goal lies with our Executive Committee. We have restructured and resourced to add specialists on biodiversity and circularity into our organisation and are building capability with the help of external partners.

We have included our new commitments in our performance management and reporting systems and are defining the baselines for each of the commitments and setting 2022 targets across our businesses. We are working with external environmental partners to develop new approaches that will show the extent of the progress we are making towards our environmental goals.

Our purchasing policies will include requirements that reflect our environmental framework and take the energy efficiency, material efficiency and sustainability of products into consideration in our purchases. See Supply chain.

We will continue to seek opportunities to go further. Our environmental ambitions will be underpinned by collaboration and transparent reporting.

ENVIRONMENTAL COLLABORATIONS

POWERING **PROGRESS**

- Our ambition is to strengthen external partnerships and improve transparency on performance.
- We will ensure that external partnerships inform key areas of development and delivery of our ambitions.

We work with external parties to enable a positive impact on the environment. Collaboration can help us to reduce waste, improve circularity of materials and help ensure local communities benefit from our presence.

Existing collaborations and new partnerships are key to implementing our Respecting Nature ambitions. Earthwatch and the International Union for Conservation of Nature (IUCN) provided input to the development of our Respecting Nature commitments and continue to support their implementation.

We are also working with the World Business Council for Sustainable Development (WBCSD) to develop our approach to circularity.

Transparency and standards

We have joined the Taskforce for Nature-related Financial Disclosures (TNFD) Forum which is looking to develop a risk management and disclosure framework for organisations to report and act on evolving nature-related risks.

Our major installations are certified to independent environmental management system standards, such as ISO 14001 or equivalent systems required by local regulations. Major installations include crude oil and natural gas terminals, gas plants, manned offshore production platforms, refineries and chemicals manufacturing facilities. Of these, 97% were certified at end 2021. Read more about the certification of our major installations in the 2021 Annual Report.

Read more about our approach at www.shell.com/sustainability/environment.

Read more about our environmental partners at www.shell.com/sustainability/our-approach/environmental-and-community-partners.

More in this report Sustainability at Shell | Protecting biodiversity | Social investment

More on Shell websites Our strategy: Powering Progress | Respecting nature

PROTECTING BIODIVERSITY

POWERING **PROGRESS**

- Our ambition is to have a positive impact on biodiversity.
- Our new projects in areas rich in biodiversity – critical habitats – will have a net positive impact on biodiversity, starting implementation in 2021.
- Our nature-based solutions projects, which protect, transform or restore land, will have a net positive impact on biodiversity, starting implementation in 2021.
- We will replant forests, achieving net-zero deforestation from new activities, while maintaining biodiversity and conservation value, starting implementation in 2022.

In 2021, we announced a new ambition to have a positive impact on biodiversity. This builds on our earlier commitment not to explore for or develop oil and gas resources in natural and mixed World Heritage Sites.

We are developing new ways to measure how we are improving biodiversity. These are being incorporated into our processes and systems, including those for nature-based solutions and reforestation. We are working with external experts to help develop and define our approach and the way we measure our progress.

We aim to minimise the impact of our onshore and offshore projects on biodiversity and ecosystems, whether life on land or life below water. We apply the mitigation hierarchy, a decision-making framework that involves a sequence of four key actions: avoid, minimise, restore and offset. We assess the potential impact of projects on biodiversity as part of our Impact Assessment process. See Embedding Sustainability in Projects.

Potential new projects are screened to determine if they are located in a critical habitat. If we decide to progress a project that is in a critical habitat, we develop a biodiversity action plan. This sets out actions needed to follow the mitigation hierarchy and, where there is impact, the actions needed to achieve net positive impact.

In 2021, we collaborated with the International Union for Conservation of Nature (IUCN), non-governmental organisations (NGOs) and other energy companies to develop guidelines for mitigating the impact of solar and wind projects on biodiversity.

Read more about biodiversity at www.shell.com/sustainability/environment/biodiversity.

More in this report Sustainability at Shell

More on Shell websites Our strategy: Powering Progress | Biodiversity

CIRCULAR ECONOMY AND WASTE

MANAGING WASTE

POWERING **PROGRESS**

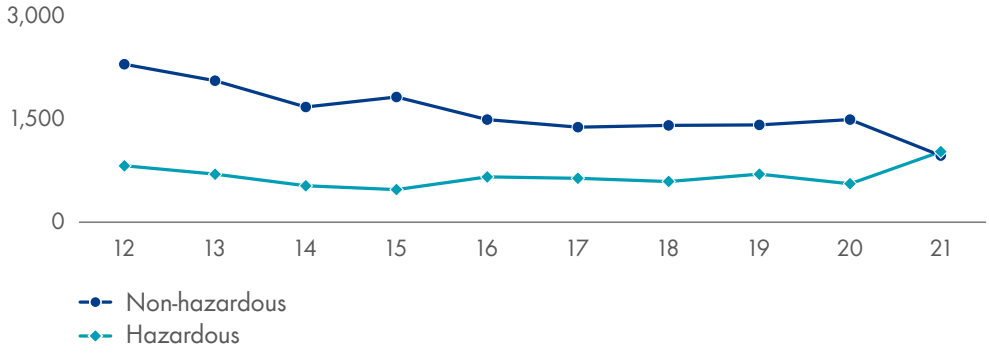
Our ambition is to use resources and materials efficiently and to increase reuse and recycling.

- We are aiming for zero waste by reducing waste generated and increasing reuse and recycling in our businesses and supply chains. We will set goals for waste reduction, reuse and recycling by the end of 2022.

In 2021, we conducted pilot projects to help develop and test a new circularity assessment methodology, which we will apply in a number of our businesses in 2022. This will help us better understand how our operations reduce, reuse and recycle waste and help us set further goals which we will develop in 2022.

WASTE DISPOSAL

thousand tonnes



In 2021, we disposed of 1,993 thousand tonnes of hazardous and non-hazardous waste, which is relatively flat compared with 2,049 thousand tonnes in 2020. We also sent 399 thousand tonnes of residual materials for reuse, recycling or beneficial use as a raw material in another process. For example, waste that might otherwise go to landfill can be incinerated to generate energy.

In 2021, our Shell Energy and Chemicals Park Rotterdam (previously Pernis refinery) in the Netherlands sent more than 80% of its waste generated (58 thousand tonnes) for recycling, reuse or use in another process.

Find out more about waste and our circular economy approach at www.shell.com/sustainability/environment/circular-economy-and-waste.

More in this report Sustainability at Shell | Our approach to respecting nature

More on Shell websites Our strategy: Powering Progress | Circular Economy and Waste

PLASTICS

POWERING **PROGRESS**

We will work with our suppliers and contractors to help end plastic waste in the environment:

- By 2030, we will increase the amount of recycled plastic in our packaging to 30% and ensure that the packaging we use for our products is reusable or recyclable.
- We will increase the amount of recycled materials used to make our products, starting with plastics. Our ambition is to use 1 million tonnes of plastic waste a year in our global chemicals plants by 2025.

Shell supports the need for improved circularity of global plastics markets and encourages reduction, reuse and recycling of plastics. We are a founding member of the Alliance to End Plastic Waste and in 2021 we set a new ambition to work with our suppliers and contractors to help end plastic waste in the environment.

We continue to explore ways to reduce, reuse and recycle packaging across our supply chains and introduce sustainable packaging. In 2021, we relaunched our range of biodegradable and carbon-neutral lubricants, which are made at solar-powered facilities using sustainable bio-based raw materials and packaged using 40% recycled plastic.

Recycling plastic waste as chemicals feedstock

We are focusing on chemical recycling where we break down hard-to-recycle plastics into raw materials through a technique called pyrolysis. The pyrolysis oil can then be used as feedstock in our chemical plants, replacing traditional hydrocarbon feedstock. This contributes to our circular economy ambition and prevents waste that would otherwise have gone to landfill or incineration.

In November 2021, we announced plans to build a new pyrolysis oil upgrader unit that improves the quality of pyrolysis oil at our Shell Energy and Chemicals Park Singapore. The facility will have a capacity of 50,000 tonnes per year, which is equivalent to the weight of about 7.8 billion waste plastic bags. Shell Ventures BV also announced a strategic partnership with BlueAlp which includes building two new units in the Netherlands to convert more than 30,000 tonnes a year of plastic waste into pyrolysis oil and exploring two more in Asia. Shell companies also have pyrolysis oil agreements with Nexus Fuels in the USA, Environmental Solutions Asia, in Singapore and Pryme in Europe.

Find out more about plastic waste at www.shell.com/plastics.

Find out more about waste and our circular economy approach at www.shell.com/sustainability/environment/circular-economy-and-waste.

More in this report Sustainability at Shell | Product stewardship | Driving innovation
More on Shell websites Our strategy: Powering Progress | Plastic waste

CONSERVING WATER RESOURCES

POWERING PROGRESS

Our ambition is to conserve fresh water by reducing consumption and increasing reuse and recycling.

- We will reduce the amount of fresh water consumed in our facilities, starting by reducing fresh-water consumption by 15% by 2025, compared with 2018 levels in areas where there is high pressure on fresh-water resources.
- We will also assess options for further reduction goals by the end of 2022.

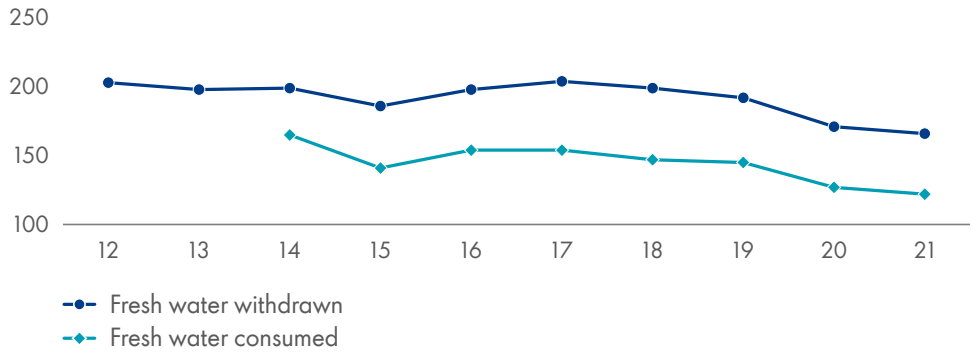
We are making steady progress in reducing our fresh-water consumption in water-stressed areas.

At the end of 2021, four of our major facilities were located in areas where there is a high level of water stress based on analysis using water stress tools, including the World Resources Institute's Aqueduct Water Risk Atlas and local assessments. The facilities are: the Pearl GTL (gas-to-liquids) plant in Qatar, Shell Energy and Chemicals Park Singapore, the Shell Jurong Island chemical plant in Singapore and Tabangao Import Terminal in the Philippines.

In 2021, our consumption of fresh water by these facilities was 22 million cubic metres compared with our 2018 baseline of 25 million cubic metres. The reduction was mainly a result of the conversion of the Tabangao refinery in the Philippines to a terminal and decreased water use at Shell Energy and Chemicals Park Singapore, following improvements to water-based cooling systems and the decommissioning of some processing units.

FRESH WATER WITHDRAWN AND CONSUMED [A]

million cubic metres



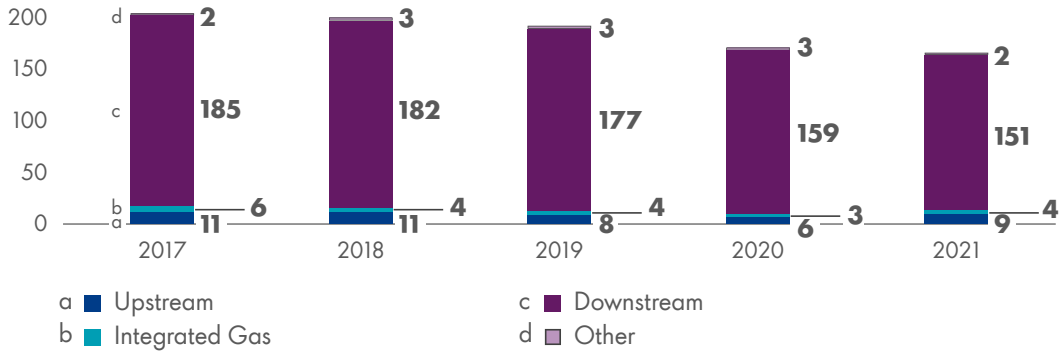
[A] Fresh water figures do not include once-through cooling water.

In 2021, our overall intake of fresh water decreased to 166 million cubic metres, compared with 171 million in 2020, mainly driven by the shutdown of the Shell Convent Refinery (USA) in late 2020.

Around 90% of our fresh-water intake in 2021 was used for manufacturing oil products and chemicals, with the balance mainly being consumed in oil and gas production.

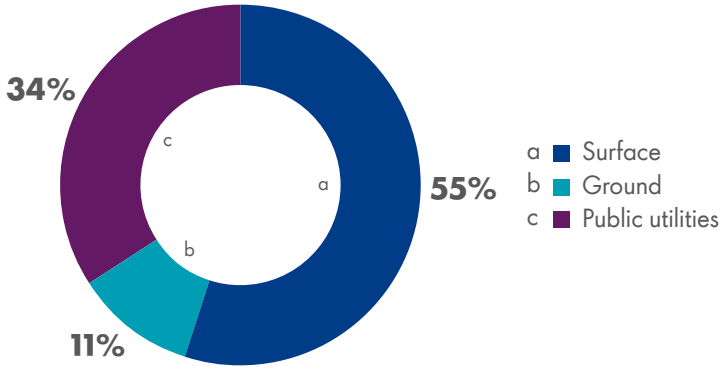
FRESH WATER WITHDRAWN BY BUSINESS

million cubic metres



FRESH WATER WITHDRAWN BY SOURCE IN 2021

percentage



Of our fresh-water intake, 34% was from public utilities, such as municipal water supplies. The rest was taken from surface water such as rivers and lakes (55%) and groundwater (11%).

In 2021, we conducted a pilot project looking at approaches to water stewardship, which will help us develop a methodology that we can apply more widely across our businesses in 2022 to improve water efficiency and set further goals to reduce fresh-water use.

WASTE WATER AND PRODUCED WATER

We track low-level concentrations of oil, grease and other hydrocarbons within water returned to the environment from the day-to-day running of our facilities (referred to as "discharges to surface water"). We work to minimise these discharges according to local regulatory requirements and our own standards. Where possible, we look for ways to treat water from our operations using natural solutions, such as constructed wetlands.

In 2021, the combined total of hydrocarbons discharged to surface water across all our facilities decreased to 1.0 thousand tonnes, compared with 1.4 thousand tonnes in 2020. The majority of the reduction was the result of improvements made by the Shell Petroleum Development Company of Nigeria Ltd (SPDC) and an ongoing programme at Shell Energy and Chemicals Park Singapore to minimise oil discharges.

In 2021, we disposed of 81 million cubic metres of produced water, which represents a decrease of 8% from 88 million cubic metres in 2020. This was mainly due to reduced produced water discharges at SPDC (Nigeria).

Find out more about water use at www.shell.com/sustainability/environment/water.

More in this report Sustainability at Shell | Our approach to respecting nature

More on Shell websites Our strategy: Powering Progress | Water

AIR QUALITY

POWERING **PROGRESS**

We are helping to improve air quality by reducing emissions from our operations and providing cleaner ways to power transport and industry.

CLEANER TRANSPORT OPTIONS

We are developing a range of lower-emission choices for customers – from electric vehicle charging points to hydrogen – to help people and companies use cleaner modes of transport. For heavy-duty road transport, we offer liquefied natural gas (LNG) as a fuel and gas-to-liquids products, which help reduce sulphur emissions, particulates and nitrogen oxide compared with oil-based products.

SULPHUR OXIDE, NITROGEN OXIDE AND VOLATILE ORGANIC COMPOUND EMISSIONS

We follow our own standards and those of local regulators to manage airborne pollutants in our oil and gas production and processing, for example emissions of nitrogen oxides, sulphur oxides and volatile organic compounds.

Our sulphur oxide (SOx) emissions in 2021 decreased to 32 thousand tonnes, compared with 36 thousand tonnes in 2020. This was mainly because of lower emissions from our Shell Energy and Chemicals Park in Singapore as a result of maintenance and permanent shutdown of some units and reduced flaring of acid gas at our Pearl GTL plant in Qatar. This decrease was partly offset by higher SOx emissions at our Scotford upgrader in Canada due to operational issues in the first half of 2021.

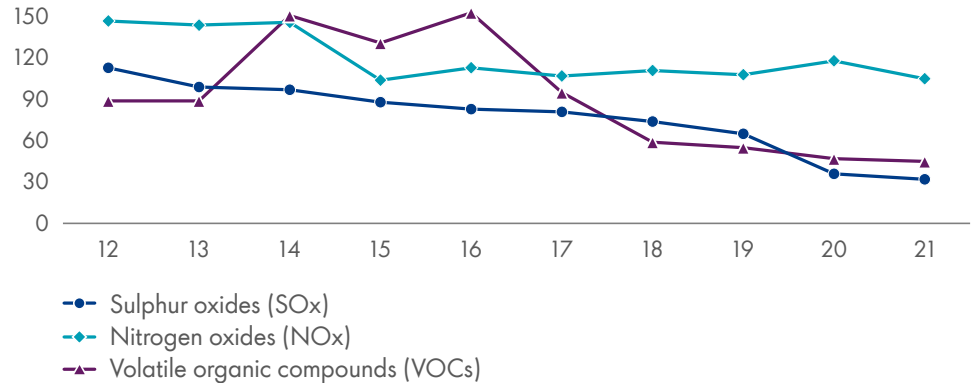
Our nitrogen oxide (NOx) emissions decreased from 118 thousand tonnes in 2020 to 105 thousand tonnes in 2021, in part because of fewer ships operated by Shell and lower contractor transport emissions in Nigeria.

Our emissions of volatile organic compounds (VOCs) decreased to 45 thousand tonnes in 2021 from 47 thousand tonnes in 2020. Reductions were in part due to reduced emissions from SMDS (Malaysia), divestments in Canada and the USA, and the fact that Shell no longer operates two facilities in Malaysia. The reductions were partially offset by higher emissions in Nigeria because of increased flaring by Shell Nigeria Exploration and Production Company Limited (SNEPCo) and higher emissions for ships operated by Shell resulting from changes in emission factors for engines.

To find out more about air quality, visit www.shell.com/sustainability/environment/air-quality.

ACID GASES AND VOLATILE ORGANIC COMPOUNDS

thousand tonnes



More in this report Sustainability at Shell | Our approach to respecting nature

More on Shell websites Our strategy: Powering Progress | Methane emissions | Greenhouse gas emissions | Reducing Methane Emissions in Shale Oil and Gas | Air Quality