

THE POSITIVE IMPACT MAGAZINE

PLUS





I like seeing that recycling is more than just a good deed for the environment. It is a strategic lever for our industrial and economic independence. (pages 18-19)

In this issue, I like

Yves Rannou
Interim Co-CEO
& Chief Operating Officer,
Recycling & Recovery



I like sharing our technological achievements and seeing them change people's lives for the better. (pages 28-29)



I like celebrating our successes and our commitment to converting what's worthless into clean energy. (pages 24-25)

Pierre Pauliac
Interim Co-CEO
& Chief Operating Officer,
Water



I like the precision of Veronica Nava, who enlightens us on these plastic “rafts” drifting across our oceans. (pages 32 to 37)

**In this issue,
I like**



I like reading about our team’s energy in deploying this cutting-edge expertise of SUEZ in treating PFAS in drinking water. (pages 38-39)



I like seeing us all mobilised to measure up and display the exemplarity of our practices. (pages 42-43)

IMAGINING NEW LIVES THEN CREATING THEM

Producing energy from waste, creating value by converting sludge or used plastic: that's how our positive impact spreads around the world.

In Normandy, we produce circular energy from materials that nobody thought could be recycled.

In Tianjin, one of the largest cities in China, we slow down deforestation by transforming wastewater sludge.

In the west of France, we are doubling our production capacity and doubling down on our energy to find a new future for soiled agricultural films and create jobs.



Residual waste creates local and sustainable energy

In Gonfreville-l'Orcher, it may look like magic, but it's not. Just a revolutionary technology and the successful realisation of local, visionary and complementary aspirations all seeking to create BioSynErgy. Aspirations that have never wavered and have stood the test of time.



LISTEN TO THIS ARTICLE



It all starts with an idea that is easy to express but ambitious to deliver: **what if our non-recyclable waste could be converted into low-carbon fuel?** It was with this intention to derive value from used wood or broken furniture usually sent to landfill that BioSynErgy saw the light of day, winning a call for projects issued by ADEME¹ in 2015.

Over the past ten years, the project, located in the Grand Port du Havre industrial zone in the municipality of Gouville-sur-Harve, has become a reality. Inaugurated on 22 November 2024, the BioSynErgy plant comes after €85 million of investment and is proof itself of exemplary territorial cooperation. Indeed, it has received the support of the Normandy regional authority, ADEME, and financial partners such as Caisse d'Épargne Normandie and Caisse d'Épargne Île-de-France.

Nothing goes to waste

Thanks to its pioneering infrastructure capable of cleanly and efficiently burning waste that would otherwise be sent to a tip or a landfill, BioSynErgy will produce 300,000 MWh of green energy every year, enough to cater to 70% of the demand of the Greater Le Havre district heating network. And it will do so positively, since **it will avoid the annual emission of 50,000 tonnes of carbon dioxide** – the equivalent of 110 million plastic bottles or 260 million kilometres of car travel.

More than 90,000 tonnes of waste will thus become alternative fuel, replacing fossil fuels such as coal or heating oil. At the receiving end of this energy: individuals (24,000 housing units) and large industrial firms nearby. These include Yara (nitrogen-based fertilisers, development of chemicals to reduce pollutant emissions in industry and transport), Chevron Ornonite (one of the largest additive manufacturing plants in Europe) and Safran Nacelles (the world leader in aircraft engine nacelle integration).

A very circular ecology

All the waste recovered in this way is sourced locally, reducing the carbon impact of its transport. This process reinforces the energy independence of Normandy and contributes to the region's ambition to become **"the region of all energies"** thanks to a policy combining sobriety, energy efficiency and renewable energy production.

In addition to its ecological benefits, BioSynErgy contributes to economic growth in the region, as 45 direct jobs have been created for its operation. Not to mention a great many indirect jobs in the fields of waste management and energy use. In partnership with Vauban Infrastructure Partners², SUEZ enthusiastically contributes to **this pioneering initiative which offers an eloquent illustration of how waste-to-energy can boost regional development.**

Indeed, BioSynErgy is not just a EfW plant: it simultaneously embodies an energy transition model, an economic trajectory and a positive-impact technological breakthrough with local and sustainable solutions.

Transforming residual waste into a precious resource was the initial promise of the project. Today, the promise has been kept. Waste no longer marks the end of the line, but instead, a new beginning.



COMMITMENT

Contribute to the low carbon energy transition of communities: more emissions avoided (thanks to energy production) than emitted (from consumption).

	2027 TARGET	2024 RESULTS
Amount of GHGs avoided through energy production, expressed as a proportion of total GHGs emitted by the Group's energy consumption	> 1	1.28

¹ French Environment and Energy Efficiency Agency

² Vauban Infrastructure Partners manages funds invested in designing, building, maintaining, financing and operating infrastructure that is essential to local communities and their environment. As at 31 December 2024, its assets under management amounted to €9.5 trillion.

In China, sludge has paper value

Located an hour away from Beijing, Tianjin is a dynamic port city and a point of convergence for many major Chinese and international corporations. With its 15 million inhabitants, it features among the country's largest cities. In the heart of its Tanggu district, where SUEZ provides drinking water services to a population of 800,000, an innovative idea has borne fruit: the transformation of water treatment plant sludge into a valuable resource for the production of sustainable packaging.

With an illustrious history stretching back more than 600 years, Tianjin is the fourth most populous city in China. A constant magnet for innovation and strategic investment, it hosts one of the world's largest ports. Tianjin is of strategically crucial importance to the Middle Kingdom and is consequently one of only four Chinese cities to be directly governed by the national authorities¹. Its international stature is further illustrated by its many twinning agreements: Melbourne, the State of Rio de Janeiro, Kobe, Philadelphia, the Nord-Pas-de-Calais region of France, Abidjan, Kharkiv and Lombardy, to name but a few.

Today, Tianjin plays a key role in the circular economy and sustainable development in China, notably through ambitious projects in waste disposal and recycling.

¹ Along with Beijing, Shanghai and Chongqing



An innovative technology developed by SUEZ

In Tianjin, SUEZ supplies drinking water to the nearly 800,000 residents of the Tanggu district. In search of a solution to make good use of the sludge from the water treatment plant (WTP sludge), the company joined forces with researchers at Jiangnan University. Following an in-depth study process, the collaboration led to the materialisation of a high value recycling and productization path for sludge. The WTP sludge is treated by catalytic wet oxidation (see box), followed by several further phases: homogenisation, modification, fermentation and stabilisation.

The result is a carbon neutral packaging material which can replace part of the raw materials traditionally used to make paper-based packaging.

This technology thus transforms a pollutant into a renewable and recyclable resource, reducing costs and eradicating the high environmental pollution risks engendered by traditional sludge treatment. It is estimated that processing 50 tons of sludge per day in this way can **cut carbon emissions by 65,568 tons of carbon dioxide equivalent per year.**

Catalytic Wet Oxidation (CWO)

is an advanced technology employed to treat WTP sludge. It is based on a process whereby the organic matter contained in sludge is oxidised in liquid phase, at a high temperature and operating pressure, also passing over a bed catalyst. Through this, the pollutants are efficiently degraded, and the sludge can be recovered.



Less cardboard, more forest

This innovation contributes a sustainable and eco-friendly solution to a constantly growing packaging industry. By transforming an already existing resource, WTP sludge, into a plant fibre-based cardboard substitute, approximately 3,330 tons of paper pulp can be substituted every year.

This can help to **slow down deforestation, as nearly 233,000 trees per year can be saved from the chainsaw thanks to this reprocessed waste.**

China, the leading producer and consumer of paper and packaging, has for many years searched for ways of diversifying its raw materials sources to reduce its environmental impact.

Through this project, **the sludge recycling initiative led by SUEZ stands out as an innovative and strategic solution.**

The Tianjin achievement is a perfect illustration of the potential of advanced technology in waste transformation.

This collaboration opens the door to a new generation of environmentally friendly and cost-effective packaging materials.



LISTEN TO THIS ARTICLE



The never-ending story of a plastic pellet

In Landemont, western France, the SUEZ RV Plastiques Ouest plant delivers a global and sustainable solution by recycling used plastic. Our facility contributes to the circular economy to generate substantial environmental benefits. Over the years, it has become a showcase for the ever-increasing recycling of plastic. Its upcoming extension is expected to double its production capacity and create new jobs.



Since 2008, our plant in Landemont, located 25 km from Nantes, has been specialising in the processing and repurposing of agricultural and industrial plastic waste. Here, we recycle films, tarps and pipes, and transform them into low density polyethylene (LDPE). These small plastic pellets are widely used to manufacture a broad range of wrapping films and irrigation pipes. LDPE makes up approximately 40% of all the plastic produced in the world. In France, 55,000 tonnes of used agricultural films are recovered every year, with more than a quarter recycled in Landemont. So what makes this plant so special? **Our expertise is put to good use to process heavily soiled agricultural plastic, hand-sort industrial plastic to guarantee high quality, and recycle the washing water using treatment units.**



Positive impact momentum

In 2024, to support sourcing that keeps pace with legal regulations, we started building a large extension at the Landemont plant. Costing an estimated €30 million, the project is the biggest investment by SUEZ in plastic recycling. The site has been enlarged from three hectares to seven, and will include two new film and packaging recycling lines.

The shredding, washing, drying and extruding techniques have all been improved and offer greater capacity. **As a result, our annual production will almost double**, rising from 34,000 tonnes of R-LDPE today to 60,000 tomorrow. This industrial process aims to minimise the impact of our activities on the environment. Producing one tonne of R-LDPE from used LDPE film uses three times less energy than producing one tonne from virgin materials. It generates two tonnes less CO₂e¹, which equates to two return flights between Paris and New York.

The Landemont plant becomes the largest in France for the recycling of agricultural and retail plastics.

Its extension creates 25 new jobs, bringing the total headcount to 75 people. In our plastic pellets, there are plenty of benefits.

Recycled plastic: purely fantastic

Five production lines have been running since 2019, processing 60,000 tonnes of agricultural, industrial and retail films every year, to produce 34,000 tonnes of recycled LDPE (or R-LDPE) granules. By looking closely upstream into the properties and quality of the input materials, our plant's output material fulfils the specifications of each of our clients. **The products we sell allow plastic industry manufacturers to incorporate high quality recycled materials into their products** – and their needs are rising by the day! This is because the European Packaging and Packaging Waste Regulation (PPWR) requires that by 2030 all plastic packaging must be entirely recyclable and include at least 30% of recycled plastic in its makeup – a proportion rising to 40% by 2040.

¹ CO₂e is a benchmark unit used to measure the equivalent greenhouse gas emissions of a product, service, person or company.

COMMITMENT

Support recycling and reuse

	2027 TARGET	2024 RESULTS
Waste recovery rate ⁽¹⁾	↑	49%
Tonnes recovered	↑	11,795 ktonnes

¹ Including energy from waste





Sport for all women

SUEZ is a supporter of women's sports and offers increased visibility to champions on the roads, the seas and the basketball courts.

What a lucky coincidence... It was on Saturday 8 March, marking International Women's Day itself, that the Dutch champion Demi Vollering clinched a prestigious victory for her FDJ-SUEZ team on the *Strade Bianche*¹ in Tuscany. This win comes in addition to many other honours earned since June 2022, when SUEZ became co-sponsor of the first French team to compete on the World Tour. It tops off a worthy endeavour to raise the profile of women's cycling and promote positive values for diversity, health and ecology.

SUEZ also sponsors several local and national women's sports teams such as the **Dijon FCO football club** through a commitment charter advocating eco-responsibility and inclusion. **The Basket Lattes Montpellier club** also stands out through its concrete initiatives in schools and deprived neighbourhoods to encourage the development of women's sport.

This ongoing commitment is illustrated by other partnerships, with a total of around 200 elite sportswomen receiving support from SUEZ in France.



Shining under the flame

Several exceptional female champions supported by our Group made their mark at the Paris 2024 Olympics.

The Olympic windsurfing champion in Rio in 2016 and silver medallist in Tokyo in 2021, Charline Picon

took on a new challenge by racing in the 49erFX yachting category at the Paris 2024 Games. In her light dinghy, she won the bronze medal alongside teammate Sarah Steyaert. Since then, Charline Picon has embarked upon an extraordinary adventure with the 'INSPIRE' project, a round-the-world family trip on a catamaran combining sport, ocean conservation awareness and transmission to younger generations.

On 27 July 2024, **the Australian cyclist Grace Brown won the gold medal in the women's time trial**. Head and shoulders above the rest of the pack, she completed the course a full 1'31" ahead of the silver medallist. Tackling a slippery road surface, Grace showed exceptional dexterity and spirit, clocking a stunning average speed of 49 km/h. These two champions represented the values of combativity and performance that we share with them.

¹ An Italian cycling race created in 2007. This classic is run on the first or second Saturday in March, near Siena in Tuscany.



Support has no gender

The world of work continues to be plagued by inequalities that prevent women from thriving in their careers. By guaranteeing a safer working environment and helping vulnerable women find their place in the workforce, SUEZ takes concrete action that changes lives.

An open and inclusive working environment

A new Health and Safety agreement was signed on 3 October 2024, aiming to maintain a secure and caring working environment. This ambitious document sets out concrete measures, including the provision of assistance to victims of violence. Whether the problem concerns

workplace harassment or domestic abuse, the HR function receives training in identifying and supporting victims.

A violence meter, materialised in the form of a sliding scale to help assess the seriousness of a given situation, is also at the disposal of employees. People who need to use it can refer to their HR contact, who has been trained to listen and steer them towards support structures such as a psychological support hotline available all over Europe, and specialist associations.

The Group is also committed to **gender diversity**. In France, the UK, Australia and India, four gender diversity networks engage with employees on this theme and organise concrete actions to **promote equality in the workplace**.

In France, the network Wo&Men, which has a membership of more than 1,000 women and men, works **in aid of gender diversity by advocating gender equality** and supporting talent development within the company.

Giving women the means to act

The Fondation Suez is a longstanding supporter of the Fondation des Femmes through several initiatives to assist women in distress, help them back into work and facilitate their psychological and social reconstruction and access to career opportunities.

A total of €80,000 is donated to these projects.

Beyond these donations, Fondation SUEZ makes a point of promoting **access to water and sanitation for women and girls in developing economies**.

Through projects such as Better With Water in the Philippines and GK Savar in Bangladesh, we have helped **reduce the amount of time spent on fetching water**. This allows girls to stay in education and women to develop their own economic activities, thereby reinforcing their autonomy.

In France, **the Vendredi platform offers our people a chance to get involved** in charity work. Some act as mentors to girls as they plan their professional futures, while others help women refugees look for a job.

COMMITMENT

	2027 TARGET	2024 RESULTS
Eliminate gender disparities ⁽¹⁾	> 85	86.1

¹ Gender gap index

Through the **SUEZ Move Challenge**, a programme that mobilises employees around sporting and philanthropic activities, **the Group raised a total of €100,000 for the Fondation des Femmes.**



WHAT DO YOU
WHAT DO YOU

OUR CHILDREN ARE CURIOUS,



DO, MUMMY? DO, DADDY?

OUR JOBS ARE TOO.

Explaining your job to a child when you juggle with figures, projects or waste isn't always an easy task. And yet...

Wafaa, who protects water in Australia, Juelma, proud to develop recycling in Mozambique, Arnaud, who helps local communities find their way, and Floriane, perched aboard her hydraulic excavator, have all risen to the challenge of explaining their everyday occupation with simplicity and a lot of enthusiasm.

For today My job is to guarantee the performance of our operations. I work closely with our partner, South Australian Water. Here in Adelaide, sustainable water management is a major issue. Day by day, I supervise our five water production plants and five wastewater treatment plants, making sure that we comply with the strictest safety, quality and environmental standards. In this city, which is the fifth largest in Australia, we recycle a large amount of water, using 30% of the treated water for irrigation. I lead multidisciplinary teams and focus on ensuring that we meet our operational, financial and environmental targets. My role also involves identifying opportunities to improve operational efficiency, optimise costs and adopt more sustainable practices. I support the integration of innovative solutions in our facilities. That's the big advantage of our expertise at SUEZ.

For tomorrow What do I like most about my job? Its usefulness. We don't sell products, but a service which is essential to life. When we supply water to homes and infrastructures, we contribute to the quality of life of a community. It gives meaning to my days. This activity centred on the environment is crucial, whether it's water or waste management. Working in this profession in a meaningful industry is perfectly in line with my core values. Having a positive impact on people's lives is very important to me. Being part of a circular economy for sustainable resources is a way of caring about the challenges of today and tomorrow.



Wafaa Khalifi,
General Manager
Production & Treatment
Alliance, Australia

WHAT DO
YOU DO,
MUMMY,
ABOUT SORTING
WASTE?



Arnaud Le Breton,
SUEZ Consulting geomatician,
France

For today My job as a geomatician is a bit like that of a cartographer. I work with raw data, which is often complex and difficult to use, and I transform it into information that is easy to read and understand. I work on a wide range of projects, from water networks to fibre optic deployment. My role is to help the specialist teams understand the area they are working in and the issues they have to deal with, by producing maps, monitoring tools and targeted analyses. I also contribute to projects with a high environmental impact. For example, we have devised a method to work out how quickly the coastline is receding, so we can identify the shorelines that are likely to be submerged in twenty, thirty or fifty years' time. To do that, you have to cross-reference a lot of data, analyse the impact on communities and help to identify solutions.

For tomorrow The geomatics profession is expanding rapidly and has a bright future. The volumes of data, whether geographical or technical, are constantly increasing and need detailed and thorough analysis. As artificial intelligence develops, our profession has become essential: AI needs structured, qualified and contextualised data to function. What I enjoy about my job is precisely this process: starting with raw, apparently unreadable information and managing to extract a relevant and intelligible result from it. I love it when people tell me it's impossible to analyse something and, with a bit of searching, we end up locating the data to help us find solutions. It's this constant challenge that makes my job so stimulating.

WHAT DO YOU
DO, MUMMY,
FOR WASTE
MANAGEMENT?

WHAT DO YOU DO, DADDY, WITH DATA?

For today I work at SUEZ Mozambique as a technical and commercial business partner. I draw up customised proposals for our clients, offering them practical and appropriate solutions to manage their waste. I particularly enjoy interacting with clients: each meeting is an opportunity to discover new environments, whether they be hotels, restaurants or industrial sites, and also to come face to face with new realities. Among my most memorable projects was when we set up a collection system for a large mine in Tete province, 2,000 km from our base. This complex project involved a big logistical organisation and deployed a lot of people, so it was a massive challenge.

For tomorrow The waste sector in Mozambique is still developing. It's a challenge, but also a tremendous opportunity. We have a responsibility to innovate, offer new services and support our clients in moving towards more sustainable and responsible practices. I am proud to be involved in setting up an environmentally friendly waste management system that does not have a negative impact on communities and their inhabitants. In my fifteen-year career at SUEZ, I have seen attitudes evolve. We have also extended our services to more isolated areas, giving more people access to a reliable collection service. It is this specific contribution to improving day-to-day life that gives meaning to my work.



Juelma Banze Benoit,
Technical and Commercial
Director,
Mozambique



Floriane Fauchoux,
Machine operator at SUEZ RV Ouest,
France

WHAT DO YOU DO, MUMMY, FOR WATER?

For today I'm a machine operator at the waste sorting and processing centre in Vannes, Brittany. My job is to sort waste so it can have a second life. Every day, I sit behind the controls of a 22-tonne hydraulic excavator, equipped with a sorting arm and grapple, to separate the different waste streams that we receive in bulk on site. I have a clear mission: optimise sorting for high-quality recycling. We work both with local authorities and industrial clients. I am also responsible for sorting the 'eco-household' skips dropped off by consumers at the tip. You have to be very disciplined in my job. Our site is open to customers throughout the day, which means that we work alongside pedestrians, drivers and other employees. You therefore have to watch what you're doing all the time.

For tomorrow What I like about my job is how useful it is. I chose this job because it is meaningful: it helps to reduce pollution and recycle waste. It is a responsibility, but also a source of pride to contribute to giving materials a second life along with my colleagues. This job also has a strong personal dimension for me. My father is, himself, a machine operator at SUEZ in Normandy. I grew up seeing how dedicated he was, and today I am happy to follow in his footsteps. I am the only woman machine operator at the Vannes facility. I hope that my career will show that this job is open to everyone and encourage others to join the sector.

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WHY RECYCLE COPPER?

An unavoidable material in the green transition due to increasingly electrified use patterns, copper is a core element of our industrial and environmental future. This metal is highly recyclable and can therefore be reused an infinite number of times without losing its properties. This makes it a resource of strategic importance to sectors ranging from electronics to renewable energy. To cope with growing demand, recycling has become an essential solution to reduce the environmental footprint and reinforce the independence of European supply chains.

Industrial know-how working for the transition

For more than 15 years, SUEZ has forged a reputation as a major player in copper recycling in France. As the leading processor of end-of-life cables, **our group collects and recycles 60,000 tonnes of materials each year, mainly from telecommunications infrastructure.**

Through highly sophisticated shredding and sorting processes, SUEZ produces more than 20,000 of recycled copper and aluminium in the form of grains, ready for use in industry. The recycled material is sold exclusively to European smelters.



This know-how helps **cater to the needs of the sectors with the greatest demand for critical raw materials (see opposite), such as renewable energy, batteries and electronics.**

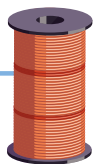
With its guarantee of optimal quality, SUEZ offers a path for recycled copper in new industrial applications, thereby reducing dependence on virgin resources and avoiding the environmental impacts associated with their mining.

A strategic lever for European sovereignty

At a time when the European Union is seeking to secure its supplies of strategic metals, copper recycling stands out as a key lever for industrial sovereignty. Creating a bridge between end-of-cycle sectors and those in high demand, with its expertise and industrial capabilities **SUEZ demonstrates that the circular economy is a practical response to the environmental and economic challenges of today and tomorrow.**



2030, a milestone year



In France, **copper requirements will exceed available stocks by 30%¹**.

Furthermore, **the copper communications network** will have been replaced by fibre optics.



As a result,

1 million km

of copper cables will be out of service in France:

that's **25 times** the circumference of the Earth.



Recycling **75%** of copper waste

(compared with a 39% recycling rate today)

will help to secure around **50%** of French industry's supplies¹.



Another benefit: producing recycled copper **reduces CO₂ emissions by about 50%¹**.

Of the 34 raw materials considered 'critical' by the European Union, since they are subject to a high risk of supply chain disruption, 17 metals and metal ores are deemed 'strategic'.

These materials, whose sourcing is set to increase exponentially, are complex to mine. One of them is copper, which features among the fundamental metals in a country's industrial development. It is used in many areas including transport, electricity, digital equipment and construction. In response to the exponential demand for these critical metals, the European Union adopted an Act, in force since 23 May 2024, to guarantee access to a secure and sustainable supply. Among its provisions, **it aims to obtain 25% of its critical raw materials from recycling.**

Chile is the world's leading producer copper, with 5.3 millions tonnes in 2023, or **24%** of global production².

How much copper do these items contain?



14% copper (up to 19% including battery and charger cable)³



1.5 kg of copper³



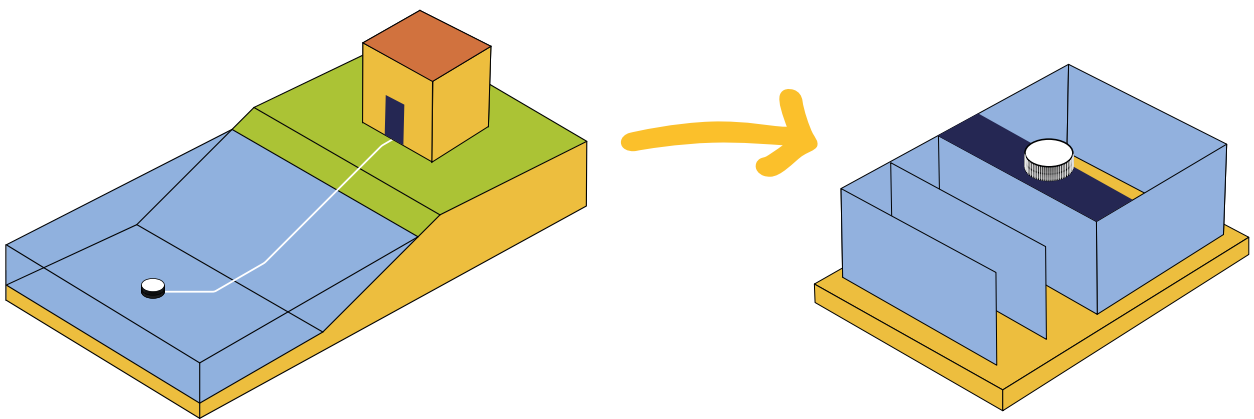
20-50 kg of copper³

¹ Report by Oliver Wyman, "Mieux exploiter nos déchets stratégiques", 2024.

² Source: French Treasury, 2023.

³ Source: The climate solutions hub.

HOW DO YOU DESALINATE SEAWATER?



Catchment

The seawater harvested is pumped to the desalination plant. Here, a preliminary cleaning process removes the largest impurities (floating objects, shells, etc.)

Pre-treatment

This stage, which happens just before the reverse osmosis desalination process, is required to remove seaweed and all the other suspended matter from the water. It also helps improve the yield, reliability and viability of the process. Our advanced technologies in the **Seaclean®** and **SeaDAF®** ranges are patented and have been proven in a wide of circumstances:

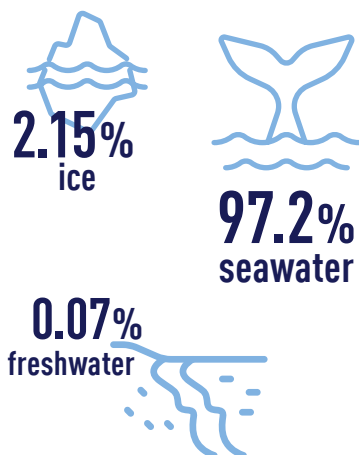
> If the seawater is of good quality

Filtering the water at high velocity before it is sent to the reverse osmosis membranes will help prevent clogging. The water is filtered through layers of sand and filter coal. At the end of this filtration process, the water only contains salt.

> If the water quality is said to be difficult

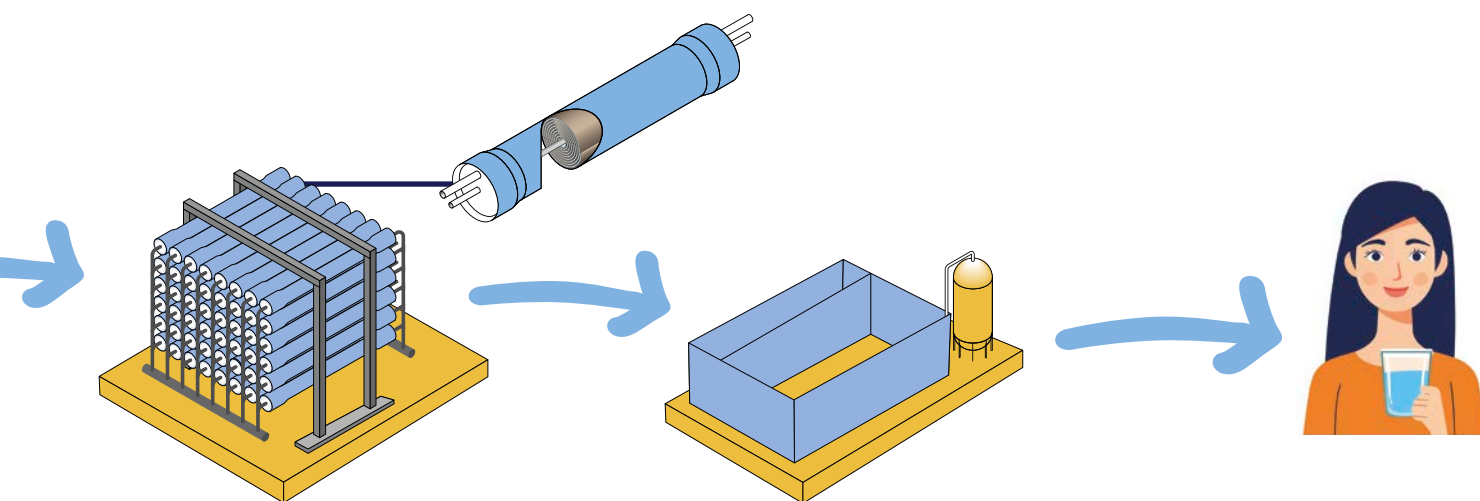
Another stage, known as flotation, is added. This consists of injecting micro bubbles of air into the water, to which the undesirable matter – known as the floc – attaches itself. These agglomerated particles float to the surface, forming a layer called a 'sludge blanket', which can be easily removed.

Water on the planet



40% of the world's population suffer from water scarcity¹, an alarming situation that could yet worsen in the coming years. To tackle these chronic shortages, desalination stands out as an unavoidable solution that can be used all over the world. Converting seawater into potable water, reverse osmosis desalination directly helps to alleviate water stress.

In accordance with our sustainable development roadmap, we are committed to developing circular solutions for desalination. Our designs give precedence to renewable energy solutions and incorporate innovative energy recovery systems, thereby substantially reducing total energy use.



Reverse osmosis

Reverse osmosis is a process that separates water from the dissolved salts. The water is pumped at high pressure through extremely fine semi-permeable membranes. They hold back water with a high salt concentration (brine) and let through the clean water, which is then collected.

Remineralisation

Minerals are added to the freshwater obtained to make it drinkable.

Brine recovery: bringing new materials to life

The brine (water with high salt content) is treated in controlled and appropriate conditions complying with environmental impact criteria to protect ecosystems. This brine can also be recovered and recycled.



Brine recovery means that more sustainable desalination projects can be developed that reduce discharges into the natural environment. **This solution brings high added value in terms of economic and societal impact.** From this brine, SUEZ can produce chemicals such as hydrochloric acid, sodium hydroxide or magnesium, and even, in the future, lithium. **Reusing these materials in a circular economy logic helps to reduce the carbon footprint of our desalination plants.**

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¹ Source: United Nations

WHEREVER WE TURN OUR GAZE...

Whether in Angola, Jordan, the south of France or on the high seas, our initiatives always focus on devising solutions that maximise resources and minimise environmental impact.





Everything to gain in Toulouse



In 2026, Toulouse and Bessières in the south-west of France will see the kick-off of an ambitious project aiming to modernise two energy-from-waste (EfW) plants. At stake, a chance to transform the contents of our dustbins into electricity and heating.

To deliver this high environmental value project, a major and unique partnership has been formed. The Decoset joint authority has awarded the concession for the two EfW plants in Toulouse and nearby Bessières to SUEZ and Banque des Territoires (Caisse des Dépôts group). **This infrastructure, essential for processing the waste generated by more than a million inhabitants, will be modernised and thoroughly refurbished** to recover more of what is thrown away and provide a benchmark in Europe for performance and environmental responsibility.

This economic and ecological potential, which fulfils one of the Decoset joint authority's 'zero waste, zero wastage community' commitments, will be boosted by the upgrading and modernisation of the facility. **In practice, this means 3 GWh of additional energy produced every year, 30,000 m³ less water used, and three times more non-ferrous metal recovered**, which will no longer be sent to landfill. The aim is to recover all the energy contained in each item of waste so as to derive the most benefit from it, all the while reducing the plant's environmental footprint.

What exactly is an EfW plant?

Energy-from-waste plants are facilities that recover the energy contained in residual waste. Instead of sending it to landfill, these plants incinerate it at high temperatures (approximately 850°C). This intense heat is then used to produce steam, which passes through a turbine to generate electricity, and hot water, which is piped into district heating networks to heat homes, schools and public buildings. **Residual (non-recyclable) waste thus becomes a source of energy, and this circular economy model helps reduce the use of fossil fuels such as gas and coal.**

In France, a third of all EfW plants are operated by SUEZ. Processing 3,550 kilo tonnes of waste per year, they produce enough electricity to meet the demand of around 190,000 French households, and enough heating energy for 300,000 dwellings.

A strategy for each site: reconstruction in Toulouse, upgrading in Bessières

The Toulouse EfW plant, which came into operation in 1969, currently incinerates nearly 285 kilo tonnes of waste per year. Its total reconstruction will mark a new chapter in its modernisation: work is scheduled to start in 2026 with the aim of reopening the plant in 2031.

The new structure will be more efficient, with more than 60 MW of power capacity, and will blend better into its environment, partly buried and surrounded by greenery to limit its impact on the landscape.

In the municipality of Bessières located not far from Toulouse, the EfW plant is currently sized to treat 192 kilo tonnes of waste per year. Since 2016 it has been supplying energy to a market gardening greenhouse heating network.



The new life of household waste

Drawing on €1.4 billion of investment, this project will enable the two facilities to supply 220 GWh of electricity a year, **or the equivalent annual consumption of 50,000 households. On top of this, 360 GWh of heat will be generated to cover 80% of Toulouse's district heating needs.** Thanks to these installations, a large proportion of the energy used by the Greater Toulouse area will come directly from its household waste. The contract provides for the operation of these two EfW plants for a period of 20 years.

Behind this infrastructure, hundreds of people are working closely together: engineers, technicians, urban planners, environmental researchers etc. All of them pool their expertise to build a circular, more efficient and sustainable energy model.

COMMITMENT

Contribute to the low carbon energy transition of communities: more emissions avoided (thanks to energy production) than emitted (from consumption).

	2027 TARGET	2024 RESULTS
Amount of GHGs avoided through energy production, expressed as a proportion of total GHGs emitted by the Group's energy consumption	> 1	1.28

A step towards greener shipping



Given the stark reality of the climate emergency, reducing the carbon footprint of global trade is no longer merely an option, but an absolute necessity. By signing a wide-ranging industrial partnership, SUEZ and CMA CGM have turned the tide towards more frugal shipping.

On 18 October 2024, SUEZ and the CMA CGM Group, a global player in maritime, land, air and logistics solutions, together signed a memorandum of understanding. This new collaboration aims to step up the production of biomethane, a cleaner and more sustainable alternative fuel for the merchant fleet. While essential for global trade, shipping accounts for approximately 3% of the world's carbon emissions. If appropriate solutions are not introduced soon, these emissions could rise to as high as 17% by 2050¹ owing to the constant increase in the volumes of ocean-going goods.

One agreement, tree priorities

The MoU between SUEZ – CMA CGM is based on three pillars. Firstly, SUEZ has undertaken to supply up to 100,000 tonnes of biomethane per year between now and 2030. This renewable fuel will power the gas-propelled vessels in the CMA CGM fleet. Secondly, the companies are to form a joint investment structure with an initial funding of €100 million by 2030 to develop biomethane production facilities in Europe. Finally, joint R&D initiatives will be conducted to design innovative technologies for biofuel production, in particular through hydrothermal gasification (see box).

For its part, CMA CGM has announced that it will be investing \$18 billion in orders for 131 vessels capable of running on low-carbon energies such as biomethane, biomethanol and synthetic fuels. These ships are expected to be operational by 2028, and tie in with the group's strategy to achieve net zero by 2050.

An energy source from nature, naturally compatible

Biomethane, made from the recovery of organic matter, is a promising alternative to fossil fuels whose use remains predominant in the shipping sector. It is made from the fermentation of farm, industrial or household waste, in specifically designed digester units. Its main advantage is that it significantly reduces carbon dioxide emissions, while being perfectly compatible with the existing infrastructure used by vessels powered by liquefied natural gas (LNG). With several decades of expertise in waste management and recovery, SUEZ masters every step of this process, and deploys it through solutions that maximise biomethane production.

A powerful investment to shape the future

In parallel to the launch of this new European maritime biomethane supply chain, an unprecedented research programme will therefore be launched. Dozens of researchers and engineers will work on emerging processes such as hydrothermal gasification, so as to remain at the forefront of the latest technologies. This joint €100 million investment fund will reinforce the energy sovereignty of Europe whilst helping the shipping sector pursue its goal of carbon neutrality.

LISTEN TO THIS ARTICLE



What is hydrothermal gasification?

It is a process by which organic waste (such as sludge and agricultural or food residues) is converted into gas, principally methane or hydrogen, using very hot water at high pressure.

¹ Source: International Maritime Organization

Where water runs dry, SUEZ reinvents it

Jordan is one of the most arid countries in the world. To remedy its chronic water shortages, the Hashemite Kingdom has commissioned SUEZ and Meridiam with a colossal project for the construction of a huge desalination plant and a 445 km water mains network, destined to transform the lives of more than three million Jordanians.

Most people will have heard of Jordan for the outstanding landscapes of Wadi Rum¹ and the ancient ruins of Petra, but little is known about the country that lies behind this scenery. With the dual impact of climate change and continuous demographic growth², **Jordan is one of the most water-stressed countries in the world, with less than 100 m³ of freshwater available per capita per year**, already far below the absolute scarcity threshold of 500 m³. To secure its water supply, the country cannot rely on its meagre rainfall and constantly diminishing groundwater.

¹ One of the most desertic landscapes in the world, and a UNESCO World Heritage site, where legendary movies such as *Lawrence of Arabia*, *Star Wars Episode IX*, *Dune* were filmed.

² The Jordanian population rose from 7.9 million in 2013 to 11.4 million in 2023 (+44% in 10 years) - Source: World Bank.

Cutting edge tech for long-term water

The desalination plant will use reverse osmosis technology, a proven process that converts seawater into high quality freshwater (see pages 20 and 21). In this method, the water passes through several stages of purification and pumped at high pressure through semi-permeable membranes to eliminate the salts and other impurities. The potable water resulting from the process complies with international standards.

Approximately four billion euros will be invested in this colossal project. The plant is designed to meet the most stringent environmental and social standards to guarantee the smallest possible ecological footprint. Requiring the highest technical expertise, the project will also mark a watershed in how the country's resources are managed: to meet Jordan's sustainable development goals, multiple energy solutions will be built into the solution to minimise the facility's carbon footprint, among which a new 724 GWh/year solar PV plant.

"This contract draws on our Group's 50 years of experience in seawater desalination, with more than 260 plants built around the world", explains Pierre Pauliac, interim Co-CEO and Chief Operating Officer, Water. Proven and recognised know-how, which is certain to reassure the Jordanian population who have long feared the total disappearance of this vital resource.

Desalinating one of the world's saltiest seas

The Jordanian government therefore decided to launch a megaproject consisting of desalinating water from the Red Sea and conveying it to Aqaba, the country's only port, and on to the capital Amman, where 50% of the country's population lives. This ambitious infrastructure project, awarded to a consortium led by SUEZ and Meridiam, **will fulfil up to 40% of the country's water requirements and bring lasting improvements to the everyday lives of more than three million people.**

This mission is a long-term endeavour, since the task is to design, finance and build the Aqaba plant and operate it for 30 years, along with the network of 445 km of water mains that will weave across the Jordanian desert to convey the drinking water to Amman. With a daily production capacity of 851,000 m³ of potable water, this installation will become the **second largest water desalination plant in the world built in a single phase.** Beyond improving access to drinking water, the project is designed by and for Jordanians. The construction and operation of the plant and related infrastructure will lead to the creation of local jobs and facilitate knowledge transfer. The investment will make a lasting contribution to the agricultural, industrial and economic development of the country.

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More water on tap in Angola

Of all the capital cities in Africa, Luanda is the fourth most populous¹. It is home to 25% of the entire Angolan population, making access to drinking water a key issue. During the visit to Paris of Angolan president João Lourenço, SUEZ signed a memorandum of understanding with the country's authorities to support the country in improving its hydraulic infrastructure to guarantee access to good quality water and better wastewater treatment.

While the country benefits from substantial water resources thanks to the Kwanza River and its tributaries, Angola nevertheless struggles to provide access to potable water.

In 2019, only 52% of the population had access to drinking water², with marked disparities between urban and rural zones.

¹ The three largest conurbations in Africa are Lagos (Nigeria) with 23 million inhabitants, Cairo (Egypt) with 21 million, and Kinshasa (Democratic Republic of Congo), home to 17 million people.

² Source : Agencia de Prensa de Angola.

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A capital city growing faster than its water network

In the space of a few decades, **Luanda has experienced skyrocketing demographic growth, rising from 500,000 inhabitants in the 1970s to 9.7 million today.** This rapid urbanisation has placed a lot of strain on its infrastructure, especially its water supply system.

In some districts, running water is a luxury, and residents are obliged to buy their water from water tankers at exorbitant prices. Others draw their water from unsupervised wells or springs, exposing themselves to increased health risks.

With dry seasons getting ever longer, **it has become an absolute priority to modernise and secure water supply.**

A water revolution in Luanda

The MoU signed by SUEZ and the public agency responsible for water distribution, Empresa Pública de Águas de Luanda (EPAL), could not be clearer in its aims. The production, distribution and sanitation network of the whole province will be fitted with smarter and more efficient equipment, which will reduce technical losses and improve distribution.

This infrastructure revolution will be both technological and human in nature.

We will be supporting the Angolan operators in adopting innovations, advanced production tools and connected management systems. For users, the monitoring and billing of their water use, but also their relations with the operator, will be simplified and made more reliable.



From disrepair to depollution

The wastewater treatment plants will also receive an upgrade. Having been stretched to breaking point by the growth of the city, the future wastewater networks will be designed to cater with this expansion. They will also help reduce soil and waterway pollution, preventing the spread of diseases such as cholera. This goal of disease control is critical when one considers the situation today: between 31 December 2024 and 16 February 2025, Luanda recorded 1,966 cases of cholera resulting in 59 deaths³. By eliminating sources of contamination and maintaining a healthier network, **SUEZ will make a direct impact on the health and wellness of the capital's inhabitants.**

More than 50 years of waterworks in Angola

Stretching back to 1970, SUEZ has a longstanding history with Angola. Everything began with the construction of the Kifangondo water treatment plant in Luanda, a founding landmark subsequently refurbished by the Group in 2016.

In the early 2010s, the Angolan authorities launched a widescale water production modernisation programme. This initiative led to the commissioning of two large plants around the capital: Quilonga Grande in 2017, and Bitá in 2023, for which SUEZ has been leading the construction consortium. On its operational launch, Bitá will supply nearly 300,000 m³ of water per day, becoming one of the Group's largest plants in sub-Saharan Africa. It will allow **more than three million people to turn on their taps with peace of mind.**

SUEZ has also contributed to the construction of Luanda's wastewater treatment plants such as Sudeste, Candelabro and Kiluxi, each time furthering its status as a key partner in access to water and sanitation. This collaboration with the Angolan government was taken further in 2023 with the launch of the PROÁGUA project which aims to improve the performance of water systems in Angola.

In one of his best-known titles, the legendary Nigerian artist Fela Kuti sang "Water no get enemy!" That was back in 1975. Fifty years later, his words are becoming reality with safer, more accessible, healthier and better safeguarded water.

³ Source : Outbreak News Today

**PLASTIC
POLLUTION
IS A GLOBAL
PROBLEM.
THERE ARE NO
GEOPOLITICAL
BORDERS
FOR THIS TYPE
OF POLLUTION.**

LISTEN TO THIS ARTICLE





Behind Veronica Nava's lilting accent, there's a straight talker. Not one for scaremongering, but instead for positive action. A researcher at the University of Milan-Bicocca's Department of Environmental and Earth Science (DISAT), Veronica Nava explains the plastisphere with simple worlds and powerful imagery. She shares her observations and knowledge on the fragility of water and its poisoning by plastic.

What exactly is the plastisphere?

The plastisphere refers to a community of organisms that live attached to the surface of plastic matter. Put simply, any material that exists in aquatic environments can become a new habitat for living organisms such as algae or bacteria.

Can these plastics be compared to rafts?

Yes, absolutely. They become small watercraft for living and natural organisms. At the beginning, a first bacterial layer forms. Then it becomes a more complex community, where microalgae, small invertebrates and various animals end up cohabiting.

Are some of these bacteria pathogenic?

Yes, Some of them are potentially pathogenic. And with the plastics that act like rafts, these bacteria migrate from one environment to another.

Since when has this process been observed?

The term plastisphere was first coined in 2013. It is generally accepted that plastics can be found everywhere, and that they come in different sizes: macro, micro and nano. We still lack standardised and internationally shared methods, but it takes time for science to get structured and fine-tuned.

Is understanding plastic akin to observing mankind?

Of course. Plastic pollution is mainly caused by human activity. The more people there are, the more plastic. Microplastics have even been detected in very remote places like rivers and lakes. And wherever they are, they are toxic for our health, the environment and the living organisms that exist there. This is something I observed when I was conducting my research on the Mekong River.

The more people there are, the more plastic



In what way?

This river is one of the very first sources of biodiversity in the world.

Its ecological importance is as huge as its provision of subsistence for the local populations.

The Mekong feeds approximately 65 million people, fish being a fundamental part of Asian diets. In Phnom Penh, I saw some horrifying plastic pollution. Heaps of microplastics, plastered all over the riverbanks.

When we took samples using fishing nets, we caught more plastic than fish. In our research, one of our observations was a drastic drop in the oxygen count, with harmful effects on aquatic life and the food chains.

What effects in practice?

Certain species are disappearing little by little. The Mekong is home to probably the world's last freshwater dolphins, the Irrawaddy species, which is now extremely endangered. The local fishermen are also starting to fear for the future of their activity, and whether they will still be able to make a living from it. The situation is worrying for the natural ecosystem and inhabitants' life balance.

Is there a difference between urban and rural zones?

Urban zones are undoubtedly the most polluted. Moving up towards the north of the country, towards the Siem Reap region, plastic pollution is less visible. While urban areas are pollution hotspots, it doesn't mean that rural zones are spotlessly clean. We found a lot of microplastics and nanoparticles even in the waters of these regions where population density is much lower.

It is said that only 1% of all plastic produced is found in the ocean. Have the other 99% magically disappeared?

No, there's no magic. Several studies have explored this subject. The first assumption they have is that most of the plastic is now in the sediment, having sunk to the bottom of the oceans and waterways. Over time these plastics could be stirred up again and become suspended matter. Another theory is that when micro-organisms colonise plastic, they weigh down on them and make them sink. Finally, some plastics have a higher density than water, and directly sink to the bottom.

Would a plastic bottle thrown into the sea in the 1970s still exist today?

The degradation of plastic depends on three factors: ultraviolet (UV) rays, high temperatures and the movements of the water (currents and waves). The time that a plastic takes to degrade also depends on its environment. However, we have learned one thing for sure: plastic sticks around for a long time, even if it changes form. Recent studies have even demonstrated that, contrary to received wisdom, so-called 'compostable' plastics do not biodegrade rapidly in nature.



When we took samples using fishing nets, we caught more plastic than fish

Are some of these transported agents pathogenic? Is there a connection between the bacteria living on plastic and certain human diseases?

I can't give a precise answer to that question, because it's not my field of expertise. When we find bacteria belonging to groups that are known to be pathogenic, we don't yet know whether they represent a direct danger to human health, or if they are behind certain cancers. The question therefore remains open, and is already attracting a lot of interest in laboratories.

It is said that certain micro-organisms can eat plastic. Is that true?

Yes, that's a very active field of research. In laboratory conditions, certain bacteria have been identified as possessing enzymes that can use plastic as a source of carbon. This could be an interesting long-term solution, because we could use these micro-organisms to accelerate the degradation of plastics. The problem is that plastic was designed to be extremely resistant and durable. It owes its success to the very fact that it is hard to break down. As a result, while certain bacteria can attack plastic polymers, on a very large scale the process is still quite inefficient. But research is progressing, and analysing the plastisphere might help us identify other micro-organisms capable of degrading plastic.

What could hinder these projects?

Their cost. I'm not an economist, but plastic was designed to be a cheap product. If the cost of recycling becomes too expensive, it will not be economically viable.

Rivers and lakes appear to play an essential role in understanding the plastisphere.

It's a very important question. Plastic pollution is a global problem, and for a long time we wrongly assumed that it was an exclusively marine problem. We are frequently reminded of the pictures of turtles trapped in plastic in the middle of the ocean. But in reality, most of the plastic that arrives in the ocean comes from rivers that feed into the sea, and their tributaries. These waterways very often flow close to inhabited zones and human activity, which makes them major thoroughfares for the transport of plastic. And for years, we believed that they simply conveyed waste from the interior of the land to the ocean. Today, we understand that rivers and lakes also play an active role. They don't just transport plastic. They can also hold it back sometimes for long periods. Lakes in particular are places where water circulates slowly. Plastics can therefore settle there and transform the lakes into reservoirs of massive and delayed pollution.

We have learned one thing for sure: plastic sticks around for a long time, even if it changes form



How does plastic end up in water?

Plastic is transported in different ways. First by the atmosphere. Microplastics and plastic fibres are transported by the wind and the rain. Next, by wastewater treatment plants, because although this infrastructure filters wastewater, the plants are not designed to filter microplastics. Finally, and sadly, by all our plastic litter thrown away in nature or directly into waterways.

But this cloud has a silver lining: freshwater environments are easier to reach than seas and oceans. Intervening to reduce plastic pollution in rivers and lakes is more feasible than picking already dispersed plastic out of the sea.

Nonetheless, uncertainties remain as to the quantity of plastic trapped and its long-term impact.

On a world map, can you see any geographical zones that are more exposed than others?

Plastic pollution is a global problem. It doesn't just apply to certain countries. Industrialised countries export some of their plastic waste to other regions of the world, but our freshwater ecosystems are still very polluted. A study published in 2023 disproves certain preconceptions and shows that even the lakes in Northern Italy and the Great Lakes in the USA are highly polluted. There are no geopolitical borders for this type of pollution.

Plastic pollution is a global problem, and for a long time we wrongly assumed that it was an exclusively marine problem

How can a company like SUEZ make a contribution?

When a company like SUEZ provides a space for knowledge and scientific popularisation, that's very important. It helps raise interest and draw attention to crucial subjects. Another helpful initiative is to create more collaborations with universities to start up research projects in partnership with the academic world. Companies like SUEZ have economic clout that academic research doesn't have in some cases. If a part of these resources could be channelled into research, this would help accelerate the discovery of new and more efficient solutions to environmental problems.

On a more personal note, why are you so interested in plastic pollution?

I have always been interested in aquatic environments. They are fascinating, and they must be protected. Plastic pollution does affect them, but it's not the only problem. I often say that plastic is a visible contaminant. It is easy to show hard-hitting images to raise the awareness of society, the general public and industry. But there are many other invisible pollutants with similarly harmful effects. When we impact aquatic environments, we are not just destroying a natural heritage. We are also endangering essential ecosystemic services. For example, a healthy river naturally filters water, stores carbon and supports food chains. If we destroy these ecosystems, we lose all these benefits. It is essential to preserve them. For them, for us, and for our future.



Veronica Nava is an Italian ecologist who specialises in the study and management of freshwater ecosystems.

Veronica is currently a researcher in the Department of Environmental and Earth Sciences at the University of Milan-Bicocca, where she is a member of the Inland Water Ecology and Management group. Her research focuses on the impacts of human activities on lakes and rivers, using long-term data analysis and experimental studies.

She collaborates with international scientific networks such as the Global Lake Ecological Observatory Network (GLEON) and has conducted fieldwork in aquatic ecosystems in both temperate and tropical regions.

In June 2024, **Veronica was one of six winners of the 22nd L'Oréal-UNESCO Award for Women in Science in Italy.** The award recognises her research project aimed at assessing the impact of plastic pollution on the metabolism and functioning of lake ecosystems. More specifically, she is studying the biodiversity of microbial communities that colonise plastic waste in lakes to understand how this pollution can influence crucial ecological processes, including the productivity of aquatic ecosystems.

Veronica is also the author and co-author of 30 scientific articles published in renowned journals, including one in 2023 as lead author in the journal *Nature*. She has presented her work at many national and international conferences, where some of her publications have been recognised as best contributions.

PFAS: what are these 'forever chemicals'?

Nicknamed 'forever chemicals', PFAS are chemical substances found in many everyday products, including e-cigarette drip tips, lubricants, cosmetics and non-stick pans. Their perpetual toxicity is a threat to our environment and to human health. In response to this danger, SUEZ is developing innovative solutions to eliminate them from drinking water. Pierre Pieronne, drinking water quality expert, tells us more about these issues and developments.



Why are PFAS known as 'forever chemicals'?

Pierre Pieronne: PFAS, or per- and polyfluorinated alkyl substances, are industrial products created by man in the 1950s. They cannot be found in nature. They are used in many everyday objects to increase their resistance to heat, cold, water, time, etc. At first glance, they appear to be some sort of miracle product! They have been nicknamed 'forever chemicals' because they are composed of fluorine and carbon and, once released into the environment, their extremely strong bond is highly resistant.

Only around 2010 was a great deal of research launched worldwide, which confirmed the harmfulness of these substances

When was it established that they were dangerous?

P.P.: It is quite a recent discovery which came after a health scandal in the United States in 1999. Residents of West Virginia noticed that their water tables were being polluted by an industrial company. Analyses revealed the presence of PFOA¹, a substance from the same family as PFAS. A farmer living near the site sounded the alarm after seeing his cows fall ill. All this is very eloquently recounted in the film *Dark Waters*². Up until then, few studies had explored the subject, and it was only around 2010 that a great deal of research was launched worldwide, which confirmed the harmfulness of these substances.

When and how did SUEZ start working on PFAS?

P.P.: About ten years ago, based on toxicological studies, certain health authorities in various countries recommended threshold values for PFAS concentration in drinking water to ensure it was safe to drink. A few years later, in 2018, SUEZ started looking into this health issue. We soon realised that it was not just a problem to do with drinking water. We had to think about the wastewater treatment processes and the future of items that contained PFAS. In other words, the processing and recycling of this waste.



¹ In 2023, PFOA was classified as carcinogenic by the International Agency for Research on Cancer.

² A film by Todd Haynes starring Anne Hathaway, Tim Robbins, Mark Ruffalo and Bill Pullman.



From now on, we need to think about the future of all these objects designed with PFAS

Are there any alternatives to PFAS?

P.P.: Unfortunately not. In many cases, there are no alternatives. For example, PFAS can be found in aircraft because they make the seats fireproof and therefore save lives in the event of a fire. PFAS are also used in firefighting equipment and in the medical sector. However, for other products, we could find other solutions. I would mention ski waxes, sportswear containing GORE-TEX, frying pans and cosmetics. Ultimately, governments will have to determine and qualify 'essential uses': meaning that some everyday objects deemed necessary could continue to incorporate PFAS in their composition.

The French Act of 27 February 2025 bans certain uses of PFAS. Does this legislation go far enough? What obstacles do you see to its application?

P.P.: It's a first step. We have set the wheels in motion to control discharges. From now on, we need to think about the future of all these objects designed with PFAS. How can they be recycled and disposed of? Regulations around PFAS are expected to evolve in the next few years, particularly when it comes to drinking water. The more we know about these substances and their impact on health and the environment, the better we will be able to act.

What technical solutions has SUEZ implemented in France to filter PFAS in our drinking water?

P.P.: SUEZ has a wide range of technical solutions to treat and filter PFAS in drinking water. In France, the authorised and effective treatment for PFAS is based on activated carbon. At SUEZ, depending on the situation and the type of PFAS, we also use low-pressure reverse osmosis because it works on a wide range of PFAS, including those with short carbon chains. This technology is similar to that used in desalination. Water is forced through membranes at high pressure. On one side, we recover pure drinking water that has been cleansed of all substances, and on the other, water with a high concentration of micropollutants. Solutions do exist, and others are being studied, to treat this concentrate and prevent it from contaminating our rivers and streams again.

Are these solutions already in application? Would it be easy to build them into existing infrastructure?

P.P.: Solutions have been put in place or are being deployed, notably in Ternay, south of Lyon. Here, the water table had been found to contain PFAS. This pollution was caused by an industrial company, and local residents were understandably concerned. We therefore decided to install an innovative and patented SUEZ activated carbon technology in the existing treatment plant. The foundation stone has been laid, and the facility will be operational by the end of the year. We have the know-how to build new processes into existing infrastructure. This requires investment and a few months of construction, but these solutions exist, and they work.

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SUEZ Innovation Day: a concentrate of innovations in service to the planet

This year, SUEZ Innovation Day drew more than 150 clients and partners from 30 countries around a shared goal: to explore innovations that sustainably transform the way we manage water, waste, energy and natural resources. It was our opportunity to share our vision, our most advanced technologies and our ambitions.

The 2025 edition specifically shone a light on issues surrounding artificial intelligence and waste recovery.

Innovating at SUEZ comes from marrying scientific excellence, industrial firepower and technological investment.

Faced with the challenges of global warming, water scarcity and emerging pollution such as PFAS, SUEZ reasserts its conviction: that of innovating to build new virtuous ecosystems, in collaboration with local authorities, startups and the academic world to reinforce local and industrial synergies. This commitment is fully in line with our 160-year history of innovation.

Today, it is embodied by an array of research projects and strategic partnerships, such as the one recently signed with French research institute CNRS.

In 2024, **this impetus led to SUEZ breaking into the top 50 patent applicants, with 37 innovations protected.**

We are the first environmental services group to be part of this ranking! Among the major levers, artificial intelligence and the Internet of Things are highly influential. Indeed, our technologies make it possible to detect leaks more quickly, improve waste sorting, optimise energy flows, or anticipate communities' requirements. At this fourth edition of Innovation Day, several emblematic projects were unveiled. Here, we take a closer look at some of these positive impact innovations.

QIRA is a wireless radio-controlled quad used to inspect dry networks. It is operational in Marseille, Mulhouse and Orleans.

Water, a source of innovation

Our innovative solutions cater to two key issues: facilitating access to good quality drinking water, and preserving an increasingly scarce resource.

• IAcoustique: AI to help combat leaky pipes

SUEZ has developed an artificial intelligence algorithm that can analyse the acoustic signals of water mains to rapidly detect leaks. **IAcoustique draws on thousands of sensor-captured data, and on a huge library of sounds recorded along 100,000 km of water networks in France.** The outcome: 20% less water lost, and up to five times more leaks detected!

• Aqua Renova: replenishing water tables to secure access to water

Thanks to Aqua Renova, the town of Hyères in France can now cater to 88% of its own water needs, even during dry spells. This innovative system developed by SUEZ makes for **better management of water abstraction from the water table, and better replenishment of alluvial groundwater.**



• Eliminating PFAS from our drinking water

Nicknamed 'forever chemicals', per- and polyfluorinated alkyl substances produced by the chemicals industry have become a major concern for public health and the environment. **SUEZ can today analyse and quantify 65 PFAS molecules in water.** Thanks to years of research, we are now capable of designing, building and operating various drinking water treatment technologies to remove PFAS from it.

• Making seawater a new resource

SUEZ is a world leader in desalination solutions, with the development of durable, efficient and accessible solutions. For example, the MEMlab platform is designed to evaluate and identify the solutions best suited to each desalination plant. We have also developed the SeaDAF® range, **a unique system capable of filtering seawater even when it is of poor quality.**

Ever more innovation to extract value from waste

Every year, we invent and design digital and technological tools to help sorting become more precise and rapid, and recycling more productive.

• QUALIWASTE: AI for waste sorting

This waste recognition technology is built into the core of collection facilities, sorting centres and energy-from-waste plants. With AI, it automates and enhances industrial waste sorting. It identifies materials in real time on the sorting lines, reduces human error, improves recycling rates and reduces companies' environmental impact.

• Autodiag®: know your waste, recycle it better

To improve the quality of sorting output, SUEZ has developed a camera fitted with an artificial intelligence algorithm which analyses waste flows. Installed over the sorting table itself, the solution helps automate the qualification of waste collected and improve the quality of plastics sorted in view of their recycling.



• Hydrothermal gasification: when sludge becomes a resource

Since 2021, SUEZ has been working with the CNRS on the development of a hydrothermal gasification process that converts biowaste into renewable gas. By recovering the minerals present in the sludge and destroying the micropollutants, we create a low carbon and local energy source. An impactful catchphrase sums up the positive impact of this innovation: **what nature does in 300 million years, we do in 300 seconds.**

• Waste to Materials Lab

With this new technological platform that combines optical and robotic sorting, **separating materials (plastic, metal and wood) makes it easier to qualify, dismantle and recycle complex products and composite materials.** Once they are recycled, these recovered materials are sent on to a range of industries (automotive, construction, packaging, etc.) to be used in the manufacture of new products.

An informed employee is a protected employee

That's our philosophy to protect SUEZ from the risks resulting from the non-observance of any of the ethical, regulatory and digital rules applying to the Group. In areas such as cybersecurity, compliance and personal data protection, everyone has a role to play.

On 27 October 2022, SUEZ adopted a code of ethics, with the aim of **setting out the rules for integrity, transparency, respect and responsibility**.

The document is not just a declaration of intent: it lays down the fundamental principles that nobody may transgress. It defines a common code for how we act and behave, individually and collectively, every day.

To prevent the risks arising from non-observance of ethics and compliance rules, we have introduced rigorous policies. These serve as a reminder that **ethical business conduct lies at the heart of our group's performance and competitiveness**. These policies are not set in stone but evolve with legal requirements and the issues specific to each sector of activity. Their sole aim is to guarantee an honest working environment and safeguard the reputation of SUEZ and its teams.



A few best practices worth remembering

Posted on a dedicated Sharepoint, the charter does not sidestep any subject. It addresses them all in a practical and unambiguous way. Here are a few best practices worth noting:

- **Gifts and hospitality:** giving or receiving a gift may appear innocent, but it may influence a decision and could be punishable by law. This is why we have defined a clear framework for these practices, with precise thresholds and traceability rules. Before giving or accepting a benefit of this sort, every employee must question the intention behind it and check whether it complies with Group directives.
- **Conflicts of interest:** an employee must never find themselves in a situation where their personal interests might interfere with those of the company. This could for example apply to relations with suppliers, owning shares in a rival company, or decisions involving one or more family members or friends. In the interests of clarity, declarations of conflicts of interest can be completed, and ethics correspondents are on hand to advise teams.
- **Anti-corruption:** whether active or passive, corruption and bribery are offences that are severely punished by law. SUEZ applies a zero-tolerance policy in this area and runs dedicated training courses. These aim to help teams identify at-risk situations and react appropriately. When in doubt, employees are encouraged to refer to their entity's ethics adviser.

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+ Speak up on ethics!

To help people better understand and control these risks (and others besides), a **network of Ethics and Compliance correspondents** has been set up. These correspondents are tasked with sharing best practices and answering any questions that may arise. Another recently launched initiative is "Speak Up." All the people working in our group, but also our stakeholders (suppliers, clients, partners, etc.) are entitled to report an action or situation that they believe breaches our code of ethics. This whistleblowing platform can be contacted at ethics@suez.com.



COMMITMENT

Develop our skills

	2027 TARGET	2024 RESULTS
% of people in the workforce trained during the year	80	79.5 ⁽¹⁾

¹ Perimeter: France and abroad

+ Cybersecurity: an invisible risk with unforeseeable consequences

In an ultra-connected world, cybersecurity has become a critical issue. An IT hack can compromise sensitive data and impact our business.

For our protection, we have defined 12 essential rules, among which:

- Remain vigilant to any suspicious e-mails and do not click on dubious links.
- Used robust passwords that are easy to remember but hard to guess, and never share them.
- Be responsible for one's visitors on site and accompany them all the time.
- Protect confidential information and refrain from storing it on nonsecure media.
- Immediately report any suspicious activity.

To reinforce this vigilance, awareness training and hacking simulation exercises are regularly organised

+ GDPR, closely guarded personal data

Personal data protection is a legal imperative and a priority for SUEZ. Since the entry into force in France of the General Data Protection Regulation (GDPR), we work to ensure that the data we have on our employees, customers and partners is processed with the greatest care. Every member of our teams must make sure they adopt the best industry practices. We must only collect and store data that is strictly necessary, and we must exercise extreme caution when storing it. Audits are regularly conducted to ensure our practices are compliant. In the event of doubt or incident, a data protection officer (DPO) is available to advise teams.

While protecting the company is founded on rules and processes, it is above all a state of mind that should be observed by every employee at SUEZ.

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© Stéphanie Mansy - Galerie F. - Photo © Frédéric Iovino.



STÉPHANIE MANSY

LES MANQUANTS #12

Stéphanie Mansy explores the fragility of the living world and the marks that beings and landscapes leave behind them. She develops a body of work profoundly connected with nature, its silences and its metamorphoses. Her work captures the invisible bonds between humans and their environment.

The French artist, resident at Casa Velázquez in 2022 and 2023, seeks to reveal the things that disappear without a sound. Through photography, drawing and writing, she questions the memory of landscapes, the scars left by presences and absences.

Inspired by the slowness of natural cycles, attentive to the imperceptible changes of the world, Stéphanie Mansy composes works in which erosion, oblivion and resilience become sensitive materials. Her approach invites us to pay fresh attention to everything in nature that transforms, endures or fades away.