

SUEZ ENVIRONNEMENT Magazine

Number 13_August 2013

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SITA FRANCE

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"IN ORDER TO SUPPLY DRINKING WATER ON A DAILY BASIS, OUR TEAMS CONTINUALLY DEPLOY THE MOST SUITABLE TECHNOLOGICAL COMBINATIONS."

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01_ The biological recovery of food waste enables it to be reintegrated into its natural cycle. SITA manages its various stages, such as biowaste recycling, which is vital in order to obtain an organic substrate of homogeneous quality.

02_ In Australia, the Kemps Creek mechanical-biological treatment plant in Sydney, produces compost from food waste, green waste and household waste. It also recycles ferrous metals, aluminium and plastic.

03_ The Gueltas mechanical-biological treatment plant, in Morbihan, France, manages 35,000 tonnes of waste per year, of which 50% is turned into high-quality compost.



2 tonnes

of recovered waste for every 1 tonne of waste disposed of is the objective that SUEZ ENVIRONNEMENT has set itself for 2016⁽¹⁾

WASTE RECOVERY



© DENIS BOURGES

In all its forms (material, biological and energy), waste recovery constitutes a strategic priority for SUEZ ENVIRONNEMENT, a leader in this field.

In France and internationally, SITA offers its customers an effective and innovative solution for treating and recovering their waste by giving it a second life.

01_The recycling of copper and aluminium cables is managed by Recycâbles, a joint venture between SITA and Nexans, the leader in this field in France. This plant has been designed to recycle all types of cable and to obtain copper metal shot at 99.9% purity.

THE CIRCULAR ECONOMY: NOTHING GOES TO WASTE, EVERYTHING IS TRANSFORMED

In the context of an increasing scarcity of resources, the circular economy aims to manage products "from birth to rebirth" in order to recover everything that can be reused, recycled or transformed into energy. In contrast with the linear model that still prevails, the circular economy aims to save natural resources, reduce greenhouse gas emissions, safeguard supplies and create skilled jobs.



01_

03_



03_ Mobile phones, computers, televisions... these recyclable materials equate to 14 kg/inhabitant/year. SITA, via its collection and dismantling centres, coordinates all services relating to the management of WEEE (Waste Electrical and Electronic Equipment), from collection through to treatment.



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15 million

More than tonnes of recycled materials were reintroduced into economic channels by SITA in 2012 (+22% compared with 2008)⁽¹⁾



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© DR



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02_04

02_ The Almelo waste treatment plant, in the Netherlands, treats solvents by distillation. The regeneration of used solvents enables finished and unaltered products to be obtained of a quality comparable to brand new solvents. This plant can treat 12,000 tonnes per year.

04_ The Aproval recovery platform, in Charent-Maritime, France, offers comprehensive services and recovers almost 150,000 tonnes of material, such as paper and cardboard, which will be turned into pulp.

43.2%

was SITA's waste recovery rate at the end of 2012 (compared with 31.6% in 2008)^[1]



02_ The Roosendaal waste incineration and energy recovery plant, in the Netherlands, is one of the most efficient in Europe with 291,000 tonnes of waste treated per year. ReEnergy produces residual heat through waste incineration (see magazine no. 10, p. 2).

02
03



01_ In Spain, eight SITA SPE Iberica plants specialising in the preparation of alternative fuel for cement works, treat 30,000 tonnes of fuel each year.

RECOVERY SOLUTIONS

Material recovery

Plastics, rubber products, paper, cardboard, newspapers, ferrous and non-ferrous metals, wood, construction site waste, textiles, solvents, heating oil, chlorine, sulphur, WEEE, planes, scrap boats and vehicles, clinker

Biological recovery

Biowaste, composting, spreading

Energy recovery

Incineration of non-hazardous waste, recovery of biogas generated through the storage of waste, anaerobic digestion, biomass combustion, manufacturer of alternative fuels, specialised incineration of hazardous waste

The increasing **scarcity of resources, the emergence of the circular economy, the fight against climate change, regulatory pressure...** waste recovery has become a major economic and environmental challenge around the world. Waste recovery is the recycling of materials extracted from waste and end-of-life products to generate "secondary raw materials" or "recycled raw materials" (material recovery), in order to recover their calorific potential and transform them into electricity or heat (energy recovery), or to transform their fermentable part into compost or renewable energy (organic recovery).

Present across the entire waste recovery cycle, over the space of four years⁽²⁾, SUEZ ENVIRONNEMENT, through its SITA subsidiaries, has increased the material and organic recovery rate of waste treated at its facilities from 31.6% to 43.2%, reaching the objective of 36% that was initially set for 2012 two years ahead of schedule.

Thanks to collection, treatment and sorting services adapted to the needs of its local authority and business customers, its commitment to the materials recycling and biological recovery industries and the development of its energy recovery plants, SITA has positioned itself as the market leader in waste recovery solutions.

SUEZ ENVIRONNEMENT has thus steered waste recovery in the right direction, offering it a second life and giving it new value. It has set itself an ambitious objective between now and 2016: the recovery of two tonnes of waste for every one tonne of waste disposed⁽³⁾.

(1) SUEZ ENVIRONNEMENT 2012 Sustainable Development Report.

(2) Between 2008 and 2012.

(3) Relating to material and energy recovery within Europe.



© SITA FRANCE / YVES SOULABAILLÉ

03_ The Sonzay site in France, operated by SITA BioEnergies, was one of the first to recover biogas. Today, this site enables electricity to be supplied to 5,700 households.

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SITA launches the first range of recycled biological products in Australia.

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Career path of a young engineer who has recently been awarded the EFCA European Prize for Young Professionals.

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Focus on a new treatment process for organic waste.

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This Brazilian visual artist looks back at his work and his notion of waste.

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"It is this knowledge of all of the world's water that allows SUEZ ENVIRONNEMENT to satisfy the needs of each of the populations it serves..."



→ Scan the codes throughout the magazine with your flashcode reader to find videos and websites on the subject (cost of a mobile Internet connection).

**FOR MORE INFORMATION, PLEASE VISIT:**

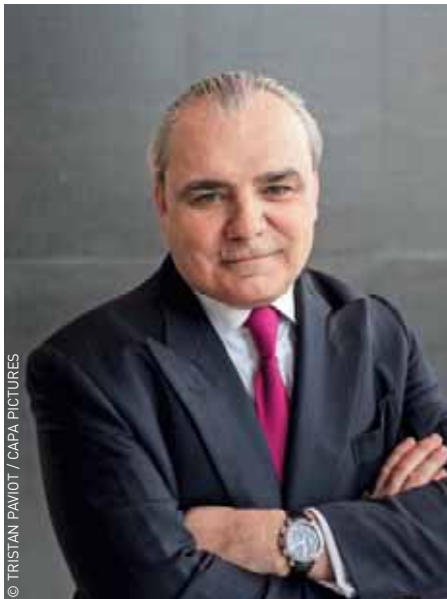
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JEAN-LOUIS CHAUSSADE /
CEO OF SUEZ ENVIRONNEMENT

“SUEZ
ENVIRONNEMENT
HAS DEVELOPED
STATE-OF-
THE-ART
TECHNOLOGIES
AROUND
THE WORLD
IN ORDER TO DELIVER SAFE
DRINKING WATER AND
TIRELESSLY PURSUES ITS
RESEARCH PROGRAMMES
TO ANTICIPATE ANY NEW
DEVELOPMENTS.”

Dear readers,

The French are not misguided: while 88%⁽¹⁾ of them are satisfied with the water service in their area and 80%⁽¹⁾ with the quality of the water in their home, they are still concerned about trends regarding resources. However, the persistence of some preconceived ideas about water has been noted. In France, a large proportion of the population is convinced that drinking water exists in a natural state, but that spring water that is suitable for drinking is scarce.

Faced with the major challenge of delivering safe drinking water whilst preserving natural resources, SUEZ ENVIRONNEMENT has developed state-of-the-art technologies around the world and tirelessly pursues its research programmes to anticipate any new developments. We therefore wanted to dedicate this issue's special report to outlining the challenge of high-quality water and the solutions proposed by SUEZ ENVIRONNEMENT.

Our skills are at the heart of life and of complex ecosystems, and they deserve to be shared. Consequently, we have ensured that dialogue and co-construction are amongst our priorities in order to develop suitable solutions. Co-construction is also what motivates Éric Bazin, one of the founders of Planetworkshops, a forum for reflecting on sustainable development issues, who agreed to share his vision with us.

Furthermore, sustainable development is ingrained in our economic model, as Thomas Perianu, our Director of Sustainable Development, illustrates in a joint interview with Robert Hassler, CEO of the non-financial rating agency oekom research.

And because social issues have always inspired artists, we wanted to end this issue with a meeting with the Brazilian visual artist Vik Muniz, whose works are produced with materials other than paint and clay...

Happy reading!

(1) C.I. Eau poll/TNS Sofres "The French and water" - 20 March 2013.

THE ARRT OF ORGANICS

INNOVATION AND ART IN WASTE

→ Find videos on ARRT products.



> or on [youtube.com/user/SITAaustralia](https://www.youtube.com/user/SITAaustralia)

DESPITE ITS PRESENCE IN AUSTRALIA FOR 22 YEARS

and being known throughout the country for its expertise in the entire waste management cycle, SITA is less well known for its recycled organic products. *"In Australia, the general public only associates SITA with our waste management activity. We are as not well-known for our other, but equally important activity of transforming organic waste or even for our very high-quality compost range,"* said Ruth Buckley, Marketing Manager at SITA Organics.

SITA Australia therefore took up the challenge to let people know about the benefits of compost products compared with chemical fertilisers by launching SITA Organics in 2010. The aim is to increase high-potential farming and gardening markets and to cover all the recycled organic products manufactured by SITA Australia.

The marketing innovation consisted of developing *"The ARRT of Organics"* brand, which offers a range of 10 products aimed at customers who are concerned about sustainable soil management. *"The word play (The Art of Organics) hints at our cutting-edge processing technology (Advanced Resource Recovery Technology) while demonstrating the fact that using SITA's organic products can give rise to works of art in parks and gardens,"* added Ruth Buckley.

The ARRT concept is therefore applied depending on the target markets: *Lawn-ARRT™* for green spaces, *Vine-ARRT™* for vineyards, *Garden-ARRT™* for mulch and *Rehab-ARRT™* for soil rehabilitation, etc.

"We needed to innovate from a marketing standpoint and The ARRT of Organics platform has enabled us to meet the challenges that we had set ourselves," she said. The brand launch was accompanied by a major communications campaign and by targeted marketing efforts. Brochures, a television programme and using specialists in each market have enabled us to raise SITA Organics' profile substantially.

In fact, SITA Australia increased the volume of organic matter processed by a factor of five from 108,000 to 500,000 tonnes between 2009 and 2012. *"These results have enabled us to achieve a positive brand image and to guarantee The ARRT of Organics a very sound positioning in the organic recycling sector. They also enable us to make plans to develop this innovation on a large scale,"* Ruth Buckley concluded.



ARRT OF ORGANICS, "GRAND PRIX INNOVATION" 2013

The Western Australian Landscape landscaping organisation named *"Garden-ARRT"* "Product of the Year" in 2012 for the quality of its mulch. This mix, which promotes better soil structure, encourages the formation of roots and plant growth. The result is a prettier, more sustainable garden. This innovation was also awarded a major prize in 2013 at a SUEZ ENVIRONNEMENT Innovation Trophies ceremony in the "Marketing Activity and Customer Relations" category. It also won a major prize at GDF SUEZ's Innovation Trophies ceremony the same year.



“HERE, I FEEL LIKE I’M DOING WHAT I HAD IN MIND
when I chose to specialise in the environment: helping people.”

At only 29 years of age, Julien Dupont is relishing the privilege of flourishing professionally. An opportunity that this engineer, trained at the École Polytechnique in Paris and Stanford University, was able to take up by choosing to move abroad. “After several years at SAFÈGE’s Urban Hydraulic Plant, my employer suggested that I go to Cambodia to work on the development of the strategy for expanding the drinking water network in Phnom Penh.” For Julien, who has already experienced numerous facets of the water industry through various projects, it was an opportunity to put his skills into practice on a much greater scale. Another delightful prospect: direct collaboration with the Phnom Penh Water Supply Authority (PPWSA) which, bled dry following the Khmer Rouge regime and ten years of civil war, managed to re-establish financial equilibrium and provide the city with an exemplary water service.

In Cambodia, Julien Dupont quickly made his mark through his involvement, the extent of his technical knowledge and his willingness to pass it on to others. So much so that he was entrusted with a high-profile role in designing and supervising the construction of the drinking water production plant in Niroth, Phnom Penh (see box).

His journey was not lost on the European Federation of Engineering Consultancy Associations (EFCA), which recently awarded him the European Young Professionals Prize. A modest individual, Julien prefers to emphasise the receptiveness of PPWSA to his proposals. “I feel free to test out new solutions, whether in the field of production or distribution.” In any case, the objective is to bring water, and good quality water, to people who were often unable to access it. “For many of them, the sudden access to drinking water significantly improved their living conditions. Can you imagine a more stimulating assignment?”

A modern plant comes into operation in Cambodia

— Opened on 4 June 2013, the drinking water production plant in Niroth has a capacity of 130,000m³ per day. Its implementation has undoubtedly responded to the huge increase in demand, linked to rapid demographic growth in the Phnom Penh region. From a technical point of view, the plant is characterised by a fully automated management system and variable-speed pumps controlled by an innovative algorithm. The benefits are optimised treatment quality and energy consumption!



JULIEN DUPONT / ENGINEER, SAFÈGE

**“THANKS TO THE RELATIONSHIP
OF TRUST ESTABLISHED
WITH PPWSA, I FEEL FREE
TO TEST OUT NEW SOLUTIONS.”**





© JULIEN MAGRE

“THE PROCESS OF DRAWING UP THE ROADMAP FOR SUSTAINABLE DEVELOPMENT REPRESENTS A REAL CATALYST FOR THE TRANSFORMATION OF SUEZ ENVIRONNEMENT.”

THOMAS PERIANU / DIRECTOR OF SUSTAINABLE DEVELOPMENT, SUEZ ENVIRONNEMENT



SUSTAINABLE DEVELOPMENT AT
SUEZ ENVIRONNEMENT

“GREEN GROWTH” IN ACTION

SUEZ ENVIRONNEMENT recently launched its 2012-2016 roadmap for sustainable development and corporate social responsibility in order to establish a framework for assessing its progress. It is a means of translating the Group’s vision for sustainable growth into actions on the ground. Joint interview with **Thomas Perianu**, Director of Sustainable Development at SUEZ ENVIRONNEMENT, and **Robert Hassler**, CEO of the non-financial rating agency oekom research.



© DR

“INTEGRATING A CSR APPROACH REPRESENTS A GUARANTEED COMPETITIVE ADVANTAGE IN THE LONG TERM.”

ROBERT HASSLER / CEO OF
THE NON-FINANCIAL RATING AGENCY OEKOM RESEARCH

01_Degrémont is undertaking expansion works at As Samra, the largest wastewater treatment plant in Jordan, in order to protect the country's water resources. Perfectly integrated into its environment, the factory is virtually energy self-sufficient.

02_Positioned downstream from a wastewater treatment plant it acts as a buffer, “softening” the treated water which flows back into the natural environment, the water is then used to regenerate local biodiversity, that is innovative of Lyonnaise des Eaux Dragonfly Wetland (Zone Libellule®) main purpose. (Here shown in Hérault, France).

© GDF SUEZ / AB/CAPRESS / LYONS BILL



02_

© BUSINESS ROLL AGENCY

How is sustainable development integrated into international groups?

Robert Hassler: With regard to sustainable development, each company has specific challenges depending on their areas of activity. For example, a pharmaceutical group will take poverty and social exclusion into consideration, while a tour operator will put measures in place to protect biodiversity. There are numerous individual examples of good practice, but the majority of companies are still not doing enough to achieve a sustainable economy.

Thomas Perianu: At SUEZ ENVIRONNEMENT, sustainable development is ingrained in our economic model. CSR (Corporate Social Responsibility) is fully integrated into the Group's strategy and its

field operations. In concrete terms, each of the 80,000 employees can take action, through their work, in order to contribute to fulfilling the commitments and achieving the objectives of our roadmap. CSR was also taken into account when evaluating the Group's senior executives.

SUEZ ENVIRONNEMENT recently launched its second roadmap for sustainable development. What are the motivations behind implementing such an approach?

T. P.: The very nature of SUEZ ENVIRONNEMENT's activities means we are naturally part of a global approach to environmental and social management. One of our commitments to our customers, whether they are businesses or local authorities, is to support them so that they can become leaders in economic and environmental performance, through the effective management of their resources. It is this positioning that sets us apart from our competitors.

In 2008, we formalised this approach in order to present our ambition to move to a sustainable economy. The first roadmap (2008-2012) enabled a reference framework to be laid down, to guide the Group and its subsidiaries. We set out four main priorities divided into 12 quantified commitments. Virtually all of them were achieved and some were even surpassed. →

OEKOM RESEARCH, CSR OBSERVER

oekom research AG is one of the leading non-financial rating agencies. Its analysts' assessments provide businesses with a benchmark and thus stimulate their interest in integrating environmental, social and corporate governance criteria into their daily management.

PROMOTING DIVERSITY WITHIN THE GROUP



With nearly 80,000 employees in over 70 countries and activities deeply rooted at the local level, SUEZ ENVIRONNEMENT is by nature a very diverse Group. Its policy of gender equality and promoting diversity, based on equal opportunities and social

progress, has been implemented through the Diversity programme. Launched in 2010 for an initial period of three years, the programme focuses on access to employment for disadvantaged young people, recruiting and supporting people with disabilities, the recruitment and professional development of women and the recruitment and careers of older people. All of these projects, conveyed by concrete actions on the ground, have enabled progress to be made, particularly in terms of

changing behaviours. Consequently, the percentage of women in management positions has increased from 23.7 to 26.3% and the percentage of women in the overall workforce has also risen, from 18.2 to 19.7%. In order to ensure that such actions continue, the Group launched a new programme for 2013-2016. Areas for improvement have been identified for each theme and the policy of promoting gender equality and the careers of women has been made a top priority. Furthermore, the

Group will submit its application for France's Afnor Diversity Label at the start of 2014. In recognition of a company's willing and effective commitment to prevent discrimination, this state-run accreditation is awarded on the basis of responses to the specification following audits in several sectors of the Group, and the opinion of a national committee.

01_ The Metropolis hybrid truck, tested in Belgium, can get around town silently in electric mode, without producing CO₂ emissions.

An environmental and technological achievement! **02_** Located in Mandelieu-la-Napoule, in France, Aquaviva is one of the world's first carbon neutral wastewater treatment plants. Its state-of-the-art technology allows energy consumption to be optimised.



© MAN TRUCKS



© PIERRE BEHAR / YVONNAISE DES EAUX

03



This is particularly the case for the increase in rates for recycling and energy recovery from waste or the improvement in the technical efficiency of drinking water networks. Other objectives have, however, been more difficult to assess, such as the increase in energy efficiency.

R. H.: Companies' motivations may also be financial. Indeed, one of our studies highlighted the relationship between the development of a CSR strategy and the stock market performance of the companies⁽¹⁾. So, implementing an environmental and social governance policy does not automatically lead to low rates of return, nor does it increase risk. On the contrary, those that invest in these companies may yield a double dividend with a rate of return comparable to that of the market, whilst pursuing social, environmental and ethical objectives.

How does the implementation of a comprehensive CSR approach allow companies to evolve?

R. H.: Integrating a comprehensive CSR strategy into their economic model helps companies to progress towards a sustainable economy. Ultimately, such an approach will bring better returns and increased productivity. It also enables the expectations of new customers to be met and sometimes even for new markets to be developed. However, it is essential that this comprehensive approach is supported internally by senior management.

T. P.: Indeed! At SUEZ ENVIRONNEMENT, we have put a specific CSR management system in place, comprising an ethics and sustainable development committee attached to the Board of Directors and a steering and liaison committee within our subsidiaries. Moreover,

we realised that our roadmap represented a real catalyst for SUEZ ENVIRONNEMENT's conversion from a linear to a circular economy, by increasing waste recovery and the reuse of wastewater, for example. In order to develop the roadmap, we consulted our colleagues, as well as customers and other stakeholders, both in France and internationally.

How have companies' CSR strategies evolved in recent years?

R. H.: In light of the developments within companies and the significance of the CSR challenges, we have also had to make changes to our methodology and evaluation criteria. Fifteen years ago, a company that had an environmental policy and took social matters into account within the context of its supply chain, was held in very high regard. Nowadays, this



03_Improving safety at work is a priority for SUEZ ENVIRONNEMENT, which is committed to reducing the frequency rate of accidents at work between now and 2016.

© ABACAPRESS / PATRICK WACK

is standard. Our assessment, therefore, focuses more heavily on the way in which this policy is implemented. For example, we have integrated the matter of bonuses awarded to senior managers according to their participation in the company's performance in environmental and social areas. In our 2013 assessment of the sustainability performance of companies listed on the MSCI World Index⁽²⁾, only 16.7% of them demonstrated a good level of commitment in terms of sustainable development.

T. P.: SUEZ ENVIRONNEMENT has been a committed player in terms of CSR for many years. Our first roadmap enabled us to formalise our approach and translate it into actions in our day-to-day work. Our 2012-2016 roadmap follows on from its predecessor. We have specifically chosen to adopt an even greater customer focus. Customer satisfaction and customer trust

are full-fledged commitments. Another key focus is the notion of the co-production and co-construction (see "Eyewitness" section, p. 24) of solutions with our stakeholders. The social and societal dimensions are also reinforced. Finally, some operational trajectories have been defined with the subsidiaries, so that they meet the roadmap's objectives in their respective fields of expertise.

How can companies use their CSR strategy to better resist the economic crisis?

R. H.: Many companies are suffering as a result of the financial crisis. However, within the context of their CSR strategy, they can, for example, reduce their consumption of energy and finite resources. They are thus making savings whilst helping to preserve the environment. Equally, it is all the better to take the role of the human factor into account in strengthening employee involvement and their pride in participating in the development of a company committed to sustainable growth. Integrating a CSR approach therefore represents a guaranteed competitive advantage in the long term.

(1) Double Dividend with Sustainability Ratings from oekom research: Results of a comparative analysis of share performance based on oekom research AG's sustainability ratings, July 2012.
(2) The MSCI World Index is a stock market index consisting of stocks listed throughout the world. It measures the performance of the stock markets of the 23 countries considered to be the most developed economically.

43.2%

of waste treated by SUEZ ENVIRONNEMENT in 2012 was recycled (compared with 31.6% in 2008)

—

26.3%

of management positions at SUEZ ENVIRONNEMENT were held by women in 2012 (compared with 23.7% in 2008), with a target of 30% for 2016

—

16.9 hours

of training per employee per year were given at SUEZ ENVIRONNEMENT in 2012

—

150

people contributed to the development of the 2012-2016 roadmap



STÉPHANE BRIAT / DEPUTY DIRECTOR
OF THE PYROTECHNIC DIVISION, SITA REMEDIATION

**“FOR EACH CONSTRUCTION SITE,
MY PRIMARY ROLE IS TO
ENSURE THE SAFETY OF THE
POPULATION AND MY TEAMS.”**

IN HIS PROFESSION, WHICH DOESN'T NUMBER MORE THAN A HUNDRED OR SO SPECIALISTS IN FRANCE,

Stéphane Briat, all-terrain decontamination expert, is even more demanding of himself than of others.

His career began in the army, at the age of 18. For eight years, he was a non-commissioned officer in the engineer corps, a specialist in public works, a bomb disposal expert and even a weapons instructor in Yugoslavia and Afghanistan. *“During a training course I learnt how to work with explosives. I loved it! I liked the adrenaline rush and the idea of making a contribution to society. I therefore started training to become qualified in mine clearance,”* explains Stéphane Briat.

At the start of 2003, he left the army to join a family business. Then, in 2005, he started work at SITA Remediation, a SUEZ ENVIRONNEMENT subsidiary, in the pyrotechnic division of which he would go on to become deputy director in 2008. This recently formed division was in the midst of expansion at the time. It specialised in the extraction of solid waste of a very specific nature, such as mine clearance in the heart of town and city centres, complex decontamination and even the destruction of munitions.

Stéphane Briat was, therefore, able to put his experience to good use. He also learnt about the regulations, which are essential in this division with its very stringent safety requirements.

The teams expanded and contracts were extended, particularly in 2010. *“Today we employ approximately 50 people, with a turnover of €6-7 million per year, and with the Ministry of Defence as our main customer,”* declares Stéphane Briat proudly.

The highlights of his career? The evacuation of 10,000 people in Brest in 2009 and the destruction of seven 250 kg aerial bombs in the Paris region in 2012.

To progress even further, he has recently obtained a “Quality, Security and Environment” Master’s degree in pyrotechnic decontamination, and although he is at the top of the division, he firmly wishes to *“maintain contact with the field and my teams in order to ‘stay in touch with the job on a daily basis.’”*

**SITA Remediation,
specialists in polluted sites and soils**

— Established in 2000, SITA Remediation is an entity specialising in the recovery and treatment of hazardous waste. Today, SITA Remediation has seven offices in France and employs 250 people, 90 of whom are engineers. With its specialist laboratory and more than 500 specific pieces of equipment, SITA Remediation (6,000 references) provides its expertise regarding polluted sites and soils in synergy with the Group’s other business lines.

AZURAIR™ SCAN

ODOUR POLLUTION UNDER CONTROL

CIUDAD JUÁREZ, MEXICO. In this city lying on the banks of the Río Bravo, which marks the natural border between Mexico and the United States, odours coming from the wastewater treatment plant have, since 2003, caused unpleasant smells detected as far away as the city of Paso, in Texas. However, this was well before Degrémont began to implement treatments for odorous pollutants and the *Azurair™ Scan* solution for the continuous monitoring of odours was adopted.

Developed by Degrémont, this innovation helps to detect and reduce the olfactory impact of water treatment plants on those living nearby. It visualises and also forecasts the propagation of odours so that operators can react and take the necessary measures according to the size of the plant and sensitivity of the neighbourhood.

Azurair™ Scan is based on a particularly efficient and ergonomic software platform, mathematical modelling of atmospheric dispersion phenomena, a weather station and a programme of measures enabling data from the model to be initialised. *Azurair™ Scan* comes with a manual for managing odours to guide operators in their decision-making.

To these “basic” options, *Azurair™ Scan Sensor* adds a bank of microsensors deployed on-site for continuous data collection, enabling odorous emissions to be quantified and qualified

in real time. The whole system can be managed from any laptop computer or smartphone.

“We wanted a very pragmatic innovation,” explains Éric Judenne, Degrémont’s technical director for Biosolids and Air. “This solution relies on the recognised know-how of our partners – Cairpol for the manufacture of the sensors and Aria for development of the mathematical model – as well as on the expertise of various Group entities (see box). Built like a jigsaw puzzle by combining complementary tools, it can be adapted to all communities and all contexts.”

The *Azurair™ Scan* solution will thus be implemented in Béziers, as part of the renovation/expansion of a plant located in a particularly sensitive environment, for commissioning in early 2015.

For Éric Judenne, “the added value of *Azurair™ Scan* is also down to the advice given to operators for limiting the odours generated by the facility and for adapting operating conditions.”

AZURAIR™ SCAN, “GRAND PRIX INNOVATION” 2013

Azurair™ Scan was awarded a major prize at the SUEZ ENVIRONNEMENT 2013 Innovation Trophies in the “Synergies” category. The solution is, in fact, the result of collaborative work between several business units. Degrémont is the owner of the solution, which complements the *Azurair™* treatment range for odours inherent in decontamination processes. The NOSE IT platform and the associated human-machine interface are based on the expertise of CIRSEE (the International Centre for Water and Environmental Research) and of Ondeo Systems. This system allows the operator to monitor and forecast odour emissions in real time.



News from France...



© ABACAPRESS / ERIC VIDAL

BLUE ORANGE BOOSTING INNOVATION IN WASTE RECOVERY

Blue Orange, the SUEZ ENVIRONNEMENT investment fund, and Demeter Partners have invested €1 million in COGEBIO SA. Their aim? To support the development of this young company, which is based in the Rhône-Alpes region of France and specialises in the recovery of energy from biomass to produce heat and electricity.

Since early 2013, COGEBIO has been marketing Gasclean, a biomass gasification solution. The increase in its capital, announced in May, shows the desire of Blue Orange to support young innovative companies operating in SUEZ ENVIRONNEMENT's business lines.



EURE-ET-LOIR CONFIDENCE RENEWED IN SITA

The Inter-Municipal Union for Household Waste Collection in the Dreux Region has renewed its confidence in SITA for the collection of household and similar waste from its 55 municipalities and 47,000 inhabitants. This €12 million, six-year contract took effect on 1 April. It means that collections will be optimised, leading to a reduction in their frequency by 2014.

NORD-PAS-DE-CALAIS NEW CONTRACT IN THE GREATER DOUAI REGION

On 21 May, **Eaux du Nord**, a subsidiary of **Lyonnaise des Eaux**, won the sanitation management contract for the Greater Douai urban community, in the Nord-Pas-de-Calais region. The €70 million contract over 11 years provides collection, wastewater treatment and urban rainwater management services to 120,000 inhabitants. It focuses on renewed governance, environmental performance and prioritising local employment.

GDF SUEZ

GDF SUEZ FOUNDATION A RENEWED PARTNERSHIP WITH THE FRENCH NATIONAL NATURAL HISTORY MUSEUM

The GDF SUEZ Foundation and the French National Natural History Museum in Paris have renewed their partnership, having been working together since 2000 to promote biodiversity and the preservation of species. The project intends to support and broaden the Vigie-Nature science programme over the next three years. This programme allows qualitative and quantitative data to be collected on the condition of flora and fauna in France. It already comprises 16 observatories, over 1,500 naturalists and some 4,500 observers from the general public. What's more, this educational tool will soon be offered and adapted for use by six million pupils in school programmes. That should help to monitor the evolution of biodiversity in the face of global changes!

€74 million invested in R&D and Innovation in 2012 (compared to €65 million in 2008).

Over 170 projects put forward in 2012

to the Group's Innovation Trophies by employees, who are enjoying increasing success internally.

Three environment breakfasts to be organised by the end of the year.

There will be an opportunity for members of parliament to meet with Jean-Louis Chaussade, and exchange views regarding the challenges facing SUEZ ENVIRONNEMENT in public discussions. The next breakfast meetings will take place on 17 September, 22 October and 3 December.

ALPES-MARITIMES THE FIRST MICROPOLLUTANT TREATMENT PLANT IN FRANCE

On 7 June, Degrémont officially opened the Les Bouillides plant in Sophia Antipolis in the south of France. It is the first plant in France to be equipped with an ozonation system to eliminate micropollutants from water.

This system was integrated during works entrusted to Degrémont and EITP by the inter-municipal association for the expansion and management of the Les Bouillides wastewater plant.

In a very short time, the treatment capacity has almost doubled and the plant already complies with the European Directive on water, imposing a reduction in the amount of micropollutants in the natural environment by 2015.

Of the total €15 million investment, €5.5 million is financed by the Water Management Agency, the region and local departmental authorities. This will reduce micropollutants in bathing water and in the groundwater from which Antibes draws its drinking water.



VOSGES A NEW WASTE TRANSFER SITE

SITA, a subsidiary of SUEZ ENVIRONNEMENT specialising in waste management, laid the first stone of the Saint-Dié La Pêcherie site on 6 May.

Operational from September, this site will be operated by SITA for a period of 10 years and will process up to 31,000 tonnes of waste per year. At the request of local elected officials, waste will be transferred in full without coming into contact with the ground, before being transported to treatment and recovery centres in the Lorraine region.



ACQUISITION AT DEGRÉMONT

Degrémont has acquired Industrial Water Management France. This former BASF subsidiary supplies and markets packaging products and technical services for cooling systems, boilers and industrial effluent treatment plants. With 61 employees spread over two sites in France at Lyon and La Courneuve, in the Île-de-France region, IWM conducts the lion's share of its business in France, Italy and Benelux.



VAUCLUSE TWO CONTRACTS RENEWED WITH LYONNAISE DES EAUX

€152 million is the value of the contracts renewed on 18 April between the Syndicat Rhône-Ventoux and Lyonnaise des Eaux, a subsidiary of SUEZ ENVIRONNEMENT.

These contracts will meet the drinking water needs of the area's 192,000 residents for 12 years, and will cover wastewater treatment services for eight years.

To increase local ties, the partnership between Lyonnaise des Eaux and the Syndicat plans to create a mobile service, known as Proxibus, for users in remote rural areas, in addition to the three customer-facing points already in place in the region.

... and the world



© TRILOGIC / DUMVIER THIERY

CZECH REPUBLIC SUEZ ENVIRONNEMENT CELEBRATES 20 YEARS IN THE CZECH WATER MARKET

In September 1993, Lyonnaise des Eaux began its operations in the Czech Republic by investing in its first local company. The subsidiary, therefore, bore the name Lyonnaise Czech Republic, which became Ondeo Services CZ in 2000.

Following various acquisitions up until 2001, SUEZ ENVIRONNEMENT now holds shares in five companies in the country's water sector and has been on the market longer than any other international group. Ondeo Services CZ, through its subsidiaries, has revenues of €170 million, over 10,000 employees, and provides water and sanitation services to more than one million people.



A REMARKABLE PUBLIC-PRIVATE PARTNERSHIP

The PPIAF (Public-Private Infrastructure Advisory Facility), in partnership with the IFC (International Finance Corporation – World Bank Group), has sought to highlight the 40 most remarkable public-private partnerships in terms of development. The management contract for water and sanitation services in Jeddah, Saudi Arabia, won by Degrémont in partnership with ACWAPower Development, has been included in this list, and is also one of the top 10 projects for Europe, North Africa, the Middle East and Central Asia!

CHINA INAUGURATION AT ONE OF THE COUNTRY'S LARGEST INDUSTRIAL PARKS

On 5 July, the wastewater treatment plant at Wuhan Industrial Park in central China was inaugurated by Wuhan Sino French Water, the joint venture set up between SUEZ ENVIRONNEMENT subsidiaries Sino French Water (43%) and Degrémont (22%), Wuhan Chemical Industry Park (25%) and Shanghai Chemical Industry Park (10%).

This joint venture created the plant (in operation since August 2013) as well as the drinking water production plant (due to become operational by mid-2014). The joint venture will be responsible for running the plant for a period of 30 years.



© GDF-SUEZ / MEYSSONNIER ANTOINE

UNITED KINGDOM THREE CONTRACTS VALUED AT ALMOST €5 BILLION!

In April 2013, SITA, a subsidiary of SUEZ ENVIRONNEMENT, progressed three major public-private partnership (PPP) contracts in the UK for the replacement of landfill sites by new waste recovery chains.

A consortium led by SITA has been selected as preferred bidder for a €1,4 billion resource recovery contract with the Merseyside Recycling and Waste Authority in the Liverpool area. It includes the construction of two sites and their management over a 30-year period. By 2016, one of these sites will process 430,000 tonnes of waste per year, 90% of which will be used to produce energy in the recovery unit, meeting the electricity needs of 63,000 households.

SITA has also signed a contract worth €1 billion over 25 years to manage waste in West London. The contract covers the management of 300,000 tonnes of waste per year, collected from 1.4 million residents. The total revenue from the contract will total €1.9 billion, with additional income being generated through third-party waste and sales of electricity.

Finally, SITA and Cornwall Council have agreed a variation to their PFI (Private Finance Initiative) contract, concluded in 2006, after receiving permission to build the recovery unit. The plant should supply 21,000 households with electricity by 2016. The contract, worth €1.6 billion, has a term of 30 years.

DEGRÉMONT 3rd EDITION OF THE **INNOVATIONS GUIDE**

On 25 June 2013, **Degrémont** launched its *Innovations Guide* including around thirty water treatment solutions for municipalities and industrial customers, including six new developments.

Find out more at www.degremont.fr

GDF SUEZ

BIG AMBITIONS FOR ELECTRICITY IN SOUTH AFRICA

On 3 June, the Group signed 15-year power purchase agreements for two new power plants with open-cycle turbines in eastern South Africa. The Dedisa plant, in the Eastern Cape province, will produce 335 MW from 2015, while the Avon plant (KwaZulu-Natal province) will produce 670 MW in 2016. They represent the first independent power production projects initiated by the South African Department of Energy.

In addition, GDF SUEZ signed a 20-year power purchase agreement in May which completes the West Coast One wind farm project. Situated to the north of Cape Town, the wind farm will have a production capacity of 94 MW in 2015.

In the North, GDF SUEZ is studying the possibility of constructing a coal-fired power plant with a capacity of 600 MW, expandable to 1,800 MW.



UNITED KINGDOM PAPER BECOMES PAPER AGAIN IN BUSINESSES

In the UK, **SITA**, in partnership with **SCA**, the hygiene products specialist, provides its business customers with the option to recycle their waste paper, specifically turning confidential documents into paper towels, kitchen towels or toilet paper.

THREE 2013 GLOBAL WATER AWARDS FOR SUEZ ENVIRONNEMENT

The Group won three 2013 Global Water Awards in Seville. Global Water Intelligence and the International Desalination Association (IDA) not only rewarded the Melbourne plant, but also Degrémont, which was crowned desalination company of the year, and United Water for its contract with the city of Bayonne, New Jersey in the United States. Many congratulations!

SPAIN SITA RECOVERS WASTE FROM PSA PEUGEOT-CITROËN

A contract worth **€45 million over three years** has been awarded to SITA subsidiary Boone Comenor Métalimpex, for the recovery of scrap from steel or aluminium production at the PSA Peugeot-Citroën plant in Vigo, Spain.



LEBANON TURNING THE MOUNTAIN OF WASTE IN SIDON INTO A PUBLIC PARK

SUEZ ENVIRONNEMENT and **AL-JIHAD for Commerce and Contracting** are set to renovate the waste disposal site at Sidon, Lebanon, which has accumulated more than one million cubic metres of waste in 40 years.

This \$25 million contract, managed by the United Nations Development Programme (UNDP), will replace the waste disposal site with a public park, a new landfill site and a treatment plant by the end of 2015.

CZECH REPUBLIC €28 MILLION CONTRACT IN BENEŠOV

Ondeo Services CZ, a subsidiary of SUEZ ENVIRONNEMENT, has won the contract to manage water and sanitation services for the town of Benešov, which is home to around 17,000 people. Signed on 6 June following an international call for tenders, this contract is worth €28 million over 10 years, beginning on 1 January 2014.

It shall guarantee the continuity of services provided during the treatment plant expansion works and satisfies the new European standards for wastewater quality.

USA AQUALOGY SET TO CONQUER AMERICA

Thanks to the ice-pigging of water networks, Aqualogy, via USG (Utility Service Group), signed four contracts in May in the states of New Hampshire and Massachusetts.

In Ocean City, Maryland, the preventive maintenance programme implemented by USG also made it possible to monitor 1,400 valves in the drinking water network, which were suffering from sand build-up and the aftermath of Hurricane Sandy in autumn 2012.

Aqualogy technologies also enabled the network to prepare for the influx of 300,000 tourists during summer 2013.



01



02



03

AMOR AND SUEZ ENVIRONNEMENT

SOCIAL AND SUSTAINABLE RECYCLING

THE SUEZ ENVIRONNEMENT INITIATIVES FUND SUPPORTS THE MOZAMBICAN ORGANISATION AMOR, WORKING FOR SOCIAL, SUSTAINABLE RECYCLING IN MOZAMBIQUE. ITS AIM: TO PROTECT THE ENVIRONMENT WHILST GENERATING INCOME TO SUPPORT A VERY POOR POPULATION. WE TAKE A CLOSER LOOK AT THE PROJECT.

CREATED IN 2009 by Mozambican ecologists and international recycling specialists, the *Associação Moçambicana de Reciclagem*⁽¹⁾, or AMOR, is working to structure the waste recycling sector in a country facing numerous social, health, economic and environmental issues.

Waste management has become a major issue in this rapidly growing yet very poor country⁽²⁾, which has experienced an unprecedented demographic explosion since the end of the 1950s⁽³⁾. AMOR has logically focused its efforts in the Maputo/Matola region, where the problems are most acute. The challenges are significant in this region which is home to 10%

of the Mozambican population, 23% of whom are HIV positive, producing some 800 tonnes of waste per day discharged into the gigantic Hulene landfill site.

This non-profit organisation has set up areas where it can use recycling to raise the population's awareness of environmental protection in the long term. The idea is ingenious yet simple: old shipping containers are converted into recycling points or "ecopoints," where recyclable waste is collected, sold or deposited by individuals, shops and businesses. The waste is then packaged to be sold on to the Mozambican recycling sector.



01_03_As well as boosting the local economy, the AMOR organisation currently employs 35 staff, and around 600 people are involved in its work.

02_The AMOR association aims to develop ecopoints, or collection centres, to boost the local economy.

Since its inception, AMOR has also established a partnership with members of the Xidzuki⁽⁴⁾ organisation, which is principally made up of women who are HIV-positive, with the aim of handing the management of the ecopoints over to them. These self-employed female workers purchase recyclable waste from individuals and businesses with the help of former rag-and-bone merchants, who have become mobile collectors, equipped with carrier tricycles.

With its commitment to concrete action to promote access to essential services, including waste management, in order to help disadvan-

ANTOINE BELON / PROJECT MANAGER, AMOR

"THIS ORGANISATION IS MUCH MORE THAN JUST A GREAT ADVENTURE, IT'S THE STORY OF PEOPLE MEETING ONE ANOTHER AND MOVING FORWARD TOGETHER."

"Since its creation, the aim of the organisation has been to have an environmental, social and economic impact on Mozambican society. I quickly fell under the spell of this project, and of the country and its people. We have achieved very positive results, and sharing experiences with the residents has been both rewarding and stimulating. A new ecopoint is expected to open soon. AMOR's aim in Maputo is to now consolidate these ecopoints in order to achieve full autonomy, and to develop sustainable, independent recycling projects across the country. This is not an easy task, when you consider that almost all recycled waste in Mozambique (95%) is packaged and compacted prior to being exported. As there

is no large-scale transformation process to turn waste into raw materials or finished products, the most significant added value in the recycling process is achieved abroad. As a result, AMOR's aim in the medium and long term is to set up waste transformation chains in Mozambique. This goal is vital if we want recycling to become a genuine source of income and a development opportunity for the country. There is still a lot to do, but it's a journey we don't want to miss out on!"

tagged populations in developing countries, the SUEZ ENVIRONNEMENT Initiatives Fund could not fail to support this project. "The AMOR initiative, which is social, charitable and environmental, is fully in line with our policy," said Myriam Bincaille, General Manager of the Fund. Therefore, since 2012, the SUEZ ENVIRONNEMENT Initiatives Fund has been supporting the project, providing subsidies and skills sponsorship with the support of SITA Négoce, a major player in global waste management and a specialist in the marketing of recyclable materials. "In addition to financial support, our role is to offer our expertise and knowledge of the recycling market, in order to support this organisation as it moves towards sustainable development," said Hatem Sedkaoui, Director of Development at SITA Négoce, and the project supervisor for the SUEZ ENVIRONNEMENT Initiatives Fund.

In consultation with the Municipal Council of Maputo and several other partners, and thanks to the support provided by the SUEZ ENVIRONNEMENT Initiatives Fund, AMOR has already set up nine ecopoints. "The results, which were very positive for the first phase of the project, have led the Fund's Board of Directors to renew its support for 2013 and 2014," said Myriam Bincaille. AMOR has seen an exponential increase in the tonnage of recycled materials, from 186 tonnes in 2010

to 641 tonnes in 2012. Today, AMOR employs 35 people and its activities involve around 600 participants.

Other promising results and projects are on the horizon for 2013, including developing the network in Maputo and the rest of the country, raising awareness in schools and among the general public, developing a craft business using materials recycled by Xidzuki, consolidating the status of ecopoint managers and mobile collectors as micro-entrepreneurs, and in the medium term, setting up waste transformation chains across the country.

(1) Mozambican Recycling Association

(2) Of the two million inhabitants of greater Maputo, some 75% live below the poverty line. Yet, Mozambique has witnessed an annual growth rate of around 8% over the last ten years.

(3) Maputo has seen its population increase by 13.2% in ten years.

(4) In the Changana language, a language spoken in the south of the country, the word Xidzuki refers to the cut tuber that blossoms again after being cut.

SOLUTIONS FOR BUSINESSES

EFFICIENCY THROUGH CO-CONSTRUCTION

ÉRIC BAZIN /

JOURNALIST AND FOUNDING PARTNER OF PLANETWORKSHOPS

Éric Bazin, who was a founding partner of PlanetWorkshops in 2007, has worked as a journalist and travelled the world for 25 years, regularly working with magazines like *Géo*, *The Sunday Times*, and *National Geographic*. He has helped to organise prestigious photo exhibitions: at UNESCO in Venice and New York, "Réalisateurs de Films" at the Cannes Film Festival, and "Fashion Victims" at the *Carrousel du Louvre*. He is chairman of the Edurable association, and actively fights for education to be accessible to as many people as possible.



Founded by Éric Bazin and George J. Gendelman, PlanetWorkshops, in which SUEZ ENVIRONNEMENT is a partner, is an international think tank dedicated to sustainable development issues.

PlanetWorkshops has made co-construction its hallmark, and the approach has been adopted by companies when rolling out complex projects. Further explanation from Éric Bazin.

© ABDOU DIOURI
01_© PUR PROJET
02_

01_PlanetWorkshops allows businesses, NGOs, politicians, etc. to meet up and engage in constructive dialogue to identify solutions for sustainable development.

02_Pur Project has some great examples of co-construction to its name. The group establishes reforestation programmes with companies, like here in Honduras with the APROSACAO cooperative and the NGO Helvetas.

This year it was held in early June at the UNESCO headquarters in Paris and its theme was "Achieving a Successful Transition." More than 2,000 people from over 100 countries were in attendance. SUEZ ENVIRONNEMENT spoke alongside NGOs and experts on the topic of water security and waste management.

To this end, in what way is co-construction a driver in "achieving a successful transition"?

Consultation is key in taking well thought out and fair decisions that allow our development model to evolve. In contrast to the 1970s, companies no longer operate in isolation. With the rise of environmental concerns and information flows at a global level, they are aware of the need to work differently, specifically by opening up to the outside world. What's more, some companies also create new governance bodies, such as youth councils, and new dialogue processes to express a new vision and encourage innovation.

At PlanetWorkshops, we give them the opportunity to speak, to express their views as experts and economic players, while building closer ties with partners they would not necessarily meet.

Why is it in the interest of companies to work collaboratively in their day-to-day business?

Today, the globalisation of the economy and of information is pushing them to integrate consultation at each stage of a project. In this respect, co-construction is a driver for speeding up the implementation of effective solutions, as well as being a way to maintain or improve their image capital.

What is your vision of co-construction?

It's an approach based on dialogue, consultation and cooperation between the various public, private and environmental stakeholders. Resolutely multidisciplinary and transdisciplinary, co-construction is a source of collective intelligence. It consists of managing projects in the long term by inviting all stakeholders involved in sustainable development in its broadest sense to sit around the same table.

In fact, our notion of sustainable development is not restricted to the economic, social and

environmental field: it includes other areas such as culture, for instance, to which we attach particular importance.

We are the pioneers of this approach, and have integrated it in our own *modus operandi*. As such, our partners sit on our scientific steering committees to identify topics and speakers.

Why does co-construction lend itself so well to sustainable development?

Because it is found in all areas of daily life, sustainable development means that decisions must be agreed with all stakeholders in society. PlanetWorkshops allows businesses of all sizes and from all sectors, NGOs, academics and politicians to get together and engage in constructive dialogue to identify solutions in a neutral setting.

This is especially true during the *Global Conference*, our annual international forum.



01_In Algiers, SUEZ ENVIRONNEMENT and the public authorities implemented a brand new co-construction model, which was used to upgrade drinking water supply and sanitation services, while training was also provided for the teams from SEAAL.



© KRISTA BOGGS
01

JEAN-MARC JAHN / CHIEF EXECUTIVE OFFICER OF SEAAL

A BRAND NEW APPROACH TO CO-CONSTRUCTION

“Thanks to the trust placed in us by the Algerian authorities, SUEZ ENVIRONNEMENT has created an innovative public-private partnership approach. The challenge was a significant one: the drinking water supply and sanitation services for the city of Algiers had to be upgraded, both of which were often prone to severe malfunctions, while maintaining the public character of the service. Our mission was two-fold: to bring the water distribution

service into line with international standards and to transfer our know-how to local teams. Today it is a reality! While only 8% of the population had a 24-hour drinking water supply in 2006, today this rate is 100%. In terms of treated wastewater, this figure now stands at over 50%, compared with 7% in 2006. The quality of life of people living in Algiers has, thus, improved significantly. We owe this performance to a brand new co-construction approach with all stakeholders. In addition to our technical contribution, our experts supported managers and employees as they developed their expertise. Nearly 5,800 SEAAL employees thus benefited from the transfer of skills. SEAAL can now rely on a high-quality management structure and on motivated, skilled employees. As for the customers, 86% say they are satisfied or very satisfied with the service. That is our greatest reward. We owe it largely to the quality and continuity of dialogue with the public authorities, social partners and employees, as well as each person’s ability to take action and work towards a common goal.”

→ In fact, a project developed in one part of the world can have very harmful consequences for the entire company if it is poorly managed. It is, therefore, in the interests of such companies to integrate all stakeholders at the various stages of the decision-making process. It is better to make shared decisions, though the timescale may be longer, than to make arbitrary decisions, which will soon be criticised and most likely not be applicable.

What good examples of co-construction spring to mind?

There are several. For instance, there are the projects undertaken with Tristan Lecomte, founder of Pur Projet, who goes into the field with large companies to roll out reforestation

programmes. We could also cite the establishment of a university chair on women’s rights in Togo with UNESCO, the Bolloré Group and players in the education sector, or the creation of a constructive dialogue between Areva and Greenpeace, two players with ostensibly different objectives but which are nonetheless able to communicate.

For its part, SUEZ ENVIRONNEMENT, an acknowledged key partner in water and waste management, applies the co-construction model in many areas and has a genuine culture of partnership. For instance, in Bayonne, New Jersey, United Water partnered with KKR to create innovative solutions to overcome the challenges of renovating the city’s water treatment and sanitation system (*see magazine no. 12, p. 24*).

Of course, generally speaking, visions are different and opinions do not always converge, but dialogue does exist. That is what is needed in order to move forward together! Our role is to build bridges and strengthen relationships to allow acceptable and, therefore, viable solutions to emerge. These meetings can also provoke a great deal of emotion...

“CO-CONSTRUCTION IS A WAY TO OUST THE DICTATORSHIP OF EMERGENCY BY ALLOWING THE EMERGENCE OF DECISIONS THAT ARE SHARED, AND THUS APPLICABLE AND EFFECTIVE.”

VINCENT MOOIJ IS DRIVEN BY INNOVATION AND DEVELOPING NEW BUSINESS.

He was born near The Hague, in the Netherlands, where he studied marketing. He was hired by KPN, the Dutch national telecom operator, where his role as Head of Innovations meant that he was able to participate in the explosion of telephony and mobile Internet access. Vincent then set up his own fashion company before feeling the pull of a new "intellectual challenge." On becoming a father Vincent Mooij also gradually began to wonder about the world we will leave behind for future generations. "I first took an interest in environmental issues in 2005, when my daughter born." So three years later, he joined SITA NEWS.

He initially worked in the marketing department, where he focused on developing sustainable and user-friendly services, to help customers reduce or offset their CO₂ emissions, for instance. Vincent, who now works for the Innovation Department, is "constantly exploring new recycling opportunities as part of a six-person team." SITA NEWS operates at multiple stages of the circular economy, including collection, sorting, waste management, recycling and trading. The main challenge is to turn problems into opportunities. At the moment, he mainly works on a project designed to produce proteins from organic waste. "We intend to do this with maggots, which are found in abundance in situ. They ingest 70% of organic waste and can be used as food for pets." SITA RePaint, another of the innovative projects that Vincent is setting up, enables the recycling of water-based paints.

Vincent Mooij is currently looking into opportunities in another important domain. "The impending industrial revolution caused by 3D printing (using metals, ceramics and plastics) represents a new yet very interesting outlet for recycled materials." A new challenge for this enquiring mind, who says that he feels fulfilled in "a perfect combination of highly competitive business and working for a good cause!"

Spotlight on SITA NEWS

— With 7,700 employees serving 16.6 million people and 200,000 companies, public authorities and institutions in Germany, the Benelux countries, SITA NEWS (North Europe Waste Services) is a European leader in waste collection, recycling and recovery, as well as an international raw material supplier.

VINCENT MOOIJ / INNOVATION
MANAGER AT SITA NEWS

**"PROTECTING THE ENVIRONMENT
AND THE ECONOMY ARE
CLOSELY INTERRELATED: WE ARE
ADDING VALUE FROM WASTE."**



97

million people
around the world are supplied
with drinking water by
SUEZ ENVIRONNEMENT.

→ Get to the heart of the challenges involved in drinking water production with this entertaining, educational video, which tips its hat to the world of video games.



> or suez-environnement.tv/
Water section

→ Check out the video report on the quality of drinking water in France provided by SUEZ ENVIRONNEMENT.



> or suez-environnement.tv/
Water section



As a water specialist, SUEZ ENVIRONNEMENT pursues a policy of sustained innovation to offer its customers the best technologies in terms of water treatment.



DRINKING WATER: RISING TO THE DAILY CHALLENGE OF QUALITY

PRODUCING AND DISTRIBUTING QUALITY WATER, IRRESPECTIVE OF THE ORIGINAL STATE OF THE RESOURCE, 24 HOURS A DAY, 7 DAYS A WEEK, TO ALL OF ITS CUSTOMERS, IS A MAJOR CHALLENGE THAT SUEZ ENVIRONNEMENT HAS BEEN MEETING EVERY DAY FOR MORE THAN 130 YEARS.



© MAGNUM / MARK POWER

01_

01_ Water filtration is one of the treatment options offered by SUEZ ENVIRONNEMENT to obtain high-quality water. Here we can see water before and after filtration.

03_ To remove certain dissolved pollutants such as nitrates from water, it is sometimes directed into refining tanks filled with activated carbon.

02_ SUEZ ENVIRONNEMENT has state-of-the-art technologies and teams of expert technicians to safeguard drinking water production.

02_



© WILLIAM DANIELS

03_



© WILLIAM DANIELS

SUEZ ENVIRONNEMENT

A GLOBAL PLAYER IN WATER DISTRIBUTION

SUPPLYING HIGH QUALITY WATER TO 97 MILLION PEOPLE WORLDWIDE EVERY DAY IS A MISSION WHICH REQUIRES THE MASTERY OF MANY SKILLS, ONGOING EFFORTS IN TERMS OF INNOVATION AND ALSO A SUSTAINED APPROACH TO MONITORING, RESEARCH AND PREPARATORY WORK. SUEZ ENVIRONNEMENT IS ABLE TO EFFECTIVELY RESPOND TO THESE DEMANDS, WHICH POSITIONS US AS A GENUINE EXPERT IN DEALING WITH NEW ISSUE OF MICROPOLLUTANTS.

In France, the quality of drinking water is subject to strict regulation. Tap water must comply with 54 quality criteria defined by the French Ministry for Health, drawn from a European Directive which is itself based on the recommendations of the WHO⁽¹⁾. In addition, it is subject to continuous monitoring, by both operators and the health authorities, who conduct spot checks on all production and distribution facilities through the regional health agencies. Each year, more than 10 million analyses are carried out, making drinking water the most tightly controlled commodity in the world.

A UNIQUE KNOW-HOW

A water specialist for over 130 years, SUEZ ENVIRONNEMENT pursues a policy of sustained innovation in order to always be in a position to offer its industrial and local authority customers the best technologies in water treatment.

Water, in its natural state, is actually very rarely drinkable. It must always pass through a number of treatment stages before it is suitable for human consumption. Some are conventional such as purification, sand filtration or even chlorination. Other processes are much more advanced. This is the case for activated

carbon adsorption, ozonation, membrane filtration (microfiltration, ultrafiltration, nanofiltration and reverse osmosis) or ion-exchange resins, and many other technologies. The order and choice of treatments varies from one plant to another. They must adapt to the state of each resource. There may also be seasonal variations within the same operation. As Gilles Boulanger, Technical Director at Lyonnaise des Eaux, illustrates, “water treatment is similar to playing with Lego®. The operator has a certain number of bricks with which to work, and which it can organise in an almost infinite number of ways to achieve the best possible ‘finished product’ – there may be up to 10 stages of combined treatment for the lowest quality resources.” Overall, SUEZ ENVIRONNEMENT’s know-how lies in this capacity to find the best technological combination, whatever the state of the resource, the specific features of the area or the needs and expectations of customers and consumers.

“Our work in Barcelona is a perfect illustration of this,” says Paul-Joël Derian, Deputy Director of Innovation and Industrial Performance at SUEZ ENVIRONNEMENT. “Agbar, our Spanish subsidiary, manages a processing plant there which takes water from the Llobregat River. Over the seasons, this passes through several states; slow running water, rising water full of silt or even streams with high concentrations of chemical pollutants... By taking up the daily challenge of supplying water, our Spanish teams are not content with simply implementing →

01_SUEZ ENVIRONNEMENT has built several water treatment plants in China, like its drinking water production plant in Chongqing, which the Group will operate and maintain for 50 years.

€74 million

was invested by SUEZ ENVIRONNEMENT in 2012 on research, technology development and innovation. 400 expert researchers and technicians from around the world are working on these research and innovation projects, which correspond to the Group's strategic priorities.

→ a range of technologies in an unchanging context. They are always ready to deploy the most suitable technological combinations according to changes in the resource."

A know-how that Degrémont has also fully mastered. The subsidiary designs increasingly effective treatment solutions which take the environmental and financial concerns of its customers into consideration. The new Pulsazur™, which uses activated carbon adsorption, is one of a number of examples. It offers low consumption of energy and consumables, with reduced maintenance costs.

"It is this intimate knowledge of all of the world's water that allows SUEZ ENVIRONNEMENT to satisfy the needs of each of the populations it serves, along with its proximity to its customers, with which it endeavours to establish a partnership that goes beyond the simple customer-supplier format," Paul-Joël Derian elaborates.

This technological know-how and this partnership philosophy offer customers a guaranteed supply of robust equipment and easy maintenance. This assurance regarding the reliability of its technologies also allows SUEZ ENVIRONNEMENT to make long-term contractual commitments. This is the case, for example, at Chongqing in China, where, after having built the facilities, the Group is now responsible for their operation and maintenance over a 50-year period.

A BENEFIT WORTH PROTECTING

SUEZ ENVIRONNEMENT is always able to meet the quality standards demanded by its customers. And its subsidiary Lyonnaise des Eaux is posting excellent results in this area. In fact, 99.8% of the bacteriology analyses carried out in 2012 by the health authorities on water produced and distributed by Lyonnaise des Eaux were in compliance with the regulations.

However, SUEZ ENVIRONNEMENT's know-how doesn't stop there. The Group also ensures that it is in a position to anticipate future developments. Resources change and water is often the final destination of our pollution, which is a reflection of our society. Advances in detection solutions have been demonstrating the presence of new micropollutants in our environment and particularly in our water resources in recent years.



Gaining a better understanding and anticipating these new forms of pollution is one of the strategic priorities that SUEZ ENVIRONNEMENT has set itself, with the aim, as Philippe Maillard, CEO of Lyonnaise des Eaux, comments, of "being fully prepared to face up to all situations in good time and thus ensure the continuity of the public water distribution service for our customers."

MICROPOLLUTANTS, A KEY CHALLENGE

Pesticides, medication for humans or animals, cosmetics, plasticisers, detergents... The range of micropollutants is vast, when you consider that over one tonne of more than 100,000 different molecules produced are in circulation around the world.

It is often difficult to evaluate the long-term effects of chronic exposure to a very weak dose, forecast the results in animals and humans, assess the interactions between components and finally, determine the part of the exposure through water in comparison to other sources such as air or foodstuffs. As Gilles Boulanger comments, "Exposure to micropollutants via tap water is marginal. Today, it is primarily a question of environmental conditions, although in the medium to long term this could become a public health issue if the concentrations continue to increase and certain micropollutants still exist at pumping stations for our domestic water."

For several years, SUEZ ENVIRONNEMENT has been taking action in this area, which it sees as a priority. For over 10 years, the Group has been supporting a number of research projects and work programmes on developing effective technical solutions for all of its future operations – including those located in emerging countries. Because, contrary to commonly-held beliefs, and as Philippe Gislette, Scientific, →

TAPPING INTO OUR EXPERTISE IN DRINKING WATER

3
PLAYERS



SCIENTIST



WATER OPERATOR



PUBLIC AUTHORITIES

4
AREAS OF
EXPERTISE



INNOVATION



OVERSIGHT



RAISING AWARENESS



REGULATION

1. PROTECTING THE RESOURCE

900 M

PEOPLE DO NOT HAVE
ACCESS TO DRINKING WATER



Less than 1% of the
Earth's water is fresh
and liquid



Guaranteeing the availability
of resources: replenishing
water tables, re-using water



Monitoring water
tables on an ongoing
basis

2. LIMITING POLLUTION



20 TO 25
CHEMICAL
MOLECULES
appear throughout
the world every
week

18 tonnes
of organic matter are
poured down the drain
every day by a city of
100,000 inhabitants



ABILITY TO DETECT
POLLUTION
X 1,000
IN 10 YEARS



Raising awareness of
sustainable behaviours (organic
farming and green chemicals)



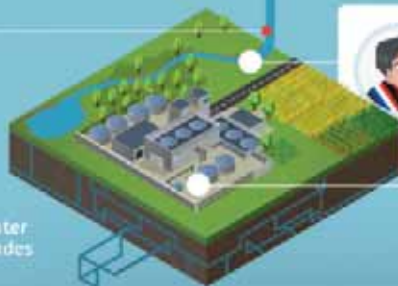
Protecting water
catchments

3. MAKING WATER DRINKABLE

89% of the world's population,
i.e. 6.1 billion people have access to
improved sources of drinking water

100%
OF THE FRENCH
POPULATION

has had access to drinking water
24 hours a day for several decades



54 REGULATORY
CRITERIA
TO GUARANTEE SAFE AND
HIGH-QUALITY DRINKING WATER



Over 1,000 controlled
parameters

4. SUPPLYING WATER 24/7

54% OF THE
WORLD'S
POPULATION
was connected to a supply
network in 2006

In France, the average network yield is 75%,
compared with less than 50% in the world's remote
cities



The French drinking water supply
network consists of:

700,000 km
of mains

16,000 plants
producing drinking water



Remote monitoring
enables water savings of
between 10 and 30%





© ABACAPRESS / TRICKWACK

01_

02_



© THIERRY DUVVIER

03_



© ABACAPRESS / PATRICK WACK

01_ Before being declared drinkable, the water is systematically analysed. The Group also organises various programmes to continually remain at the forefront of exploration of the infinitely small.

02_ The microorganisms present in the water samples are also analysed in the Group's laboratories.

03_ Within the Group, engineers from all over the world work together every day in the treatment centres or the drinking water production plants in order to make the water suitable for consumption and to distribute it.

10,000

water treatment plants have been built by SUEZ ENVIRONNEMENT in 70 countries.



01_

01_ The Group undertakes a large number of research projects and work programmes on developing efficient technical solutions for all of its future operations, such as at this site under construction in China.

→ Technical and Innovation Director at Degrémont notes: “While the attention given to the quality of tap water in developing countries has undoubtedly only occurred more recently than in Europe and the OECD countries, it is making great strides in terms of its globalisation. Today, the majority of the regulations laid down by the health authorities in these countries are in line with U.S. and European requirements. We are helping to homogenise quality standards and ensure that treatments are applied consistently on an international scale.” A dual phenomenon which is supported by a convergence of expectations of public opinion. “Once the risk of microbiological exceedance which affects their health in the short term has been overcome, populations will formulate their own demands on the parameters for comfort (hardness, iron, clarity, etc.),” he explains. “Then, very quickly, as in the West, the question of long-term risks will take on a significant importance as it becomes a social issue.”

AT THE FOREFRONT OF RESEARCH

First and foremost, SUEZ ENVIRONNEMENT keeps a very close eye on the evolution of detection technologies, which are continuously progressing. The Group organises various programmes with universities and the CNRS⁽²⁾ in order to remain at the forefront of exploration into the infinitely small, which is necessary when you consider that the detection thresholds of analysis tools are improved by a factor of 1,000 every 10 years. Today, we can detect products of infinitesimal proportions – some of which weigh just a billionth of a gram. A level of accuracy which then poses the question of knowing exactly how far it is reasonable to go with this research. As Paul-Joël Derian comments: “The more we search, the more we find... The challenge is knowing which detection thresholds should be used within the

context of our water distribution services, because these research protocols come at a cost. On the other hand, even if it was technically possible to offer customers chemically pure water, this would not be entirely desirable from a human health point of view. This type of performance, in which Degrémont Industry specialises, is reserved for certain industrial customers working in the electronics or pharmaceutical sectors, for example.”

This is all subject to the monitoring the Group carries out together with the Water, Environment and Health Advisory Council (WEHAC). Created in 2011, it brings together various internationally-renowned scientific experts, with whom SUEZ ENVIRONNEMENT works to assess risks and the hierarchy of dangers in order to be able to offer local authorities an appropriate combination of technological measures without going beyond what is necessary for their particular situation. Even here, the Group benefits from an extremely refined level of technical expertise, acquired across a number of research programmes, and particularly through its participation in the POSEIDON project. Undertaken jointly by CIRSEE⁽³⁾ and other European partners from 2001 to 2004, this large-scale research programme sought to study the various methods for treating micropollutants across the entire small water cycle⁽⁴⁾. For drinking water, it was found that the use of advanced treatment programmes (micro and nanofiltration, activated carbon filtration and ozonation) and their combination (multi-barrier approach) as already applied by SUEZ ENVIRONNEMENT for the treatment of pesticides, was particularly effective.

And, to further complement its knowledge on the effectiveness of the different technological combinations applied to protect the environment from micropollutants, SUEZ ENVIRONNEMENT recently launched an experimental programme, led by CRISEE, entitled “The plant of the future” [“Usine de demain”].

Mastering the analytical techniques and specific treatments for micropollutants: a dual expertise which SUEZ ENVIRONNEMENT has already had the opportunity to demonstrate, in addition to its responsiveness. In June 2011, for example, when unusual concentrations of →

01_ Together with farmers, the Group and its subsidiary, Lyonnaise des Eaux, foster partnerships with the aim of developing practical actions at a local level which help to conserve water resources.

Dozens of

new molecules are produced every week in the world. So many new potential pollutants.

→ ammonium perchlorate, a pollutant previously unseen in Europe, were discovered in certain resources for the city of Bordeaux, it took engineers from CIRSEE and Lyonnaise des Eaux just 48 hours to create an analysis protocol and less than two months to implement a pilot treatment plant.

GOING BEYOND THE CURATIVE APPROACH

The best way to pre-empt new pollutants is still to prevent them at the source. The implementation of the Water Framework Directive in 2000⁽⁵⁾ and the entry into force of the European REACH regulation in 2007⁽⁶⁾ are both positive steps in this regard. This is a preventative approach which addresses local authorities' environmental and economic concerns, of which SUEZ ENVIRONNEMENT is a major local promoter. It is primarily a European approach, but one that is gaining ground in emerging countries. Once populations have access to drinking water, the investments generally focus on the sanitation of their wastewater.

In France, the Sophia Antipolis wastewater treatment plant is a notable example in this respect. It is the first plant in France to treat micropollutants (*see p. 37*).

But further upstream, SUEZ ENVIRONNEMENT is working with all of its stakeholders to implement collaborative mechanisms applicable to the large water cycle⁽⁴⁾ and to reduce emissions of micropollutants.

Together with farmers, Lyonnaise des Eaux is at the heart of the partnerships to develop practical actions at a local level which help to conserve water resources. They have worked closely with Terrena, one of the major players in French agriculture and food processing, to create ONOVA, a joint venture exclusively dedicated to the promotion of measures beneficial to the controlled use of water in agriculture. Lyonnaise des Eaux has also concluded agreements with players in the chemical industry to be notified of new molecules



01_

© WILLIAM DANIELS

developed by these companies prior to them being marketed. It is involved in a number of collaborative projects with local authorities and consumers.

For example, in Calais, the local authority asked Eaux de Calais, a subsidiary of Lyonnaise des Eaux, to list the molecules present in its catchment area, to model the potential incursion risks at its drinking water plants and finally to help it with the implementation of practical alternatives that respect the resources.

A number of actions that form one of the pillars of the new, integrated approach to managing water was developed by Lyonnaise des Eaux in its new "Contract for Water Health"⁽⁷⁾ which must allow it to offer consumers consistently high-quality tap water at a reasonable price, in both the short and long term.

(1) World Health Organisation

(2) National Centre for Scientific Research, a French organisation.

(3) International Centre for Water and Environmental Research (CIRSEE) is the SUEZ ENVIRONNEMENT Group's main research centre.

(4) The large water cycle refers to the natural water cycle with its endless succession of evaporation, precipitation, runoff, infiltration, etc. The small water cycle refers to the domestic water cycle. In other words, its use by humans. It begins with its capture, followed by its treatment, its use, its decontamination and finishes with its return to nature, which also marks its reintegration into the large water cycle.

(5) France, like all member countries of the European Union, must implement the Water Framework Directive of 2000, which stipulates that its water bodies must attain a good ecological and chemical status by 2015. To achieve this, France has adopted an action plan to ensure the compliance of sanitation in local communities, a plan to counteract the pollution of aquatic environments by micropollutants, and a national plan for medicinal residues.

(6) REACH (Registration, Evaluation, Authorisation and Restriction of Chemical substances) is aiming to assure greater security in the manufacture and use of chemical substances within the community and to introduce a system of registration, evaluation and authorisation for chemical products.

(7) In 2009, Lyonnaise des Eaux launched a brand new approach called "New Ideas For Water": Everyone could put forward their ideas for the future of water through a collaborative platform. Many of the suggestions have now been materialised in the "Contract for Water Health", a collection of proposals relating to governance, innovation and the economic model, which must meet the expectations expressed by local authorities and citizens regarding the conservation of resources.

BECAUSE THEY HAVE AN UNDERSTANDING OF TREATMENT PROCESSES AND ARE FAMILIAR WITH WATER IN ALL ITS FORMS AND IN ALL ITS STATES, SUEZ ENVIRONNEMENT'S ENGINEERS AND RESEARCHERS CAN ADDRESS MANY CHALLENGES. THEY HAVE NO HESITATION IN BREAKING WITH TRADITIONAL INDUSTRY PRINCIPLES, BY TREATING DRINKING WATER LIKE WASTEWATER... AND WASTEWATER LIKE DRINKING WATER. FOCUS ON THREE INITIATIVES.

TREATMENTS FOR ALL THE WORLD'S WATER



SAIDABAD

Transforming sludge into water

When they were asked by the Bangladeshi health authorities to supply water to some of the 15 million inhabitants of Dhaka, the country's capital, SUEZ ENVIRONNEMENT's engineers had to face up to a sizeable challenge. It involved producing up to 450,000m³ of water per day from the Shitalakshya River, the only resource still available but which is extremely contaminated. In fact, during the dry season, the concentrations of ammonia and organic matter are as high as in wastewater. Delivered in 2012 by Degrémont, the Saidabad plant is developing an original solution. It is adding a biological pretreatment stage to a drinking water process, something that is normally reserved for the decontamination of wastewater.



LES BOUILLIDES

Wastewater cleared of micropollutants

Opened in June 2013, the Les Bouillides plant receives wastewater from Sophia Antipolis, in the south of France, and returns it to the Bouillide River once it has been treated. This small river, which often receives a larger volume of water than its own flow, then feeds into the Brague River, which is in turn used to supply the drinking water plant in Antibes. Two reasons that make the treatment of effluents more advanced in order to offset the effects of shortening of the water cycle. In this sort of configuration, we normally perform disinfection by final chlorination. Here, Degrémont and Lyonnaise des Eaux opted for ozonation, which has the same role and will also break down micropollutants. This is one of the first units of its type in the world.



SIPIBEL

Medicinal residues through the magnifying glass

Commissioned in February 2012, this project, led by Degrémont in Haute-Savoie, France, aims to study and compare medicinal residues in both hospital and urban effluents. A single plant receives wastewater from a town and its hospital that it treats in two separate processes, but returns to the same receiving environment. This particular configuration already makes it possible to study the treatment lines that are most suited to these specific micropollutants.

OPTIBIO

HIGHLY EFFICIENT ORGANIC WASTE MANAGEMENT

THE INNOVATIVE OPTIBIO PROCESS was developed through a collective field-based initiative within the Amétyst anaerobic digestion unit⁽¹⁾ in Montpellier, operated by SITA. It took 18 months to devise this new process, test it in the laboratories of CIRSEE (SUEZ ENVIRONNEMENT's International Centre for Water and Environmental Research) and make it operational.

"Optibio is a series of processes that treats residual household waste by anaerobic digestion, with very high levels of energy output and strong recovery potential", sums up Guillaume Ribour, the plant's director. Objectives of this innovation: to increase energy recovery from household waste and encourage its return to the soil in the form of organic enrichment.

Optibio is set out in three phases. The first phase consists of mechanical-biological treatment which must prepare the untreated household waste, extracting as much as possible of the undesirable content (metal, glass, plastic, etc.) and concentrating

the organic matter to give it greater methanogenic power. The second phase is where the essential know-how acquired by the Amétyst plant is concentrated. It involves anaerobic digestion/dehydration in five 1,500m³ digestion tanks, where organic matter and water are mixed according to a perfectly mastered formula, which can be adjusted according to biological and chemical parameters measured continuously throughout the process. The third phase involves resting the digestate to dry it out before it is sent to the final composting or storage units.

"Anaerobic digestion⁽²⁾ is a very complex process to make stable and few facilities manage to do it", he points out. "However, we have managed to control it at an industrial scale - 5,500 tonnes of organic matter digested per month - with energy output that reaches 410 kWh per digested tonne, i.e. double the normal output. Better still, this production is regular and the process is stabilised, with no incidents or deviations in over a year."

The load applied in each digestion tank has gone from 25 tonnes to more than 50 tonnes of organic matter treated per day. The financial gains related to the increase in power output are currently estimated at more than €700,000 per year at plant level. Great results!

(1) Following a fire that devastated part of the plant in 2010, threatening the site's survival.

(2) An anaerobic environment is one where there is no dioxygen (O₂).



OPTIBIO, "GRAND PRIX INNOVATION" 2013

SITA France was awarded a major prize at the 2013 Innovation Trophies, in the "Operational and Financial Performance" category for the *Optibio*

anaerobic digestion of organic waste process. An official recognition of the remarkable efficiency of the process. The sought-after objectives – optimising

energy output from organic matter, increasing its recycling rate and improving the usability of the Amétyst plant in Montpellier – have been broadly achieved.



RACHEL BERNARDIN / OPERATIONAL AND MAINTENANCE CONTRACT MONITORING MANAGER, MAPOCHO-TREBAL - AGUAS ANDINAS WASTEWATER TREATMENT PLANT

“THE DISCOVERY OF THE REMAINS OF A MASTODON ON THE SITE WAS AN UNUSUAL EVENT IN MY CAREER.”

IT WAS IN 1998 THAT RACHEL BERNARDIN FIRST SET FOOT IN LATIN AMERICA. *“On leaving the French École Nationale Supérieure d’Agronomie (National Institute of Agronomy), I was offered a placement with Lyonnaise des Eaux, at Aguas Del Illimani. My assignment was to optimise the operation of the wells that supply drinking water to La Paz, in Bolivia. That’s how it all began...”*

After spending four years in Bolivia, the young hydrogeologist headed for Ondeo Services in Chile, at first to manage a technical support contract between CIRSEE⁽¹⁾ and Aguas Andinas and then as operations manager for Aguas Andinas’ two main drinking water plants. *“Given the public health issues, the position was really exciting but also very stressful. When I fell pregnant for the second time, I asked to take a bit of a step back. So I did not hesitate when, on my return from maternity leave, I was offered the position of operational contract monitoring manager for the Mapocho-Trebal wastewater treatment plant.”* In this new position, Rachel Bernardin’s task was specifically to ensure compliance with the terms of the contract. She was also the point of contact between Aguas Andinas and the local population. *“At the beginning of 2011, workers who were building the Mapocho plant unearthed the remains of a mastodon in an exceptional state of preservation. We immediately downed tools across the site and called in the palaeontologists! It was an incredible event.”*

Measures were duly taken (such as guards, railings, palaeontologists and information for the public), so that these remains were kept intact and the palaeontologists did not lose any precious pieces! Since then, the excitement has died down and the remains have been moved to the Natural History Museum. They will be the subject of a travelling exhibition in Chile supported by SUEZ ENVIRONNEMENT and GDF SUEZ.

A replica of the mastodon will be installed in a park close to the plant, where Rachel Bernardin would like to see a botanical pathway created, with information on the water cycle and global warming. *“By seeing members of the public and schools flocking in, people will feel more proud of their village and will be more aware of the importance of our business in protecting the environment. That’s what I’m banking on!”*

(1) Centre International de Recherche sur l’Eau et l’Environnement (International Centre for Water and Environmental Research).

Aguas Andinas in brief

— A subsidiary of SUEZ ENVIRONNEMENT, Aguas Andinas covers the whole water cycle – production and distribution of drinking water, collection and treatment of wastewater – for a population of more than six million people living in Santiago and its suburbs. The supply of drinking water to the Chilean capital is mainly dependent on the Maipo River, the flow of which is affected during periods of drought. To address this challenge, Aguas Andinas operates and maintains its main water reservoir, located in the Andes mountain range (Embalse El Yeso - 200,000,000m³) at the highest possible level.

AGBAR

AQUACIS, OR HOW TO OPTIMISE THE CUSTOMER RELATIONSHIP

AGBAR, a SUEZ ENVIRONNEMENT subsidiary and the leader in the Spanish water market, is consolidating the establishment of its first water ERP programme⁽¹⁾, AquaCIS. Established exclusively by and for the water sector, AquaCIS is a pioneering IT solution, the first of its kind.

Designed and developed by Aqualogy, Agbar's integrated solutions brand, this software enables a company's operational and customer management processes to be standardised and simplified to improve the efficiency of the marketing function. *"AquaCIS combines all the customer management knowledge and know-how acquired over our 145 years of experience,"* asserts Raúl Sáez Zafra, Head of Deployment and AquaCIS Project Leader.

Providing genuine organisational support, AquaCIS enables all the procedures of the commercial water management cycle to be interconnected and easily monitored. This includes customer service, the management of meter readings and consumption, billing, charges and the management of outstanding payments. To complete the package of solutions on offer, AquaCIS also has a technical application that enables operators to manage all interventions on the ground.

For users, AquaCIS offers a more transparent and reactive service. A virtual office, it makes it easier for the user to access information relating to their contract and bills, enables the progress of interventions to be monitored in real time and allows customers to interact with their supplier. Another strong point is the flexibility of AquaCIS! It can adapt to the needs of every customer and work in conjunction with a company's existing management software. *"In three years it has enabled us to standardise the management of the 785 operations that we administer, all with specific standards and their own characteristics,"* states Raúl Sáez Zafra.

Recently acquired and distributed by municipalities and businesses in Oran, in Algeria, AquaCIS should also be established this year in Mexico and then Chile.

The programme has a total of 7,786,000 subscribers around the world and is already a valuable asset. *"Its performance and success have enabled us to offer it to a number of other countries and to consider its use in sectors other than water, such as the electricity sector,"* observes Raúl Sáez Zafra. AquaCIS is also acquiring a stake in mobile technology since all of its features will be available on the iPhone and iPad from 2014.

(1) Enterprise Resource Planning.

AQUACIS, "GRAND PRIX INNOVATION" 2013

Each year, SUEZ ENVIRONNEMENT rewards innovative projects developed by all of the Group's subsidiaries in the strategic and priority fields. In 2013, at the fifth Innovation Trophies ceremony, AquaCIS received the top prize in the "Marketing Activity and Customer Relations" category.

"THE FLEXIBILITY OF AQUACIS ENABLES US TO RESPOND EFFECTIVELY TO THE EXPECTATIONS OF ALL OF OUR CUSTOMERS."



On the Web

NEW ENVIRONMENT SECTION IN THE HUFFINGTON POST



The French version of the *Huffington Post* is joining forces with SUEZ ENVIRONNEMENT to create a new specialist section on environmental issues. Featuring in-depth articles and topical news, a selection of items appearing in the SUEZ ENVIRONNEMENT eMag, infographics, photos and educational videos... this section will be similar in nature to the U.S. version of the site, famous for its long-standing commitment to sustainable development.

→ www.huffingtonpost.fr/actualites/environnement

ONLINE VERSION OF THE 2012 ACTIVITY REPORT



The SUEZ ENVIRONNEMENT Activity Report is available for the very first time in an interactive version on the Group's website.

In just a few clicks, this version provides an overview of our 2012 activities and additional educational content (photos, special reports, videos) which enhances the content of the paper version.

Find out more at

→ www.suez-environnement.fr

Out and about

CONVERGENCES WORLD FORUM

17/09/2013 → 19/09/2013

Paris, France



The Convergences World Forum allows public, private and charitable partners to discuss economic models and innovative solutions to combat poverty and insecurity throughout the world, and to promote the Millennium Development Goals (MDGs). SUEZ ENVIRONNEMENT is a partner of this 2013 edition, which will include a presentation by Jean-Louis Chaussade, CEO of the Group.

What are the challenges when building a sustainable and fair society? How can each stakeholder, be they public, private or charitable, improve their practices and how can all of these players work together? These questions are at the heart of discussions that bring together distinguished speakers from all four corners of the globe.

→ www.convergences2015.org

THE ENVIRONMENTAL CONFERENCE

20/09/2013 → 21/09/2013

Paris, France

This Conference, which is a major national gathering, is intended to engage France in an exemplary fashion as it makes the ecological transition. It brings together NGOs, businesses, unions, local authorities and government representatives. Water policy, marine biodiversity, waste and the circular economy, jobs linked to the ecological transition and environmental education will all be covered during the 2013 conference, to which SUEZ ENVIRONNEMENT also intends to contribute.

THE MAYORS AND LOCAL AUTHORITIES TRADE FAIR

19/11/2013 → 21/11/2013

Paris, France



The Mayors Trade Fair is the time and place where all local authority officials in France gather to share information about facilities and investment. Here, elected representatives and policymakers compare experiences and discuss major local issues. Like every year, SUEZ ENVIRONNEMENT will be in attendance, and will talk with the various stakeholders about the best ways to manage water and waste.

→ <http://smcl.salons.groupemoniteur.fr>

EUROPEAN WEEK FOR WASTE REDUCTION

16/11/2013 → 24/11/2013



Since 2009, this European event has brought together institutions and project directors to raise public awareness in Europe about both waste reduction and prevention: "the best waste is waste we don't create!" Reducing the amount of packaging, extending the life of objects through swapping and gifts, repairs and recovery, and more. There are so many ways to save on waste.

→ www.ewwr.eu

It's in the air...

MORE ON THE DISCOVERY OF A MASTODON SKELETON IN MAPOCHO, CHILE



In early 2011, during works to modernise the water treatment plant at Mapocho, in Chile's Santiago valley, Degremont's teams unearthed the fossilised head of a mastodon in an exceptional state of preservation. The name is familiar but the species is rare, having disappeared over 10,000 years ago for reasons that remain unclear. The Chilean National Museum of Natural History in Santiago is currently conducting genetic studies to reconstruct the last moments of these curious animals, longer and with shorter legs than our elephants, with straight, not curved, tusks. This was hailed as a major discovery by international palaeontologists, and the quality of the excavations was exemplary. SUEZ ENVIRONNEMENT not only did all it could to assist the field researchers, but the Group also funded an exhibition that will be dedicated to the mastodon at the Museum of Santiago from November 2013. It hopes to install a replica of the prehistoric animal close to the treatment plant in Mapocho (*Read the feature with Rachel Bernardin on p. 44*) A film broadcast in July 2013 on French TV channel France 5 allowed viewers to relive the palaeontological adventure and find out more about this rare and curious relative of the mammoth.



For more information, please visit:

→ Website: www.suez-environnement.fr

→ eMag: www.emag.suez-environnement.com

→ SUEZ ENVIRONNEMENT TV: www.suez-environnement.tv

→ YouTube: www.youtube.com/user/suezenvironnement

→ Twitter: <http://twitter.com/#!/suezenv>

VIK MUNIZ / CONTEMPORARY ARTIST

WHEN WASTE BECOMES A WORK OF ART



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Vik Muniz has created his works with the help of *Catadores* at the world's largest landfill site in Rio. The works are made from materials gleaned from the rubbish dump (plastics, paper, magnetic tape, and so on).



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WHEN VIK MUNIZ RECLAIMS WASTE...

Born in 1961 in São Paulo, Vik Muniz splits his time between Brazil and New York. For this artist - who describes himself as self-taught - and who grew up in poverty, drawing and images have always been an important means of communication. He began his career in the 1980s as a sculptor in New York, which in those days was a city boiling over with culture. But it was his series of photographs, entitled *Pictures of Chocolate*, that brought him worldwide recognition in 1997. What sets him apart is his ability to turn any material into a medium, and to use photography to capture the images he creates from materials ranging from the poorest to the most refined (sugar, chocolate, earth, ash, diamond, etc.). After painting the Mona Lisa with jam, Marilyn Monroe with ketchup and a wealth of other portraits, he now delves into the trash and turns what he finds into Art.



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WASTE is a bit like the hidden side of our being, the side we try to hide ... I think making art with something that we no longer want to look at is an interesting proposition for an artist. In a way it means transcending the material itself to bring out the life inside it. This is what I wanted to do in *Jardim Gramacho*, the world's largest landfill site, located on the outskirts of Rio, Brazil. There, the people known as *catadores* carry an average of 200 tonnes of recyclable materials each day, in the hope of selling them to earn some money. With their cooperation, I used recycled materials to create portraits of the men and women who work at the dump day and night. The money from the sale of these portraits was given in full to the *catadores*.

When director Lucy Walker contacted me, I asked her if she would film the project on a daily basis. It seemed more interesting than making a film about me! At the time, I did not have the faintest idea that the film *Waste Land*⁽¹⁾ would have such an impact around the world, particularly in my own country of Brazil. It's true that, in comparison to Europe or the United States, we are a long way behind in terms of recycling... This film raised the awareness of a huge percentage of the Brazilian population with regard to the importance of waste sorting. What's more, it allowed the sorters, who have an unbelievably tough job and work with great dignity, to emerge from the shadows. Today they have organised themselves and are asserting their rights.

I wanted to look at waste in a new light. In fact, I came to realise that art was a powerful way to raise awareness of sustainable development. This seems to be a key challenge for the future of the planet.

But I am not the only person to have elevated waste to the status of a work of art! Other contemporary artists, like Swiss artist Christoph Büchel and British artists Sue Webster and Tim Noble have also made art from waste, breathing new life and energy into discarded items.

For my part, one thing is certain - since this experience I have never looked at my rubbish bin in the same way!

(1) Documentary directed by Lucy Walker and released in cinemas in 2011.



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