

SUEZ ENVIRONNEMENT Magazine

Number 11_November 2012

SUPPLEMENT

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ON UNITED
WATER

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SMART WATER

TO BETTER
MANAGE OUR
WATER RESOURCES





01

37%

of the total amount invested
by Lydec since 1997 has been
invested in wastewater treatment

01_
The city of Casablanca has over 5 million inhabitants. Today, its coastline is one of the most industrialised in the country, and as such, is one of the most polluted.



DECONTAMINATING CASABLANCA'S WATERS

LYDEC AND THE CITY OF CASABLANCA (MOROCCO) LAUNCHED A MAJOR DECONTAMINATION PROJECT IN JULY 2011 ALONG 24 KM OF MOROCCO'S COASTLINE, TO THE EAST OF CASABLANCA.

THROUGH THIS SITE, ONE OF SUEZ ENVIRONNEMENT'S LARGEST, LYDEC CONFIRMS ITS ROLE AS A DRIVING FORCE IN THE REGION'S DEVELOPMENT.

OBJECTIVE: TOTAL DECONTAMINATION OF CASABLANCA'S WATER BY 2014



01_

This colossal site should improve living standards of the city's inhabitants, specifically by cleaning up its coastline, and thus strengthening its tourist potential.

LYDEC'S MISSIONS

Lydec is a public service operator managing the distribution of water and electricity, the collection of wastewater and rainwater, and the public lighting for 5 million inhabitants in the Greater Casablanca Region. Thanks to its missions, conferred as part of a delegated management contract signed in 1997, Lydec plays a major role in the long-term urbanisation of this Moroccan city. Lydec is listed on the Casablanca stock exchange.



02_

The initial shaft of the tunnel boring machine.

03_

The site is divided up into three geographic areas (the Mohammedia area, the central area and the port area) each comprising 10 stages of works.

2.5 m

the internal diameter of the shaft pipes laid at a depth of more than 10 m, and over a 12 km stretch.



03_

04_ One of the initial shafts on site with hydraulic push cylinders.



04_



01_

The works stretch over 24 km and will last more than 3 years.

02_

Once in place, the facilities will directly intercept wastewater discharges from the Port of Casablanca to Mohammedia. The wastewater thus collected will then be pre-treated before being drawn off via marine outfall.

01_

THE MICRO TUNNEL-BORING TECHNIQUE

On this site, Lydec used an innovative technique, the first of its kind in Morocco: the use of "micro tunnel-boring machines." These remote-controlled machines are able to dig tunnels without using open-cut excavation techniques, and do not require the mobilisation of a team below ground to supervise the works. This method offers maximum safety in terms of respecting environmental restrictions and saves a significant amount of time. In addition, it limits the disruption to inhabitants.

11 m³/s

the flow rate at the Sidi Bernoussi pre-treatment plant

02_



The Moroccan coastline,

from Casablanca to Mohammedia, is one of the most industrialised in the country. The result is a very worrying level of pollution, linked essentially to

raw wastewater discharges. Over 250,000 m³ of wastewater is discharged into the sea each day! It has become an urgent priority to remedy the situation in order to protect the marine environment and bathing waters, and to improve the living standards of some 5 million inhabitants.

After the Casablanca West site, the anti-pollution site at Casa-East represents a budget of over 150 million euros. With over 58% of its financing provided by Lydec⁽¹⁾, it aims to intercept direct wastewater discharges, then to pre-treat them and draw them off via a marine outfall (pipeline). Two coastline interceptors, with diameters ranging from 90 cm to 2m50, will bring together the nine wastewater discharge pipelines located in the area, covering 24 km. In Sidi Bernoussi, a marine outfall of over 2 km in length, set at 20m below sea level, will be attached to the treatment plant. It has an exceptional flow rate: it can reach 11 m³/s, much greater than the rate achieved at the discharge points.

Another remarkable aspect is the particularly innovative digging technique chosen by Lydec: micro-tunnel boring. Shafts can thus be supported without using open-cut excavation techniques, and without having to mobilise teams below ground (*see box*). The commissioning of the system, which comprises 10 stages of works, is scheduled for 2014.

This particularly ambitious site will have a significant impact on the region, both in terms of the environment and the economy. The project will create jobs and enable the development of a seaside area of 1,700 hectares set out in the Master City Planning Schedule within the scope of Greater Casablanca.

[1] 42% is financed by the construction fund of the delegating authority.



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"On the Smart Water market, SUEZ ENVIRONNEMENT's strength is to offer solutions designed by experts in the water business."



→ When you see a flashcode in the magazine, scan it with your flashcode reader to discover videos or the websites associated with the subject (cost of a mobile internet connection).



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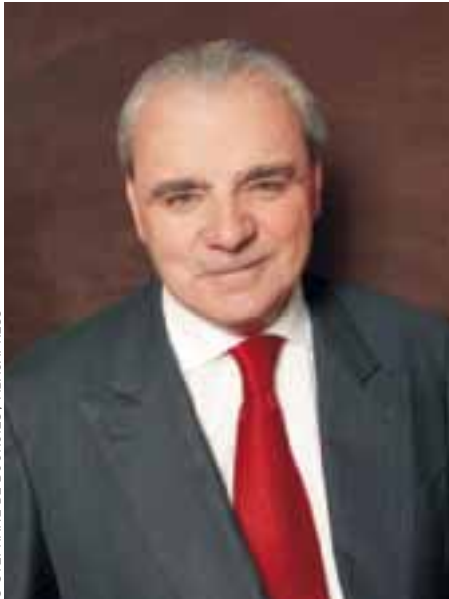
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JEAN-LOUIS CHAUSSADE /
CEO OF SUEZ ENVIRONNEMENT

“SUEZ ENVIRONNEMENT IS LOOKING TO REINVENT ITS TWO BUSINESS LINES, WATER AND WASTE MANAGEMENT, AND WORK TOGETHER WITH ITS STAKEHOLDERS TO CO-CREATE SOLUTIONS TO THE PROBLEMS OF TOMORROW.”

Dear readers,

Today, we face new challenges relating to the increasing scarcity of natural resources; yet, due to urbanisation, population growth, and the industrialisation of emerging countries, our needs are rapidly increasing. Our development model must therefore address the necessity of reconciling environmental, social and economic performance.

Already committed to green growth and the circular economy, SUEZ ENVIRONNEMENT is looking to reinvent its two business lines, water and waste management, and work together with its stakeholders to co-create solutions to the problems of tomorrow.

Driven by this commitment, our strategic vision is based on developing solutions in waste recovery and the management of water resources, and to conquer new markets and areas of growth.

In this issue, we have chosen to focus on a major development in our business lines, namely the use of new information technologies to manage water resources more effectively, otherwise known as Smart Water.

In an ever-changing world, innovation is both a necessity and a source of competitiveness. Through a number of examples, we wanted to demonstrate how co-creation and the partnerships we have developed help us to innovate and support the development of our business lines.

Lastly, we hear from Janine Benyus, an American biologist, who will tell you more about biomimicry, a truly inspiring concept which looks at how observing nature can help in the search for innovative solutions in our business lines.

Enjoy reading!

DEGRÉMONT

OXYBLUE™, FOR REUSING WASTEWATER

ENCOURAGING THE PRESERVATION OF WATER RESOURCES

with a view to sustainable use is now a priority for many countries. Increasingly stringent legislation is prompting industrial operators and governments to consider a two-fold issue: eliminating as much pollution as possible from their residual water to allow them to reuse it, and enabling the treated water to be discharged, including in sensitive areas.

These are two areas in which Degrémont was able to provide a solution through an advanced technological innovation: Oxyblue™. Sylvie Baig, Head of Scientific Innovation at Degrémont, explains that in this unique process, *“by eliminating persistent and non-biodegradable organic pollutants from industrial residual waters, this doesn't just comply with the regulatory obligations, but it also allows reuse lines to be optimised”*.

The idea behind Oxyblue™ consists of introducing ozone oxidation, and continuing the process through biofiltration once the optimal biodegradability level has been reached. This cutting-edge technology offers advantages for the least competitive operators: a 50% reduction in the operating costs for the quantity of ozone used⁽¹⁾, guaranteed profitability and, when the operator integrates ultrafiltration membranes, a two-year extension to their service life. Thanks to this technology,

Degrémont has reaffirmed its leading position in the water treatment market and has won all of the calls for tender to which it has responded. Sylvie Baig also notes that Oxyblue™ *“offers various opportunities in all industrial markets with a heavy chemical oxygen demand (COD)⁽²⁾, such as petrochemicals, pharmaceuticals, paper pulp and the food industry”*.

Two facilities for the advanced treatment of effluents are currently in operation: Tereos-Syral, a wheat starch manufacturer in France, and the Laakirchen paper mill in Austria, which have recorded reductions in chemical oxygen demand and discharged suspended solids of 50% and 30% respectively. Two other residual water treatment facilities are currently being started up on the PetroChina site, the largest Chinese oil operator, with a view to reusing 50% of its effluents. *“Since Oxyblue™ was launched, it has been in high demand and a number of projects are under consideration, particularly in China, Brazil and the United States”*, Sylvie Baig commented.

(1) The process requires far smaller ozone quantity than competing processes, which use extensive ozonation technologies.

(2) COD, chemical oxygen demand, characterises the pollutant elimination rate.

“THANKS TO THIS TECHNOLOGY, DEGRÉMONT HAS REAFFIRMED ITS LEADING POSITION IN THE ADVANCED WATER TREATMENT MARKET AND HAS WON ALL OF THE CALLS FOR TENDER TO WHICH IT HAS RESPONDED.”



LEAVING ROUTINE BEHIND, looking at job variety as a way to grow, seeing every problem from both a technical and cultural perspective... We might well imagine these principles being championed by an artist or a social science researcher. However, the words come from Sidoine Ravet, an engineer and manager of the *Water for All* programme at SUEZ ENVIRONNEMENT.

Sidoine already has a wealth of experience in project management. *"My interest in challenges relating to water and the environment came about after my studies, when I started working with an NGO in Madagascar."*

Recruited by SUEZ ENVIRONNEMENT in 2006, Sidoine first tackled the modernisation of distribution and wastewater treatment in Algiers, before supervising the construction of a drinking water production plant in Northern France. Since 2010, he has been in charge of the *Water for All* programme. *"I cover numerous countries where the company is established, with the aim of supporting communities in establishing their right to water and sanitation: this can go from integrating informal districts so they become part of the area served, to finding the financial means necessary for disadvantaged households."* For technical assistance assignments in Haiti or India for example, Sidoine integrates his solutions at the heart of the Group's other areas of expertise. *"By playing a part in the company's rational management, we can ensure the longevity of the solutions put forward. Furthermore, our action is based on the active participation of the populations concerned, along with local authorities. We build solutions in partnership with them."*

In addition to field projects, Sidoine is in charge of capitalising on the Group's knowledge and contributing to international think-tanks on the subject, by taking part in working groups, specifically within the IWA (International Water Association). *"This push for greater distribution is essential if we are to dialogue with other players and promote the most relevant solutions, to provide access for all to essential services... How could I even dream of a more stimulating quest?"*

A brief look at *Water for All*

— Almost one billion people in the world do not have access to drinking water. A further 2.6 billion have no means of sanitation. Thanks to the *Water for All* programme, SUEZ ENVIRONNEMENT mobilises its operational know-how to help put these situations right as part of its contracts with local communities. The solutions deployed are based on an in-depth diagnosis, innovative tools relevant to the reality on the ground, and close collaboration with the concerned populations and local authorities, at every stage in the project.



SIDOINE RAVET / MANAGER OF THE *WATER FOR ALL* PROGRAMME

**"WE BUILD OUR SOLUTIONS
IN PARTNERSHIP WITH
LOCAL POPULATIONS AND
AUTHORITIES."**



Innovation is one of the key elements of SUEZ ENVIRONNEMENT's strategy, and as a result, it invests a great deal in research.

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INNOVATION AND KNOWLEDGE SHARING

AN AMBITIOUS POLICY IN A CHANGING WORLD

SUEZ ENVIRONNEMENT'S DIRECTOR OF RESEARCH, INNOVATION AND PERFORMANCE, **PAUL-JOËL DERIAN** SHARES THE SAME COMMITMENT TO THE FIELD OF INNOVATION AS **ÉLISABETH AYRAULT**, DEPUTY MANAGING DIRECTOR OF SITA FRANCE, AND **TOMAS MICHEL**, CEO OF CETAQUA, NAMELY: HOW TO RISE TO THE CHALLENGE OF SUSTAINABLE DEVELOPMENT IN AN EVER-CHANGING WORLD.

Here is a guide to the Group's main research centres throughout the world.

CIRSEE

International Centre for Water and Environmental Research (Le Pecq, France)



WERC

Water Environment Research (USA)

CETAQUA

Technical Centre for Water (Barcelona, Spain)



“OUR OBJECTIVE IS NOT JUST TO MEET THE NEEDS OF THE MARKET AND OUR CLIENTS THROUGH HIGH-PERFORMING, INNOVATIVE OFFERS, BUT ALSO TO ANTICIPATE FUTURE NEEDS.”

PAUL-JOËL DERIAN /
DIRECTOR OF RESEARCH,
INNOVATION AND PERFORMANCE,
SUEZ ENVIRONNEMENT

Today, where does innovation stand at SUEZ ENVIRONNEMENT?

Paul-Joël Derian: Innovation is one of the cornerstones of the Group's strategy. It is part of an environment characterised by the current and future challenges faced by the planet, and one that directly concerns our business lines. We live in a world where raw materials are increasingly scarce and are becoming more expensive; to such an extent that they can be difficult to acquire. The demographic constraint must also be taken into account, since in 2050, the planet's population will reach 10 billion inhabitants, of whom 80% will be living in cities.

Our clients expect solid expertise from us in the various competencies dealing with water and the recycling of raw materials. In addition, we face the challenge of making our innovation processes more effective via a faster standardising and industrialising of new solutions deve-

loped within our various subsidiaries. We work in traditional business lines, but these are being modernised at a rapid pace, and the technologies they use are evolving; such as information, which is playing an ever-increasing role.

Tomas Michel: In actual fact, the current environment leads us to consider innovation as the fundamental basis of our activity. For instance, CETaqua does not commit to any projects that are bereft of innovative characteristics. For this reason, we stand at the interface between universities and companies. We must not lose sight of the fact that, in a way, innovation represents the economic return on investment devoted to research.

Élisabeth Ayrault: Over 70 million euros is dedicated to research, development and innovation every year. This is a substantial sum, but I think we will never devote enough money to it for the environmental business lines, which are constantly evolving.

What's more, innovation is not just technological. It is as much a matter of knowing how to create the agreements of tomorrow, as it is transforming the market's needs into innovative offers for our clients. Innovation only holds value when it leads to development. To obtain the most value, innovation in terms of the contractual side of our offers should also enable us to improve results.

What are the challenges and objectives of this ambitious policy??

P.-J. D.: We have a slogan that encapsulates our objectives in this domain quite succinctly: “Make our clients the leaders in environmental performance.”

We are spearheading a substantial research and innovation drive with well-defined objectives. First of all, resource effectiveness. As the current model wears out, SUEZ ENVIRONNEMENT intends to promote a circular economy to achieve sustainable growth. We are a worldwide group, which also has growth and development ambitions in emerging economies, both by providing local solutions at the right cost, and by taking inspiration from their inventions. I am thinking for instance of China and India, or Brazil, where universities are increasingly inventing and innovating, while at the same time training engineers educated in the most recent technologies.

We pay particular attention to the development of technologies and services that rise to the challenges of tomorrow. That is what makes Smart technologies so interesting; these information technologies we use to serve our business lines, which form one of our key differentiating factors. →



"THE CURRENT ENVIRONMENT LEADS US TO CONSIDER INNOVATION AS THE FUNDAMENTAL BASIS OF OUR ACTIVITY."

TOMAS MICHEL /
CEO, CETAQUA

With the help of the *Blue Orange* investment fund, the *Cynar Plc* company is developing revolutionary technology to convert plastic waste into Diesel fuel.



SUEZ ENVIRONNEMENT is in pole position in this respect. Our objective is of course to meet the needs of the market and our clients with high-performing, innovative offers. However, it is also to anticipate future needs.

É. A.: Sustainable development involves enforcing a principle of transparency, dialogue, and reporting at the very heart of management, which is requested by both communities and industrial players. Building together is not an empty phrase. The electric waste collection lorry is a very good example of our objective to innovate within our business lines. The innovation is intelligent, and is fundamentally based on the obtaining of value. Thanks to its design, it is not just an innovative, high-performing vehicle, but also a tool for urban development. It is another way to collect waste that goes far beyond technological innovation. This ability to obtain value is one of our great strengths. It gives us a head start, enables us to be competitive, and affords us our position as the reference player.

T. M.: In fact, today, innovation is embedded in our business model, or quite simply in the way we talk about a product's performance to its user. Providing technical solutions is no longer enough. These solutions must also be understood by the user. In this respect, the example of apps developed on Smartphones is a most interesting one. These provide users with useful information. In Spain, for instance, we developed the iBeach app enabling seaside resorts to provide information about the weather, water temperature and quality, as well as whether or not there are jellyfish present.

Which tools have been implemented in terms of research and innovation?

P.-J. D.: We rely on a network of research centres throughout the world, representing over 400 experts and researchers. However, today, major companies face regulatory requirements and increasing technological complexity, on markets where innovation can no longer be an isolated activity. To meet the modern challenges of innovation, we must now adopt a dynamic of openness. A new *business model* is needed, one based on joint responsibility and joint creation, combining economic, social and environmental performance. This is why open

innovation, which is at the heart of our strategic vision, is of such interest and is such a challenge. This global strategy allows us to speed up and intensify our research and innovation capabilities, and to provide our clients with high-performance solutions.

In 2010, we launched a key initiative: *Blue Orange*, an investment fund devoted to new technologies in water and waste. This 50 million euro fund allows us to invest in promising start-up that are developing innovative technologies, and which we believe to be the players of the future. Two years after its launch, this initiative is a great success: we look into almost 300 files per year, and have taken part in five investments. We can also outline several notable projects financed by this fund. First of all, the transformation of plastic waste whose recovery potential was hitherto poor. Developed by the *Cynar Plc company*, this revolutionary technology enables plastic waste to be converted into Diesel fuel, without damage to the environment. The second major project concerns a Norwegian company, *Redox Maritime Technologies*, specialising in the treatment of ballast water of ships⁽¹⁾.

By 2016, 15,000 ships will have to comply with new regulatory standards limiting the transportation of harmful and aquatic organisms and pathogens. Finally, we recently



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“INNOVATION ONLY HOLDS VALUE WHEN IT LEADS TO DEVELOPMENT.”

ÉLISABETH AYRAULT /
DEPUTY MANAGING DIRECTOR,
SITA FRANCE



→ Discover the new innovation section on the SUEZ ENVIRONNEMENT website.

OPEN INNOVATION

Open Innovation is a theoretical approach outlined in 2003 by American academic Henry Chesbrough.

The economic realisation of this new management method is reflected in the pooling of innovation platforms. The challenge and interest of open innovation lies in its ability to create synergies and thus speed up the innovation process and share the risks associated with the development of new products.

Its main strength is its ability to provide highly specific know-how that is in line with environmental issues and client needs. Open innovation allows the existing borders between different markets to be made permeable. It is a key area that SUEZ ENVIRONNEMENT is exploring, working, via open innovation, in close collaboration with an ecosystem of partners: Group entities, start-up, universities, research centres, industrial partners, and governments. Based on transparent governance, openness and sharing, they rely on a high-performing international network of experts.

financed the start-up, sigrenEa, to develop its waste management technology for voluntary disposal.

I would also like to mention our “Technological Tests” programme that enables innovative solutions put forward by our partners to be tested in industrial conditions, regardless of whether said partners are start-up, major groups, or Small/Medium-sized enterprises. Representing an overall financial commitment of some 5 million euros per year, these technological tests have already given rise to 26 creations since the programme was launched at the end of 2010. These tests help to generate offers within minimal timeframes, and enable us to win new contracts.

SUEZ ENVIRONNEMENT participates in numerous collaborative value creation networks that are often supported by public joint-financing initiatives, such as competitiveness clusters or European programmes. These programmes allow the Group’s research and development effort to be leveraged, while benefiting from collaborative work with some of the best research teams in the world. In France, for instance, we are currently participating in around ten competitiveness clusters involved in the recycling, water, circular economy, maritime, and environmental domains. All these tools have helped us to win contracts and to be competitive in our business lines.

In what way is partnership fundamental today?

P.-J. D.: It is essential beyond all doubt. In the environmental business lines, we could not foresee innovation without partnership. It is self-evident that the various stakeholders comprised of local governments, universities and regulatory bodies, as well as technological partners, play a fundamental role, and they all have something to say. Furthermore, we must not lose sight of the fact that technologies are getting more complex with each passing day, and that they require long periods of research, which can often be very costly. Bringing skills, resources and efforts together, and working in synergy, has become a necessity to ensure a high-performance offer and to effectively meet the requirements of the current market.





The Group pays particular attention to the development of technologies and services that rise to the challenges of tomorrow.



→ Go to the special report on "innovation" in the eMag.

→

É. A.: In order to develop winning strategies, reduce its vulnerabilities and increase its competitiveness, innovation must actually be multi-disciplinary. This presupposes being attentive to the needs of the current, and most importantly, future market. In this situation, the concept of partnership is fundamental. At SITA, we work not only in close cooperation with our industrial and public clients, but also with consulting firms, to whom we present some of our technological developments. This means that together, progress can be made in research and innovation.

T. M.: In fact, one of our specific characteristics is never working in an isolated way. I would say that at CETaqua, we worked in *Open Innovation* without even realising it. The challenge is to rely on the synergies and trust created between the various players on collaborative, innovative projects. People begin to

understand that a more global vision is required, and that you must be willing to implement every possible partnership. This new way of seeing things is not restricted to companies – universities have also changed their vision.

What are the future challenges that innovation must rise to?

P.-J. D.: To rise to the challenges of tomorrow, technical progress alone is not enough. Dialogue with our partners is essential. Research, innovation, technology and the dissemination of know-how within the company are structural elements and very important themes for the Group's convergence.

In Spain, for instance, Agbar identified the Hotels and Resorts market that must ensure a regular water supply to areas that are often affected by water stress. On the other hand, Lyonnaise des Eaux and French agricultural cooperative *Terrena* created the first ever company exclusively dedicated to the water and environmental needs and issues of farmers. These two subsidiaries adapt innovation to local challenges and specific features; but the most promising results and know-how will quickly be shared with all the Group's entities to nurture future offers to our clients throughout the world.

T. M.: I would add that the challenge is enabling us to remain creative in an ever-changing world. In Spain, CETaqua is currently the Agbar research centre with the largest number of *Life+* ⁽²⁾ projects financed at a European level. We have six areas of research and the themes covered by projects are numerous. They share the willingness to spur on progress in knowledge and technology so as to deliver services of increasing effectiveness, both in environmental and economic terms.

É. A.: The major challenge of tomorrow's world is to consider waste as a resource, and to find every way to extract all the wealth it contains. This cannot occur without innovation. Whether in terms of energy, organic or physical recovery, there is a whole new range of offers, new processes and new forms of sharing value with our clients just waiting to be invented. Innovation can help lead us towards a circular economy and to anticipate all the "new life-forms" for waste. The nature and success of sustainable growth depend on it.

[1] Ballast water is used onboard ships to ensure stability based on the cargo transported.

[2] *Life+* co-finances projects in favour of the environment in the European Union and certain other countries.



SITA A SORTING CENTRE AT THE CUTTING EDGE OF TECHNOLOGICAL INNOVATION

ON SEPTEMBER 28th THIS YEAR, SITA INAUGURATED a new household waste sorting centre in Villers-Saint-Paul, in the Île-de-France region.

Operated since 2003 on behalf of SMVO (*Syndicat Mixte de la Vallée de l'Oise* - Joint Trade-Union of the Oise Valley), this centre was completely rebuilt to make room for a next-generation high-performance sorting centre.

With an investment of 7.7 million euros, this project is exemplary in many ways. It responds to current recycling challenges by combining new technology and performance. It enables SITA to support the modernisation desired by the SMVO by improving sorting in the 290 adjoining towns and effectively responding to the extension of sorting parameters to include plastic packaging other than bottles^[1]. *"The challenge was enormous. But we were able to rise to the challenge, since in under six months, we created a new process adapted to the new sorting parameters, as well as building and starting operations at this new centre"* says Patrick Baudouin, Director of the Sorting Excellence Mission for SITA France.

With a capacity of 30,000 tonnes per year, the centre is fully automated. It is equipped with an optical sorting process that enables the sorting and recycling of all types of plastic packaging, including new plastic resins. In total, nine optical sorting machines select very specifically from the various materials: paper, cardboard and plastic. *"Taking advantage of the most recent cutting-edge technologies, this centre is the only one of its kind in France, since it is able to recover the highest number of recyclable materials and thus optimise the rate of physical recovery"* Patrick Baudouin continues. This new configuration enabled a significant increase in the unit's sorting capacity, and it can now treat 10 tons of selective collection per hour, compared with the previous 2.5 tons treated.

Automation of the lion's share of operations thus allowed us to reduce the arduous nature of some manual operations and to take account of CARSAT^[2] and INRS^[3] recommendations in terms of workstation ergonomics. With sorting instructions that may be rolled out in 2014 across the entire French territory, the new technological standard of Villers-Saint-Paul, exemplary both from a resource conservation and a waste recovery standpoint, looks set to become a reference point, and the model to follow.

[1] With a view to meeting the challenges of the Grenelle law on the environment, one of whose objectives is to double the percentage of recycling by 2015, Eco-packaging launched an experiment in 2010 aimed at improving recycling performances. 54 governments, including SMVO, were selected to test the feasibility by 2013 of recycling other plastic packaging, such as empty yoghurt pots, trays, sachets and plastic wraps.

[2] CARSAT: *Caisse d'assurance retraite et de la santé au travail* (Occupational Health and Retirement Insurance Fund)

[3] INRS: *Institut national de recherche et de sécurité pour la prévention des accidents du travail et des maladies professionnelles*, National Research and Safety Institute for the prevention of occupational accidents and illnesses.

News from France...



AQUITAINE CONTRACT RENEWAL AND MODERNISED PARTNERSHIP

Lyonnaise des Eaux won the public service outsourcing contract for wastewater (collection and treatment of wastewater and management of urban rainwater) for the Bordeaux Urban Community (*Communauté Urbaine de Bordeaux, CUB*) and its 750,000 inhabitants. From 1 January 2013, this contract, worth €40m per annum, will prepare for the transition to a public operator in 2019. It will modernise the partnership entered into with the local government nearly two years ago via the Contract for Water Health and will schedule renewed governance to enable the local government to undertake its organisational role in wastewater service.

The contract also schedules a carbon-neutral wastewater service by 2018, reinforces the value of nature with the creation of a wetland, and provides access to information tools to encourage dialogue on the challenges of wastewater service.

SUSTAINABLE DEVELOPMENT SUEZ ENVIRONNEMENT, WORLD LEADER IN THE WATER SECTOR

For the fourth year running, SUEZ ENVIRONNEMENT was selected by the Dow Jones Sustainability Index World and the Dow Jones Sustainability Index Europe in September for its social, societal, environmental and governance-related performance. And for the first time, the Group was recognised as the world leader in the “water sector” category, for its commitments to sustainable development, specifically regarding access to water, biodiversity, and crisis and risk management.

GDF SUEZ

GDF SUEZ, A SOCIAL HOUSING PARTNER WITH ITS PERFORMANCE AND SOCIAL HOUSING OFFER

In September 2012, during the 73rd Union Sociale pour l’Habitat (Social Union Congress on Social Housing), GDF SUEZ presented “Performance and Social Housing,” a comprehensive and integrated solution to help social landlords achieve better energy, environmental and social performance. By centralising consumption information on energy, water and the provision of services, the platform optimises management of social landlords, tenant information and consumption monitoring. This solution has already been adopted in 9,500 homes in Poitiers.

ÎLE-DE-FRANCE NEW PNEUMATIC WASTE COLLECTION CONTRACT

On 2 October, **SITA and SAFEGE**, both subsidiaries of SUEZ ENVIRONNEMENT, and their partners, the Spanish company, ROS ROCA, and BBJ architects, were appointed to establish a pneumatic collection network for household waste in Saint-Ouen, near Paris. The €20m project comprises a vacuum collection plant, a 6km underground network, and 143 collection points composed of one terminal for household waste, and another for recyclable materials. It is scheduled for completion in 2014.

A DIVERSIFIED GROUP

26.5%

of managers in the Group are women, thus exceeding the objectives set.

11.4% of the Group's employees are seniors at the end of 2011, and an objective of 12% set for the end of 2012.

This end of 2011 data appears in the results published by SUEZ ENVIRONNEMENT, partner of the 2nd edition of the European Diversity Forum on 2-3 July this year.



© JON BOYES/SPAC - IMAGE5/CORBIS

NORD-PAS-DE-CALAIS

THE FIRST ECO-SOCIAL TARIFF SCHEME IN FRANCE

Since 1 October, inhabitants of the Dunkirk Urban Community in the north of France have been taking advantage of an eco-social tariff scheme: it is ecological since it encourages reasonable water consumption, and shows solidarity since for the first time, it takes household income and house size into account. The new system also schedules a price drop of 20% to 70% depending on household income, for so-called "essential" water (used for food and hygiene).

POITOU-CHARENTES

RENEWED TRUST IN SITA

SITA has won contracts worth €45m for the sorting and collection of household waste in the Greater Poitiers region. They came into effect on 1 October for a seven-year term. SITA is committed to the area, and is set to open a next generation sorting centre in 2015, along with increased vigour in its policy to encourage diversity and to help those in difficulty return to work in the Greater Poitiers region.

BLUE ORANGE A NEW TECHNOLOGY FOR WASTE COLLECTION

Blue Orange, the innovation venture capital fund, Sofimac Partners and Centre Capital Development, have contributed €1m to signenEa, an Orleans-based start-up to develop its waste management technology at voluntary drop-off points (sorting terminals allowing users to drop off their cardboard, glass, plastic and metal household packaging) The solution, christened "aEnerCOM" enables remote monitoring in "near" real-time of how full the waste containers are: the information collected then allows collection to be optimised according to needs.



SITA, EXPERTISE IN WASTE-TO-ENERGY PROJECTS

In 2011, SITA's 38 Waste-to-Energy Units in France recycled 4,300,000 tons of waste. This was enough to light 820,000 homes and heat 120,000 of them! An experience that achieved its recognition in 2012 with the renewal of a contract in the Chamonix-Mont-Blanc valley. Waste-to-energy management in Passy was awarded to SITA for a period of 15 years, in a deal worth €89 million.



© PHILIPPE MENCIA MH PROD

MIDI-PYRÉNÉES INAUGURATION OF A NEW RECOVERY LINE

In September 2012, SOPAVE, a specialist subsidiary of SITA, created a new recycling line near Rodez in southern France, with an investment of €3.5 million. Using industrial film, agricultural tarpaulins and used LDPE (low-density polyethylene) plastic sampling bags, the site produces 100% recycled sampling bags and plastic pellets.

At stake is a saving of 16,000 tons in CO₂ equivalence per annum.

SUEZ ENVIRONNEMENT INITIATIVES - INSTITUT DE FRANCE AWARDS

ACCESS TO ESSENTIAL SERVICES AND SOCIAL ENTREPRENEURSHIP

In July, the SUEZ ENVIRONNEMENT Initiatives - Institut de France prizes (organised by the SUEZ ENVIRONNEMENT Initiatives Fund and the Institut de France), each worth €50,000, were awarded to innovative projects, intended to improve access to water, sanitation and waste management for disadvantaged populations.

With this criteria in mind, the Mothers' Club in the Savannah region of Togo, led by the French Red Cross in partnership with the Togolese Red Cross, and social entrepreneur Green Bio Energy in Uganda, were both rewarded for their work. The first promotes good practices in water and hygiene in families. The second aims to turn organic waste into charcoal briquettes.



→ Watch the prize-giving movie here.

... and from around the world

UNITED STATES

UNITED WATER AT THE CLINTON GLOBAL INITIATIVE (CGI)

United Water was spotlighted by President Bill Clinton at the Clinton Global Initiative (CGI) Annual Meeting in New York on September 25th, for its new approach to meet America's water needs.

While indebted American cities are unable to provide the necessary investments in their networks, United Water is committed to modernising water infrastructures and operating systems via a hitherto unseen approach: linking with private sector partners to provide new capital in the long-term. The subsidiary has instigated its first projects with KKR (Kohlberg Kravis Roberts) and the city of Bayonne (New Jersey), as well as in Nassau County (New York State).



→ Watch the video of Bertrand Camus, CEO of United Water, at the CGI.



AUSTRALIA

A MAJOR STEP FORWARD FOR THE **MELBOURNE DESALINATION PLANT**

In September, SUEZ ENVIRONNEMENT announced that the first performance-testing phase of its seawater desalination plant in Melbourne (Victoria) had been a success. In fact, the plant produced drinking water on an industrial scale for seven consecutive days.

It will gradually increase its production from a capacity of 150,000 m³ of water per day in September to 450,000 m³ of water per day by the end of 2012.



DEGRÉMONT INDUSTRY: NEW OMOBILE PLATFORM IN BRAZIL

In October, the OMOBILE platform in Sao Paulo, Brazil, already had two industrial water treatment mobile units. **At the beginning of 2013**, eight trailer-mounted or container-based units will be available for rental.

CHINA

AGREEMENT REGARDING A **FOOD WASTE TREATMENT PLANT**

In September 2012, SITA Waste Services, a subsidiary of SUEZ ENVIRONNEMENT and the Chongqing Environment and Sanitation Holding Group (CESHG), came together through a joint venture agreement to invest, build, operate and manage a food waste treatment plant in Chongqing. The collaboration will focus not only on the treatment of 3,000 tons of waste per day, but also on gas and electricity recycling, along with other clean development technologies.

SUEZ ENVIRONNEMENT CELEBRATES 30 YEARS IN INDIA OVER

153

plants built by Degrémont and 17 plants currently in operation, including Asia's largest water treatment plant in Mumbai.

4.9

billion litres of water produced every day, equivalent to the water requirements of a population of 32.7 million inhabitants.

UNITED KINGDOM

84,000

jobs could be created over the coming 10 years; this is the potential of the recycling and waste management sector in the United Kingdom according to a SITA UK study.

Source: *Driving Green Growth: the role of the waste management industry and the circular economy*, SITA UK.

GDF SUEZ

GDF SUEZ ESTABLISHES LINKS WITH BARCELONA TO MAKE IT THE CITY OF TOMORROW

On 9 October, the city of Barcelona signed a strategic partnership with GDF SUEZ to develop smart city projects as part of the "City Protocol," which is the reference when it comes to sustainable cities.

GDF SUEZ will thus set up a smart city platform that will use data available on the city, in terms of energies, water or traffic, to optimise investment and steer infrastructures. The partnership also covers local and renewable energies, urban mobility or positive energy buildings and districts.

INDIA WATER ROUND THE CLOCK FOR 400,000 INHABITANTS OF NEW DELHI

The consortium made up of SUEZ ENVIRONNEMENT (74%) and Indian firm, SPML (26%), won the contract to improve the water distribution service of a New Delhi district. This contract, worth €75 million, is set to start at the end of 2012 for a twelve-year period. It will offer the 400,000 inhabitants continuous water supply 24 hours a day, 7 days a week, compared to the 3 to 8 hours per day they currently receive. It also plans to offer better customer service, the replacement of water meters and the connection of 7,000 new homes to the water network by 2015. The consortium will simultaneously renew 100 km of pipes out of the existing 200 km, and will build a 26 km extension.

BRAZIL AND MOROCCO AQUALOGY'S INTERNATIONAL SUCCESS: 4 NEW CONTRACTS

Aqualogy, Agbar's integrated solutions brand, has won two major contracts in Brazil with Foz do Brasil, part of the Odebrecht Group, the country's largest construction firm. The Brazilian company chose Aqualogy for its geographic information system solution.

A second contract covers the energy audit of Foz's 20 largest sites.

In Morocco, Canaragua Maroc SRL, an Aqualogy subsidiary, signed two new contracts with the National Office for Drinking Water in Laayoune.

Aqualogy will provide the reverse osmosis membranes for seawater desalination plants, as well as equipment for the pipe networks.



JORDAN DEGREMONT : EXTENSION CONTRACT FOR THE AS SAMRA PLANT

At the beginning of June, Degrémont signed a 25-year contract covering the extension of the wastewater treatment plant for the city of Amman and the area around Zarqa. This plant has been operated by the Samra Project Company consortium since 2008, under the joint control of SUEZ ENVIRONNEMENT and Morganti. Expansion works of €150 million for Degrémont and its partner, Morganti, should last three years, followed by 22 years of operation.

The new plant, whose cornerstone was laid on 11 October, will increase the current capacity of 267,000 to 365,000 cubic metres per day, so as to meet the needs of 3.5 million inhabitants, which is close to 35% of the country's population!



01_

01_ Candidates from the *Maison pour rebondir* working on a Lyonnaise des Eaux site.
02_03_04_ The *Maison pour rebondir* in Bordeaux opened its doors in 2012.

PHOTOS : N.TUCAT / CAPA PICTURES



02_

MAISON POUR REBONDIR AT THE HEART OF INTEGRATION

FOR SUEZ ENVIRONNEMENT, ENCOURAGING DIVERSITY WITHIN ITS COMPANY IS THE KEY TO IMPROVING PERFORMANCE. THE ONLY ONE OF ITS KIND IN FRANCE, ITS *MAISON POUR REBONDIR* (HELPING HAND) PROJECT AMPLY DEMONSTRATES ITS COMMITMENT TO HELPING INTEGRATE YOUNG UNEMPLOYED PEOPLE AND WOMEN BACK INTO THE JOB MARKET, AND THUS PROMOTING EQUAL OPPORTUNITIES.

Operational since January, the *Maison pour rebondir* is part of the Diversity programme for “*Equal Opportunities, Social Progress, and Commitment*” launched by SUEZ ENVIRONNEMENT.

Financed by the SUEZ ENVIRONNEMENT Initiatives Fund, it aims to offer people in need permanent positions in the water, waste, building and engineering business sectors. It also offers dynamic support to future entrepreneurs.

“SUEZ ENVIRONNEMENT has a social role to play within its regions. We opened our first

Maison pour rebondir in Bordeaux, where we had positions vacant in our three business sectors, and as a historic partner of the city, we wanted to help combat the employment issue” explains Laurence Malcorpi, the Group’s Director of Diversity and Social Development. “It was established in the *La Bastide* district, which is served by the tramway line. We wanted to find a place that was accessible to everyone.”

There was no question for Laurence Malcorpi of going it alone. After extensive preparatory work with integration experts – in this case, Groupe Idées and Adecco Insertion – an action plan was drafted with the various Group subsidiaries, before the team was recruited and

they set out with their pilgrim’s staff to meet future partners: local elected representatives, Mission Locale, national employment agencies and several associations. “Our role consists of building a bridge between two worlds that do not know much about one another; on the one hand, social and employment partners, and on the other, the corporate universe. Each sphere has its own specific features and expertise, and our role is to help unify them” she continues. This work was done with conviction, since “we must also carry the flame for the receiving companies, and encourage our subsidiaries to help people who may have little chance of finding a permanent job alone.”



04_



03_

CONFIDENCE AND MOTIVATION

FRÉDÉRIC SERVAEGE /

A MAISON POUR REBONDIR CANDIDATE

"I am 39 years old and I have just gone through a difficult period. I found out about the Maison pour rebondir thanks to the manager at the integration company where I was working. A team came to present SUEZ ENVIRONNEMENT's business sectors and I was immediately attracted by the network operator job. I had several interviews with a Maison pour rebondir coordinator, and I undertook a 2-day course at Lyonnaise des Eaux. They put their trust in me, and I put my trust in them..."

Today, I am starting a work/study course.

I am lucky enough to be going back to a typical professional environment, where I no longer have the 'integration' label glued to my back. But I must remain professional and motivated!"

Since January, the Maison pour rebondir has been in full swing. Based on the available positions published by the Group's companies, our advising partners recommend candidates. The people selected then undertake one or more interviews with a coordinator from the Maison pour rebondir. If they show motivation for a particular business sector, they will be offered a pathway: regular interviews, trial period, work to help them reach the required standard, training, work/study courses, temporary assignments, before being given a permanent position. "This preparatory pathway can vary from two months to two years. We give you the time you need to succeed" she insists.

At the end of July, out of 150 candidates, 35 were under assessment, 14 were on the preparatory pathway, and one candidate already had a permanent position. In September, 13 people were given work/study contracts, while a group of 10 women and another group of 15 young people are being supported in their entrepreneurial projects. Each creator is supported by a sponsor and anyone who joins the Group benefits from the assistance of a trainer within the company.

Laurence Malcorpi wants to open the project up further with the GDF SUEZ companies, joint contractors and subcontractors so that more positions may be offered.

At SUEZ ENVIRONNEMENT, equal opportunities, social progress and commitment are in fact reflected by concrete actions.

"WE HAVE BUILT UP STRONG LINKS WITH OUR SOCIAL AND EMPLOYMENT PARTNERS ON THE GROUND."



BUILDING SOLID LINKS

BENOÎT BONELLO /

DIRECTOR OF THE MAISON POUR REBONDIR IN BORDEAUX

"We want to help people struggling to access the job market, who are willing to follow a demanding pathway to prepare them for our jobs. Often, the people we help find employment are as strong in terms of job motivation as they are facing some of their own life challenges. We are a seven-person team with complementary expertise in human resources, training, integration and entrepreneurship. This mix of skill sets allows us to act as an interface between our companies, social partners and people struggling to access the job market. Our first task consisted of identifying vacant posts and organising collaboration with our regional colleagues at Lyonnaise des Eaux, SITA and Degrémont. We then built solid links with social and employment partners on the ground.

To earn their trust, we were very honest explaining that the Maison pour rebondir is not in any way a supplementary social structure, rather it is a corporate project that aims to complement and further their action. Today, we work hand-in-hand, and our complementary nature needs no further introduction."





**USING INFORMATION
TECHNOLOGIES**

TO BENEFIT ENVIRONMENTAL PERFORMANCE

ALTHOUGH WATER CAN BE STORED, MANAGING IT REMAINS A VERY COMPLEX EXERCISE. THIS IS PARTICULARLY TRUE IN AN ENVIRONMENT OF INCREASING URBANISATION AND HIGH PRESSURE ON RESOURCES. BY INTRODUCING SPECIFIC SOFTWARE, TODAY IT IS POSSIBLE TO IMPROVE THE WAY THAT WATER UTILITIES OPERATE: THIS IS THE BIG CHALLENGE FACING WHAT IS KNOWN AS *SMART WATER*.

THREE FUTURE MARKETS

Several projects are designed to open up new markets based on *Smart Water* technologies developed by SUEZ ENVIRONNEMENT.

01. AGRICULTURE

Lyonnaise des Eaux and Terrena (a leading agricultural cooperative in France) have created ONOVA, the first company dedicated to meeting requirements and providing new services linked to the use of water in agriculture. Its aim is to promote innovative new solutions, such as help in water management to ensure that less is used, or to encourage wastewater reuse when watering crops.

02. REAL ESTATE

Encouraging better management of water and energy consumption in collective housing, tertiary buildings and communities: this is the objective given to the new Ocea Smart Building entity, created by the merger of Ocea, Isiom and Lyonnaise des Eaux Pro. A commitment that will be reflected in the development of tools for managers and occupants of real estate. These solutions will increase the environmental and economic performance of buildings via multi-fluid remote meter readings and information systems steering technical management.

03. HYDROELECTRIC CONCESSIONS

In order to clearly identify those candidates seeking hydroelectric concessions during renewal, the French state has established three main criteria: energy-based, economics-based, and environment-based. GDF SUEZ asked Lyonnaise des Eaux to come up with a management solution integrating increased protection of ecosystems, while respecting non-energy-based uses for water.



01_

02_



© BUSINESS ROLL AGENCY

01_ Agbar, via its global brand, Aqualogy, specialises in the application of technological solutions that meet all water-related needs.

02_ For farmers and for industrial players, it is essential to optimise water and network management. For them, this is a real economic challenge.

03_ Lyonnaise des Eaux sends its technicians to investigate leaks on the drinking water network using a pre-localisation system. Here, the technician is feeding the sensors into the surface box.

03_






SMART WATER

AN EXTRA DOSE OF INTELLIGENCE TO BETTER MANAGE WATER RESOURCES

© ABACAPRESS / MICHEL MARTINEZ BOULANIN

© EPEUS COMMUNICATION PASCAL MENARD

Using information technologies to benefit water management, *Smart Water*⁽¹⁾ solutions pave the way for anticipatory, reactive management that respects water resources. To this end, they form part of the overall aim of optimising performance with regards to wastewater and drinking water services, and the monitoring of water quality. That's why SUEZ ENVIRONNEMENT has chosen to make *Smart Water* one of its main strategic areas for development by 2020.

Increasing urbanisation, pressure on water resources, increasingly demanding environmental regulations, etc. Different factors are encouraging improved management of services and distribution networks, drinking water production plants and wastewater treatment plants. At the same time, SUEZ ENVIRONNEMENT is committed to anticipating and meeting the needs of its customers to the best of its ability, whether they are water service managers or users (citizens, farmers, industries, real estate asset managers, etc.)

When faced with this challenge, innovative solutions appear based on the use of information technologies. Thanks to the introduction of sensors combined with decision-making or communication enhancement tools, it is in fact possible to optimise flow management in real time, along with energy management within water networks. From the remote monitoring of networks in real time, with no human intervention in the field, to making changes to treatment and storage according to the weather or environmental conditions, from preventing pollution and leaks or protecting biodiversity, to reading meters remotely – smart water already provides a wide range of practical solutions. For communities, this is the answer to their economic, environmental, societal or regulatory challenges in terms of managing water resources; for users, it means

new services that make their daily lives easier, specifically enabling them to better manage their water consumption. All these reasons clearly point to an increase in the use of what we today call *Smart Water*. According to American firm Lux Research⁽²⁾, the worldwide market should stand at over \$16 billion in 2020!

SUEZ ENVIRONNEMENT'S EXPERTISE

Technologically speaking, *Smart Water*'s roots can be found in the development of industrial IT. In fact, for many years now, water treatment and production units have been fitted with remote transmission devices and controllers that encourage "smart" steering of facilities.

A pioneer in the field, Ondeo Systems, a subsidiary of Lyonnaise des Eaux and SUEZ ENVIRONNEMENT, adopted the role of scout for the Group as a whole. More recently, this same subsidiary was behind decisive developments in a specific *Smart Water* field: that of Smart Metering⁽³⁾ or the automatic remote reading of consumption figures. As well as increasing the effectiveness of the distribution network, this solution helps individual users to manage their bills, offering additional peace of mind thanks to a leak detection system. →

50%

In 2020, the penetration rate for remote water meters should exceed 50% in Europe.

€18 billion

On a worldwide scale, the smart management of water distribution networks stood at €4.7 billion in 2010. This should increase to **€18 billion in 2020**.

From less than €1 billion to €6.3 billion, this is the expected increase in the Smart Metering market (infrastructures) in Europe between 2010 and 2020.

Source: Frost & Sullivan [Seth Cutler], September 2011.



Ondeo Systems, Lyonnaise des Eaux and Agbar have already sold 1.2 million remote water meters in France, Spain and Malta, and they have set up pilot schemes throughout the world, from Florence and Macao to Cancun.

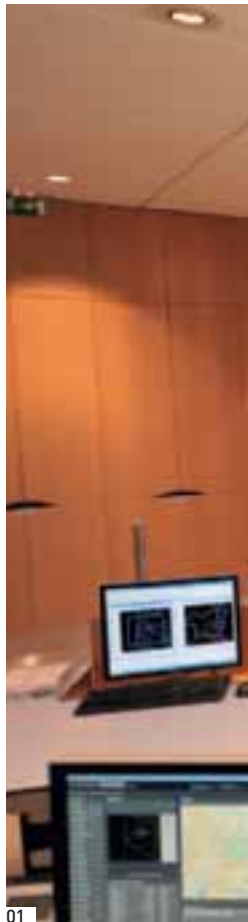
For Philippe Maillard, CEO of Lyonnaise des Eaux, *“the technical and competitive advantage gained by Smart Metering gives SUEZ ENVIRONNEMENT major player status on the Smart Water market. The other basis of the Group’s legitimacy lies in its expertise in the water business, and its ability to design devices that are in line with customers’ specific requirements.”* This know-how is evident, for instance, in the fine-tuning of global systems dedicated to the management of wastewater treatment networks. The principle behind this is to introduce a data measurement and collection system, along with sophisticated modelling and real-time prediction software. The goal is to be able to manage flows in a dynamic way, that can be fine-tuned according to weather data, rainfall and network characteristics... and where possible, use the network as a means of storage, to avoid the saturation of wastewater treatment plants. *“Our developments contribute to better economic management, as well as to the prevention of floods, overflows into nature, and the saturation of wastewater treatment plants”* highlighted Pierre Andrade, Executive Vice President in charge of diversification and customer management at Lyonnaise des Eaux.

In some cities, to meet evolving regulatory requirements, wastewater and rainwater management systems can be equipped with bathing water quality monitoring systems. The beaches of Barcelona and Biarritz are now fitted with this type of system.

COORDINATION OF COMPETENCIES AND PARTNERSHIPS

Just like wastewater treatment networks, drinking water networks are also benefiting from the increase in smart facilities. Operations and maintenance are both covered, with specific attention paid to quality at every level. This is because drinking water interacts with the network transporting it. The longer it stays in the network, the more likely it is that the disinfecting agent – generally chlorine – will break down. As such, it is important to know the status of drinking water flows in real time. This is offered by the piccolo® computer model designed by Safege, a SUEZ ENVIRONNEMENT subsidiary. It is also a major challenge in detecting and repairing drinking water leaks as soon as possible.

“On the Smart Water market, SUEZ ENVIRONNEMENT’s strength is to offer solutions designed by experts in the water business. This profile stands apart from other competitors in the field, whether in terms of specialists in mass data processing, smart networks experts, or network operators working in the energy or telecoms fields. *“For all these players, the aim is to extend their development over a whole value chain in which, to begin with, they control only the smallest link”* says Philippe Maillard. *“For our part, our response must be twofold: on the one hand, we must ensure we fully coordinate works and competencies with internal activities, and on the other, we must create strategic partnerships externally.”* Within the Group, the research coordination procedure is based in essence on the activity of R+I Alliance. This platform, bringing together SUEZ ENVIRONNEMENT, →



01

02





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AQUALOGY

Aqualogy is Agbar's global integrated water solutions brand. Specialising in the application of technological solutions, with the aim of responding to all water-related requirements in all areas of business, it operates in four main fields:

- **environment:** water management, hydropower engineering and environmental controls
- **infrastructures:** development of hydropower engineering projects
- **solutions:** design and deployment of solutions to improve water company management
- **knowledge:** staff provision



© DR



© DR

01_ The site of the RAMSES mechanism (Wastewater Regulation by Measurement and Supervision of Equipment and Plants) in Bordeaux, France.

02_ A remote metering branch in Malta, where Ondeo Systems, Lyonnaise des Eaux and Agbar have already sold many remote water meters, as was the case in France and Spain.

03_ A remote metering receiver.

ONDEO SYSTEMS

Ondeo Systems was created in 2009 from the expertise in industrial IT developed by CIRSEE since the beginning of the 1980s.

Ondeo Systems is at once a centre of expertise for SUEZ ENVIRONNEMENT and a company specialising in the design, production and marketing of innovative solutions and information systems in environmental businesses. Its range of technologies is based around industrial information systems, remote metering and asset management: 700 supervision software solutions installed and maintained in 14 countries and over 1,200,000 continuously-read remote meters in major cities.

THE MOST COMPREHENSIVE SMART WATER PRODUCT RANGE

With 130 years' operating experience references across the world, all the expertise of an integrator, a culture imbued with partnerships and a genuine commitment over the long-term, SUEZ ENVIRONNEMENT is a global player that knows how to meet all requirements in the field of smart water.

FOR MANAGERS OF WATER UTILITIES

- Optimise the production and distribution of drinking water
- Increase user satisfaction
- Optimise their investments
- Improve rainwater management
- Increase protection of the natural environment
- Improve their energy breakdown

FOR USERS

- Optimise their consumption (water & energy)
- Be notified in the event of an incident
- Be notified in real time
- Save time
- Reduce their bills



01_



02_ Clabsa, the control room of the Joan Miro storm water basin in Barcelona, Spain.

02_ Leaks in water distribution networks represent on average a loss of 20% of water produced. It is thus essential that work begins as soon as possible following the discovery of a leak in drinking water pipes.

03_ Reading a meter using a PDA.



03_



40%

2 million

SUEZ ENVIRONNEMENT aims
to fit 2 million smart meters in 2014.

Over 40% of the world's drinking water disappears in urban water distribution systems before reaching the consumer.

Losses in terms of worldwide water volumes:

- over 32 billion cubic metres per year due to leaks in distribution networks
- nearly 16 billion cubic metres per year due to fraud (water distributed for no income).

« Smart Water Meters – Advanced Metering Infrastructure for Water utilities »
Pike Research, Published in Q3 2010



Lyonnaise des Eaux, Agbar and United Water, plays a key role in the consolidation and sharing of knowledge. “We define study programmes together aimed at structuring our innovation effort. This is the birthplace of many solutions that subsidiaries can go on to use and commercialise on their markets, according to their respective objectives” summarises Juan Antonio Guijarro, Managing Director of Aqualogy (Agbar). This freedom given to operational entities enables them to provide tailor-made responses to local issues. But it does not rule out commercial cooperation in the slightest, as shown by the synergies implemented by Aqualogy. “With Ondeo Systems, we looked into the possibility of exporting our Smart Metering technology to Ireland. We are also working with Degremont and United Water to explore market opportunities, respectively in Brazil and the United States” Juan Antonio Guijarro continues.

MORE BUSINESS LINES, SITES AND SERVICES

Closer ties with companies or bodies outside the Group are designed to combine complementary competencies. Some projects cover upstream research. “One of the conditions for the massive deployment of Smart Water solutions is to be able to use sensors with flawless performance, which are cheap and easy to maintain” explains Farokh Fotoohi, CEO of Ondeo Systems. “As part of our R&D projects and in collaboration with external partners, we are working to qualify new sensors and develop models which allow the data obtained to be converted into useful information for managing our water networks.”

An example of this is the technological and commercial cooperation agreement entered into by General Electric and SUEZ ENVIRONNEMENT which also covers R&D and innovation. The goal is to think up, co-design and offer customers global, innovative water management solutions.

Moreover, with a view to producing innovative solutions to optimise networks and water treatment plants, both partners have launched three pilot projects in Brazil, China and France. At the La Feysine wastewater treatment plant, for instance, statistical data processing tools are tested. These are designed to optimise the facilities' energy consumption. This example illustrates a growing phenomenon whereby Smart solutions, in the broad sense of the term, are developing in several areas: more business lines, with the optimisation of energy consumption, but also for instance, the extension of remote meter reading to measure natural gas consumption (in June 2012, Ondeo Systems was selected to design the remote meter reading system for 11 million meters, which GrDF plans to fit in France by 2021); more sites, whether in terms of drinking water production plants or water treatment stations, with the possibility of centralising monitoring of consumption over several plants; and more services, with access to operating data being granted to communities and citizens alike, to enable the sharing of network management.

“If we want to meet our objectives and respect our commitments, the challenge is to continue to develop a business model based on knowledge” says Juan Antonio Guijarro. “From that comes our ability to generate value and convert this into actual services for customers.”

[1] Smart water. [2] “Ranking Water Information Technology Companies on the Lux Innovation Grid” study, October 2009. [3] Smart meters. [4] SWAN is a worldwide alliance for the development of smart water networks created around French company Schneider Electric, in partnership with several other companies.

HIGH-PERFORMANCE, INNOVATIVE SOLUTIONS TO ENSURE **SUSTAINABLE ACCESS TO WATER**

IN ORDER TO RISE TO THE NEW CHALLENGES OF WATER MANAGEMENT, SUEZ ENVIRONNEMENT AND ITS SUBSIDIARIES DEVELOP AND IMPLEMENT TAILOR-MADE SOLUTIONS. BACKED BY HIGH-LEVEL TECHNICAL EXPERTISE, THEY OFFER CONDITIONS OF FINANCIAL AND ECONOMIC VIABILITY THAT ARE TAILORED TO EACH COMMUNITY. SUEZ ENVIRONNEMENT THUS OFFERS DEDICATED SOLUTIONS TO WATER UTILITIES MANAGERS AND USERS (CITIZENS, FARMERS, INDUSTRIAL PARTNERS, ETC.) WE TAKE AN IN-DEPTH LOOK AT SIX EXAMPLES.

INFLUX, THE KEY TO PREDICTIVE, DYNAMIC NETWORK MANAGEMENT

When rainfall is heavy, networks receive more water than they need. If they cannot contain it, the risk of flooding and subsequent damage is increased.

What's more, if the rainwater is returned to nature without being treated, pollution risks are heightened in the natural environment. Influx allows heavy rainfall to be anticipated, and to manage this surplus water in networks, by redirecting flows towards available infrastructures until the network returns to its usual flow rate.

SUEZ ENVIRONNEMENT has a wealth of experience in this field, especially with the Bordeaux Urban Community, for whom Lyonnaise des Eaux developed the RAMSES (Wastewater Regulation by Measurement and Supervision of Equipment and Plants) remote monitoring tool.

WATER NETWORK PERFORMANCE IN REAL TIME

To provide communities with a high performance management solution for their water networks and manage the water service with complete peace of mind,

Ondeo Systems and Lyonnaise des Eaux have developed a real-time monitoring platform for drinking water networks that can be accessed via the Internet.

The advanced analysis and hydropower modelling functions enable more effective leak searches and contribute towards increasing the network's efficiency. When the network is fitted with remote metering, efficiency, when calculated on a daily basis, is even better managed.

The solution continuously analyses a number of parameters (flow rate, pressure, chlorine rate), before summarising and reproducing them via an ergonomic interface. As network faults can be detected much sooner, it's possible to take the correct decisions and improve how work is carried out to guarantee that users receive optimal service quality.

WATER CONSUMPTION AND MONITORING: SMART METERING SERVICES EAU HELP MANAGE WATER!

Providing access to reliable tools to monitor and manage water consumption is one of the core concerns of both operators and users.

Thanks to Smart Metering Systems Eau, the city of Agde was able to provide a modern infrastructure and service to residents and tourism professionals. 12,500 remote meters were deployed across the community. They provide a summary of water volumes consumed, predictions on consumption and charges, frequent calculations of network efficiency, separate summer/winter tariffs, fault detection (backflow, fraud, etc.). Operators can now use several indicators in order to manage water more easily, to optimise network management, and to guarantee increased health safety. Users, for their part, can monitor their water consumption online. They also have increased peace of mind thanks to a notification system in the event of a presumed water leak or if they exceed a previously-defined consumption threshold.



→ Find out more about the solution implemented in Agde.



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ISI HABITAT, HELP IN MANAGING CONSUMPTION IN REAL ESTATE

Isi Habitat, designed by Ocea Smart Building, offers real estate managers a range of modular, adaptable services. These solutions are based on the expertise developed in terms of automatic meter reading, water management and energy in communal housing, and IT solutions applied to real estate performance. They optimise the reliability of consumption measurement in buildings. As such, charges can be allocated more fairly, and effective cost savings can be identified to optimise energy efficiency and to restrict water losses. For instance, thanks to this system, the Public Housing Office (OPH) of the community around La Rochelle, and the 15,000 residents living there, can access a cutting-edge service: two water meter inspections per year, and two annual consistency checks between divisional and general meters, with recording of past consumption and access to a monitoring website.

THANKS TO REGCONTROL®, AGBAR REVOLUTIONISES AGRICULTURAL IRRIGATION

Developed by Agbar, RegControl® is able to calculate watering requirements using a real-time summary of agronomic and weather data, while taking crop specificities into account. This high level of information allows a tailor-made irrigation and fertilisation strategy to be drafted for each site. In addition to the control it gives farmers, RegControl® increases crop productivity, improves the quality of fruit and vegetables (size, firmness, flavour) and optimises water and fertiliser consumption. In Spain, several farming enterprises have already successfully adopted this tool. But its potential scope of implementation covers all regions suffering from water scarcity and/or chronic drought, such as the Mediterranean basin or Australia.

E-LYDEC, A FIRST FOR MOROCCO

At the beginning of 2012, Lydec launched its mobile Smartphone app (iPhone, BlackBerry and Android).

This simple-to-use app enables customers to access Lydec services 24 hours a day, 7 days a week. In particular, they can pay their water and electricity bills, contact the Customer Relations centre, notify any incidents by sending a photo, find the nearest payment point or Lydec branch, and keep up-to-date with the company's news, published on its Twitter, Facebook and YouTube accounts. The main advantage of this mobile app is the opportunity to pay your water and electricity bills at any time using a Smartphone. The fully secure transaction is recorded in real time. This is a real technological step forward, and a first for Morocco.



→ Find out more about the solution implemented in Lleida (Spain).

THE ALLIANCE CONTRACT

AN INNOVATIVE JOINT MANAGEMENT MODEL

THE CONSERVATION OF WATER RESOURCES is one of the areas of expertise in which SUEZ ENVIRONNEMENT can provide assistance to its customers and regions. Today, these have higher requirements, including a relationship based on partnership, or indeed joint management. This is a relatively new and rapidly changing challenge, and one in which the Group has been able to innovate and provide tailored solutions; such as the alliance contract, an innovative contract model based on joint management.

In Australia, the Allwater joint venture⁽¹⁾ inaugurated this new contract type with the city of Adelaide in February 2011. The model quickly proved successful, since Degrémont's know-how was once again recognised by the city of Perth in March 2012.

"The signing of these contracts is characterised by Australia's specific situation, having experienced several consecutive years of drought, and above all, by the desire for transparency and involvement of local authorities in the decision-making process" said Jérôme Bailly, CEO of Allwater. These circumstances led the Australian government to seek a partnership that was able to effectively manage water and wastewater services, while remaining constantly willing to listen.

Based on a principle of transparency, openness and trust, this alliance contract is innovative in many different ways. *"Dialogue and joint reflection ahead of signing the contract is one of the major characteristics. Next, risks and profits between the service provider and the client are shared, and all members of the alliance are involved in the decision-making process"*, Jérôme Bailly continues. The result is a genuine process of joint construction, both in terms of the city's needs and the human challenges of the team. *"This is a sizeable challenge when you consider that these contracts are signed for a term of 10 to 16 years, and that the joint teams share the same offices, the same objectives and the same involvement"* adds Jérôme Bailly.

A model commonly used in Australia, this public-private partnership model should, in his view, be given priority *"since it entails more transparency, more flexibility, more cooperation and a lighter administrative burden, since management is shared. Such private management never deviates from the objectives of the public client."*

In Perth and in Adelaide, the objectives are ambitious, and concern environmental performance and the improvement of services offered to the two cities' 2.6 million inhabitants. These innovative contracts confirm SUEZ ENVIRONNEMENT's strong presence on the Australian market, supplying 20% of the country's drinking water requirements. They also reflect the Group's desire to support Australia in rising to its major challenges.

(1) made up by SUEZ ENVIRONNEMENT, its subsidiary Degrémont, and the Transfield Services company.

SUEZ ENVIRONNEMENT and its subsidiary Degrémont, in partnership with Transfield Services, were awarded the water and wastewater management contract for the city of Adelaide, providing services to 1.1 million inhabitants.



PHILIPPE ALLOUCHE / DIVISION MANAGER WASTE ACTIVITIES FOR SENA WASTE SERVICES IN CANADA

“IN COUNTRIES WHERE CULTURES ARE VERY DIFFERENT, YOU MUST ADAPT. TO DO THAT, THE MOST IMPORTANT THING IS TO LISTEN, OBSERVE AND UNDERSTAND.”



FOR PHILIPPE ALLOUCHE, a career is akin to a wonderful journey. A fan of paragliding and freefall, Philippe Allouche does not just collect experiences and journeys. He also has an impressive string of degrees: an engineer in both Industrial Process Engineering and Chemical Engineering, and a Doctor of Chemistry specialising in the treatment of hazardous waste, he was awarded his MBA from the prestigious Rutgers Business School.

He crossed paths with SUEZ ENVIRONNEMENT in 2000 while working as operations manager for the Teris subsidiary. He was looking to move into production so as to be “*closer to people and to the field.*” Five years on, his technical expertise in hazardous waste and his experience in team work, management and the markets, led him towards the position of Plant Manager and then General Manager for SITA in China at the Shanghai Chemical Industry Park site.

“*In China, I was faced with a different world, both in terms of business and marketing, and I wanted to broaden my skillset by embarking on an MBA.*” In 2010, this 44-year-old manager was promoted to the position of Division Manager in Canada at SENA WASTE SERVICES. “*With the purchase of the North American operating contracts from Earth Tech, the company intends to conquer the waste market in North America, and has asked me to manage two plants in Canada, one in Edmonton, the largest composting facility in North America, and the other in Swan Hills, the only plant in Canada able to treat PCBs⁽¹⁾*” he says.

This career path has enabled him to discover his talent for listening: “*In countries where cultures are very different, you must adapt. To do that, the most important thing is to listen, observe and understand.*” Even though, due to regulations, China and Canada have very distinct ways of treating waste, Philippe Allouche makes clear that “*overall, the challenge is the same, and it is up to us to adjust to meet client requests.*” He is delighted to have been able to grow within SUEZ ENVIRONNEMENT, “*a great Group that has the resources to adapt, and can implement high-performance tools to reach and indeed exceed the objectives of environmental regulation, by providing innovative, competitive solutions.*”

(1) Organic chemical products.

SENA Waste Services

— SENA (SUEZ ENVIRONNEMENT NORTH AMERICA) Waste Services is an engineering and waste management contract company in North America, for industry and public customers. The company operates the composting site at Edmonton in Canada, the largest composting facility in North America. The waste treatment centre in Edmonton uses organic waste collected from the city’s households (180,000 tons) along with biosolids (sewage sludge) (22,500 tons) as a resource for compost-making: 60% of residential waste can thus avoid ending up as landfill. SENA Waste Services also operates the Swan Hills Treatment Centre (Alberta province), the only plant that manages hazardous waste (PCB and dioxins) in Canada.

BIODIVERSITY GIVING PRIORITY TO LIFE

GILLES BOEUF /
JEAN-PHILIPPE SIBLET /

PRESIDENT OF THE FRENCH NATIONAL NATURAL HISTORY MUSEUM
DIRECTOR OF THE NATURAL HERITAGE DEPARTMENT

(1)



(2)



© DR

More than ever, the Natural History Museum in Paris is reiterating the urgency of completing one of its missions: conserving the planet's biodiversity. Further explanations from its President, Gilles Boeuf and the Director of the Natural Heritage Department, Jean-Philippe Siblet.



01_ Brown bears are among the many species in danger of extinction.

02_ Overexploitation of natural stocks by mankind, such as in French Guyana through illegal gold washing, is partly responsible for the disappearance of biodiversity.

© DEB GARSIDE/DESIGN PICS/CORBIS

to natural causes, whereas the sixth is entirely due to human activity... We homo sapiens are destroying biodiversity thousands of times faster than before, over a very short period of time (two centuries), without giving nature the chance to recover.

G. B.: In 2005, 1,400 researchers passed on their observations to the Millennium Ecosystem Assessment study. What comes out of it is fundamental. Nature provides essential services for human beings. The rate of species extinction is at least 300 times greater than the expected natural rates. The causes are the destruction and pollution of environments, overexploitation of resources both in the Amazon rainforest and through fishing, the globalisation of species, some of which travel in ships' ballast water, leading to their uncontrollable spread across the planet. Lastly, the climate is changing too fast. This explains the 6th extinction crisis that will continue if we fail to change.

What action can we take to curb this crisis?

G. B.: We must stop wasting resources and act quickly to change our lifestyles. If we do not do anything, it will cost us very dear. We must balance ecology and economics, and stop promoting the theory that economic development, full employment, harmony and ecology oppose one another. Unfortunately, the politicians seemingly don't care about this issue. At the Rio+20 conference, civil society and scientists were able to express themselves, but their voices were not heard. They must continue to exert pressure on politicians, otherwise humanity will be staring disaster in the face. The crisis comes from the increasing scarcity of resources. A lack of concern for biodiversity is tantamount to a refusal to resolve the crisis.

J.-P. S.: We must also significantly increase the number and size of protected areas on Earth in order to conserve habitat diversity. These species must linked to one another, so that species can travel, something climate change is forcing them to do. Not all of them can migrate like birds. Let's not forget that small species travel slowly, or not at all. For this reason, it is vital that we plan for ecological continuity at several levels: a meadow, a town, a country, etc. Next, though we may be interested in remarkable nature, we must not neglect 'ordinary' nature, present in agricultural and urban areas: agriculture must adopt practices that →



© G. BOEUF

01_
02_

[1] A specialist in marine biology, **Gilles Boeuf** has been President of the French Natural History Museum since 9 February 2009. Maintaining very close ties with his role as a Professor at the Université Pierre et Marie Curie, he also works at the Arago laboratory in Banyuls-sur-Mer, and chairs the Natural Reserve at Massane (Pyrénées Orientales region). He is also a member of the Scientific Council for Natural Heritage and Biodiversity under the Ministry of Ecology, Sustainable Development and Energy.

[2] **Jean-Philippe Siblet** is the director of the Natural Heritage department at the French Natural History Museum. An ornithologist, he fulfils the role of scientific expert for France in respect of the Berne convention on European wildlife, and the Bonn convention on migratory species. Involved in many associations, he is also Vice-President of the Regional Scientific Council on Natural Heritage in the Greater Paris region, and President of the Naturalist Association of Ouessant, and the Naturalist Association of the Loing valley and Fontainebleau forest, which will soon celebrate its centenary.

How can biodiversity be defined from a scientific point of view?

Jean-Philippe Siblet: Biodiversity is made up of three elements: the diversity of species, the diversity of habitats found on land and at sea, and genetic diversity, without which species would be ravaged by the first viral attack, due to inbreeding. The concept is a much richer one than that of "nature," though it may not be as easy to convey.

Gilles Boeuf: In a nutshell, it is the living part of nature. For more than 4,600 million years, nature has existed on Earth. Life, and therefore biodiversity, began in the ocean some 3,850 million years ago.

How does the state of affairs look in terms of biodiversity at the present time?

J.-P. S.: It is dramatic on a worldwide scale. According to experts, we are living through the sixth extinction crisis. The five previous crises were due

“DOING NOTHING WILL COST US VERY DEAR. WE MUST BALANCE ECOLOGY AND ECONOMICS!”



© SYLVAIN SONNET/CORBIS

→ respect the environment, and cities we can live in, must include functional natural areas, rather than just green spaces.

In this context, do the partnerships created by the Museum with companies such as SITA France inspire hope?

G. B.: By working in partnership with companies, the Museum fulfils one of its missions: to provide access to the expertise it has acquired since its creation in 1793, and enhanced by implementing a modern methodology. As such, it is well-prepared to respond to the urgency of environmental issues and fully play its role in this field.

J.-P. S.: Through its final waste storage activities, SITA manages a significant area of land. These storage facilities are monitored during their operation and for a minimum of 30 years after a site is closed. In 2010, it renewed the agreement signed with the Museum in 2007⁽¹⁾. First of all, we drafted a summary of as yet unused sites, sites currently being operated and those awaiting redevelopment. This diagnostic system allowed us to put forward solutions that were adapted to each context so as to protect or restore biodiversity. We developed a tool that measures its ecological value: the

The National Museum of Natural History of Paris places biodiversity at the heart of its works; in particular, through its partnerships with companies like SITA.

ecological quality index. This enables us to assess the benefit of our recommendations in the field. This autumn, we will publish a practical guide intended for distribution to site managers, giving the methodology to follow in order to improve biodiversity. At first glance, waste embodies death. However, if you look more closely, you can see it can give rise to life.

(1) Since 2007, SITA has relied on the Natural Heritage Department of the French Natural History Museum in Paris for guidance regarding biodiversity. To offset the lack of management performance indicators in biodiversity, SITA and the Museum developed an innovative tool: “the “Ecological Quality Indicator.” This tool assesses the biodiversity present in waste storage facilities, identifies areas for improvement depending on local challenges and monitors the effectiveness of the measures implemented.



To find out more:

→ www.mnhn.fr
→ www.sita.fr/biodiversite

THOMAS PERIANU / DIRECTOR OF SUSTAINABLE DEVELOPMENT AT SUEZ ENVIRONNEMENT

“WORKING IN PARTNERSHIP WITH THE BEST EXPERTS”

“As a worldwide player whose activities revolve around water and waste, SUEZ ENVIRONNEMENT is directly concerned by the issue of biodiversity. As a result, we are in contact with the best experts. For instance in Chile, Aguas Andinas is in charge of the Aguas de Ramón Natural Park, in partnership with

three environmental protection organisations. We are also working together in the Santiago Basin.

At our waste storage and treatment facilities, SITA decided to go above and beyond the regulatory requirements by drawing up in situ management plans with experts. In France, at the Lambert site, a waste storage centre at the heart of the Corbières forest area, SITA, in partnership with the Regional Natural Park of the Narbonne region and a specialised consulting firm, have redeveloped the former operation of nearly 17 hectares through a seedbed of limestone grassland, and the planting of 17,000 local shrubs irrigated by a clever drop-by-drop irrigation system using recovered rainwater. Since 2010, SITA has also run an awareness-raising programme in France known as “On the biodiversity trail” at the storage centres, in conjunction with local associations.

In addition to this, we are developing innovative solutions, such as a new treatment technology for ships’ ballast water⁽²⁾ to combat invasive species. On the Marseille coastline that we are aiming to restore, we are also working with our subsidiaries Safège and Lyonnaise des Eaux. SUEZ ENVIRONNEMENT also intends to contribute, at its own level, to defining the sustainable development objectives of the United Nations, some of which could involve biodiversity, by cooperating with other major groups such as local authorities”.

(2) SUEZ ENVIRONNEMENT and its innovation investment fund Blue Orange entered a partnership with REDOX MARITIME TECHNOLOGIES, a Norwegian company specialising in water disinfection by ozonation, so as to develop a new ozone treatment technology for ships’ ballast water.

SITA THE HYBRID COLLECTION TRUCK, "A METAMORPHOSIS" IN WASTE COLLECTION

METROPOLIS, is the name of the new hybrid collection truck that will be tested from the beginning of 2013 in Belgium.

Designed for use by SITA to collect household waste, this new city vehicle concept is innovative in many respects. Phil Davies, Director of Sourcing in the Waste Sector at SUEZ ENVIRONNEMENT says that actually, the Metropolis "can travel in the city in electric mode without producing any CO₂ emissions, and is particularly quiet." The first hybrid waste collection truck that extends its autonomy, its special feature is that it turns braking energy into electricity. As such, the truck and its auxiliary components (steering, air, hydraulic pump, air conditioning) run fully on electrical energy. In this respect, Phil Davies states that Metropolis's "autonomy enables it to perform an eight or nine-hour collection cycle, and an autonomy extender that when required, can provide electrical energy to the battery via an alternator."

The combination of electric and diesel motors means it can work autonomously for over 150 km. The use of two motors together should provide fuel savings in the region of 60 to 75%, along with a significant reduction in CO₂ emissions. This new jewel in the crown of urban logistics should also produce 60% less carbon dioxide than a traditional diesel vehicle. Equivalent to a standard diesel collection truck, its payload is 11 tons. Silent, and achieving far beyond the current standards of noise reduction in city centre environments, the Metropolis should

make both municipalities and inhabitants happy. Last but not least, it is fitted with a most innovative visual safety system known as Birdview. A 3D computer graphics system thus facilitates manoeuvres within the most difficult city settings, and enables the driver to view the surroundings of its vehicle, including blind spots allowing him to locate pedestrians or cyclists. "In order to implement its innovative hybrid truck project, SITA called upon one of its partner suppliers, MAN" says Phil Davies. "We then co-developed the concept with them and will be able to use it exclusively for two years. Meeting this challenge, which is both environmental and technological, will allow us to provide innovative solutions that fall within the scope of sustainable development" says Phil Davies. In anticipation of the rules that will no doubt become more and more strict in terms of traffic in cities, Metropolis is leading the way in terms of the urban logistics of tomorrow.

AWARD

Metropolis received the 2012 Innovation Award at the eCarTec International Trade Fair in Munich (23 to 25 October 2012), in the "Electric vehicles: commercial vehicles" category, beating more than 70 other entries. eCarTec is the International Trade Fair for Electric and Hybrid Mobility.

"WITH THIS INNOVATION,
SITA INTENDS TO PROVIDE
ITS CUSTOMERS WITH
TRUCKS THAT ARE RELIABLE,
HIGH-PERFORMANCE,
AND ECO-FRIENDLY."





BÉATRICE COLLET / MANAGER OF
THE ALSACE REGION, DEGRÉMONT INDUSTRY (ONDEO IS)

**“TRUST IS A FOCAL POINT
THAT IS FACILITATED THANKS
TO OUR COMMON GOAL
TO SATISFY OUR CUSTOMERS.”**



AT TWENTY-SIX YEARS OLD, Béatrice Collet, a Bio-Industries engineer, is in charge of the Alsace region at Degrémont Industry (Ondeo IS), within SUEZ ENVIRONNEMENT. For some young graduates, finding your first job is like tackling an obstacle course, but Béatrice Collet seems to have made the most of her career path.

Nevertheless, her journey was not without its ups-and-downs. *“Actually, my career path was not a simple one. I had to accept that I would be required to travel often...”* Since her end-of-studies internship at Ondeo IS, Béatrice has travelled thousands of miles! After little more than a year, and two fixed-term contracts at Ondeo IS - one in Paris, and the other in Florange, Moselle - Béatrice was appointed manager of the Gueugnon site in Burgundy!

Thanks to her skills, her immense motivation and her ability to accommodate change, she quickly rose to a position of responsibility.

Today, as one of the youngest managers in the sector, she is off to conquer the Alsace-Lorraine region! *“When the post in Alsace came up, I applied immediately. After two years’ experience in Gueugnon, where I was trained in team management, I wanted to get to know other processes.”*

On a day-to-day level, her day is marked as much by managing her team as by the technical supervision of operating and assistance contracts for several industrial clients. Knorr, Braun, Nestlé and Wrigley are among her regular contacts.

Having quickly established a relationship of trust with her team, and understood the Group’s importance in terms of working with industrial partners, Béatrice now bases her work on a number of principles. *“We all work autonomously. Trust is a focal point that is facilitated thanks to our common goal to satisfy our customers”*

This young woman’s energy also comes from her desire to improve the well-being of the planet. *“Personally, I am incredibly proud to belong to a Group like SUEZ ENVIRONNEMENT. The merger of Degrémont and Ondeo IS, which gave rise to Degrémont Industry, enabled greater visibility and recognition in terms of the outside world. My daily life is filled with respect for the environment. I feel useful!”*

Focus on Degrémont Industry

— Created through the merger of Degrémont and Ondeo IS, Degrémont Industry supports industrial partners in the treatment and sustainable management of water throughout the world. Engineering and supply of facilities and equipment, operating and maintenance, optimisation, innovative tailor-made services, technical assistance: its wide offering, from resource to waste, meets the requirements of various industrial sectors. Its priorities are economic and environmental performance



→ Watch the video portrait
of Béatrice Collet.

On the Web

WWW.ANGELAMORELLI.COM/ WATER/

This original, playful website explains what a water footprint is to its users. In an innovative and simple way, web users can discover how much of the resource they actually use on a daily basis (in the home, in what they eat, etc.). A most surprising and interesting website!



WWW.REDUISONSNOSDECHETS.FR

The aim of this site is to raise awareness and educate on waste reduction, to help reduce the amount of waste we produce. It was created for European Week for Waste Reduction (17-25 November 2012) by the Grenelle Environment Forum. "I act," "I understand," "I talk about it," - either at the supermarket or at home, whether professionals, communities or citizens, web users are put into situations and benefit from practical advice on how to better manage their waste. For instance, web users are advised to give away or sell objects rather than throw them away.

Out and about



FRENCH MAYORS AND LOCAL AUTHORITIES EXHIBITION

20/11/2012 → 22/11/2012

Paris, France

The French Mayors and Local Authorities Exhibition is the unmissable annual event in the local communities' calendar. All the main players in public procurement gather here to discuss, share experiences, pool and develop practices to ensure better purchasing and investment.

SUEZ ENVIRONNEMENT will have its own stand at this major event (Hall 3 - Stand M49), and is set to organise the "Let's make the city sustainable" conference with GDF SUEZ on 21 November at the GDF SUEZ stand (Hall 3 - Stand M56). The main aim of the 2012 edition is to strengthen the sector-based offering composed of nine different themes, including one specially dedicated to the environment and energy.

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



POLEKO

20/11/2012 → 23/11/2012

Poznan, Poland

SITA Poland will be present at Poleko, the international exhibition for environmental protection in Central Europe, to be held over three days. An essential event in the calendar of Eastern Europe's environmental sector, it will bring together various industry experts to talk about water, renewable energies, climate change and waste recycling. It presents a global offering to public and private decision-makers in the environmental protection sector.

→ www.poleko.mtp.pl/en



POLLUTEC 2012

27/11/2012 → 30/11/2012

Lyon, France

Over four days, Pollutec, the international environmental services, technologies and equipment exhibition brings together companies like SITA, Lyonnaise des Eaux and Degrémont, who are experts in treatment services and technologies for all types of pollution.

The theme this year is 'sustainable cities', and SUEZ ENVIRONNEMENT will organise a conference on this subject on 28 November.

→ www.pollutec.com



WASTE TO ENERGY + RECYCLING

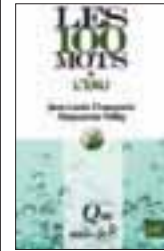
19/02/2013 → 20/02/2013

Bremen, Germany

The 2013 edition of the international exhibition for the sustainable use of resources will focus on new technologies, as well as new trends in waste and biomass recycling to create energy and raw materials.

→ www.wte-expo.com/english.htm

It's in the air



WATER, A MULTIFACETED RESOURCE

At the end of August, "100 words on water" by Maryvonne Pellay and Jean-Louis Chassade was published by PUF. It highlights the many facets of water, and reveals the complexity of its cycles and access problems. The authors recall that today, this resource affects every area, be it economics, geopolitics, ecology, physics and chemistry, medicine, literature, geography, history, the arts, and so on.

CORPORATE MOVIES

SITA and Lyonnaise des Eaux, subsidiaries of SUEZ ENVIRONNEMENT, have recently made movies presenting their business and their experience. Lyonnaise des Eaux emphasises the fragility of water and the solutions it offers to better manage the resource. SITA highlights the waste cycle and its expertise in terms of waste recovery for local communities, companies and private individuals alike. What's more, the subsidiary has just won an award for this film, winning the Dauphin d'Argent (Silver Dolphin) at the Cannes Corporate Media & TV Awards 2012 in the Corporate category, as well as a Gold Trophy at the FIMBACTE 2012 festival, in the "Institutional Films" category.



→ Watch the SITA movie (in french).



→ Watch the Lyonnaise des Eaux movie (in french).

+ Want to find out more? Check out:

- eMag : www.emag.suez-environnement.com
- Blog : www.waterblog.suez-environnement.com
- YouTube : www.youtube.com/user/SUEZenvironnement
- Twitter : <http://twitter.com/#!/suezenv>

JANINE BENYUS / US BIOLOGIST

DO YOU HAVE A QUESTION? WELL ASK NATURE!



© ABACAPRESS / RAYON GUILLAUME

US biologist Janine Benyus, the co-founder of Biomimicry 3.8, the world's leading biomimicry consulting and education firm, popularized the concept of biomimicry in 1997. In her work, entitled *Biomimicry: Innovation Inspired by Nature*^[2], she sets out her vision of a more responsible kind of development.

Janine Benyus highlights the limits of our energy-intensive civilization and the need to draw inspiration from nature. Nature's process of evolution and adaption allows for massive production while respecting the ecosystem and that is the definition of sustainability. Benyus' approach intends to reconcile progress with safeguarding the environment. In a world that will need to rely on the ingenuity of nature if it wants to survive, Janine Benyus has already convinced many scientists, Fortune 500 companies, educators, designers and entrepreneurs.



© MARK BRYANT PHOTOGRAPHY, MISSOULA, MT

[2] Translated into French in 2011, under the title *Biomimétisme - Quand la nature inspire des innovations durables*. Éditions Rue de l'Echiquier.



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The ridges on the fins of humpback whales could be the reason for their incredible agility. Replicated on the blades of wind turbines, they could help to improve performance by reducing noise, increasing stability and capturing more energy from the wind. Companies are now starting to monitor these applications.

Meanwhile, nature has always done what we did not know how or did not want to do. It has always come up with imaginative solutions in order to resolve problems that we are facing ourselves. What could be better than 3.8 billion years of experience in sustainable development? It's a rather impressive CV!

Although science has often copied nature, it has not duplicated its survival principles. The aim is not simply to copy an animal because we are attracted to its appearance, but to draw on its thrifty and sustainable production philosophy. We need to view these living organisms as experts. They have successfully achieved everything that we need to do, without resorting to fossil fuels, polluting the planet, or jeopardizing their future.

We could not hope for a better model. All we need to do is observe animals, plants, and micro-organisms, in order to realize that they are skilled engineers, and that they have found what works, and specifically what lasts, on this Earth.

There are many examples in nature that are highly instructive. If you want to find out how to filter the salt out of water, for instance, all you need to do is ask the sea turtles, or even your own kidneys, who perform this task without needing electricity! Indeed, every cell, and every red blood cell in our body has hourglass-shaped pores that are known as aquaporins. These pores pull water molecules through to one side, and leave the dissolved substances on the other. It's a kind of non-reverse osmosis, a process that has attracted the interest of companies, which have already begun testing it.

As our knowledge and technology currently stand, we are now in a position to imitate nature as never before. What we need are more biomimics; the designers, scientists, engineers and business leaders who will use biomimicry to solve our energy crisis, our food security issues, our material toxicity. To meet this need, we are now accepting applicants for our 8-month Biomimicry Specialist Program, which will have a cohort in Europe (Netherlands) in spring of 2013. Our graduates, like so many others, understand that biomimicry is no longer just a new way to see and value nature, it is also our path to survival.

[1] Bio= Life, and Mimesis= Imitation.

 **To find out more:**
→ <http://biomimicry.net/>



→ Watch Janine Benyus at TED's conference.

I HAVE DEFINED BIOMIMICRY⁽¹⁾ as the art of drawing inspiration from natural shapes, processes and ecosystems, in order to innovate in a sustainable way. Indeed, as scientists, there is much that we can learn from living strategies. The principle is self-evident, although it is far from obvious...

Industrial cultures have believed that we could do without nature, and even surpass it. We thought we were almighty, with an infallible arsenal of technology at our fingertips. However, at the beginning of the 21st century, man has reached an evolutionary turning point. Nature's tolerance levels have been reached, which leads us to ask ourselves this crucial question: "How can we live on our planet without destroying it?"

80,140 employees
2 business lines: water and waste
1 objective: enabling our customers to become leaders in environmental performance



MAKING THE PLANET SUSTAINABLE IS THE BEST JOB ON EARTH

Each days, SUEZ ENVIRONNEMENT supplies drinking water to 91 million people, wastewater treatment services to 63 million people and waste collection services to 57 million people. Our employees, working in five continents, apply their expertise to the benefit of our municipal and industrial customers by co-creating tomorrow's solutions. Given the scarcity of natural resources and the demographic and economic pressures, they combine innovation, tailored solutions and excellence to deliver quality services achieving green growth and establishing a circular economy. Listening, innovation, dialogue and deep knowledge of the issues and territories are essential to help us reinvent with ambition our two businesses, water and waste management.

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