

# SUEZ ENVIRONNEMENT Magazine

Number 07\_June 2011

FOUR-PAGE  
DEGRÉMONT  
SUPPLEMENT

| P02 ALGIERS, THE PEAK OF A CRUCIAL PROJECT | P10 DIVERSITY AS A PERFORMANCE FACTOR | P34 WATER, A COLLECTIVE CHALLENGE | P46 EXPLORING THE 8<sup>th</sup> CONTINENT |



## AUSTRALIA

THE NEW  
ENVIRONMENTAL DEAL





01\_

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# ALGIERS: MIS

01\_

Despite a general fall in the birth rate in Algeria (2.3 children per woman in 2006), the metropolitan area of Algiers is continuing to grow and now numbers over 3.2 million inhabitants.

02\_

The urbanization phenomenon is continuing in Algeria. While the urbanization rate was 66% in 2010 (compared with 40% in 1970), according to the UN it is expected to exceed 83% in 2050.

# 100%

of the water distributed in Algiers is drinkable and has been available 24/7 since spring 2010. In 2006, this figure was 8%.



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# SION ACCOMPLISHED

LACK OF ACCESS TO RUNNING WATER, WASTEWATER TREATMENT PROBLEMS, BEACHES WHERE BATHING IS FORBIDDEN...



IN 2006, ACCESS TO DRINKING WATER AND SANITATION SERVICES WAS A REAL CONCERN FOR MANY OF THE INHABITANTS OF THE ALGERIAN CAPITAL. TO RESOLVE THIS PROBLEM, L'ALGÉRIENNE DES EAUX (THE NATIONAL WATER COMPANY) AND THE OFFICE NATIONAL DE L'ASSAINISSEMENT (NATIONAL SANITATION OFFICE) THEN SIGNED A MANAGEMENT CONTRACT WITH SUEZ ENVIRONNEMENT. THE OBJECTIVE OF THIS CONTRACT WAS TO MODERNIZE THE WATER AND SANITATION SERVICES OF THE WILAYA<sup>1</sup> OF ALGIERS. JUST A FEW MONTHS FROM THE END OF THE CONTRACT, SOME FEEDBACK ON THIS MODEL PROJECT, WHICH HAS CHANGED THE LIVES OF THE 3.2 MILLION CITIZENS OF THE COUNTRY'S CAPITAL.

<sup>1</sup> Territorial public authority in Algeria.

**89%**  
of customer satisfaction.

01\_  
Wastewater plant. With more than half its population now connected to sewage networks, Algiers is a model for many cities in the Maghreb.



01\_

02\_  
The SEAAL control centre can adjust drinking water production continuously. SEAAL: Société des Eaux et de l'Assainissement d'Alger (water public operator in Algiers).

03-04\_  
Drinking water production plant at Boudouaou (Algiers).



02\_



# 53%

**of the population of the Wilaya of Algiers** is today connected to sewage networks, as against 6% in 2006. In 2012, this figure is expected to rise to 70%.



01\_ The SEAAL's central laboratory performs 380,000 analyses each year.

02\_ SEAAL's headquarters at Kouba, one of the districts of the Wilaya of Algiers.

03\_ Wastewater plant, Bni-Messous (Algiers).



# 100,000

**households, equivalent to 700,000 people,** have changed from the informal sector to that of being an official public service customer.



# In 2006,

**SUEZ ENVIRONNEMENT was awarded a management contract to work side by side with the two entities tasked with water distribution and wastewater treatment for the City of Algiers.** A partnership, which has flourished for five and a half years and which has been based from its earliest days on continuing and constructive dialogue with the customer, an essential condition for the contract to succeed. Given the city's situation, the challenge is a mighty one and the objectives are ambitious. A strategic and operational model providing drinking water 24/7 has to be rolled-out by September 2011, as well as improving significantly the wastewater treatment service. SEAL, the Algerian public sector company was tasked with turning this into reality and aim to achieve in the Algerian capital, a level of service equivalent to the international reference systems for water, wastewater treatment and customer service.

This has been interpreted by the definition of a priority action plan: develop a high quality drinking water distribution system, operational 24/7; renew the water distribution and sewage networks infrastructures to guarantee satisfactory and constant conditions of use; improve the efficiency of the wastewater treatment system and the cleanliness of Algiers' beaches and, finally,

implement a modern and efficient system for improving customer satisfaction.

This plan is being implemented at the same time as a transfer of know-how implemented from a methodology designed by SUEZ ENVIRONNEMENT, the WIKTI (*Water International Knowledge Transfer Initiative*). This has already been used successfully in Jeddah, Saudi Arabia, where Algerian experts went to meet their peers. The principle? diagnosing the initial situation, defining the expected levels of service, prepare the strategies, resources and systems necessary to achieve them - training courses, tools for all the given fields of activity - and to assess progress and shared indicators. Another asset of WIKTI: to train new experts able to pass on their skills.

The aim? To ensure the sustainability of the acquired knowledge and the change initiated by sharing with the local entities. "Transferring expertise is not limited to mastering innovative technologies and to access to new information or to managerial copying and pasting of managerial skills", explains Jean-Marc Jahn, SEAL's CEO. "The contribution of the accumulated wisdom of foreign experts, opening up to wider professional groups, recognizing performance and making it objective in an international reference system provide a direction and added value to our public service business line". An objective that is just beginning to be achieved in Algiers, which will certainly share the lessons it has learned with other projects.

# 59

**of the 62 beaches** that extend along the Algerian coastline are now risk-free and open for bathing.



03



© GDF SUEZ / MEYSSONNIER ANTOINE

## 02 PORTFOLIO

### Algiers: mission accomplished!

Feedback on the gigantic project operated in Algiers by SUEZ ENVIRONNEMENT.

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is part of the DNA of SUEZ ENVIRONNEMENT. To mark its desire to make an impact, a program was launched at the end of 2010.

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AGBAR is marketing a plot irrigation system.

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"CURRENT PROBLEMS ARE ACUTE AND NEED ALL PARTIES TO BE MOTIVATED TO ENSURE THAT WATER REMAINS A SHARED WEALTH."



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**JEAN-LOUIS CHAUSSADE** /  
CEO, SUEZ ENVIRONNEMENT

“OUR BUSINESSES  
ARE BEING TRANSFORMED,  
SUEZ ENVIRONNEMENT  
IS POISED TO OFFER  
INNOVATIVE SOLUTIONS  
AND DEFINE NEW  
METHODS FOR  
RELATIONS  
WITH OUR  
CLIENTS AND  
STAKEHOLDERS.”

Dear Readers,

In 2010, SUEZ ENVIRONNEMENT posted a return to growth with more rapid development, mainly internationally. In this scenario of economic recovery, we are continuing our strategy of sustainable growth, while at the same time speeding up the transformation of our business lines. Whether by proposing technological innovations, new services or new methods of dealing with our clients and stakeholders, SUEZ ENVIRONNEMENT is poised to contribute to the creation of solutions.

The 6<sup>th</sup> World Water Forum will be held in Marseille in March 2012. One of the Forum’s objectives will be to organize the universal right to water and sanitation. The fact is that, although water is paradoxically an abundant resource, it is also precious, because it is rarely drinkable. Making water drinkable and ensuring that waste water is returned to nature without endangering the environment have represented two major challenges for the water sector.

Preserving the water resource has been our core business for more than 130 years. But it is a business that is changing. By launching its New Ideas on Water program in 2010, our subsidiary, Lyonnaise des Eaux, wanted to review, together with all its stakeholders, the challenges facing water management in the 21<sup>st</sup> century. After a year of debate, it has become clear that the main concern of our citizens is the status and protection of this resource.

To meet these challenges, the water management model will have to be transformed. It is changing already. SUEZ ENVIRONNEMENT and its subsidiaries are offering new services as well as new methods of contractual relations, which take into account the local environment and the expectations of our clients and fellow citizens. Here, I’m thinking about the social pricing we are developing in France or the co-governance in the form of an alliance on which some of our contracts in Australia are based.

More broadly speaking, it is the place and the role of the operators that are changing. Beyond pure environmental efficiency, at the end of 2010 we adopted a raft of commitments to corporate performance. This relates, for example, to integration through employment and also to greater consideration in house of the diversity of the societies where we are growing.

It is by anticipating world changes that we will make SUEZ ENVIRONNEMENT the number one player in its business lines.

Enjoy this issue.

# DIVERSITY, ANOTHER PERFORMANCE FACTOR

WITH ITS 80,000 EMPLOYEES, DRAWN FROM A HOST OF NATIONALITIES AND OPERATING ON EVERY CONTINENT, SUEZ ENVIRONNEMENT IS DIVERSE BY NATURE. TO MARK ITS DESIRE TO MAKE AN IMPACT, THE GROUP LAUNCHED A DIVERSITY PROGRAM FOR 2010-2012 FOR EQUAL OPPORTUNITY, SOCIAL PROGRESS AND COMMITMENT. FEEDBACK ON ITS IMPLEMENTATION WITH ITS MAIN PROPONENTS, DENYS NEYMON AND LAURENCE MALCORPI.

**DENYS NEYMON /  
LAURENCE MALCORPI /**

SENIOR EXECUTIVE VICE-PRESIDENT, HUMAN RESOURCES  
DIVERSITY AND SOCIAL DEVELOPMENT DIRECTOR

**What was the driving force behind the launch, at the end of 2010, of the Diversity program for equal opportunity, social progress and commitment?**

**Denys Neymon:** First of all, the awareness that a Group of our size, fundamentally highly diversified, could not be left out of this debate. Jean-Louis Chaussade therefore acquired the resources and appointed a manager to provide greater visibility to this approach and to build a project that would enthuse everyone. Next, the desire to show that diversity is part of SUEZ ENVIRONNEMENT's DNA: over and above actions related to our core business lines, to R&D or to sustainable development, Diversity is a strong affirmation in terms of social commitment and responsibility that binds us, whether we are in the business of collecting waste in Finland or providing a water service in Indonesia.

**Laurence Malcorpi:** Acting for diversity is to take into account the changes in our companies and the impact which this is having on our Group. In this context, SUEZ ENVIRONNEMENT should take a stand and pursue a policy in step with society's ambitions and the positions adopted by the legislature.

**Why was the term "Diversity" chosen as the title of this program?**

**D. N.:** This choice is a genuine promise, a path we must take. Behind this international and friendly-sounding word, there is the very strong conviction that diversity is not a brake, but a performance asset, very much in line with our business. Even if we know that this path is not always easy.

**What actions embody – and will embody, tomorrow – the diversity of SUEZ ENVIRONNEMENT?**

**L. M.:** These include job-creation initiatives intended to make the company synonymous with employment and action help people with little prospect of employment, who live in very harsh social conditions. It was with this in mind that SITA France set up SITA Rebond in 2002, and offered 24-month fixed term contracts, paid at the SMIC (French minimum wage), supported by personal assistance (training, accommodation, health care). Today, we are working on new programs, such as "la Maison pour Rebondir" (literally "Bounce-back House"), which will open this year in Bordeaux (France), and in 2012 in Lyon (France). Its objective here again is to promote access to jobs, mainly for the young in socially deprived areas. We are offering simultaneously to fuel the local economy by helping those who make their talents available to a creative project. Finally, we want to support the women in these same communities who could also devote their talents to useful local activities.

On another level, Lyonnaise des Eaux, with an employment rate of disabled persons of 5.3%, is one of those rare French companies close to the national target. →

“BY NATURE,  
SUEZ ENVIRONNEMENT  
CARRIES ON ACTIVITIES  
AND BUSINESS LINES  
THAT CONTINUALLY SHOW  
THAT DIVERSITY IS A  
PERFORMANCE FACTOR.  
THIS IS AN OPPORTUNITY.”

**DENYS NEYMON /**

**DIVERSITY PROGRAM:**

**Adopted at the end of 2010,** SUEZ ENVIRONNEMENT's Equal Opportunity and Social Progress program is organized around five main themes:

- **Access to employment and integration**
- **Employment for the over-fifties**
- **Recruitment and careers for women**
- **Recruitment and assistance for people with a disability**
- **Commitment of employees and quality of life in the workplace**


In order to ensure that this program is implemented by 2012, SUEZ ENVIRONNEMENT has been given quantified targets and a Diversity and Social Development Department, which provides governance and monitoring.



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## KEY FIGURES

- **3,000 is the number of people with disabilities** welcomed by SITA Rebond in France since 2003.
- **100% in three years' time** - All recruitment shortlists will have to include female applicants.
- **6% is the target in France**, for the percentage of people with disabilities employed in the company.
- **12% is the target for 2012** for those in work aged over 55, compared with 10% in 2010.

A portrait of Laurence Malcorpi, a woman with short blonde hair and glasses, wearing a dark blazer over a light blue shirt and a pearl necklace. She is smiling slightly and looking towards the camera. The background is a blurred office setting with green vertical elements and window blinds.

"TO REACH OUR TARGETS, THE ENTIRE WORKFORCE - WITH MANAGEMENT AND HUMAN RESOURCES LEADING FROM THE FRONT - MUST EMBODY THIS PROGRESSIVE APPROACH."

**LAURENCE MALCORPI /**

---



of 6%, thanks to voluntary internal and external operations led by business managers and to the mobilization of management.

**D. N.:** Beyond what each entity has developed based on its background, its location, its aspirations and its talents, our belief is that all these subjects are related: if you make progress on one point, progress will come on the others. We must also communicate better on what is already happening in SUEZ ENVIRONNEMENT's subsidiaries. When we realize that, at SITTA Sweden, 40% of parental leave is taken by men, this is something of which other organizations should be aware and take note.

#### What are the resources and organization used to deploy "Diversity"?

**L. M.:** We have promoted partnerships, in France, with integration experts; we have also explored different cultural approaches, mainly with a New York consultant, a symbol of multiculturalism. We have designed an internal organization based on a global HRD and Sponsors Diversity network. The first meeting of the Sponsors Diversity network has also just taken place in Paris, in April.

**D. N.:** All management bodies are kept informed of advances with the program, which has become a governance topic vested in the Board of Directors through its Ethics and Sustainable Development Committee. An endowment fund has been set up, targeting action (and project support) in areas dealing with human beings, their development and technical support implementation during huge natural catastrophes such as in Haiti. Against this background, we planned to make substantial funding available to the Maisons pour Rebondir. It is standard practice for our revenues to finance this type of action.

#### You intended to support this program with an internal and external communication plan. What does this consist of?

**D. N.:** At the beginning of December 2010, the first European Forum on the theme of diversity was held at the headquarters of SUEZ ENVIRONNEMENT in partnership with the Club XXI<sup>e</sup> siècle<sup>1</sup>, this being the occasion on which to unveil our program as a whole. Employees want to hear what is going on and to be able to participate. There is a serious need for commitment and a very high level of generosity in the company.

**L. M.:** Beyond the French program, each subsidiary has drawn up its own plan, taking into account its history, culture and local regulations, by repeating the five priorities (see page 11) and by setting ambitious targets. The greatest difficulty today is being able to share this ambition with each employee of SUEZ ENVIRONNEMENT in France and abroad. This will be at the heart of our thinking in the weeks ahead; we shall be working on this with the sponsors. We will need time.

#### A COMMON PURCHASING PLATFORM IN A SHELTERED SECTOR

A major theme of Diversity, the employment of disabled persons is also embodied by using suppliers from the sheltered sector, such as ESAT\*. A sub-contracting arrangement developed over a number of years by a fair number of SUEZ ENVIRONNEMENT subsidiaries with local businesses. The idea was to set up a coordinated approach from these initiatives. Hence the creation of a Group purchasing platform in the sheltered sector, which shares data from this pool of qualified suppliers. Eventually, each subsidiary could feed the database and search for an establishment by geographical sector or field of activity.

\* Sheltered workshops providing employment opportunities for people with disabilities.

#### The benefits of Diversity will have to be assessed: how can we decide what progress has been made?

**L. M.:** The first method is to monitor the indicators of each theme in the action program. One of these measures gauges, through regular surveys, the commitment of the employees. The level achieved will show the progress made, *inter alia*, on these new diversity subjects. Enterprise rating is an interesting tool and, in future, our annual reports will present more figures and be better documented on this subject.

**D. N.:** If women and the over-fifties are in particular better represented in its management teams, SUEZ ENVIRONNEMENT will be more similar to its customers and to society at large and will only be more effective. I believe in direct results where performance is concerned and this is not merely a question of the perception of our image or of motivating employees, it is a transformation objective. I also think that our customers, who are sensitive to these issues, could make them a factor in their choice.

#### How does Diversity fit in with GDF SUEZ policy in these areas?

**L. M.:** Integration and disability were already at the forefront of SUEZ - now GDF SUEZ - policy. We exchange views with GDF SUEZ regularly, mainly with the Social Development and Solidarity Department. We meet at least once a month. GDF SUEZ has negotiated and signed agreements in the last two years covering careers for the over-fifties, quality of life at work and there will soon be an agreement covering equal opportunity. These agreements apply to all its business lines and hence to SUEZ ENVIRONNEMENT.

**D. N.:** GDF SUEZ' work on these topics is indeed fundamental, with very stringent commitments, particularly regarding certifications. Through the "Maisons pour Rebondir", SUEZ ENVIRONNEMENT is in line with the territorial foundations of its business lines: when we ask our international subsidiaries to consider their Diversity plan, we are certainly on this list. GDF SUEZ and SUEZ ENVIRONNEMENT are therefore fully complementary.

<sup>1</sup> Think tank intended to promote the positive aspects of population diversity for French society, [www.21eme-siecle.org](http://www.21eme-siecle.org)



# REGCONTROL®

## IRRIGATION "TO ORDER"

**ACCORDING TO THE UN**, world population is expected to reach 9.1 billion in 2050. Feeding a growing population will involve increasing agricultural production and therefore, *inter alia*, improving the yield from irrigated land<sup>1</sup>. For the last two years, AGBAR, a subsidiary of SUEZ ENVIRONNEMENT, has been developing an innovative solution for irrigating individual plots, called RegControl®. "It is a sprinkler system which summarizes agronomic and meteorological data in real time in order to calculate water needs for crops based on their particular characteristics and which can manage irrigation operations based on all these parameters", explains Daniel Tugues Andrés, project manager at AGBAR.

On a given plot, the farmer and the Reg- Control® specialist define an irrigation strategy based on the crops involved, the land and the needs. "This system controls a "ferti-irrigation" program, in other words combined irrigation and fertilization", Daniel Tugues Andrés continues. Besides the control that it gives the farmer, RegControl® increases agricultural production and improves the quality of fruit and vegetables (size, firmness, taste). Accordingly, two Spanish customers, *Codorníu*, a leading European wine producer, and the *Fruits de Ponent* cooperative have agreed to test RegControl® *in situ*

on certain plots of land. "These customers now want to extend the use of RegControl® to all their fields!"

This year, AGBAR will be launching its first sales promotion of RegControl®. An unprecedented agreement, which improves the subsidiary's portfolio and adds to its partnerships in large irrigation projects, such as the Xerta-Sénia canal or the immense site of the Segarra-Garrigues canal in Catalonia. Finally, the prospect of reduced water consumption and intelligent use of fertilizers is arousing the interest of a number of customers worldwide. A number of countries suffering from water stress could therefore opt for RegControl®, particularly in the Mediterranean Basin or Australia!

<sup>1</sup> In 2009, the FAO estimated that food production would have to increase by 70% by 2050 to feed the planet's additional 2.3 billion inhabitants.

"WITH REGCONTROL®,  
WE ARE OFFERING AN UNPRECEDENTED  
SOLUTION TO OPTIMIZING IRRIGATION  
AND FERTILIZATION OF CROPS TO ORDER."



# Australia-Oceania

— With the 12<sup>th</sup> largest economy in the world, Australia has one of the highest living standards on the planet. But Australia is short of water: despite recent favorable rainfall, this country has experienced a prolonged drought over a period of 12 years, which has had an impact on all uses of water. The Australian authorities decided to take a coordinated and sustainable approach to this problem, by adopting in 2008 the Water for the Future program, intended to secure water supplies and underpinned with an investment over ten years of 12.9 billion Australian dollars. SUEZ ENVIRONNEMENT is working with them on this, mainly through its Degrémont subsidiary, which already provides 20% of the continent's drinking water needs. Another major challenge is waste management, the volumes of which increased by 31% between 2003 and 2007. Australia has changed its approach and is opting for new solutions: sorting, composting and soon gasification. All this is giving a competitive lead to SITA Environmental Solutions (SITA Australia) which, with the acquisition of WSN Environmental Solutions, has strengthened its position in this market. For its part, GDF SUEZ is expanding its supply portfolio in the region with the acquisition of three new offshore gas fields. In energy terms, the Asia-Pacific area accounts for two thirds of world demand for LNG (Liquefied Natural Gas). This means we can look forward to the future with confidence.



## FIGURES

SITA Australia is **60%** owned by SUEZ ENVIRONNEMENT and **40%** by SembCorp Industries, a group based in Singapore. The subsidiary manages waste for:

- **43,000** industrial and commercial clients,
- **3 million** inhabitants served by **90** waste management sites in the country.



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# AUSTRALIA-OCEANIA

## WATER SUPPLIES AND WASTEWATER TREATMENT FOR THE COUNTRY'S 5<sup>th</sup> LARGEST CITY

DEGRÉMONT AND SUEZ ENVIRONNEMENT, in partnership with Transfield Services, have signed with the Government of the State of South Australia a water supply and wastewater treatment operating and maintenance contract for the Adelaide metropolitan area and its 1.1 million inhabitants. An Alliance agreement (public-private partnership) has brought together the State's public water services company (SA Water) and a joint venture between SUEZ ENVIRONNEMENT and its Degrémont subsidiary (50% holding), and Transfield Services (50% holding). The total cumulated turnover of this contract is €840 million. Over a period of 10 years, the contract, which starts in July 2011, includes an option to renew for a further 6 years.



### MELBOURNE

- the largest desalination plant in the southern hemisphere,
- the world's largest public-private partnership in the desalination sector,
- 1/3 of the city's water needs met,
- 450,000m<sup>3</sup> of drinking water produced per day,
- An 85-km water distribution network,
- 27 years in operation,
- Total amount of the investment: €2 billion.

### NEW SOUTH WALES

## SITA IS EXPANDING ITS WASTE MANAGEMENT BUSINESS

On January 31, 2011, SITA Australia finalized the acquisition of WSN Environmental Solutions (WSN) from the government of New South Wales for a total amount of €174 million. With the final transfer of WSN's business to SITA, SITA Australia now owns three state of the art storage centers, a material and energy recovery facility, eight transfer center and three recycling units. All this will increase its business with local authorities and industrialists.

### RETAIL

## SITA AUSTRALIA IS HANDLING THE WASTE FROM THE BUNNINGS DIY STORES

SITA Australia has signed a contract with Bunnings, a chain of 241 DIY stores in Australia, for waste collection and recycling. Over a three year period, this contract also stipulates setting up a program to inform the stores' customers.

01\_Capable of producing 140,000m<sup>3</sup> of drinking water a day, the Perth desalination plant is operated by Degrémont.

Oceania accounted for

# 6%

of SUEZ ENVIRONNEMENT's sales in 2010, compared with 3% in 2007.



## ALREADY 10 YEARS OLD!

2011 marks the tenth anniversary of the SITA brand name's arrival in Australia. In 10 years, the company has evolved through acquisitions and mergers: from a simple collection company, it has become Australia's leading waste recovery company

02\_Australians generate an average of 566kg of waste each year per inhabitant. (municipal waste - 2008)

### PARTNERSHIP

## FLEUR AUSTRALE EXPEDITION, 2010-2013

From the North Pole to the South Pole, the maritime expedition of the yacht *Fleur Australe*, led by the French sailor Philippe Poupon, is intended to alert the general public to the consequences of global warming on the oceans and coastlines. It has to observe and assess the state of the oceans, the fauna and the flora, between Alaska in June 2010 and the Antarctic in 2013. A partner of GDF SUEZ, *Fleur Australe* will receive logistical support at each of its ports of call where the Group operates. This was the case in French Polynesia, with Electricité de Tahiti (EDT) at the beginning of the year and EEC in New Caledonia will provide support in May 2011, then Degrémont in Australia during the summer.



### WESTERN AUSTRALIA

## SITA, APPROVED SUPPLIER

SITA is the only company to be included by the government of Western Australia in its list of approved suppliers. This list, which is imposed on Government departments and agencies for their waste management, guarantees this subsidiary of SUEZ ENVIRONNEMENT a part of its business in the Perth area.

## THE AUSTRALIAN CAPITAL TERRITORY (ACT) SITA VEHICLES ARE RUNNING ON SOYA!

After Sydney and Melbourne, SITA's Hume centre around Canberra (ACT) has switched its fleet to biofuel, i.e. 21 trucks and four light vehicles. This switch to soya B20 diesel has resulted in savings of 270 tonnes of CO<sub>2</sub> emissions a year, at the same price as diesel. SITA's Nowra centre will be using it from July 2011.

### FRENCH POLYNESIA

## FIRST UCD® POTABLE WATER UNIT

DEGRÉMONT has signed a contract with the Société Polynésienne des Eaux et de l'Assainissement, a subsidiary of Lyonnaise des Eaux, to equip it with its range of compact drinking water units - UCD® (Unité Compacte Degrémont). The UCD range consists of 14 units, covering a range of outputs from five to 720m<sup>3</sup>/h.

# 20%

of additional hydrocarbon reserves for GDF SUEZ is what the three new Australian offshore gas fields represent.

# 2/3

of global demand for LNG (Liquefied Natural Gas) - this is the market for the Asia-Pacific area.



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## AUSTRALIA-OCEANIA

International Power supplies 12% of the energy consumed on the national market

### **NORTHERN TERRITORY** ACQUISITION OF NEW OFFSHORE GAS FIELDS

GDF SUEZ has acquired a 60% share in three gas fields located in the Bonaparte basin, in the Sea of Timor and will become their operator in 2011. This acquisition will enable GDF SUEZ to build a floating liquefaction plant. It will also expand the Group's LNG market positions in the Asian-Pacific zone, from exploration-production to marketing.

The Bonaparte project has started with offices of the subsidiary GDF SUEZ Bonaparte opening. A drilling campaign is scheduled in 2011 to confirm Petrel gas field potential.



© GDF SUEZ GLOBAL GAZ & GNL

GDF SUEZ

### AN INCREASED ENERGY PRESENCE

With the merger between International Power and GDF SUEZ, the Group has strengthened its positions in Australia. With a base in Australia since 1996, International Power has developed a diversified energy supply portfolio, including coal, gas, cogeneration and renewable energies. With eight sites in the states of Victoria, South Australia and Western Australia, and an installed capacity of over 3,700MW, the Group supplies 12% of the energy consumed on the national market.



**GOVERNANCE****PENNY CHALMERS ON SUEZ ENVIRONNEMENT'S BOARD OF DIRECTORS**

**SUEZ ENVIRONNEMENT'S** Board of Directors has invited Penny Chalmers, International Power's current Director of Strategy and Communication and a graduate of Oxford University, to join the Board as Dirk Beeuwsaert's replacement. This appointment was among the 17 resolutions approved by the General Meeting of SUEZ ENVIRONNEMENT's Shareholders on May 19, 2011.

# WORLD

## NEWS /

**SWEDEN****SITA "PUTS ITS FEET UP"**

Since January 2011, SITA Sweden has been implementing in Helsingborg (130,000 inhabitants) a speed reduction policy on its collection trucks. In future, the 43 trucks will be unable to travel at over 80km/hr. This measure should reduce fuel consumption by 9% (in other words, the equivalent of 51 tonnes of CO<sub>2</sub>).

**ENVIRONMENTAL EFFICIENCY  
TRANSPARENCY AND REWARDS**

In March 2011, **SUEZ ENVIRONNEMENT** joined the FTSE4Good index for the quality of its environmental, social and governance performances. Launched by the FTSE (Financial Times Stock Exchange) in 2001, the FTSE4Good is a benchmark index that brings together companies considered to be socially responsible based on internationally-recognized standards. It consists of around 718 stocks chosen from companies listed in the FTSE Global Equity indexes. Since 2010, SUEZ ENVIRONNEMENT has also joined the Dow Jones Sustainability World, Dow Jones Sustainability Europe, ASPI Eurozone® and Ethibel Sustainability Excellence Europe® indexes.

SUEZ ENVIRONNEMENT and its subsidiary, AGBAR, were also rewarded for their role as leaders in waste and water management. They were awarded "Silver Class" and "Gold Class" respectively in the Sustainability Yearbook 2011. This guide, compiled each year by SAM, a specialist in sustainable investment, and PriceWaterhouseCoopers, is a world benchmark for companies leading the world in sustainable development initiatives.

## THE GROUP IN CHINA:

13

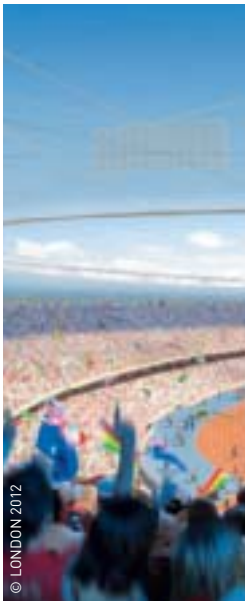
13 million people supplied with drinking water

One of the **three leading private operators** in the drinking water and wastewater treatment services sector in China.

**25 subsidiaries** constituted with local authorities for drinking water production and distribution, and wastewater treatment.

**UNITED KINGDOM**  
**NEW PFI IN NORTH-EAST ENGLAND**

**SITA UK, a subsidiary of SUEZ ENVIRONNEMENT**, has signed a Private Finance Initiative (PFI) agreement valued at €825 million over 25 years with the South Tyne and Wear Waste Partnership, which represents the local authorities for the areas of Gateshead, South Tyneside and Sunderland (North East England). This agreement covers the management of 190,000 tonnes of residual household waste each year. It includes the design, construction, financing and operation of an energy recovery unit with a capacity that may extend to 256,000 tonnes per year. This will produce electricity capable of supplying the equivalent of 30,000 homes. This plant, which has already received the agreement of the local authorities and planning permission, should be operational in 2014. The contract also includes development of three waste transfer platforms and a visitor information center. More than 90% of waste handled by SITA UK under this contract will be diverted from landfill.



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## NEWS /

**MOROCCO**
**LYDEC: MORE SERVICES AND A SMALLER CARBON FOOTPRINT!**

To provide a service combining proximity and a rapid response, new text alert systems, referred to as "Invoice", "Reminder" and "Alarm" will inform the customer of the situation of his account. Efficient and green! Key figure: 79% of Moroccans have access to a mobile phone (ITU, 2009).

Also, with its "Green Act" project, LYDEC wants to limit its carbon footprint as far as possible. The company is therefore renewing its printer stock and rationalizing its printing processes with "Let's work on preserving nature" as the watchword.

**ITALY**
**TWO REMOTE METERING CONTRACTS FOR ONDEO ITALIA AND ONDEO SYSTEMS**

**Ondeo Italia and Ondeo Systems** have signed two pilot contracts for the installation of a remote metering service with the towns of Cremona in Lombardy and Florence in Tuscany. The first covers a remote gas and water metering pilot in Cremona, in partnership with the LGH Group, the local water operations company. In Florence, the remote water metering pilot is being set up in partnership with Acea (Italy's largest water and electricity utility).

**HAITI**
**ONE YEAR ON FROM THE EARTHQUAKE**


**DINEPA, the Haitian government's water and sanitation authority and SUEZ ENVIRONNEMENT** have signed an operational support agreement to reinstate drinking water and sanitation services in the Metropolitan area of Port-au-Prince, seriously damaged by the earthquake of January 2010. Three of SUEZ ENVIRONNEMENT's subsidiaries will be working on this with the Haitian authorities over the next three years: **AGBAR, Lyonnaise des Eaux and United Water**. It will be financed by the Inter-American Development Bank and the Spanish Agency for International Development Cooperation. SUEZ ENVIRONNEMENT has agreed to waive any profit on this contract.

**UNITED STATES**  
**A PRICE FOR THE PUBLIC-PRIVATE PARTNERSHIP**

**United Water and the town of Holyoke** have received an award from the National Council for Public-Private Partnerships for the water treatment plant on Berkshire Street. Five more public-private partnerships were rewarded for their innovations in services associated with the environment.



Cofely, a subsidiary of GDF SUEZ, has designed, financed and built the energy-generating station, as well as the urban network (heating and cooling systems) for the Olympic Stadium and the new "sustainable" Greater London district (Stratford). These infrastructures will be operated by the Group for 40 years.

### HAUTE-GARONNE, FRANCE CONSTRUCTION OF A DRINKING WATER STATION

**DEGRÉMONT**, INEO Toulouse and Aquasource have signed a contract with the Water Syndicate of the Coteaux du Touch (Haute-Garonne) for the design and construction of a drinking water production plant. The total cumulated turnover of this contract is €11.2 million. It involves increasing the capacity of the Lherm plant from 800 to 1200m<sup>3</sup>/hour and treating water by ultrafiltration membranes by 2013.

### GAUDELouPE, FRANCE BIODIVERSITY: A PRIZE FOR THE MANATEE

On March 31, 2011, SITA and the Guadeloupe National Park received the 1st corporate sponsorship prize for the environment and sustainable development awarded by Nathalie Kosciusko-Morizet, Minister for Ecology, Sustainable Development, Transport and Housing. The partners were rewarded for their plan to reintroduce the West Indian manatee (*Trichechus manatus*), a marine mammal in danger of extinction, according to the IUNC (International Union for Nature Conservation) and which had disappeared from the waters of Guadeloupe.

### SITA NEDERLAND IN 2010:

- Approximately **1,6** million customers
- More than **82,000** commercial and industrial clients,
- **1.5 million tonnes** of waste treated,
- **One of the three private front runners** in the Netherlands for collection services.

### TANZANIE EXTENSION OF A DRINKING WATER PLANT

**DEGRÉMONT** has signed, together with the Kenyan civil engineering works company Spencon, a two year contract to extend the Lower Ruvu drinking water plant at Dar es Salaam. The plant will supply drinking water to around 1.5 million inhabitants, in other words half the population of Dar es Salaam.

### CHILE DISCOVERY OF A MASTODON

Extension work at the Santiago valley wastewater treatment plant has revealed the fossilized head of a mastodon, a cousin of the mammoth. The first in this area, this fossil is particularly well preserved. This discovery occurred on the site of the Mapocho plant, which is set to double the urban effluent treatment capacity of the region, under a contract valued at €260 million, won by AGBAR (51%) and Degrémont (49%).

### SPAIN AN UNDERGROUND RESERVOIR TO PROTECT THE COAST

**Aguas de Alicante**, a subsidiary of AGBAR, has commissioned a new underground reservoir to store and treat rainwater. The first of its kind in an urban area in Spain, this reservoir should prevent rainwater draining down onto the coast. The polluted water stored in the reservoir, with a capacity of 60,000m<sup>3</sup>, will then be transferred to a wastewater plant and treated before being re-used to irrigate the city's parks and gardens.

### CHINA NEW CONTRACT... AND FURTHER RECOGNITION

**Sino French Water** has signed an extension to a contract with the Changshou industrial estate for the management of its wastewater plant to increase its treatment capacity to 10,000m<sup>3</sup> per day. Sino French Water is thus taking full responsibility for the operation. Another reward for the company is that it is again in the top 10 of the most influential companies in the water sector in China, according to Chinawater.net and the Department of Environmental Sciences and Engineering of the University of Tsinghua. A distinction won each year since the launch of the study in 2004!



**THE NETHERLANDS****A "HIGH VOLUME" PLANT FOR SITA**

In operation since April 2011, SITA Nederland's ultramodern plastics recycling plant at Rotterdam is the first in the country capable of sorting large volumes of waste (25,000 to 30,000 tonnes per year) before recycling them. During a visit, the Benelux Parliament hailed the CO<sub>2</sub> emissions efficiency of the Roosendaal ReEnergy site, where SITA Nederland has built a new energy-from-waste facility.

**POLAND****TWO CONTRACTS RENEWED FOR SITA**

SITA Polska has renewed its contract with the Warsaw Transport Department for three years for cleaning the city's bus stations. Its contract with the Carrefour group has also been renewed for a year and covers waste collection and management from more than 300 supermarkets and hypermarkets.

**SITOM SEINE-SAINT-DENIS, FRANCE****A STUDY INTO HOUSEHOLD WASTE FLOWS**

SAFEGE has signed a contract with the Syndicat Intercommunal de traitement des ordures ménagères (SITOM - Domestic Waste Processing Unit) of Seine-Saint-Denis for a waste characterization study. Over a 3-year period, the study is intended to refine knowledge of the household waste and selective collection flows handled by the public waste collection and treatment department over the SITOM's territory.

**WASTE IN FRANCE**

Out of a total of more than

# 340

million tonnes of waste generated



**73%** comes from construction and demolition activities.

**15%** comes from commercial and industrial activities.

**9%** is generated by local authorities and households.

**3%** is hazardous waste.

(SOURCE : IFEN, 2010).

# NEWS /

**COMMUNICATIONS****FIND OUT MORE ABOUT THE SUEZ ENVIRONNEMENT BUSINESS LINES**

**SUEZ ENVIRONNEMENT** is launching a new advertising campaign in France, with a dual aim: to continue to consolidate the brand name and explain its two complementary business lines, which are water and waste. Clear and educational messages will be distributed until the end of the year in the press, on the Internet, as radio broadcasts and on billboards.

**FRANCE ALPES-MARITIMES**

The urban district of Nice Côte d'Azur has awarded Degrémont, a subsidiary of **SUEZ ENVIRONNEMENT**, the operation and maintenance contract for one of France's most efficient wastewater treatment plants, Haliotis, a plant with a capacity of 220,000 m<sup>3</sup>/day serving a population of 650,000. The contract, which runs for 10 years, has a total cumulated value of €100 million.

**WEEE****SITA SUD OUEST RECYCLES SMALL HOUSEHOLD APPLIANCES**

The first in the South West region of France, SITA has sited a unit for dismantling small household appliances, one of the WEEE (-Waste Electrical and Electronic Equipment) categories, at Langon in the department of Gironde. Known as VAL PAM, this unit decontaminates and recycles vacuum cleaners, toasters, computing equipment and screens/monitors. The VAL PAM unit will allow the authorities to reach the target of collecting 10kg per year per inhabitant, with its capacity of 6,000 tonnes per year and its 94% recycling rate.



# **DEGRÉMONT:** THE WATER TREATMENT SPECIALIST

## For more than 70 years, **Degrémont**

a subsidiary of SUEZ ENVIRONNEMENT, has designed, built, equipped and operated water treatment systems combining technical and economic efficiency with respect for natural or urban sites. With references in more than 70 countries, Degrémont is a major player in the sustainable management of the water resource. Its skills cover:

- drinking water production, with more than 3,000 installations constructed throughout the world,
- desalination of sea water or brackish water by reverse osmosis, with more than 250 sites designed, built or equipped throughout the world,
- purification and recycling of urban or industrial wastewater, with more than 2,500 wastewater treatment centers built throughout the world,
- treatment and recovery of treated sewage sludge.

Beyond design and operation, Degrémont's teams provide full management of the construction stages: choice of process, layouts, pricing, purchase control, site supervision, equipment assembly and facility start-up. Performance, reliability and harmonious integration into the environment are the fundamentals on which Degrémont bases its business as a system builder.

Finally, in order to anticipate its customers' future requirements, Degrémont is intending to offer "user-friendly" plants, designed to simplify the everyday tasks of the future operator. This is also the role of a leader in the water treatment sector and one of the strengths of a system builder/operator.

© THIERRY LEDOUX



**RÉMI LANTIER** /  
CEO

"Degrémont, a true bridgehead for the Group in its water business lines, is pushing forward developments in the water treatment sector and creating its own eco-engineering solutions. Our 4,500 employees are constantly innovating to produce leading-edge solutions in the biology, desalination, biosolids and disinfection areas. We provide our customers with proven treatment solutions at a competitive cost and advanced solutions embodying demanding environmental and social objectives.

Front runners in sustainable development, we reconcile our customers' economic, regulatory and environmental imperatives, in particular the water resource scarcity issue, protection of biodiversity and the impact of climate change. For example, we are working to reduce the environmental footprint of our plants by limiting their energy consumption and greenhouse gas emissions.

Wherever they are in the world, Degrémont's teams are committed to overcoming the environmental challenges of the twenty-first century!"

# 2010 KEY FIGURES

**1**

billion people are served by almost 10,000 facilities designed, constructed or equipped by Degrémont since the company was created.

## REVENUE BREAKDOWN:

- 72%: Design-Built activities,
- 16%: BOT and services contracts,
- 12%: Equipment business.



**4,500**

employees.

**1,5 billion**

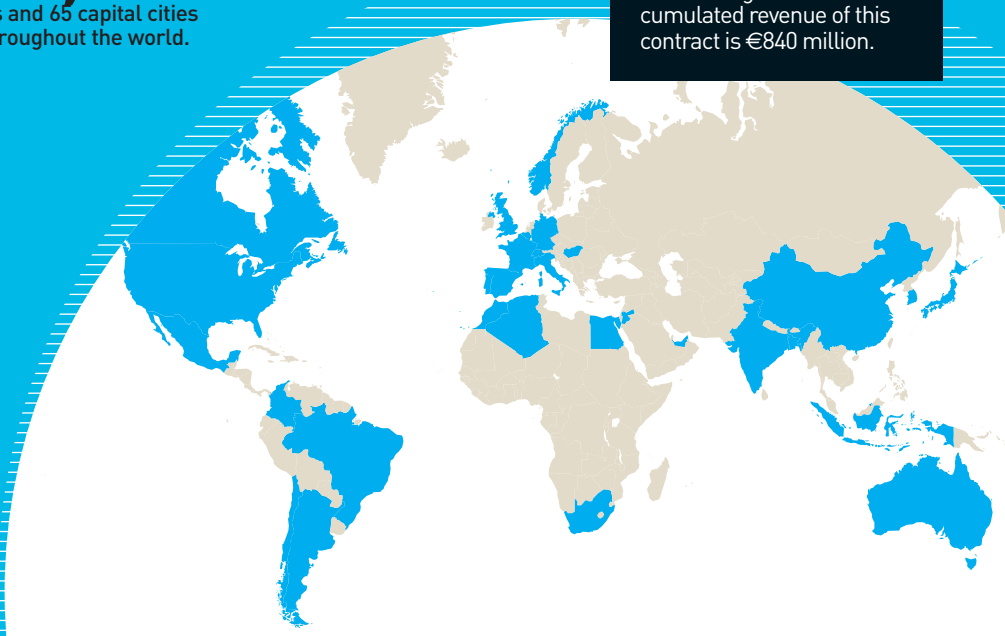
Revenue.

**10,000**

More than installations and 65 capital cities equipped throughout the world.

## AN ALLIANCE FOR ADELAIDE

In February 2011, the Government of South Australia awarded Degrémont and its partner, Transfield Services, a 10-year contract (with an option to renew for a further 6 years) to manage water supply and wastewater treatment services for the 1.1 million inhabitants of the city of Adelaide and its suburbs. This contract is in the form of an Alliance, in other words a public-private partnership, which relies on sharing the risks and profits between the operator and the customer. Degrémont and its partner will manage the complete water cycle, with the operation and maintenance of 6 water production plants, 6 wastewater treatment plants, 16,000km of pipelines and systems for re-using water. The total cumulated revenue of this contract is €840 million.



■ MAIN SUBSIDIARIES AND OFFICES THROUGHOUT THE WORLD

# OUR EXPERIENCE FOR YOUR FUTURE

## DESIGN & BUILD

Production of drinking water, desalination, wastewater treatment, wastewater recycling, sludge treatment... today our plants are in operation in more than 65 capitals throughout the world. Our Design & Build solutions offer the best guarantees in terms of health safety.

## SERVICES

Operation, parts, refurbishment, upgrades... Degremont's service ensures control of the process and optimum equipment maintenance in a spirit of transparency and partnership.

## EQUIPMENTS

With their Ozonia, Innoplana and Aquasource products, Degremont Technologies delivers a range of specific solutions in the areas of disinfection, thermal sludge drying and membrane filtration.





**TRANSPORT, FRANCE  
PALLET LOGISTICS**

SITA, through its EPALIA subsidiary, has signed its first three "Bank Pallet" contracts with France's number one carrier, Norbert Dentressangle, Transports Guidez et V Transports.

Innovative as it is, the Bank Pallet solution based on a bank account model allows the client to move "Europe approved EPAL" pallets to one of Epalia's 32 platforms and recover them at any time to its chosen platform.

The benefit of this new service: not having to move empty Europallets. The empty pallets, which remain the property of the industrialists, are stored on one of Epalia's 32 platforms. For its part, Epalia is responsible for delivering new empty pallets from the platform closest to its customers' sites.

**LYONNAISE DES EAUX  
IN 2010**

**12**

million people supplied with drinking water (in other words, 19% of the population of France)

**17 % of the population of France** who are connected to a sewage system receive their sewage services from Lyonnaise des Eaux

**11,500 employees**

Turnover of **€2 billion**

70 million pallets are produced each year in France. (SYPAL - 2005)

Until August 21, 2011, in Paris, LE BAL is organizing a Japanese season with, in particular, an exhibition by three leading lights in the world of Japanese photography.

**UNITED KINGDOM  
SITA UK APPOINTED  
RECYCLING PROVIDER  
FOR 2012 OLYMPICS AND  
INNOVATING IN BERKSHIRE**



SITA UK has been officially appointed as the recycling and waste management provider for the 2012 Olympics in London.

SITA UK has also renewed a contract with the Bracknell Forest District for the collection and treatment of recyclable waste until 2019. SITA UK will rely on an innovative vehicle, which can collect different types of recyclable waste in a single truck and makes significant fuel savings.

**PUBLIC SECTOR CONTRACTS  
THE OFFICE OF THE PRESIDENT  
OF THE REPUBLIC OF FRANCE HAS  
ADOPTED DEGRÉS BLEUS®**

The Elysée Palace has chosen the Lyonnaise des Eaux' Degrés Bleus® process as its local and environmentally-friendly energy source. This technology recovers heat from wastewater. The first Government building to use it, the Elysée Palace and its outbuildings could reduce their fossil energy consumption by 63% by the summer of 2011, thus avoiding the emission of 206 tonnes of CO<sub>2</sub> each year. The Paris City Hall has also adopted this process for one of its schools. Result: Degrés Bleus® should cover more than 70% of the annual heating needs and thus avoid the emission of 76.3 tonnes of CO<sub>2</sub>.



**PARTNERSHIP  
SUEZ ENVIRONNEMENT, PARTNER OF LE  
BAL, SUPPORTS "MY WORLD DIARY"**

A project led by the Association des Amis de Magnum, chaired by Raymond Depardon, LE BAL, a new exhibition centre, supported by SUEZ ENVIRONNEMENT, is dedicated to the documentary image in all its forms: photography, video and new media. SUEZ ENVIRONNEMENT is also working with the "My World Diary" project. This teach-in covering the photographic image is aimed at 4,000 priority education schoolchildren, in the Ile-de-France region. In this way, the Group confirms its partnership and sponsorship policy as a citizen and partner of the city.

KAMILA GAWRYS / DEPUTY DIRECTOR OF SAFEGE POLOGNE

“I HAVE TRAVELLED,  
LIKE MY COMPANY,  
FROM ONE WORLD TO ANOTHER.”



**GROWING TOGETHER.** Founded in 1991, under a sanitation project supported by the World Bank, SAFEGE Pologne is well matched to market needs; in a country that has changed profoundly in the space of twenty years. Flash-back. We are at the start of the 90s. The youthful Kamila Gawrys, studying economics and social sciences, chooses to devote her life to her country, which is passing through a pivotal and decisive period. “My country was reawakening, there was a tremendous need for infrastructure and our company never seemed to stop growing!” She joined SAFEGE Pologne in 1995... The opportunity for Kamila to learn to speak French, as well as, in her free time, to be a tourist guide in Savoy for her compatriots who were in love with the ski slopes.

Indeed, SAFEGE Pologne has seen its number of employees increase by 2,000% in around ten years! The company works hard... and its efforts are paying off, because it has won several large contracts (water treatment, urban development, roads, rail networks, etc.) in most Polish cities. This is also a wonderful reward for Kamila, who headed the bidding team for several years before becoming the deputy director of the company in 2005. “I am only the second dinosaur here, our former manager had been with SAFEGE Pologne since its foundation and now works with us merely for pleasure. I hope that one day I will be in the same position”, she jokes.

Currently celebrating its 20th anniversary, the company is now moving up another level the purchase of BBM Conseko, waste specialist, based in the south of the country. At the same time, the company is expanding its structure and coverage over the territory through a number of projects: “sixty are already planned for 2011!”

Kamila and the company have grown with each other. Her work has never been routine; not only because of SAFEGE Pologne’s rapid growth, but also due to the profound changes that have taken place in working practices as the twenty-first century unfolds. Sixteen years after her arrival, she tells us: “SAFEGE Pologne is the story of a challenger that has become one of the leading companies in the environmental, urban transport and infrastructure sectors. From communism, which crumbled under my very eyes, to the dramatic change in my career, I have travelled, like my company, from one world to another.”

Unrivalled experience, market expertise and an excellent knowledge of clients’ expectations, means Kamila is one of SAFEGE Pologne’s ‘pillars’.

### The broad picture for SAFEGE

— Since its foundation sixty-five years ago, SAFEGE, a subsidiary of SUEZ ENVIRONNEMENT, has become a benchmark in the business of sustainable development of cities and their surroundings. SAFEGE works with its clients in directing their development choices and designing their infrastructures with them at every stage of their projects: support to clients, surveys, project management, technical support, training, audits. SAFEGE has 1,200 employees and operates on an everyday basis in more than 100 countries.



To find out more:  
→ [www.safeg.com](http://www.safeg.com)



## PROCESS WATER ON DEMAND

**TO SUPPLY INDUSTRY WITH PROCESS WATER ON DEMAND** using solutions needing no investment, flexible in terms of duration, treatment levels and the services offered. These are the objectives of the OMOBILE solution, developed by Ondeo IS.

This actually involves countering supply issues by treatment *in situ*, via a tailored service, which ranges from simple equipment leasing to turnkey solutions comprising advice, technical support and maintenance. Clearly with the common ground being the use of the most innovative and highest quality technologies and water treatment processes from Ondeo IS.

"We are setting up mobile water treatment units moved by semi-trailer trucks. There are three types of possible response, meeting three identified types of need in industrial sectors as varied as petrochemicals, chemicals, energy, etc." explains Arthur Leport, OMOBILE BU Director and Market Development Manager at Ondeo IS.

Primarily, solutions that can handle emergencies or repairs while providing continuity of supply, especially in a risk situation. "In Italy, following a fault on the fixed installation of an electricity-generating station, in 48 hours we installed a mobile unit, essential for guaranteeing continuity of electricity production from the power station in a period of high winter consumption", adds Arthur Leport. "Another example is that of a Belgian industrial

chemical company with an ageing fixed water treatment plant. After carrying out an O'Ready audit on its site, we drew up an emergency deployment plan for our OMOBILE units in the event that its system fails."

Second major field of application, planning of interventions on a fixed water treatment plant; a service forecasting and optimizing supplies based on pure water needs. Third and final offer, long term leasing, which represents an alternative to investment in a fixed plant. "Industrial companies simply lease a water treatment station mounted on a semi-trailer, which guarantees them the required quality of treatment and the quantity of water", concludes Arthur Leport.

With growing demand, Ondeo IS is increasing its fleet rapidly and optimizing its movement processes, mainly with the use of containers. The fact is that the OMOBILE formula is particularly well suited to the Asian and Middle East markets, where industrial growth is increasing demand considerably. Future markets, given the opportunities for synergy between OMOBILE and the other services offered by Ondeo IS are numerous.

### Ondeo IS

— Ondeo IS, a subsidiary of SUEZ ENVIRONNEMENT, is a leading provider of management improvements across the entire industrial water cycle. Ondeo IS, with around 650 employees, manages over 200 operating and service contracts in the industry and throughout Europe and has built more than 2,000 wastewater treatment plants and more than 1,800 process water treatment plants.

# 20%

this is the annual increase  
in the OMOBILE fleet since 2006.



To find out more:  
→ [www.omobile.eu/en](http://www.omobile.eu/en)

THE "CHAIRE VILLE" OF  
THE ÉCOLE DES PONTS PARISTECH

# UNDERSTANDING THE CITIES OF THE FUTURE

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**DOMINIQUE LORRAIN** /

RESEARCH DIRECTOR AT THE CNRS, LABORATOIRE TECHNIQUES, TERRITOIRES ET SOCIÉTÉS  
(RESEARCH GROUP ON TECHNOLOGY, TERRITORIES AND SOCIETIES), DIRECTOR OF THE "CHAIRE VILLE"



Every second person worldwide lives in a city. By 2050, this proportion will rise to more than two thirds. It is against this background of rapid urbanization that the "Chaire Ville", supported by SUEZ ENVIRONNEMENT, has been studying the changes since 2008, which the great globalized cities are making. Discussion with Dominique Lorrain, Director of the "Chaire Ville", who reflects on the work completed and future research.

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01  
02

© GDF SUEZ / ABACAPRESS / MATTIOLI DANIELE

01\_Shanghai, Pudong district  
(with the Oriental Pearl Tower).  
02\_Bombay

### What is the scope of the subject “Governing large cities”?

According to the theory, these very large cities would be ungovernable, because they are too large and are divided between too many conflicting interests. This analysis is founded on the theory of chaos. We are reviewing this argument because, in our opinion, these cities are *de facto* governed or at least organized, mainly because of urban technical networks and institutions lower down the scale, which are able to control them. It is through this narrow gateway of secondary institutions and techniques, that part of the learning process about governance takes place. Without deducing a grand theory, the players have invented the mechanisms of ordinary government. They have done this by resolving the practical problems. The players have to develop solutions, which play more than one role in “government”: knowing who is responsible, who manages, how it is financed.

### What is the “urban fabric” concept?

The idea is that we have to consider the physical dimension of the city and the players who help produce it. At global level, the “urban fabric” uses large companies, which are among the major players in city management and production. These large urban companies need to be studied themselves, with their history, their products, their positioning in a competitive environment, such as the Chinese water companies<sup>3</sup>, for example, which entered the market very recently. By accumulating corporate “portraits”, we want to identify more precisely the variety of ways of creating a city. In all, thirteen articles have been produced on these companies, with support from the Chaire and 36 companies presented<sup>4</sup>. →



© PAULO FRIDMAN/COIREIS

**The “Chaire Ville”, founded in 2008 and accommodated since 2011 by the École nationale des Ponts ParisTech, is working on major city issues by bringing together the world of public sector research and that of private enterprise. What are the objectives of this Chaire?**

The idea is to find alternative sources of finance and multiply the questioning perspectives. There is something for everyone here: enterprises promote links with the scientific community and have discussions on selected topics. As for the researchers, this gives them a new and flexible source of finance, as well as providing access to parties having a different view of the issues.

**What subjects are discussed by the “Chaire Ville”? What actions are being taken?**

In the first three-year cycle, by agreement with our partners<sup>1</sup>, we have worked with four colleagues on very large cities: Shanghai, Bombay, Santiago in Chile and Le Cap<sup>2</sup>. These megalopolises, with 5 to 20 million inhabitants, are recent phenomena, which we have not yet been able to quantify. The fact that many of them are on emerging markets increases the challenges. We have focused our research on two topics: the concepts of “governance” and of “urban fabric”.

01\_Le Cap  
02\_Algers



01\_02

## EYEWITNESS /

**OLIVIER COUTARD**, DIRECTOR OF THE LABORATOIRE TECHNIQUE, TERRITOIRES ET SOCIÉTÉS (RESEARCH GROUP ON TECHNOLOGY, TERRITORIES AND SOCIETIES), UNIVERSITY OF PARIS EST (UMR CNRS).

### What is cleantech in urban services?

Historically, the major technical networks can be regarded as green technologies, which have efficiently facilitated the organization of urban systems... Including from the environmental point of view. Today, these are “decentralized” technologies, which appear to be green. However, the idea is the same: this is to control and minimize the extraction of non-renewable resources and pollutant discharges into the environment. The central issue for green technologies is therefore an issue of sobriety.

### What are the main factors dominating their development?

Since the end of the 1980s, networks have been the subject of reforms combining marketing of services, liberalization of markets and, sometimes, privatization of the organizations in charge of these services. These reforms, based on a criticism of their technico-economic efficiency, have opened or re-opened the field of possible configurations. And, today, the increasing collective concern for sustainable development leads to consideration of models of “good” organization for urban services that are no longer necessarily - or exclusively - based on the network.

### What are the issues for this development at economic, social and environmental levels?

Duplication of infrastructures entails investment costs that may threaten the economic viability of legacy systems or the ability to discuss essential services. From an environmental point of view, the performances of alternative technologies, or of composite systems that they form with centralized legacy networks, are poorly understood. Raising infrastructures to the surface, making production, treatment and flow control facilities visible has indisputably transformed urban landscapes.



© GDF SUEZ / DUR JUIL PHILIPPE



### What are the objectives of the new Chaire cycle (2011-2014)?

For large cities, we will be working on the Mediterranean basin by studying the cities on both banks. We will also be opening other sites: monitoring network services on emerging markets, studying large urban projects and the innovations that are made in this area and green technologies (*clean tech*, see opposite). In each case, we will help organize and develop researcher networks.

### What will these different tasks ultimately achieve?

Research is an interactive process with discussions at the time of conception, in information gathering, in reporting and afterwards. The written records are circulated and used as teaching aids - we will be creating a new course covering the socio-economic aspects of the urban departments at Paris Tech. The Chaire will continue to publish its work on line in French and in English.

### What impact will the involvement of large groups like SUEZ ENVIRONNEMENT have in this work?

Companies will help ask the “right” questions in the public debate, but may also identify the important issues of tomorrow. This is undoubtedly the interest of a Chaire for a large company: by definition, it holds skills peculiar to its own field, but the formulation of questions at the boundaries of its present environment will escape it.



#### To find out more:

→ [www.cairn.info](http://www.cairn.info) (in French)

<sup>1</sup> SUEZ ENVIRONNEMENT, the Caisse des Dépôts et Consignations and the DIACT (Interministerial Delegation for Town and Country Planning).

<sup>2</sup> A book soon to be published: *Métropoles XXL émergentes [XXL metropolises in emerging countries]* (Presses de Sciences-Po) currently being translated into English.

<sup>3</sup> See article from Flux no. 82, October - December 2010 - “Blue Red chips: the water companies in China, BUSINESS PORTRAIT”, by Dominique Lorrain.

<sup>4</sup> They are published by the Flux review and are accessible on line on Cairn and on the Chaire website.

## BIOGAS

### OPTIMIZING GASIFICATION

**RENEWABLE ENERGY,** biogas is a subject at the heart of the thoughts and construction of the new energy mix under the Energy Package - European Climate. A resource that is of particular benefit because it contributes to the move towards recovery of the sludge produced by water treatment plants and organic waste, by gasification. "We have the resource to produce biogas and our vision is energy self-sufficiency on the sites that we operate for our customers, in particular water purification plants", explains Patricia Camacho, manager of the Biogas program, at the International Center for Research on Water and the Environment (CIRSEE), SUEZ ENVIRONNEMENT's research center. We must therefore be able to determine the quantity and quality of the biogas that we can produce by gasification, based on the raw material that we have available".

**A DEDICATED LABORATORY: THE ANAEROBIC DIGESTION PLATFORM AT CIRSEE CROISSY.** The purpose of the Biogas program is to improve SUEZ ENVIRONNEMENT's depth of knowledge on the topic by developing databases and expert systems providing operational support to operating sites and enabling Business Units to select the best scenarii for manufacturing products to be recycled as matter and energy, while taking into account the economic, environmental and social constraints. This program is supported by the implementation of two experimental modules. "A specific area has been fitted out at CIRSEE with physical, -chemical and biological characterization systems for organic materials and for biogas analysis", explains Patricia Camacho. We are conducting batch trials here, (maximum volume and constant at 1L), for a comparative


estimate of the biogas potential between different substrata and a prescreening of the relevant mixtures; and semi-continuous feed-back (maximum volume 10L). Here, we feed these reactors 3 to 4 times a week to be closer to an industrial process (continuous feed). This will allow us to test different mixtures of organic matter and better understand the biological behavior and the kinetics of transformation, key elements for industrial operation. The ranges of mesophilic (37°C) and thermophilic (55°C) anaerobic digestion can be covered. The platform is used by some ten researchers, who allow us to add to our databases, the bedrock of our expertise and which we will share with the business units and the Group's remaining research centers.

**AN OPERATIONAL MODULE: THE MOBILE DEMONSTRATION PLATFORM.** The second system is a mobile module consisting of two lines in parallel, in other words, two header tanks connected to two digesters, each with a capacity of 2.5 m<sup>3</sup>, and the analysis laboratory equipment. "This system allows us to carry out experiments at 37°C or 55°C in conditions close to those of the land, but having no effect on the working of the site. It provides feasibility and/or optimization studies of specific gasification." This program will continue until 2012 and will be extended by other projects, which will be deployed around four main themes: resource, production, treatment of the biogas before use and energy recovery.

# 30%

of the 560,000 tonnes of sludge produced by SUEZ ENVIRONNEMENT wastewater treatment plants are "digested" to produce 50 million cubic meters of gas.





Pollution, climate change, as well as new usages, require a remodeling of the water management model. Explanations.

# FROM EASY WATER TO FRAGILE W A COLLECTIVE CHALLENGE



ATER  
GE

# FROM EASY WATER TO FRAGILE WATER A COLLECTIVE CHALLENGE

TO PRODUCE A SOCIETY WITH REBALANCED WATER, ECOLOGICALLY RESPONSIBLE AND ECONOMICALLY SUSTAINABLE: A FUNDAMENTAL CHALLENGE, WHICH LYONNAISE DES EAUX IS ATTACKING WHILE WORKING ON RETHINKING ITS OWN ROLE... AND BY INVITING THE PLAYERS TO TAKE PART IN THE THOUGHT PROCESS!

**NOW FRAGILE**, after having been easy, water is at the heart of our societies' concerns. Yesterday, vast programs for equipping distribution and water treatment infrastructures were widespread in France, providing access for everyone to drinking water and wastewater treatment. Today, the constant increase in samplings, new forms of pollution, as well as the vagaries of the weather have put resource preservation at the top of the list of priorities. Moreover, the balance of contracts is threatened by the dual effect of falling volumes of water billed and the increase in the cost of maintaining the infrastructures. All these phenomena have an impact on the water management model as it has existed for decades.

"In France, this model has enabled us to deliver drinking water that is some of the cheapest in the world, compliant with European regulations on the water cycle", according to Isabelle Kocher, CEO of Lyonnaise des Eaux. "However, this model now has to change, because we have to face up to new challenges".

## DEVELOPING GOVERNANCE RULES

Increasingly regarded as a communal asset, water is logically covered by a request for more shared governance. To satisfy this expectation, everyone has a part to play.

It is for citizens to understand the environmental impact of their consumption habits and to adapt them accordingly.

For their part, the authorities must produce new standards and decide on structuring invest-



01

© BUSINESS ROLL AGENCY



Isabelle Kocher, CEO of Lyonnaise des Eaux

© FRANCK COURTES

ments. As for operators, their responsibility is to invent new working relationships with their customers.

"In this case, we took pioneering initiatives, reflecting the contract monitoring committee set up in Fouesnant (Finistère) in order to make the exchange of information and the identification of lines of progress a matter of routine, underlined Hélène Valade, Director of sustainable development at Lyonnaise des Eaux. This type of mechanism has the advantage of making visible a point, which often tends to be forgotten: whatever the operator's status, water distribution and treatment remain public services placed under the control of elected members."

A control, which Lyonnaise des Eaux is now proposing to strengthen by means of an extranet link, undergoing trials and named "Monitor your operations together" which, with other features, provides information in real time on the implementation in real time of emergency operations.

Changing the governance rules is also about meeting the needs of the participants for transparency and information. In Lille (Nord), Lyonnaise des Eaux has therefore appointed

01\_02\_  
If agriculture accounts for 70% of the world's water consumption (UN, 2009), this rate varies from one country to another: 31% in France, compared with 77% in Spain. (BIPE, 2010)



© SYLVAIN HITAU

02



“CURRENT PROBLEMS ARE ACUTE AND REQUIRE THE MOTIVATION OF ALL PARTIES SO THAT WATER REMAINS SHARED WEALTH.”

03\_ Drinking water production plant at L'Apié (Var, France), which uses the technology of membrane ultrafiltration to produce water of a perfect quality without adding chemicals.

© GDF SUEZ / MEYSSONNIER ANTOINE

## A FEW FIGURES

According to a survey<sup>1</sup>, the quality of natural environments in France is a concern for a large majority of people interviewed, whether it concerns the quality of the lakes and rivers (76%) or the quality of bathing water (63%). In addition, 80% of them had the feeling that they should be paying more attention to their water consumption.

<sup>1</sup> TNS Sofres survey for Lyonnaise des Eaux, May 2010.



© GDF SUEZ / MEYSSONNIER ANTOINE

to its Board of Directors the chairman of a company involved in integration through economic activity. In Rouen (Seine-Maritime), the same approach led to the nomination of the Chairman of the Natural Park for the Normandie-Maine region. In both cases, these nominations meant that the operator was better able to understand and allow for local problems.

This desire for openness is addressed also to populations: in Fouesnant and, for the first time in France, Lyonnaise des Eaux inaugurated a cycle of twice-yearly public information meetings in November 2010.

## NEW EXPERTISE AND NEW SERVICES

For a long time, operators have been forced to manage only the “minor” water cycle, from pumping of the resource to the treatment of the waste water. By requiring the Member States of the European Union to achieve a good ecological status for their bodies of water, the framework directive on water has broadened this scope to include the preservation of ecosystems. And beyond this, the expectations, borne by the elected members, regarding the protection of water resources and sustainable

**100,000** visits were recorded, 10 months after launching the “New Ideas on Water” platform.

**+** To find out more: [www.ideesneuvessurleau.net](http://www.ideesneuvessurleau.net) (in French)

**120,000** individuals have already subscribed to one of the services from the Dolce Ô range offered by Lyonnaise des Eaux.

**€3.09** this is the overall average price of water per m<sup>3</sup> in France. The European average is €3.44/m<sup>3</sup>. (NUS Consulting - 2009)





01\_ The HQE wastewater treatment plant at Coudekerque-Branche (Nord, France) is helping preserve the North Sea coast, mainly by treating rainwater, in order to obtain a discharge quality compatible with the "bathing water" regulations.

02\_ According to the INSEE, in 2008, water and sanitation accounted for 0.8% of French household budgets. (BIPE, 2010)

ral public, who represent new market segments - private individuals, for example - would like to have instruments for optimizing their bills. The Dolce Ô range offers them the opportunity to monitor their consumption in real time and be warned of excess consumption.

"Whether it is about devising high added-value services or supporting the main users of the water resource, such as farmers, for better control of the issue of extraction or pollution over a wide area, technological progress is at the heart of our development strategy", summarizes Isabelle Kocher.

### DIALOGUE AS A SOURCE OF INSPIRATION AND SHARED CONSTRUCTION OF THE FUTURE FOR WATER

Lyonnaise des Eaux has undertaken to change to meet the aspirations of the different components of society. "However, there is still some way to go, particularly on the method of payment for operators, be they public or private. Based on volume sales, it no longer represents the imperatives of resource preservation", observes H el ene Valade. In order to take part in the new challenges regarding water, in early 2010 the company has committed to a work and dialogue program: "New Ideas on Water": Initiated as a collaborative platform open to all and a forum bringing together experts from all disciplines, this approach also exists in the regions in the form of debates with the elected members. "By exposing ourselves to the outside world, we are multiplying the sources of inspiration for drawing up and testing new solutions with local authorities" explains Isabelle Kocher. "This is a formidable lever for changing the company!"

01\_



02\_

→ development, are high. Whence the need to create new skills to be responsible for the "major" water cycle.

Here again, Lyonnaise des Eaux is a pioneering figure. Its Degr es Bleus® technology recovers the heat contained in the waste water to heat the facilities. Result: a significant reduction in energy consumption and greenhouse gas emissions.

The ambition of providing a response matched to sustainable development issues is also expressed through the wet zones referred to as "Zone Libellule®". These experimental areas, located downstream of a wastewater treatment plant, help to develop local biodiversity, as well as to extract, using the plants, the final pollutants not removed by the conventional circuit. The first of these was set up in the H erault region in spring 2010.

Another encouraging factor is the arrival of new technologies in the water business lines, allowing new solutions to be conceived for contributing to resource protection. The gene-

"UNIQUELY BASED ON VOLUMES, THE PAYMENT METHOD FOR OPERATORS IS NO LONGER THE SAME AS THE IMPERATIVES OF RESOURCE PRESERVATION."

01\_



To find out more:

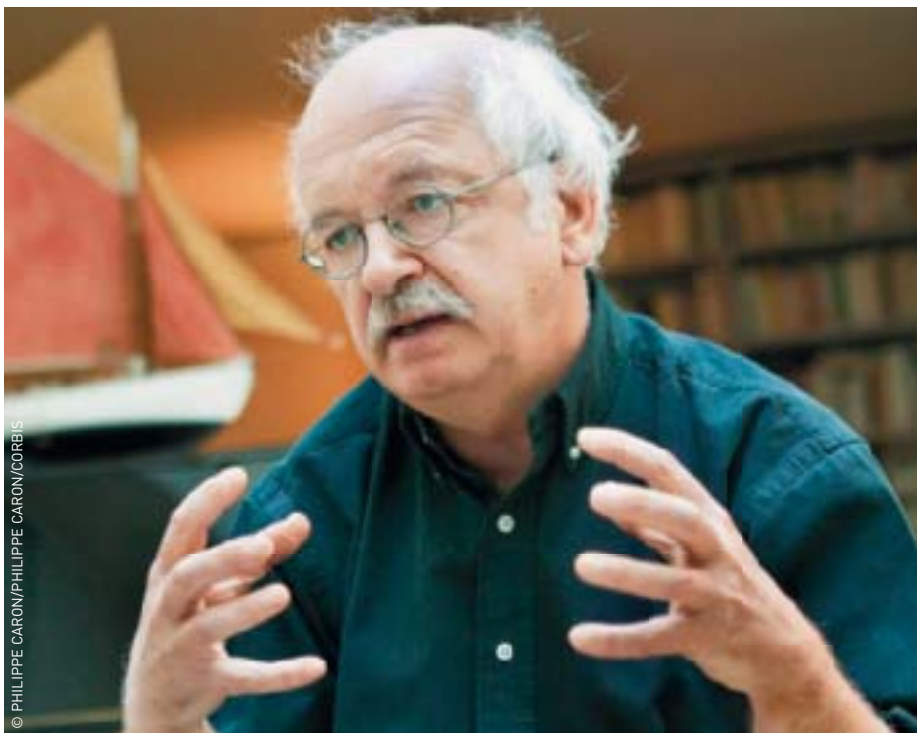
→ [www.lyonnaise-des-eaux.fr](http://www.lyonnaise-des-eaux.fr) (in French)

→ [www.ideesneuvessurleau.net](http://www.ideesneuvessurleau.net) (in French)

# NEW IDEAS ON WATER FORUM

## A HARVEST OF PROPOSALS

EACH ONE HAS CHAIRED ONE OF THE SESSIONS OF THE FORUM FOR NEW IDEAS ON WATER. **ERIK ORSENNA** AND **LUC FERRY** HAVE PREPARED THE REPORT ON THIS WORK TOGETHER.



**ERIK ORSENNA** / HONORARY FRENCH GOVERNMENT ADVISOR, ECONOMIST, WRITER, MEMBER OF THE ACADEMIE FRANÇAISE.

### What were the objectives assigned to the New Ideas on Water Forum?

**Erik Orsenna:** This was not debate for debate's sake, but rather finding solutions together to issues such as water scarcity, distribution and price, resource management, sharing of responsibilities, etc. Complex subjects, which generate considerable misunderstanding and contradictory attitudes, and about which it is essential to think again.

**Luc Ferry:** Hence the choice of inviting thoughts from men and women whose perspective,



**LUC FERRY** / FORMER FRENCH MINISTER FOR NATIONAL EDUCATION AND RESEARCH, PHILOSOPHER, WRITER AND CHAIRMAN OF THE COMPANY'S ANALYSIS COUNCIL.

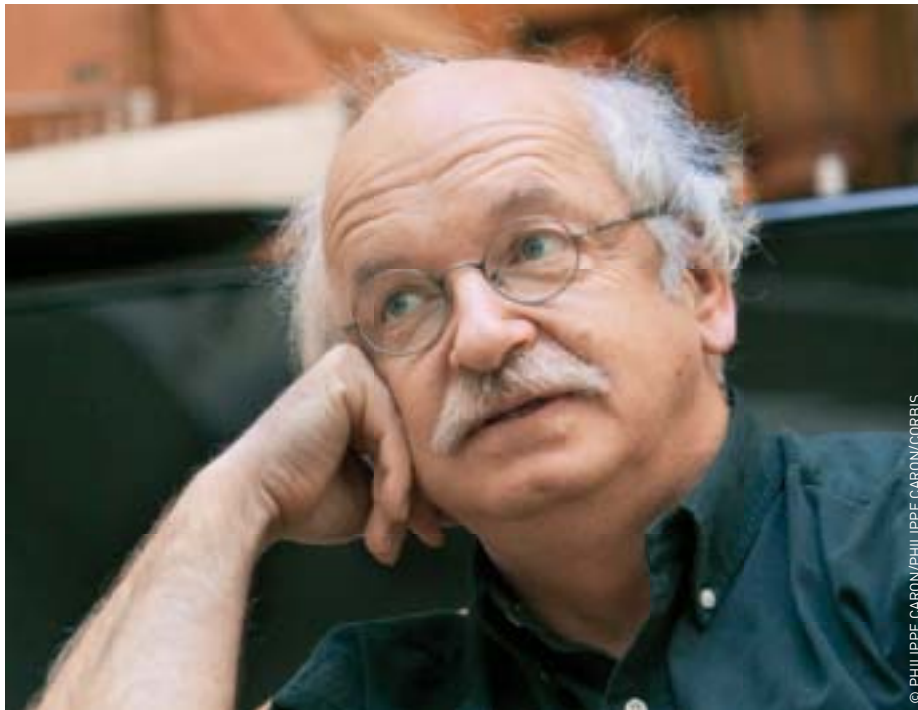
skills and ideas could throw new and original light on the subject: representatives of consumer and environmental protection associations, economists, elected members, company directors, intellectuals, etc. All were heard by a committee of standing members over two sessions. Erik chaired the first, on the subject "Value and price of water"; and I chaired the second, covering the topic "Water, science and technology".

**At the end of the discussions, "ten new ideas about water" were drawn up. Which of them would you choose in particular?**

**E. O.:** These ten new ideas throw light on key water issues and all of them are →

LUC FERRY /

"IN FRANCE, WE ARE SEEING CLEARLY THAT THE DEVELOPMENT OF NEW TECHNOLOGIES IS ENABLING US TO TAKE A NEW APPROACH TO RESOURCE PRESERVATION."



"THERE ARE NO 100% PUBLIC OR PRIVATE PLANS THE COMING TOGETHER OF THE TWO DIMENSIONS IS AN EVERYDAY REALITY."

ERIK ORSENNA /

→ therefore interesting. I am personally in favor of the idea, according to which the major water cycle will receive further attention. The need to protect the resource is obvious, but we must find new methods of financing this. Given the financial challenges and the magnitude of the investments, this burden cannot be placed fundamentally on the drinking water user. We must therefore invent a new distribution, including new parties entering into the financing loop, who disrupt or benefit from the water cycle. I also think that the method of pricing water needs to be matched to the restrictions of the local resource, for example by a sliding price scale - permanent or seasonal - based on individual metering. In any case, it is essential to connect economic and environmental efficiency and to encourage all parties to protect this resource to the best of their ability.

**Among those ideas that were tabled, which did you find most attractive?**

**L. F.:** In my opinion, the idea about the story of water seems very important. Despite the fact that water is essential to life, the reality is that we take far too little interest in it. We talk far more about GMO or global warming, for example, than about water, although the latter is a number one topic, whether it involves the quality of river water and groundwater, the relationship between water and agriculture, geopolitical issues or pollution of the seas and oceans.

**Has the forum clarified the debate between the advocates of state control and the delegation of public service?**

**E. O.:** In this field, ideological positions must be abandoned in the face of assessment criteria and performance comparison embodying local constraints and efforts at improvement made in the past. There are no 100% public or 100% private plans, as the meeting of the two dimensions is an everyday reality, from the simple delivery of a service to full delegation. Ideological crystallization is particularly obsolete, as the combining of resources, experience and skills is essential in meeting the challenge of protecting our water masses.

**What role could innovation play in guaranteeing improved sustainable water management?**

**L. F.:** This is entirely a central role. In France, we are well aware that development of new technologies will provide us with a new approach to tackling the problem of resource preservation and innovations in farming practices are now allowing much more precise management of fertilizers and pesticides. And in the developing world, where water is a commodity all too often at risk, this will be by the contribution of new techniques, such as desalination, which can achieve sustainable resource management, more effective in ecological balance than moral lessons.

## INITIATIVES



© LUCAS DOLEGA/EPA/CORBIS

### CONTROLLED CONSUMPTION FOR 250 SNCF SITES

SNCF (French national railway company), under its "Optimmo" efficiency program, has awarded Lyonnaise des Eaux a contract for multisite control of gas, electricity, thermal energy and water consumption using a remote meter reading system.

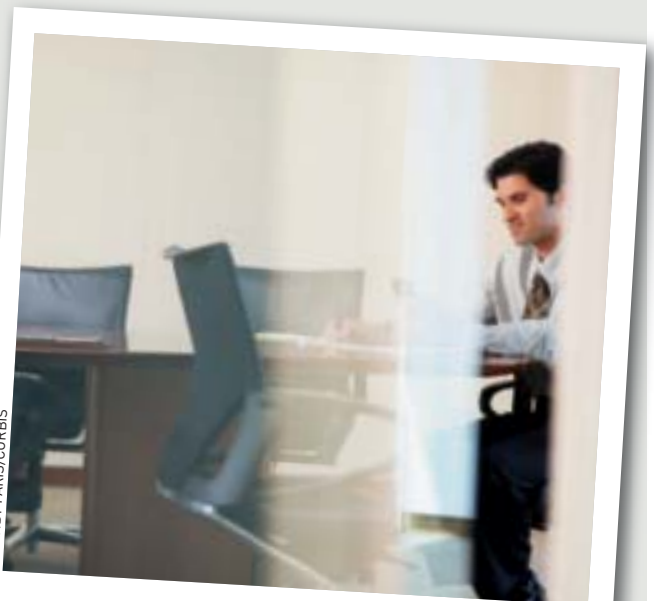
This offer, deployed on behalf of SNCF's Real Estate Department, is a first nationally for Lyonnaise des Eaux.

To get this off the ground, the company brought in its subsidiary ISIOM (for the web solution), the GDF SUEZ Energy France business line (for energy advice), as well as Dolce Ô Services and Inéo. The solution for managing multi-fluid loads relies on centralizing the data from 8,000 metering points installed on 250 sites (stations and technical buildings) between 2010 and 2014. By identifying leaks and using alerts in cases of excess consumption, the client has already recorded a reduction in its consumption in the region of 20% over 18 months...

### CRM PRO: "LET'S ALL WORK TOGETHER TO FORM A WINNING TEAM!"

Since November 2009, the Lyonnaise des Eaux PRO brand name has been carrying the company's new B2B services, as well as those of its subsidiaries, Isiom and Océa, to managers of service sector or residential property portfolios. To be capable of providing solutions generating value, the need for coordinated commercial action swiftly made itself felt. Today, this relies on a common system, the CRM PRO. Chosen at the end of a tendering exercise, it was rolled out quickly, in 3 months, for sharing client accounts, contacts and prospect management, managing multi-entity projects entirely consistently, avoiding double entry and other sources of misunderstanding between the teams, etc. By stimulating cooperation between the sales forces of the three entities, the new application has already contributed to several commercial successes. It will undoubtedly be one of the keys to success for Lyonnaise des Eaux PRO!

<sup>1</sup> Customer Relationship Management.



© RANDY FARIS/CORBIS

**A TASTE FOR SMELLS.** Elena Senante, manager of the material recycling department at CIRSEE, is delighted to be providing a cultural and social dimension to her technical and scientific activities. From 2001 to 2008, this young woman, originally from Spain, worked first of all as a research engineer on the NOSE\* program, intended to reduce the olfactory impact of wastewater treatment plants and waste treatment facilities.

"Smell is a sense. Consequently, it is different for each one of us", explains Elena. "In order to be better able to understand people's reactions to this question, you have to take into account the cultural and social factors that play a role in our perception of smells." Elena Senante has therefore tested the molecules which produce smells. She travelled to Chile, the United States and England to study the particular features of "olfactory cultures" in each of these countries. "Our objective was, of course, to put forward solutions for reducing odor pollution, but we learned also how individuals identify and characterize smells. This enabled them then to adopt a more rational behavior on this issue.

Today, heading a team of seven, responsible for research projects into the recovery of sludge and waste, Elena says: "In all our transformation processes, smells are produced. I will therefore continue to practise what I have learned in this field and have trained my team accordingly." This knowledge of smells is equally useful to her in her private life. In the metro, she amuses herself determining the molecules responsible for smells and is training her two-year old son to identify them. "At school, we learn to distinguish colors and sounds. Unfortunately, smell is a sense which is undervalued in our society."

\* NOSE: No Odor for SUEZ ENVIRONNEMENT

## CIRSEE

— SUEZ ENVIRONNEMENT's International Centre for Research on Water and the Environment (CIRSEE) relies on a technical and scientific network of 400 researchers. It works constantly on the Group's development in France and internationally. In 2010, SUEZ ENVIRONNEMENT devoted €73 million to research, technological development and innovation.



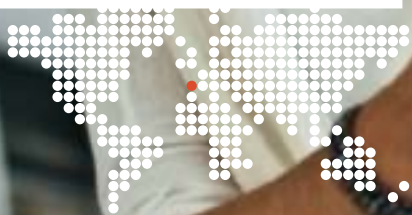
To find out more:

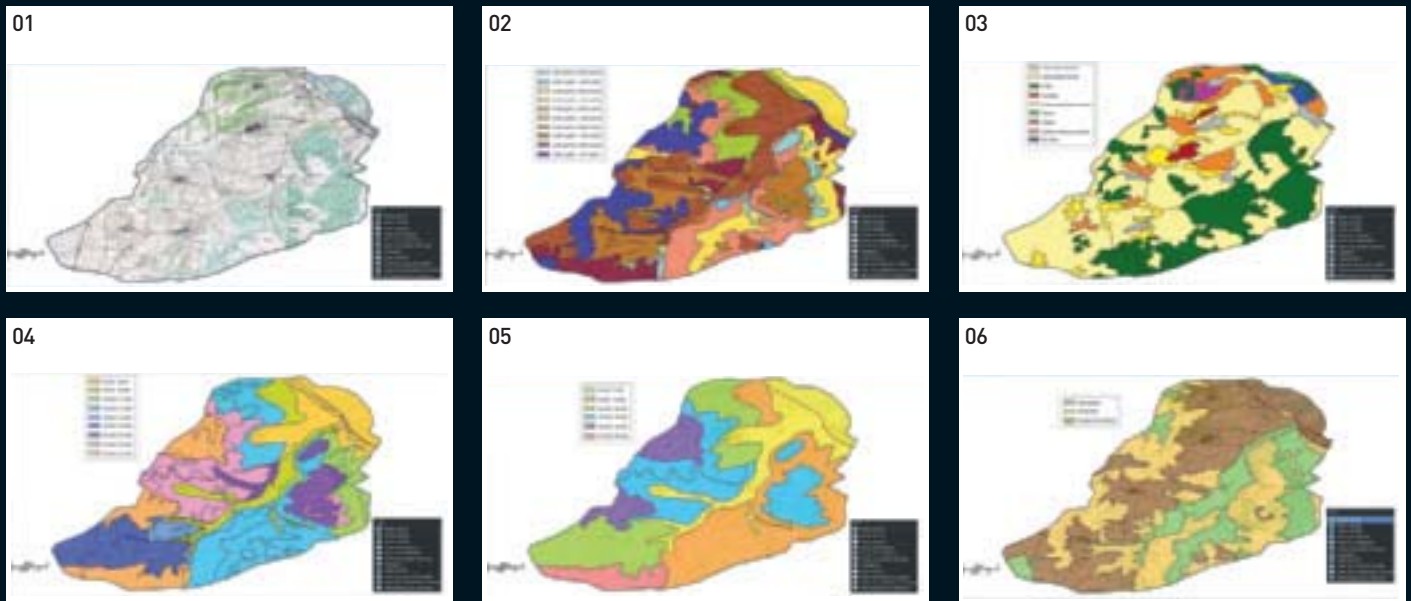
→ [www.cirsee.fr/en/homepage](http://www.cirsee.fr/en/homepage)



**ELENA SENANTE** / MANAGER OF THE MATERIAL RECOVERY DEPARTMENT AT CIRSEE

**"SMELL IS A SENSE WHICH IS UNDERVALUED IN OUR SOCIETY."**





## NITRASCOPE

# SIMULATION FOR BETTER DRINKING WATER PROTECTION

**EMERGING IN 2010** as a result of SUEZ ENVIRONNEMENT's expertise in water resource protection, Nitrascope is a system unique of its kind. Based on simulation systems, it produces and shares diagnoses of current and future states of nitrate concentrations in groundwater, based on activities on the surface, in the water catchment area.

At present, its first application consists of providing pollution risk assessments at drinking water capture points, while taking into account past and present situations, as well as forecasts based on expected developments. Even more innovative, Nitrascope embodies a genuine decision-making support tool.

"Protection of capture sources is a real challenge", explains Julie Paillé, technical support engineer, water resources, at CIRSEE\*. Nitrascope has two main strengths: to offer fast returns, both mapping and graphical, accessible to a broad section of the general public for promoting understanding of often complex phenomena. It also provides indicators of the effectiveness of preventive measures taken on the water catchment area, which is of considerable interest to local decision makers.

"This new system is a genuine support for change", emphasizes Julie Paillé: "Here, for the first time we have a genuine medium for dialogue and consultation with local authorities, farmers and associations, which means that we can work with them in their understanding of the issues and in taking corrective actions." After a test phase completed successfully on certain drinking water capture sites, Nitrascope is part of Lyonnaise des Eaux' portfolio for helping local authorities to manage their water resources better.

\* Centre International de Recherche Sur l'Eau et l'Environnement [International Centre for Research on Water and the Environment], Centre de Recherche et d'Expertise de SUEZ ENVIRONNEMENT [SUEZ ENVIRONNEMENT Research and Expert Assessment Centre]

### R+i Alliance, bringing together groups of experts

— Nitrascope has been financed by R+i Alliance and developed from the joint work of employees of CIRSEE, SAFEGE, Ondeo Systems and Lyonnaise des Eaux. R+i Alliance is a partnership which brings together SUEZ ENVIRONNEMENT, Lyonnaise des Eaux, AGBAR, United Water and Northumbrian Water. R+i Alliance's core business is studies into management of the heritage, odor control, energy efficiency, dynamic management of rainfall, emerging water quality parameters, water resource management and water demand management. In 2010, the R+i Alliance budget was €9 million.



To find out more:  
→ [www.ri-alliance.com](http://www.ri-alliance.com)



CHARLES MOORE / CAPTAIN



WELCOME  
TO THE  
**8th**  
CONTINENT

**Almost** 500 years to the day after Christopher Columbus, I also came upon a New World... But this had nothing to do with Paradise. I called this area of the North Pacific "The Great Pacific Garbage Patch"<sup>1</sup>. I discovered it in 1997, during a regatta, in which I took part, between Hawaii and Los Angeles. It took me a week on board my catamaran to negotiate this immense garbage repository... Two years later, I organized an expedition into the area to take samples and to understand the nature of this pollution. With my team, we showed that the patch, formed from plastic waste of every kind, covered approximately 3 million square kilometers, or six times the area of France!

Thanks to work by my foundation (*Algalita Marine Research Foundation*), we now know that these fragments of glasses, bottles, toothbrushes and other toys have formed a mass under the force of a marked circular current in this part of the Pacific. This "soup" contains almost 1 million particles of plastic per square kilometer. Most of the fragments are some tens of centimeters under the surface of the water, but the finest particles can sink as far as 20 meters, affecting all the marine fauna and flora. In this "polymer vortex", 35% of fish have plastic particles in their entrails and we believe that more than 100,000 albatross have already died from it!

This pollution is an undeniable marker of the dementia of our consumerist system. This continent of polluted waste has formed slowly since the 1950s, the period over which the consumer society has developed, marked particularly by the wholesale arrival of plastic and its derivatives in our daily life. My foundation is not dreaming about a giant clean-up operation. Impossible. We are endeavoring to inform the general public, mainly young people throughout the world, and we are asking them to change the way in which they live. Five other garbage patches have already been identified in the world's seas, mainly in the Indian and Atlantic oceans. Nature can regenerate, but we must give it a chance by limiting the production of plastic and emphasizing recycling. The challenge is located more particularly in Asia, the detritus of which is the essential supply for the Pacific garbage patch. China must opt for environmentally-friendly and rational development.

At my level, I have created a small farm in California. As a good locavore, I grow tomatoes, onions and peaches, which I distribute in my community. I invite researchers, students and anybody who is fighting against environmental deregulation. This is an initiative which, I hope, will inspire my visitors by showing them that we can be satisfied with fresh fruit without packaging and even forget about Brazilian bananas at Christmas.

<sup>1</sup> Term invented by Curtis Ebbesmeyer, the American oceanographer.



© 2002 - 2011 ALGALITA.ORG/DR

Captain Charles Moore is first of all a very experienced sailor. With more than 100,000 miles sailed over the world's oceans, this defender of marine environments now devotes most of his time to their protection. Founder in 1994 of the *Algalita Marine Research Foundation*, he warns governments and institutions regularly of the consequences of plastic pollution in the oceans. His discovery in 1997 of "the Great North Pacific Garbage Patch" has enabled him to embody this urgency. In 2007, his studies also influenced Californian legislation regulating the discharge of plastic particles into the environment (*Nurdle Bill*).

© CHRIS JORDAN. COURTESY OF KOPEIKIN GALLERY

Cases of ingestion of plastic waste affect 111 out of 312 species of seabirds. Plastic waste accounts for between 60 and 80% of all marine waste.



To find out more:

→ [www.algalita.org](http://www.algalita.org)

→ [www.5imdc.org](http://www.5imdc.org)



**RUTE ISABEL VIRGILIO-VENANCIO** / DISABILITY PROJECT MANAGER  
AT LYONNAISE DES EAUX

**“MY STRENGTH  
IS IN BEING DIFFERENT”**

**RUTE-ISABEL ARRIVED IN FRANCE IN 1971**, aged 8.

Uprooted, discarded by the education system, serious illness leading to permanently reduced mobility... But it would take more than this to overcome this incorrigible fighter. Trained at the Boule school of interior design, lengthy travels throughout the world, jobs in catering, clinical psychology studies, missions working side by side with socially deprived members of the public and then with the disabled... In May 2006, she learned that Lyonnaise des Eaux was setting up a disability mission.

She applied and, to her “total amazement”, got the job. “I am proud to have met this company, which genuinely wants to change the perception of disability. All of us are human beings with a head and a heart. The difference is merely in what the eye sees”, says this great traveler, who loves places of high spirituality. Pugnacious, demanding and “forever complaining”, Rute-Isabel has worked tirelessly for five years to share her vision and do away with any prejudices.

With moments of doubt and certainly mixed emotions! Such as when the two agreements were signed promoting the employment of disabled workers, or monitoring the partnership with the *Association des Paralysés de France* [The French Association for the Paralyzed] and the ESSOR platform, the gateway to professional qualifications for those out of work.

Her greatest achievement? Being one of the driving forces behind the creation of Tadeo, an innovative platform dedicated to communication between the world of the deaf and the hearing. Lyonnaise des Eaux has since begun to deploy this solution for its customers with hearing difficulties, with a pilot site at Cholet. The future? Rute-Isabel wants to carry on her mission to “continue to change the perception of disability. And to transform a legal constraint into a policy that will create value and opportunities.”

**DISABILITY MISSION**

Based on two corporate agreements, Lyonnaise des Eaux’ disability mission has allowed it to integrate disabled employees more successfully. This is how the proportion of disabled employees has risen between 2005 and 2009 from 2.4% to 5.17%. In France, this proportion is an average of 2.6%.



**To find out more:**

→ [www.suez-environnement.com/en/homepage](http://www.suez-environnement.com/en/homepage)  
>Careers>Employment Policy>Diversity

## On the Web

### WWW.CITE-SCIENCES.FR/ FRANCAIS/ALA\_CITE/ EDUCATION/ WEBPAGES/9K9/9K.HTML (IN FRENCH)

The purpose of this game is to assess in an entertaining way the extent to which its players are aware of environmental protection issues. Beginning with questions on the daily life of the participants, the game awards or deducts points depending on whether the players have a more or less environmentally friendly attitude.

### WWW.ARINDGUPTATOYS. COM

This site, created by Arvind Gupta, an Indian inventor, shows how to make toys for children from waste, mainly with short explanatory videos.

### WWW.GAPMINDER.ORG

Hans Rosling, professor at the Institut Karolinska, Stockholm's celebrated medical university, offers an original site for providing a better understanding of the world of statistics and what it teaches us about the state of the world.

## In the air

### THESE TREES WHICH PROTECT US

In order to draw the attention of humanity to conservation and sustainable management of our forests, the United Nations has declared 2011 as International Forests Year. In this context, SUEZ ENVIRONNEMENT has joined forces with the GoodPlanet foundation, which publishes *Des Forêts et des Hommes [Of forests and men]*, a work illustrated with the world's greatest photographs.

➔ [www.desforetsetdeshommes.org](http://www.desforetsetdeshommes.org)



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### SUEZ ENVIRONNEMENT, PARTNER OF THE FRENCH RELEASE OF THE FILM 'WASTE LAND'

A benchmark for waste management, SUEZ ENVIRONNEMENT is a partner to the French release of the film *Waste Land*. This documentary, which appeared in France in March 2011, was produced by Lucy Walker, João Jardim and Karen Harley. The documentary follows Brazilian artist Vik Muniz for three years from Brooklyn (where he lives) to Jardim Gramacho in the suburbs of Rio de Janeiro. In the world's biggest landfill, he rediscovers his native Brazil for an unprecedented artistic project: photographing the catadores (the recyclable waste gatherers) in settings built using objects and materials recovered from waste bins.

### REAL EXPERIENCE WITH WATER-SAVING EQUIPMENT

Montpellier's local energy agency (French abbreviation - ALE) launched the Copr'eau operation in order to test water-saving equipment on a sample of 50 witness apartments taken from 5 co-ownerships. The objective of the operation is to quantify the water savings actually made over a period of one year. This should reduce water consumption by 30%.

➔ <http://www.actu-environnement.com/ae/news/operation-copreau-ale-montpellier-hydroeconomie-12078.php4> [in French]

## Events

### JAPANESE SEASON AT LE BAL

20/05/2011 → 21/08/2011

Paris, France

SUEZ ENVIRONNEMENT is a partner of LE BAL, an independent site dedicated to representing facts through images. The Tokyo-E exhibition is presenting the work of three giants in Japanese photography for the first time in Europe: Keizo Kitajima, Yukichi Watabe, Yutaka Takanashi.

### CANNES WATER SYMPOSIUM

Cannes, France

29/06/2011 → 01/07/2011

The Cannes Water Symposium is the International Forum covering the subjects of Water, the Sea and Sustainable Development. A crossroads for discussions and meetings between those working in the industry, it provides professional conferences and the informed general public with workshops, professional training courses, business meetings, a discussion forum and an exhibition area. In 2011, the two keynote topics of the symposium will be seawater and city water.

➔ [www.cannes-water-symposium.com/](http://www.cannes-water-symposium.com/)

### INTERNATIONAL WATER WEEK IN SINGAPORE

04/07/2011 → 08/07/2011

Singapore

On the subject of "Sustainable water solutions for a changing urban environment", the 2011 event focuses on the issues that are affecting the urban environment, such as climate change or catchment area management. In 2010, more than 14,000 visitors from 112 countries attended this event.

➔ [www.sivw.com.sg](http://www.sivw.com.sg)

### WORLD WATER WEEK 2011

21/08/2011 → 27/08/2011

Stockholm, Sweden

Topic for 2011: "To respond to global changes - water in a world in the throes of urbanization". This is the annual meeting for all the planet's most pressing issues associated with water. Organized by Stockholm's International Water Institute, it brings together some 2500 experts, practitioners, decision takers and innovative project engineers from around the globe to exchange ideas, stimulate new approaches and develop solutions.

➔ [www.worldwaterweek.org](http://www.worldwaterweek.org)

### NATIONAL ASSIZES OF WASTE

14/09/2011 → 15/09/2011

Nantes, France

The objective of the National Assizes of Waste is to find concrete solutions for the management and the treatment of waste.

➔ [www.assises-dechets.org](http://www.assises-dechets.org)

### LES ATELIERS DE LA TERRE [EARTH WORKSHOPS] (6<sup>th</sup> GLOBAL CONFERENCE)

26-27 et 28/09/2011

Evian, France

*The Ateliers de la Terre*, with which SUEZ ENVIRONNEMENT is associated, is an independent think tank dedicated to analyzing emerging sustainable development challenges. This 6<sup>th</sup> Global Conference focuses on the following topic: what revolutions are needed to govern a vulnerable world together?

➔ [www.planetworkshops.org/en](http://www.planetworkshops.org/en)



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