1939 - 2009
70
ans years años anos anni ner 年 周年

Activity Report 2008-2009

Committed together to water, a source of life

suez environnement

Degrémont

Activity Report 2008-2009

CONTENTS

70 years in the new economy

Jean-Louis Chaussade
Chief Executive Officer
of SUEZ ENVIRONNEMENT

Degrémont is proud of its history and its expertise and this year is celebrating 70 years of experience and innovation. Degrémont is a world specialist in water treatment and a key player in sustainable development, with a presence in more than 70 countries.

Degrémont's desire to grow and win new markets, supported by unique technology and know-how, make it a key player in SUEZ ENVIRONNEMENT's strategy.
2008 saw the signature of numerous contracts and, despite the current recession, Degrémont has a full order book covering almost two years.

2008 was also plentiful in terms of events for SUEZ ENVIRONNEMENT, with its flotation on the stock exchange and its listing in the CAC 40 (Paris-based stock market index) giving it greater visibility, which also benefits our professional activities.

However, there were also numerous contracts and targeted acquisitions signed and strategic partnerships pursued.

"Our priority: supporting the implementation of projects that enable a response to the challenge of green growth"

In 2009 we are going to adapt our short-term objectives to face up to the new environment of economic recession. We nevertheless remain confident in our long-term strategy. Environmental activities have three driving forces: demography, growing urbanisation and also regulatory progress. The crisis should not mean the end of these trends.
The economic crisis must, not however, put a stop to our environmental efforts. On the contrary, we must seize the opportunity provided by the current context to change behaviours and especially to curb the worldwide wastage of natural resources. Degrémont is a pioneer in the field of desalination, reuse and, more generally, in water resource management, and is thus already involved in this new resource economy.

In addition, the relaunch plans that have been announced emphasise environmental investment and might be the driving force behind this development. I am counting on Degrémont working shoulder to shoulder with local authorities and industrialists to help them implement projects that will enable a response to the challenge of green growth.

Reading this annual report should show you that the solutions developed by Degrémont are more relevant than ever in a world in the throes of great change. ■

Thierry Mallet's editorial

Chief Executive Officer
of Degrémont

2008 was an excellent year for Degrémont, both in terms of financial performance and of development.

We won a large number of significant contracts all over the world.
Firstly in France, for the La Feyssine wastewater treatment plant in Lyons, for bringing the Seine amont wastewater treatment plant into compliance with "DERU" standards and construction of the new Blanc-Mesnil wastewater treatment plant, two major SIAAP sites, and also for the Cannes plant which we won in partnership with Lyonnaise des Eaux.
Internationally, we can refer to the sewage sludge incineration plants in Gdańsk (Poland) and in the USA, with the Mill Creek and Cleveland contracts, giving a total of six incinerators.
We are continuing to be active in the industrial sector, in Brazil, where we have signed a number of contracts with Petrobras, but also in China, particularly with the Tangshan Steel projects. We strengthened our position in India, with the drinking water production plant in Mumbai (formerly Bombay) and the wastewater treatment plant in Delhi, but also in the Middle East, in Bahrain, where Degrémont is going to build a seawater desalination plant with a capacity of 220,000 m^3/day, and also in Egypt, for the Alexandria wastewater treatment plant.
I would also like to mention Algeria, with the contract for the Algiers wastewater treatment plant at Baraki, and finally the Al Rusafa project, which marks Degrémont's return to Iraq.

2008 saw the completion of important projects. Thus, the As Samra plant (Jordan), inaugurated in August, is one of the largest wastewater treatment plants in the Middle East and is capable of generating 95% of its own energy needs. The inaugurations of the Macao drinking water production plant, and of the 1st of the three Halifax wastewater treatment plants, along with the commissioning of the Seine amont sludge pyrolysis unit, are all events that have been part of the pattern of development during this period. It is in 2009 that the reverse osmosis seawater desalination plants of Barka in the Sultanate of Oman and of Barcelona in Spain are also being started up.

2008 was also the year of the acquisition of the American Water & Power Technologies company, with the Degrémont Technologies branch thus seizing the opportunity of expanding its portfolio of services offered to the industrial sector.

Finally, 2008 saw the success of the flotation on the stock exchange of our parent company, SUEZ ENVIRONNEMENT, a real driving force in terms of growth, visibility and recognition for each of its subsidiaries.

Degrémont's strength is based on our capacity to commit ourselves, to create value for our customers by offering them solutions that are ever more innovative, and by supporting them in the long term in a spirit of partnership and of sharing experience.
Degrémont's success is also due to the diversity of our professional activities, ranging from the design-build of water treatment plants, through the supply of equipment and services, to setting up complete solutions, including financing, with BOT.
This enables us to tailor our responses to our customers' requests.
Our twin experience as both builder and operator guarantees the excellence of our know-how and the continuous optimisation of our solutions.
And, last but not least, no major advance could take place without the men and women who commit themselves to Degrémont on a daily basis. That is why we made sustained efforts in the areas of recruitment and training in 2008, so as to develop the talents of our staff members.

In 2009, Degrémont is celebrating its 70th birthday. The basis of Degrémont's success is the vision of its founder, Gilbert Degrémont, which is still topical:
- development of innovative technologies and services tailored to our customers' requirements and challenges,
- strong international presence,
- quality of our projects.

All these elements enable us to benefit from a strong image, which reflects our commitment.
In a difficult global economic situation, this founding vision forms a basis that must guide us and help us to meet the challenges we face. We have a proven activity model, but more than ever we have to give life to our values, anticipate the market's expectations and offer our customers a global response that enables us to be committed together to water, a source of life. ■

Company profile...

Degrémont is the world specialist in water treatment and its development is based on:

four professional areas of activity:
- Design & Build
- Operation & Maintenance
- Equipment
- BOT (Built, Operate, Transfer)

and five areas of expertise:
- Drinking water production
- Desalination
- Urban wastewater treatment and its recycling
- Sludge treatment
- Treatment and production of industrial waters

For 70 years Degrémont has been providing:
- A historic global presence
- Strong innovation
- Solutions tailored to each customer's requirements
- Systematic consideration of the social and environmental dimensions

more than 1 billion people
served by Degrémont facilities

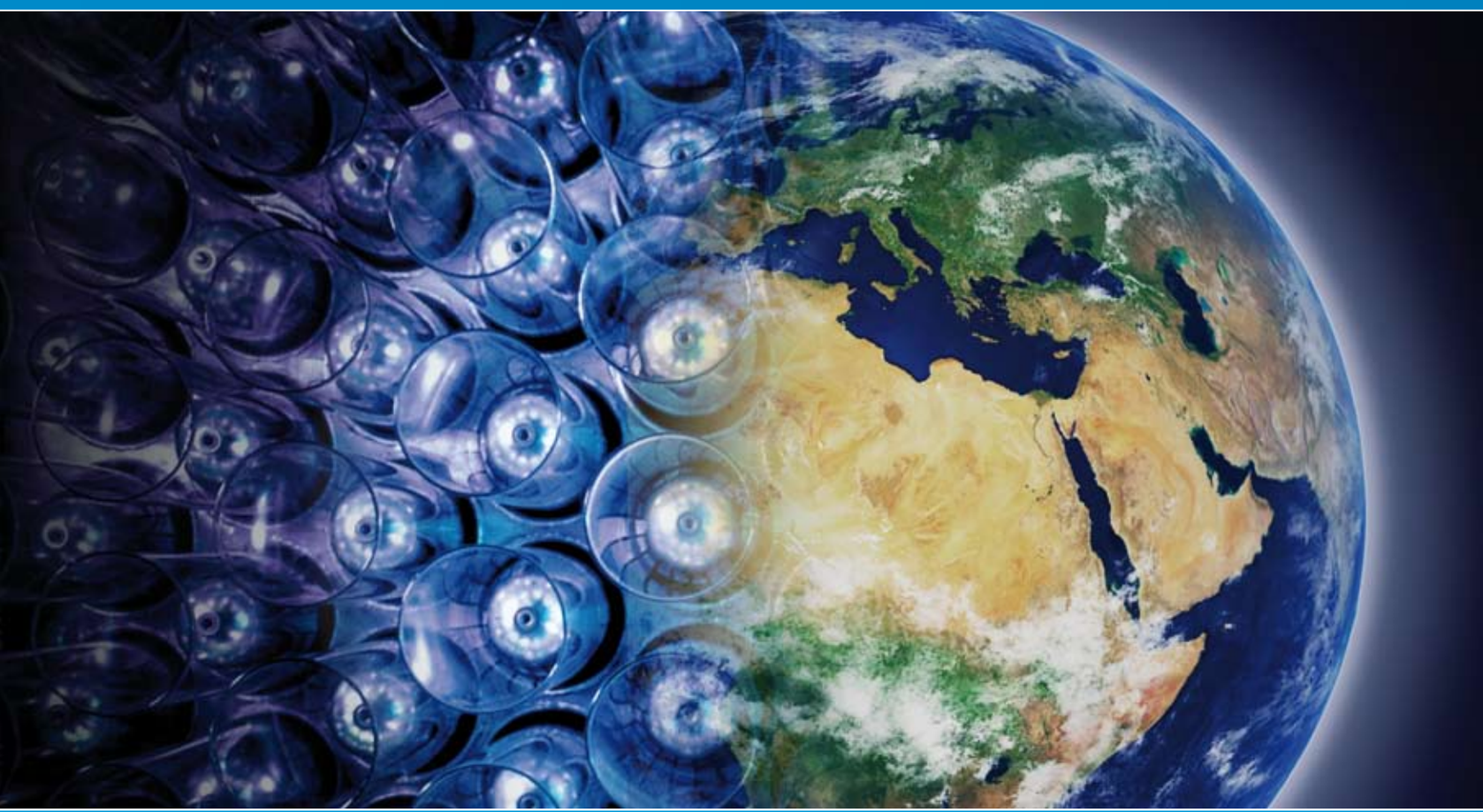
more than 10,000 sites
equipped with a Degrémont technology

4,600 staff

1,014 million euros
of turnover in 2008

more than 70 countries
where Degrémont is present

An international group



International development has always been one of the main areas around which Degrémont has built its growth.
Today the group has a presence in more than 70 countries and has equipped more than 65 capital cities.
However, this internationalisation only makes sense if it really enables the group to offer tailored solutions and services to all its customers, wherever they are. This is why Degrémont has always put its faith in organisations really dedicated to each new project, which combine sharing the resources and expertise of the whole group with setting up a network of local contacts.
By using this strategy, Degrémont is in a position to ensure the same quality of service all over the world. ■

S'engager ensemble pour l'eau, source de vie

Committed together to water, a source of life

Comprometidos juntos por el agua, fuente de vida

Key facts 2008-2009

CONTRACTS **INAUGURATIONS**

2008			
January	Nouakchott - Mauritania	Construction of the drinking water production plant	170,000 m³/day
	Montélimar - France	Design and implementation contract for refurbishing and extending the wastewater treatment plant (Cyclor technology + GDD thickening screens)	95,000 PE
	Avignon - France	Contract for the extension of the wastewater treatment plant for the Greater Avignon Urban Area	177,200 PE
	Gozo - Malta	Inauguration of the wastewater treatment plant	6,000 m³/day
	La Feyssine - France	Contract for design-build and operation over three years of the wastewater treatment plant by Degrémont Services and LdE	300,000 PE
	Duffin Creek - Canada Mill Creek - United States	Two contracts for sludge incineration in North America (two Thermylis incinerators at Duffin Creek + three Thermylis incinerators at Mill Creek)	210 t/day (Duffin Creek) 258 t/day (Mill Creek)
	La Farfana - Chile	Contract for operation of the largest wastewater treatment plant in Latin America, won with Agbar for five years	3,700,000 PE
	Fréjus et Agay - France	Contract for extending the Fréjus and Agay wastewater treatment plant (Densadeg and Biofor technologies for both plants)	350,000 PE (Fréjus) 46,000 PE (Agay)
	Valenton - France	Contract for the refurbishment of the wastewater treatment process and the extension of the sludge treatment capacity (Thermylis technology) of the Seine amont wastewater treatment plant to bring it into compliance with "DERU" standards	2,400,000 PE
	Colombes - France	Contract awarded by SIAAP to Degrémont Services for maintenance of the incinerators at the Seine centre wastewater treatment plant	Four incinerators
	Mumbai - India	Contract for building and operating of one of the largest drinking water production plants in the country (Aquazur® V and Pulsatube technologies)	1,000,000 m³/day
	New Delhi - India	Contract for design-build and operation over 10 years of a wastewater treatment and recycling plant with biogas recovery (Digelis™)	137,000 m³/day
February	Laval - France	Contract for the extension of the wastewater treatment plant	100,000 PE
	Halifax - Canada	Inauguration of the 1st of three new wastewater treatment plants for a project that aims to save the port of Halifax (Densadeg technology and UV disinfection)	400,000 PE (for the three plants)
	Cahors - France	Inauguration of the wastewater treatment plant (Densadeg and Cyclor technologies)	50,000 PE
March	La Roche-sur-Foron - France	Contract for the design-build and operation over two years of the wastewater treatment plant	35,000 PE
	Fontaines-sur-Saône - France	Contract for renovation of the Biofor of the Greater Lyons wastewater treatment plant	9,700 m³/day

April	Flers-en-Escrebieux - France	Contract for the construction of the drinking water production plant with nickel and iron treatment (Gyrazur technology)	1,500 m³/day
May	Thiadiaye - Senegal	Contract for the construction of a fluorine removal plant (pilot unit)	
	Perth - Australia	Degrémont wins the construction excellence award in Australia for the Perth reverse osmosis seawater desalination plant	144,000 m³/day
	Meistratzheim - France	Contract for the construction of a wastewater treatment plant with thermal sludge drying using a Innodry 2E dryer and Digelis Smart™	204,000 PE
June	Le Blanc-Mesnil - France	Contract awarded by SIAAP for the design-build of a new Seine morée wastewater treatment plant (Ultrafor technology)	52,300 m³/day (dry weather)
	East Alexandria - Egypt	Degrémont awarded the contract for the refurbishment, extension and operation of the wastewater treatment plant	800,000 m³/day
	Kielce - Poland	Contract for the refurbishment of the Sitkowa wastewater treatment plant	
July	Barcelone - Spain	Construction of the reverse osmosis seawater desalination plant with SeaDAF™ pre-treatment (completion by May 2009)	200,000 m³/day
	Pimpama - Australia	Start-up of the plant for wastewater treatment and recycling after membrane ultrafiltration (Ultrablue™) and UV désinfection	17,000 m³/day
	Cubia - Spain	First Heliantis® contract in Spain for the wastewater treatment plant (Asturias region)	165 t.DS/year
	Creation of SUEZ ENVIRONNEMENT	Flotation on the stock exchange of SUEZ ENVIRONNEMENT on 22 July	
	Claye-Souilly - France	Contract for the construction of the wastewater treatment plant (Ultrafor technology)	14,000 PE
August	As Samra - Jordan	Inauguration of the largest wastewater treatment plant in the Middle East in the presence of the Prime Minister of the Jordanian government (95% plant energy self-sufficiency + Digelis™)	267,000 m³/day
	Asseiceira - Portugal	Contract for the extension of the largest drinking water production plant in Portugal (three million people)	625,000 m³/day
September	Conza - Italy	Design-build contract for the Conza dam drinking water production plant	130,000 m³/day
	Malta	Contract for design-build and one year's operational support of a wastewater treatment plant in Malta (Densadeg and Biofor technologies)	500,000 PE
	Pont-Sainte-Maxence - France	Inauguration of the new wastewater treatment plant equipped with a Heliantis® solar drying greenhouse	40,000 PE
	Al Dur - Bahrain	Contract for the construction of the largest reverse osmosis seawater desalination plant in the Middle-East (Seapro™ concept - Seaclean™ pre-treatment)	218,000 m³/day

Key facts 2008-2009

CONTRACTS **INAUGURATIONS**

	Water & Power Technologies United States	Acquisition of the Water & Power Technologies company located in Salt Lake City	
	Gdańsk - Poland	Contract for the sludge incineration plant (Innodry 2E and Thermylis technologies)	Two t.DS/hr
	CAC 40	SUEZ ENVIRONNEMENT is listed on the CAC 40 (Paris-based stock market index) on 22 September	
	Macao - China	Acceptance and inauguration of the drinking water production plant (Aquadaf and Ultrazur technologies)	60,000 m³/day
October	Santander - Spain	Contract for operation, servicing and maintenance of the San Román de la Ranilla wastewater treatment plant for eight years	194,000 m³/day
	Replan - Brazil	Contract to extend the water processes and bring them into compliance with standards (process water and wastewater) for the oil industry (customer: Petrobras - 365,000 barrels of petrol per day). Process water technologies: Pulsator® + Ultrafiltration + reverse osmosis + mixed beds Wastewater technologies = roofing of the API separators (oil remover), VOC treatment and dewatering of oily sludge	
	Orly - France Joinville - France	Contract to set up an Aquaray® H_2O unit for the drinking water production plants	300,000 m³/day (Orly) 300,000 m³/day (Joinville)
	Perros-Guirec - France	Contract for the refurbishment of the wastewater treatment plant (Ultrafor technology)	32,000 PE
November	Marrakech - Morocco	Presentation to King Mohammed VI of the new wastewater treatment plant built by Degrémont	1,000,000 PE
	Valenton - France	Commissioning of the sludge pyrolizer with biomass energy recovery at the SIAAP's Seine amont wastewater treatment plant	26,280 t.DS/year
	Nantong - China	Contract for equipping the drinking water production plant with state-of-the-art ultrafiltration technology: Alteon™, the new membrane developed by Aquasource (Degrémont Technologies)	10,000 m³/day
	Bègles - France	Inauguration of the extension of the Clos de Hilde wastewater treatment plant (Densadeg and Biofor technologies)	450,000 PE
	Mwanza - Tanzania	Inauguration of the drinking water production plant in Mwanza, the 2nd largest city in Tanzania, which serves Mwanza and its urban area (500,000 people) using Aquazur® V technology	104,000 m³/day
	Agen - France	Inauguration of the new wastewater treatment plant for the Agen agri-food technology zone devoted to the treatment of industrial effluents form the agri-food industry	30,000 PE
	Cannes - France	Contract for the construction of the new wastewater treatment plant for eight communities (Ultrafor and Innodry 2E technologies)	300,000 PE
	Fabrègues - France	Franchise for the drinking water production plant with SDEI Marseillan (Aquadaf, Aquazur® and Carbazur technologies)	30,000 m³/day
	Briançon - France	Inauguration of the wastewater treatment plant for the 12 communities in the Briançon area (Biofor technology)	85,000 PE

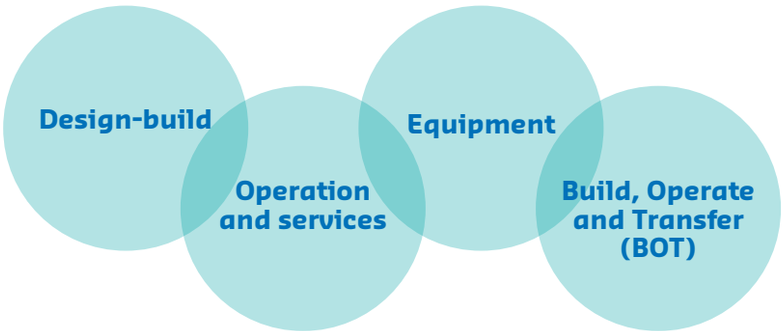
December	Baiyun - China	Acceptance of the 1st Cyclor with a 40,000 m³/day raw water treatment capacity in four cells	40,000 m³/day
	Carpentras - France	Construction of the la Quintine wastewater treatment plant (Ultrafor technology)	80,000 PE
	Bagdad - Iraq	Contract to design, supply and help in the construction of the Al Rusafa drinking water production plant (Turbocirculator and Aquazur® V technologies)	910,000 m³/day
	Algiers - Algeria	Contract for the refurbishment and doubling in size of the Baraki wastewater treatment plant (aeration by Vibrair, sludge treatment by Cannon Mixer + Superpress, UV disinfection)	1,800,000 PE
2009			
January	Tangshan - China	Contract for the construction of two wastewater treatment plants with a view to reusing the water for Tangshan Steel (Densadeg and Aquazur® V technologies)	144,000 m³/day
	Cleveland - United States	Contract for three Thermylis incinerators for the Southerly Waste Water Treatment Center (Ohio)	300 US t.DS/year
February	Eu, Mers-les-Bains, Le Tréport France	Contract for the construction of the wastewater treatment plant (Ultrafor technology)	45,000 PE
	Arriandi, Elorrio, Bedia, Markina and Lekeitio - Spain	Contract for operation (five wastewater treatment plants) and maintenance of the sewerage systems (30 km) for a period of two years, renewable for two years	50,000 m³/day
March	Pernambuco - Brazil	Contract for the construction of the industrial and demineralised water production plant for the petrochemical factory of Petroquimica Suape, a subsidiary of Petrobras (Aquadaf and ion exchange technologies)	1,082 m³/hr (industrial water) 286 m³/hr (demineralised water)
	Digne-les-Bains - France	Contract for the construction of the wastewater treatment plant (sludge drying by Heliantis® technology)	35,000 PE

Four integrated activities in the service of water treatment

Design-build

More than 10,000 projects carried out and 65 capital cities equipped all over the world: this is Degrémont's current record of achievement. Whether it involves plants for drinking water production, desalination, wastewater pollution removal, wastewater sludge treatment and recycling, these facilities offer every guarantee in terms of health security and compliance with the standards in force.
In addition to design, the teams provide complete management of the construction stages: choosing the process and locations, establishing the price, managing purchasing, monitoring the construction site, assembling the equipment and commissioning the facilities.
Performance, reliability and harmonious integration into the environment are the basics, which provide the foundation for Degrémont's activity as a design-builder. With the idea of anticipating needs, the group is also ensuring it offers "ergonomic" plants, designed to make day-to-day activities easier for the future operator. ■

Design-build, Operation and services, Equipment and BOT... Thanks to mastering and combining these four activities, Degrémont now has a position as a global benchmark in the field of water treatment.



Operation and services

Twelve million: this is the number of people currently served by plants that Degrémont ensures operate properly. The area of involvement extends from day-to-day management of the facilities (setting up the operational tools and processes, operational management), to tailored support for the operators (provision of spare parts, refurbishment activities).
Degrémont's technical expertise as an operating constructor enables it to offer competitive solutions. When Degrémont, the construction company, does the operational work, our operational experts are involved in all the preparatory phases of the project (design, risk assessment, technical validation, etc.), thus making it easier to anticipate their needs and to adapt the ergonomics of the plant. The structures and solutions proposed are, therefore, specifically tailored to the special operational constraints, thus ensuring their performance and their reliability. This twin expertise gives our customers a very high level of security and is a massive guarantee for them.
In the field, mobilising the group's operators enables us to ensure optimum service quality and to fulfil the customers' main expectations: preserving heritage, guaranteeing continuity of service and controlling operating costs.

Equipment

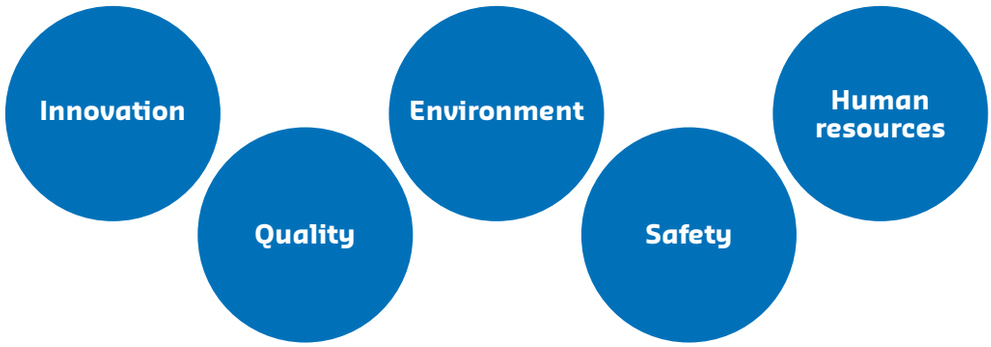
Solutions for all water treatment plants throughout the world... This is the ambition of the Degrémont Technologies branch. Degrémont Technologies is dedicated to local authority, industrial and leisure markets and offers equipment "packages" designed to improve and/or diversify the performance of existing facilities. With technical support and after-sales service as a bonus!
These specific technologies, assigned to sludge drying or incineration, to disinfection of water by ozone or ultrafiltration, combine the know-how and expertise of internationally renowned brands (Innoplana, Ozonia, Aquasource, Infilco, Anderson, Water & Power Technologies, etc.), along with innovations developed within Degrémont. Distributed either directly or through a dealer network, they now equip almost 10,000 sites and are the subject of around 100 patents.

Build, Operate and Transfer (BOT)

BOT is a type of contract which combines various types of expertise: design-build, services and financing arrangements. BOT is more than a service, it is a real partnership between Degrémont and its customers. For Degrémont, it is a true area of know-how and one of its four major activities.
A service of the BOT kind can be offered when the customer (local authority, region, state or even industrial group) wants the private partner to be fully involved in the project management, even including responsibility for financing. Within this context, Degrémont, represented by a company dedicated to the project, provides the design, construction, financing and operation of the water treatment plant (drinking water or process water production, wastewater and sludge treatment, desalination). In return, the customer undertakes to pay for the service provided for them according to a rate covering both the plant operating activity and also the amortisation of the capital invested. The plant is transferred to the customer at the end of the contract, which generally lasts 20 to 30 years. The latter, of course, has the benefit of the technical expertise and know-how provided by Degrémont throughout the contract.
BOT is a multidisciplinary activity, which brings into play Degrémont's historical competences and supplements what it offers commercially, going beyond the traditional areas of design-build and operation. ■

A responsible development strategy

Committed together to water, a source of life



Rémi Lantier's Editorial

Chief Operating Officer
of Degrémont

"Committed together to water, a source of life"
Degrémont's mission essentially commits our group to the logic of sustainable development.
There are five key lines of development in the Degrémont Way, which in themselves constitute a real pledge of durability and sustainable development: innovation, quality, safety, respect for human beings and their environment. But the strength of our responsible commitment also lies in the major lines of development of our strategy.

Wanting to be close to our customers
You cannot have a company that is socially aware and responsible, unless you are linked into the reality of the local areas and the people who live there. What makes our development responsible is above all the fact that it is committed to respect for ecosystems and it integrates social and economic realities at a local level. We have a presence in 70 countries, with just as many different approaches that take the local environment into consideration. Our capacity for innovation lies both in our global presence and our diversity. Our vision capitalises on the sharing of a vast amount of experience acquired in each country, on an approach based on being close at hand, which adapts the best of this knowledge to the particular reality of each area.

A commitment to working alongside our staff
Degrémont's wealth of resources is above all the people who give life to the company on a daily basis. Our development is sustainable, because it is part of a long-term commitment alongside our staff. Our staff members are not interchangeable. They are with Degrémont because they share our common values and take forward a corporate mission focused on the conservation of the environment and resources. We ask them for strong involvement, and in return we invest heavily in developing their talents to enable them to keep attuned to their environment and to anticipate changes.

A dynamics of continuous improvement
In the end, our development is responsible because it is based on an approach of the pursuit of excellence. For several years, we have been investing in a programme of continuous improvement of all our processes. The objective is to develop global quality and safety standards that run through all levels of the company. This approach is based on feedback and exchange of best practice within the group. It involves a long-term commitment, which targets continuous improvement of customer satisfaction and constant strengthening of our requirements in terms of quality, in a way that is consistent with our sustainable development strategy and our social commitment. ■

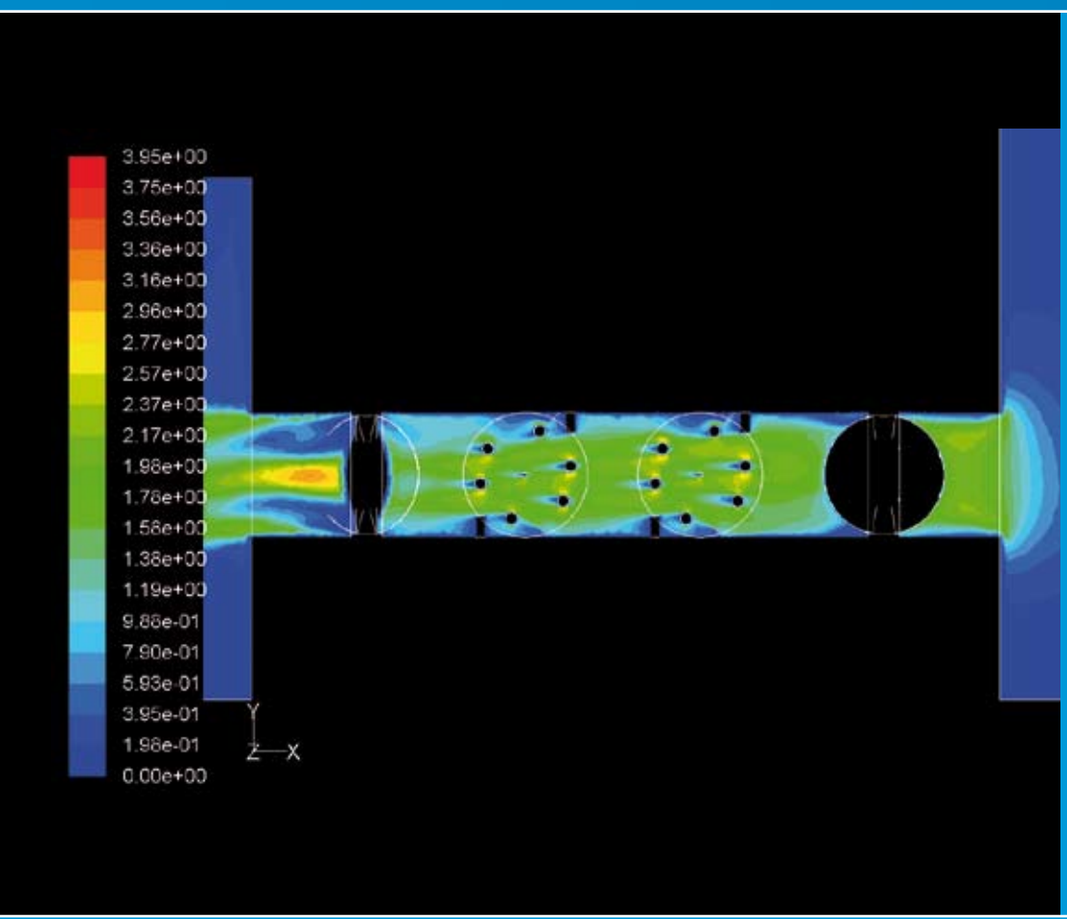
goodcorporation™
accredited 2009

GoodCorporation,
the accreditation for a responsible and ethical company.

"Our action is based on five pillars: innovation, quality, safety, respect for human beings and their environment"

INNOVATION

Imagining tomorrow's technological solutions



As the key distinguishing feature of the group, innovation is part of its "genetic heritage" and enables it to achieve the position of market leader in its specialist areas. Degrémont has thus filed more than 500 patents since its creation. For 70 years, research teams have been contributing to advances in water technologies. They are currently concentrating their work in three priority areas of development: strengthening health security, conserving fresh water, energy resources and protecting the environment and quality of life.

Three questions for Eric Landais

Technologies and Innovation Director - Degrémont SA

What are the main areas of technological development for Degrémont?

We have invested heavily in optimising the energy performance of our plants, in particular with the introduction of new techniques such as Energy Recovery (ERI), which enables reduction of energy costs in seawater desalination processes or thermal hydrolysis, which yields increases of up to 50% in biogas production from sewage sludge. The second major area is the development of important technological partnerships in order to offer new technologies to our customers, which is particularly the case in the area of ultrafiltration membranes.

Degrémont won the 2008 Top Prize in Suez's Initiatives and Innovations Trophies, what are the keys to this success?

Our innovation process, which ensures the relevance of our investments with regard to Degrémont's commercial strategy. We have set up a decision-making process, which closely links research orientation and market needs. The aim is to carry out innovation projects that are in tune with the expectations of the business and which offer a rapid return on investment with controlled risks, whether this is with our own R&D function or through partnerships.

Degrémont's inventors' charter also came into being in 2008, what does it involve?

It aims to encourage innovation within all departments, as we think this should not just come from the "researchers". The charter therefore aims to capitalise on everyone's capacity to innovate and to this end establishes a financial incentive to benefit innovative staff members who feedback their ideas. In return, the employee-inventor is bound by certain obligations, so that the exploitation rights for the invention can be used by the Company. In 2008, around 10 innovative patents have thus arisen from the original ideas of our staff members.

100 people
dedicated to research, development and industrialisation

14 million euros
devoted to R&D in 2008

The efforts that Degrémont makes in terms of innovation, which are essentially orientated towards applied research, combine two approaches: internal development and technological development through innovative partnerships and acquisitions. This option is chosen more and more frequently, insofar as it contributes to a significant reduction in timescales for designing processes and for making them available. In addition, Degrémont actively participates in international programmes which are run in partnership with state research centres and universities.
Industrialisation and standardisation are an integral part of Degrémont's innovation process: innovations are put into application on pilots set up in its research centres or production sites. These reduced size industrial facilities enable settings to be finely tuned, products to be standardised and the performance of future treatment plants to be validated. As a result, processes developed from Degrémont's innovation activities meet customers' needs as soon as they are set up.

Promoting responsible innovation

Health security, energy savings, environmental protection, comfort and ease of use, operation and maintenance: Degrémont incorporates its customers' requirements and anticipates regulations to devise products which are appropriate in economic, social and environmental terms. As early as 2000, the group chose to have its new product development process ISO 14001 certified, and from then on this has been subject to a systematic evaluation procedure in the area of respect for the environment. The preoccupation with promoting responsible innovation is also evident in the choice of directions for developing research.
Thus Degrémont's research, development and industrialisation teams have their sights set on the following areas:
- optimisation of membrane systems,
- pretreatments,
- treatment of emerging pollutants (endocrine disruptors, priority substances),
- reduction of chemical reagents,
- optimisation of odour treatment,
- processing and reprocessing of waste,
- production of renewable energies. ■

An international network dedicated to research

Innovation at Degrémont is essentially based on the dynamism of its research centres and on its active participation in SUEZ ENVIRONNEMENT's research programmes. In France, Europe and the United States, Degrémont's research teams cover all the group's areas of expertise. The research programmes bring together applications such as biological treatment, sludge treatment, clarification, membrane filtration and disinfection for the treatment of drinking water and urban wastewater. Degrémont Technologies' teams are working on ozone generation technology, thermal drying or developing new membranes and optimising ultrafiltration processes. All these teams also participate in international programmes which are run in partnership with state research centres and universities.

2008-2009 Innovations

Seaclean™: pressurised dual media filter
SeaDAF™: floating unit equipped with a plug-flow flocculator
Seapro™: new concept for a reverse osmosis plant
Ultragreen™: activated sludge combined with clarification by flat-sheet ultrafiltration membrane
GreenDAF™: tertiary phosphate removal
Ultrablue™: membrane filtration for reuse of cleaned wastewater
Compakblue™: submerged filtering discs
Dehydris Osmo™: intensive sludge dewatering using electro-osmosis
Dehydris Lime™: intensive sludge dewatering with preliminary lime treatment
Digelis Smart™: digestion combined with biogas storage
Digelis Turbo™: boosted digestion incorporating a thermal hydrolysis stage before digestion
Energylis™: cracking of the organic matter contained in the biomass

QUALITY

A method that provides a structure for achieving objectives

Degrémont has chosen to base its quality policy on the principles of continuous improvement. This approach, which relies on a single mechanism defined at every level of the company, enables a concrete assessment to be made in terms of know-how and potential. In this way, it is a vehicle for rapid progress, which is completely consistent with the market's needs and the group's strategic vision.

Three questions for Ariel Moryoussef

Chief Executive Officer - Degrémont Services SAS

What guarantee does Degrémont Services provide for its customers thanks to its triple certification?

The triple certification, quality (ISO 9001 version 2008), environment (ISO 14001) and safety (OHSAS 18001) is evidence of rigour, efficiency and reliability. It shows the capacity of Degrémont Services to adhere to its customers' specifications, leadtimes and budgets.
In addition, the labelling contributes to establishing our reputation: a company driven by a continuous improvement approach at every level, with its customers as well as with its staff, partners and suppliers.

What are the key assets of the management by processes approach developed within the framework of the Omega project?

Management by processes instils a continuous improvement approach. It provides real motivational leverage for staff, as each staff member can make profuse proposals and inspire lines of development. The objective is to capitalise on the riches of feedback. This method of management also defines a well-established framework for every activity, thus allowing staff to carry out the activity in a consistent way all over the world.

What are the outcomes in terms of customer satisfaction?

In 2008, the level of customer satisfaction with Degrémont Services was 93%, and the level of customer loyalty for the "service solutions" activity was 2.2. This is very good!

ISO 9001 Certificates

- Degrémont SA
- Degrémont SAS
- Degrémont SA Belgium
- Degrémont Services
- Degrémont Mexico

etc.

Omega, an old, deep and international approach

The continuous improvement approach is a principle that has been established right from the start of the nineties at Degrémont. Originally its system of management by processes, which has been set up over recent years, was a response to the ISO 9001 standard, but it has gone well beyond these principles. It now covers all the company's disciplines and activities, ensures consistency of practices, enables staff members to work in the most efficient conditions and with the same rigour, all this being the case whatever the country.

A system of management by processes, which is continuously improving thanks to feedback

Continuous improvement is the key principle for implementing Degrémont's system. For each activity, technical or support, experience leads to identification of best practices and their integration into the Omega Process. In the same way, malfunctions are fed back so as to avoid them happening again. All these elements are instructed and monitored in the feedback process and translated into improvement actions. Every operation, every activity, every contract thus benefits from the preceding ones, giving the group a higher level of performance, whilst being more responsive to its customers' requests.

A differentiating system

Omega is different from other quality processes: the key objective is to enable Degrémont to provide complete customer satisfaction with the best performance index. Going beyond getting a certificate, no matter how prestigious this may be, the group has a real desire to do better and to do so at the first attempt for every customer request. Each process is managed by its own Steering Committee, which guarantees the results in terms of performance and information sharing and cost-reduction for the customer. These Committees must also constantly propose more competitive innovative solutions. Degrémont relies on the efficiency of its Processes and its System for continuous improvement of the quality of its services, fulfilling its undertakings and implementing its business model based on its four professional areas of activity.

An ethical company with real social responsibility

In June 2009, after an extensive assessment of its practices in terms of relationships with its stakeholders (staff, customers, suppliers, civil society, etc.), the auditors of the English company GoodCorporation, concluded that Degrémont is an ethical company with real social responsibility. Degrémont thus obtained the GoodCorporation Ethical Accreditation for its global policies and for its French construction and operation activities. ■

A major first in Mexico

In Mexico, in the same way as all over the world, day after day Degrémont strives to maintain a culture of quality, safety and environmental protection based on teamwork, open communication and mutual respect.
To fulfil the requirements of various industrial processes, it is crucial to meet quality and reliability standards and to guarantee the characteristics of the water that is to be used at each stage. Since Degrémont Mexico is anxious to meet the specific needs of each sector of activity and each region of the country, the company has developed a complete management system based on meeting each of the international standards (ISO 9001:2000 – ISO 14001:2004 – OHSAS 18001:1999) and the equivalent Mexican ones.
In the case of approved laboratories, the ISO/TEC 17025:2005 standard and its Mexican equivalent are also met. In September 2008, Degrémont Mexico obtained full certification of its management system, which thus covers the processes of project preparation, design, construction, set-up, commissioning, operation and maintenance of wastewater treatment plants and collectors throughout its area of activity.

ENVIRONMENT

Taking action for sustainable management of resources

The very nature of Degrémont's activities means it is a key player in protecting the environment. The group has chosen to make this challenge a key driving force for its development. Faced with the increasing scarcity of water resources and risk of pollution to them, it supports its customers in a continuous improvement process, with a view to providing them with sustainable and economically viable solutions.

Two questions for Catherine Ricou

Marketing and Innovation Director - Degrémont France

What undertakings have Degrémont made in terms of the environment?

The purpose of some of our facilities is to clean water before it is put back into the natural environment. The very essence of our mission is, therefore, a key part of sustainable development. Within this framework, we undertake to use technologies which are increasingly effective as far as the environment is concerned. Whether for our drinking water production plants or our wastewater treatment plants, it is a case of improving the energy efficiency of our solutions by recovering the potential energies present in our plants, at the same time as reducing our greenhouse gas emissions, increasing the production of renewable energy, and finally conserving natural resources by reusing cleaned wastewater and treating the by-products we create.

How is sustainable development integrated right from the start into what you offer customers?

Degrémont has now moved from an engineering phase to an eco-engineering phase. In 2008, for example, we devised tools for optimising greenhouse gas emissions, which are used to measure the performance of all our processes. Our sales force also currently has a tool for analysing the challenges and objectives of local authorities in terms of sustainable development. The aim is to be able to offer something which is entirely consistent with their challenges on a local scale.

ISO 14001 Certificates

- Degrémont SA, Water treatment facilities engineering
- Degrémont Services (France)
- Degrémont Spain
- Prospect Plant (Australia)
- Sonia Vihar Plant (India)
- Degrémont Mexico

etc.

Since the Johannesburg Summit (2002), there has been consensus around one idea: sustainable management of water resources are central to the planet's equilibrium, which assumes both conservation of fresh water and purifying residual urban effluents. These two challenges are at the heart of Degrémont's expertise. For the group they are a major line of research and development and inspire a wide range of work that aims in particular to save fossil energy by producing renewable energy during the water treatment processes, to optimise health security, to safeguard aquatic environments, to reduce, process and reprocess waste and also to limit odour, noise and visual nuisances caused by the production or treatment facilities.
To rationalise its approach, Degrémont has created a series of indicators, which enable it to characterise its products with respect to the priorities established by the European Union in terms of environmental protection. With the help of these analytical tools, the group is in a position to identify the treatment technologies and processes whose ecological footprint has the highest potential for optimisation in a simple and effective way.

Appropriate and energy saving solutions

Degrémont's added value is based on its capacity to formulate tailored proposals to meet local objectives. Thus in coastal regions penalised by the difficulties they have in accessing fresh water, the teams strive to design desalination solutions that take into account its customers' technical and economic constraints.
In urban environments, where conservation of surroundings often has decisive importance, Degrémont has taken to collaborating with firms of architects which have a very strong environmental orientation, so as to design wastewater treatment plants that are well integrated into the landscape. This is especially the case in Saint-Cloud (France) and Oupeye (Belgium).
Taking care of the environment after all means contributing to optimised energy management. After the success of the Heliantis® solar drying process, the group is working on new generations of equipment and on combining technologies that are likely to improve the energy balance sheet of facilities.
Research is also orientated towards the integration and better use of renewable energies.
The award of numerous ISO 14001 certificates shows that the quality of the group's environmental policy is widely recognised. ■

La Feyssine wastewater treatment plant: an exemplary approach

In 2008, Degrémont and its partners won the contract for designing, building and operating the La Feyssine (France) wastewater treatment plant. This programme, which will enable the treatment of wastewater from the equivalent of 300,000 inhabitants of Greater Lyons, will lead to an exemplary sustainable development approach.
The water treatment process chosen was selected because of its low environmental impact, using a lifecycle analysis.
Use of technology involving activated sludge in suspended growth will contribute to the reduction of the overall footprint of the plant.
This will be further improved by setting up photovoltaic panels, recovering thermies from the treated water and reusing part of the water produced on site. In addition, the plant will benefit from integrated architecture: green roofs will absorb part of the CO_2 generated by road traffic on the orbital motorway around Lyons.

SAFETY

Combining professionalism, ethics and competitiveness

Degrémont takes care to comply with the regulations and the changes made to them and is also keen to make safety a real value-added factor for its partners and its customers. This dimension is now integrated into the processes in every discipline and has thus become an integral part of the group's management system.

Two questions for Thierry Brand

Technical Manager - Degrémont Europe

Which standards does Degrémont use as a basis for ensuring maximum safety within its plants?

Risk prevention is the bedplate of our construction approach. At a group level, seven priority risks have been identified. To anticipate them, our work complies with the regulatory framework of each country and with the European standards. In France, we rely on the "*Code du Travail*" (Labour Code) and also on the recommendations of the INRS (National Institute for Research and Safety), which we have been involved in developing as water industry professionals.

What are the exemplary construction projects most recently carried out by Degrémont?

The Seine aval (denitrification unit) and Seine morée wastewater treatment plants must be mentioned from among the many exemplary projects. Going beyond risk analysis, an in-depth and systematic ergonomic study has been incorporated, right from the design phase of the plants. This really is a main line of progress for Degrémont, which is going well beyond the standards framework to take an interest in the performance and harmonious integration of people in their working environment.

OHSAS 18001 (1999) certificates

- Degrémont Services (France)
- Sonia Vihar Plant (India)
- Prospect Plant (Australia)
- Degrémont Mexico
  etc.

A global policy

The health and safety policy is applied as from the design phase of its plants and at all stages of the group's activity, and is part of a global approach: it applies equally to people, equipment, processes and facilities. Although it is well adapted to specific local issues, it meets the same requirements in each country where Degrémont has a presence.

Managers in the front line

The safety process is the responsibility of management and they ensure its implementation and control within their area. Disseminating this through all levels of the organisation is a way of promoting a real "safety culture" within the Degrémont teams and is the essential breeding ground for developing risk perception and the associated behaviours. In practice, the pro-active commitment of managers is seen particularly in terms of safety visits and audits in the field.

A shared approach

Degrémont is aware that safety involves everyone and thus ensures that its health and safety approach extends through all the company's disciplines, as well as to its support functions (purchasing, HR, etc.) and to its partners. This is why the design office, construction site and plant operating teams have already had access to technical documentation, including safety criteria, for years. These themes are also incorporated into the contracts signed with local partners, encouraging them to undertake a progress approach, to achieve better risk management and to strengthen their image. Thus, for Degrémont, safety issues are a criterion for choosing its partners. ■

An independent system of control

Since 2005, Degrémont has entrusted the transparent and independent assessment of safety management to DNV (Det Norske Veritas) across all its activities worldwide. Audits constitute an enriching basis for work, and enable the local teams to initiate new practices and optimise their performance.

HUMAN RESOURCES

Meeting the group's international challenges by combining recruitment, competence management, training and career management

To adapt the group's resources to the international dimension and strengthen the level of expertise in its professional areas of activity, the Human Resources Department relies on recruiting talents from all over the world, on its refined knowledge of its staff's know-how, on the targeted development of competences and also on managing the careers of its staff members.

Three questions for Emmanuel Zamith

Employment & Human Resources Development Director - Degrémont SA

What comprises the Degrémont "way of thinking"?

Originally Degrémont was a family business, and today this way of thinking still remains, despite the major increase in the workforce: it is part of the "company DNA". There is a strong attachment to the group and its values. There is a strong emotional dimension within the company, and the staff turnover is low.

What are the strong values shared on a daily basis?

We have four founding values:
- Be **ambitious** for **Degrémont**,
- **Commit** with **courage**,
- Create **trust** through **respect** and **integrity**,
- **Progress** and **help others to progress**.

These shared values are meaningful and are one of the key conditions for our success with our partners and our customers.

What is the profile of the ideal staff member?

In addition to technical competences, staff must, of course, live out and respect our values, participate in the development of a culture of profitability and commit to management by processes. Many projects are implemented in international teams spread all over the world and this requires a great capacity for empathy, openness and being ready to listen. Finally, with Degrémont encouraging mobility and development within the company, other qualities like adaptability are highly valued.

1/3 of recruitment
provided for internally

105,000 hours
of training per year

39.7 years old
average age

Degrémont invests in its talents: its hunting ground? The whole planet...

Both in recruitment and career management, Degrémont attaches a lot of importance to human potential. In addition to qualifications and experience, we take on talented people who are imbued with an entrepreneurial spirit, who have a constructive outlook, who know how to take initiatives to move ahead, and who share our values. Over the years, this collective commitment has enabled us to build technical excellence recognised all over the world and continuous innovation that guarantees our position as market leader. Degrémont has taken on 800 new staff members in the space of four years, showing a strong desire to invest in young qualified people. The HR teams adapt their approaches to these challenges by attending various trade and career fairs in the world's major capitals, by strengthening recruitment-related communication on the Internet and by developing pre-recruitment of young people through work placements, apprenticeship contracts and V.I.E. (Volunteering for International Experience).

Training: calling on experience within the group

Almost 13,000 days of training delivered all over the world in 2008, including 30% devoted to technical training, confirm Degrémont's commitment to staff development and the transmission of know-how. As a world specialist in water treatment, the company has decided on a policy of delivering the technical training courses itself. With more than 25 internal training programmes, the experts make a major contribution to the development of competences in the professional areas of activity. They make sure that technical know-how is transferred and that training aids are developed for the delivery of courses in France and all over the world. Every year Degrémont reviews and enhances what it offers in terms of training, so as to meet the challenges of changes in our professional areas of activity.

Mobility is a strength for Degrémont

A declared ambition: be an actor of one's career development. Mobility, both functional and geographical, plays a key role in the way we all fulfil our potential, and we prioritise and encourage this approach. This is why each staff member can benefit from a mobility interview in accordance with the principles and basic values that are common to the whole group. All vacant posts are accessible to all staff members via the group's intranet. Mobility is a reality: in fact it represents more than 30% of our recruitments in 2008 and corresponds to almost 250 individual career developments within the group. ■

Competence management is treating your career professionally

Degrémont wants to encourage professional development for its staff of 4,600 spread over 70 countries and has, therefore, implemented the Omega Competences project. This tool is a real global database and provides an inventory of the group's technical know-how and professional areas of expertise. In its inventory, Omega Competences has more than 2,000 staff members who update their competences every year and it, therefore, enables a global overview of expertise in each country, anticipation of medium and long-term needs and facilitation of career planning.
Degrémont staff who wish to develop their careers can now fill in a sheet online that presents their knowledge and experience and what they want in terms of personal development: this is the "Competences Passport". It enables professional advancement through appropriate supported development. Using this tool enables the definition of an action plan in terms of training, mobility, recruitment and staffing.

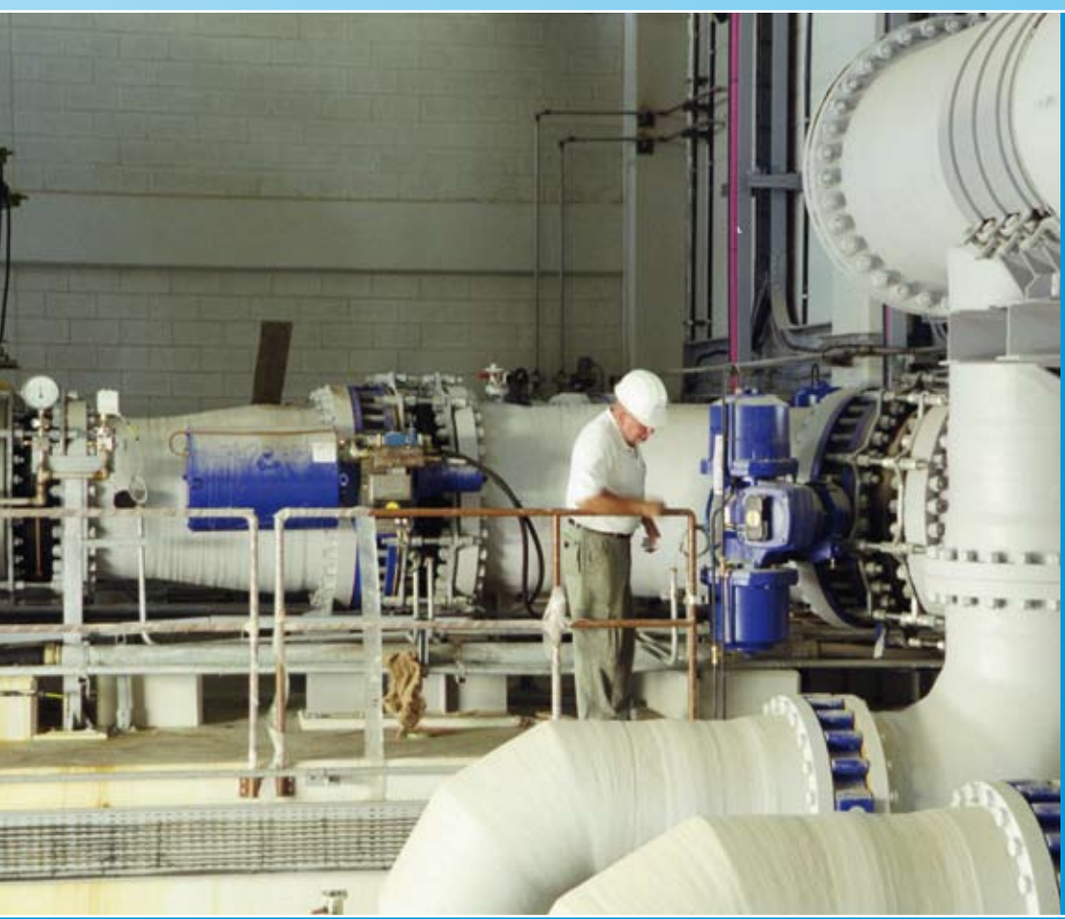
Our five areas of expertise

All over the world, Degrémont designs and builds or operates drinking water production facilities, desalination plants, plants for urban wastewater treatment and reusing cleaned water (reuse), sludge treatment units, along with units for producing industrial process water or for treating their wastewater.
These areas of expertise are implemented with the intention of supporting customers by offering them the most reliable, most advanced and most appropriate solutions for the resources and local contexts.

From a technical viewpoint, Degrémont's added value lies in its mastery of a wide variety of production and treatment processes.
This characteristic encourages synergies between the various areas of expertise.
For instance, its experts are developing the best technical combinations in the area of desalination, thus increasing the reliability of the purification stage, which then governs the performance of the membrane systems.
By wisely combining its purification technologies, Degrémont also enables local authorities and industrialists to reuse their cleaned water, thereby extending water usages and supporting its customers in their sustainable development process. ■

DRINKING WATER PRODUCTION

Supporting local authority development



The drinking water market concerns both developing and industrialised countries. The former are penalised by the difficulties they have in accessing water and seek reliable production solutions that are accessible in terms of costs. For industrialised countries, expectations involve improving comfort and health security. The diversity of technologies developed by Degrémont is a major asset in meeting these multiple challenges.

Two questions for Ramnarayana Bongoni

Drinking Water Production Plant Manager - Sonia Vihar (India)

In 2006, New Delhi opened the Sonia Vihar plant, the largest drinking water treatment plant in the city. What are the changes for the inhabitants?

Access to drinking water is a major challenge for New Delhi with 16 million inhabitants. The construction of the Sonia Vihar plant has enabled an increase in drinking water production for the city of 635,000 m^3/day, thereby achieving a total volume of close to three million m^3. As a result, the resources now available are 189 litres per inhabitant per day.

The water from the Ganges and the River Yamuna is particularly turbid during the monsoon. What technologies are used to treat this water?

In order to overcome the large variations in high turbidity, Degrémont has implemented three Turbocirculator as primary settling tanks enabling the treatment of 662,000 m^3/day. This state-of-the-art technology enables the achievement of a very high level of water clarification by removing as much suspended solids, sand and colloidal particles as possible.

Furthermore, physical-chemical treatment through coagulation/flocculation in eight Pulsator®, followed by sand filtration in 22 Aquazur® V, produce top-quality water. The Sonia Vihar plant is the first water treatment plant in India to have obtained ISO 14001:2004 and OHSAS 18001:2007 certification (July 2008).

3,000
drinking water production plants built by Degrémont all over the world

197
ultra-filtration plants

1.3 million
m³/day of ultrafiltered water

Groundwater, surface water, brackish water or seawater: wherever it comes from and whatever the initial quality of the resource, Degrémont has all the necessary technologies to produce drinking water and to meet ever more demanding health standards. After Pulsator® and Aquazur® V, which in their time revolutionised the settling and filtration processes, the group's engineers developed state-of-the-art membrane ultrafiltration solutions. These form a barrier to unwanted elements (bacteria, viruses, etc.), but preserve the natural salinity of the water by letting the dissolved salts through. Used along with activated carbon, it also has the advantage of trapping micro-pollutants and unwanted odours: this is the Cristal® process. In addition, membrane ultrafiltration is environmentally friendly, as it is economical in terms of chemicals. All these virtues encourage the Degrémont teams to rely on this technology more and more; it has already been widely rolled out to sites in France and it is now being increasingly used in Asia and countries of Eastern Europe. Since 2006, one of the largest drinking water production plants in the world using ultrafiltration has been operating in Moscow.

Design, build and equip according to the local issues

Degrémont's dedicated teams for the design, construction and operation of plants of all sizes combine their know-how and their creativity to build sustainable plants. Contracts won in Macao (China), in Keur Momar-Sarr (Senegal), in Apremont and Nemours (France) and in Astana (Kazakhstan) show that the group's capacity to adapt its competences to local issues is internationally recognised. Further proof is that in 2007 Degrémont won a contract for the construction and operation of one of the largest water production plants in the world. Installed in Mumbai (formerly Bombay) in India, it can supply one million m³ of water per day: enough to meet the needs of six million people. Finally, the group also has expertise in the supply of specific equipment through the Degrémont Technologies brands: Ozonia (ozone generators), Aquasource (ultrafiltration membranes), Innoplana (dryers).

Ozonia also markets physical-chemical disinfection systems using ultra-violet rays. As a result of their ability to work as effectively as chlorine, but without leaving behind any odour or taste, these systems are in tune with consumer expectations and are experiencing a strong development in demand. Aquasource uses its experience to provide innovation by offering ultrafiltration systems that meet every type of demand in terms of nature and water to be treated and compliance with the regulations in force: hollow fibre membranes with a modular layout (e.g. the Inea™ or Alteon™ ranges, etc.), autonomous units (e.g. Aquakiosk®, Ultrasource®, Ecoskid®, etc.), Concept Rack. Aquasource and its teams of experts provide their customers with support for the operation and optimisation of their ultrafiltration units on a daily basis, through its LEMA Laboratory and the range of services it offers. ■

Four million people supplied in Chennai (India)

In 2007, Degrémont inaugurated the extension of the second largest drinking water production plant in India at Chennai (formerly Madras). With a capacity of 530,000 m³/day, the new facilities supply nearly four million people, this being in response to the population increase and rampant urbanisation. The plant was built in 24 months, is fully automated and managed by a SCADA system. It uses Aquazur® V and Pulsator® technologies: settling and filtering techniques, which have already shown their high level of performance all over the world. The plant will be operated by Degrémont for seven years.

DESALINATION

Huge prospects for drinking water production

Almost 40% of the world's population experience a shortage of fresh water, 97% of the water available in the world is salty and 42 of the 70 cities with more than one million inhabitants, which do not have direct access to additional fresh water resources, are located on the coast.
Desalination is an alternative resource that meets the growing need for domestic and industrial water. Continuous improvement of existing technologies may one day enable the supply of water to 2.4 billion people who live less then 100 kilometres from the sea. This then is a real alternative to other methods of drinking water production, even more so as the raw material used is almost unlimited.

Three questions for Miguel-Angel Sanz

Director of Business Development - Degrémont Spain

In what way is water a vital issue for Barcelona today?

The city of Barcelona's water supply depends on its two rivers, the Ter and Llobregat, which themselves are reliant on rainfall. Water resources today are insufficient, because the volume of rainfall is going down, whilst the population is increasing (4.5 million inhabitants).

How is the Barcelona region overcoming this shortage?

Firstly, the region has invested heavily in optimising its water treatment plants. However, this proved not to be enough, especially as the water coming from the reuse plants is not fit for human consumption. The Catalan government, therefore, decided to build a reverse osmosis seawater desalination plant to produce drinking water. This will have a capacity of 200,000 m^3/day and will produce drinking water in sufficient quantities to make the water supply in the Barcelona region reliable.

The contract was awarded in 2006, how far have you got with building the plant?

The plant start-up is planned for May 2009, that is two years after the contract was signed and the work started. The inauguration should be in June. It will be a major event, as Barcelona's desalination plant will then be the largest in Europe!

250
desalination plants built to date

9 plants
in operation

10 million
people served

2 million
m^3 produced per day

Degrémont is a pioneer in reverse osmosis desalination: as early as 1969, it designed and built the first facility in the world using this technology on the Ile de Houat (France). The principle involves passing seawater or brackish water through a membrane, which is impermeable to dissolved salts, after purification. After appropriate polishing, water treated in this way can be used for human consumption and for agricultural or industrial purposes. Nowadays, the processes used can enable 95% energy self-sufficiency.

As the market leader, Degrémont thus produces two million cubic metres of water every day. Its water treatment expertise and professionalism as a builder-operator enable it to offer well-controlled, tailored solutions. A combination that, for example, enabled it to win the construction excellence prize in Australia in 2008 for the seawater desalination plant in Perth, and also the design-build contract for the Al-Dur plant in Bahrain, the largest seawater desalination plant in the Middle East.

Well-controlled, tailored solutions

These successes follow on from the signature of two contracts in 2006: the first for the largest reverse osmosis desalination plant in Europe, which will be started up in 2009 in Barcelona (200,000 m^3/day), the second for a complex that combines a desalination plant and a thermal power station in Barka, in the Sultanate of Oman. All these references show the high added value given by Degrémont in the desalination field. This is firstly a result of the experts', designer-builders' and operators' talent, which has been brought into play for every project. Thanks to this rich human resource, Degrémont can deliver high-performance and reliable plants at optimised investment and operating costs within reduced timescales. Second distinctive advantage: technical control, which enables the company to devise tailored solutions by integrating original and effective processes. The group's experts strive to perfect each stage in water treatment, paying particular attention to purification, upstream from reverse osmosis desalination: this is in fact what governs the yield of the membrane systems on which a plant's operational reliability and service life depend. ■

Perth: a really sustainable desalination plant

In Australia, to overcome water stress in the Perth region in a sustainable way, seawater desalination is a real alternative resource for supplying high-quality drinking water in sufficient quantities. Within the context of the strategy of the Water Corporation of the State of Western Australia, which takes into account population growth, increasing shortage of the resource, but also respect for the environment, the city entrusted Degrémont with the design-build and 25-year operation of its reverse osmosis seawater desalination plant. With a capacity of 143,700 m^3/day – the third largest in the world and the largest in Australasia – this plant enables 17% of the city's drinking water consumption to be provided for.
In addition to its small footprint on the ground for a seawater desalination plant of this capacity, the Perth facility is the first of this size to run entirely on wind power. Use of this green energy enables a saving of 200,000 tonnes of GHG* emissions to be made per year. In addition, to optimise global energy consumption, Degrémont has installed the ERI energy recovery system on the first reverse osmosis pass, which enables more than 95% of the energy needed for its operation to be supplied.
Degrémont's expertise has not only enabled it to conserve the sensitive environment of the bay at Cockburn Sound, but also to win the construction excellence prize at the Australian Construction Achievement Award event organised in Melbourne in May 2008.

* Greenhouse gas

TREATMENT AND REUSE OF URBAN WASTEWATER

Improving sanitary conditions, prolonging water usages and conserving resources

Due to demographic pressure, the urban wastewater market is growing rapidly: it represents half the world's water treatment activities. With its technological mastery behind it, Degrémont is building wastewater treatment plants that restore high-quality water, whilst respecting the environment. The group also exploits its experience in terms of reusing wastewater (reuse), a solution that enables agricultural, urban or industrial uses to be provided for and the rebuilding of resources at a reduced cost, whilst complying with regulatory constraints.

Three questions for Laurent Carrot

Deputy Chief Operating Officer - Degrémont Mexico

What daily volume do the Salina Cruz I and II plants deal with?

The two plants treat wastewater from the municipality of Salina Cruz (3,900 m^3/day), along with water from the refinery belonging to PEMEX, a partially state-controlled oil company, (8,300 m^3/day). The industrial effluents from the refinery, which have high grease and sulphide contents, were previously discharged into the sea. This situation was all the more harmful as fishing is the second most important commercial activity in the region.

How is this water reused once it has been purified?

All the water treated in this way is redirected to the refinery's cooling towers. There is a dual service: Degrémont enables the refinery to treat its effluents, whilst also providing the water needed for it to operate. These reuse technologies enable this arid region to conserve its water resources. The same concept is behind our operating a seawater desalination plant that enables us to meet the additional water needs of the refinery.

What type of contract links Degrémont and the refinery?

The Salina Cruz plants were built within the framework of a BOT (Build – Operate - Transfer) contract, a very widespread approach in Mexico. With this type of contract, Degrémont builds and finances the plants over a period of 18 months to two years, then has 12 to 20 years to operate them and amortise its investment, before transferring the plants to its customer's ownership. In the specific case of the Salina Cruz plants, at the end of the 12-year operating period, the investment sum will not have been fully amortised and PEMEX must pay the remaining amount if it wants to obtain ownership of the facilities.

369 km³
of wastewater collected each year worldwide

2,500 wastewater treatment plants
built by Degrémont

160 km³
of treated water, including 7.1 km³ recycled

2.4 million m³/day
wastewater recycling capacity

Urban wastewater treatment is a market with a future and is a focus for a good part of the R&D work put in by Degrémont. The latter has the expertise needed to offer treatment processes appropriate to the final usage of the effluents, to the changes in environmental and health legislation, along with seasonal, meteorological and demographic variations. Physical-chemical or biological treatment, aerobic or anaerobic, suspended or attached growths, ozonisation, membrane bioreactors, etc. Mastery of these technologies ensures the excellent sanitary quality of the treated water in the group's plants. A level of performance that offers local authorities the opportunity to reuse effluents with a view to conservation of natural resources. Technologies assigned to drinking water production – sand filters, ultrafiltration membranes, ultraviolet rays – then supplement conventional treatment processes. For example, this is how the San Luis Potosi facilities (Mexico) ensure the recycling of 86,500 m³ of wastewater every day. This is then used for agricultural irrigation purposes or else to contribute to cooling equipment in a neighbouring thermal power station.

Meeting the challenges of sustainable development

The diversity of approaches and technologies used enables Degrémont to satisfy its customers in terms of the urban integration of the plants and compliance with sustainable development principles. Two successes achieved by the group are, therefore, evidence of this competence. In Le Havre (France), Degrémont is building the new wastewater treatment plant for the urban area. This will operate using the Cyclor® biological process, which is especially suited to discharges in sensitive areas, thanks to its performance in the simultaneous treatment of carbon, nitrogen and phosphorus. In addition, its use leads to a 40% reduction in land use compared to traditional processes, which contributes to better integration of the future site into its environment. The Seine aval plant for removal of nitrogen pollution (SIAAP [Parisian wastewater authority] plant – France) was inaugurated recently and is itself implementing the Biofor® biofiltration treatment, which also enables optimisation of the sizing of the facilities. Another strength: setting up a system for deodorising tainted air. A device of the process that Degrémont has optimised to avoid odour nuisances for operators and local residents. ■

A first in the Middle East, with a strong sustainable development focus

The As-Samra plant, inaugurated in August 2008, with a maximum capacity of 530,000 m³/day, was designed to treat wastewater from 2.2 million people in Greater Amman and is almost self-sufficient in energy, a world first for a facility of this size. Hydraulic turbines fitted upstream and downstream, along with gas engines fuelled by biogas from sludge digestion, enable production of 95% of the electricity needed for the treatment, with the remaining 5% coming from the national grid.
Reusing wastewater is an essential element in Jordan's strategy for water for the protection of the environment and the agricultural sector. The plant was, therefore, designed to reuse around 100 million m³ of very high-quality purified water per year, thus allowing the use of drinking water in the agricultural and industrial sectors to be reduced.
In addition to this economic and environmental advantage, the plant will also prevent bad odours emanating from the former lagoons and so reduce the harmful olfactory effects in the As-Samra region.
This contract was concluded as a Public Private Partnership and it is the first BOT project in Jordan and the first BOT project in which USAID (United States Agency for International Development) has been involved.

SLUDGE TREATMENT

Durable solutions suitable for all processes

Due to regulatory changes, which make the treatment of increasing volumes of water obligatory, the quantities of sludge produced are constantly rising. Local authorities therefore face two major challenges: reducing sludge production and converting it, as much as they possibly can, into reusable products respecting the environment and complying with regulations. Degrémont is in a position to offer solutions appropriate to any problems, thanks to its technological know-how and expertise.

Three questions for Shyam Bhan

Chief Executive Officer - Degrémont Technologies North America

Why is the market for the incineration of wastewater sludge expanding in North America?

Sludge constitutes the principal by-product of urban and industrial wastewater treatment plants. Sludge production is continually increasing and what becomes of it is one of the major concerns of local municipalities and industrialists.

What solution does Degrémont provide?

Thermylis® HTFB, our incineration solution, respects the environment. The sludge is transformed into a harmless mineral product that can be recycled. Thermal oxidation enables us to ensure the absence of non-burned residues, limit flue gas production and release clean and odourless combustion emissions into the atmosphere. These combustion qualities enable compliance with rules and regulations enforced by the EPA (Environmental Protection Agency).

How does the Thermylis® technology fit into the concept of sustainable development?

The heat generated during the incineration process is re-captured through a heat recovery system to heat the fluidisation air and to provide auto-thermic combustion with zero fuel usage. Furthermore, the heat recovery system can be modified to include a waste heat boiler to produce high pressure steam for electricity generation. Apart from co-generation, however, the most important criterion is the magnitude of the reduction in the sludge volume to less than 7% of its initial weight. Main benefits: fewer lorries, less waste and real energy savings!

30 Innodry 2E® drying units

36 Thermylis® lines

45 Heliantis® units

Processes for sludge elimination differ depending on the countries, due to the great diversity of economic, regulatory and social issues. With a view to providing better support for treatment plant operators, Degrémont deploys a full range of turnkey solutions. The processing line can comprise several stages, designed on the one hand to reduce the volume of sludge produced as much as possible, and on the other hand to sanitise it. Degrémont offers a large array of processes, from digestion (in particular with the Digelis™ range) to destruction (incineration in a fluidised-bed furnace – Thermylis®, wet oxidation – Mineralis), including thickening, dewatering or drying (indirect with Naratherm, two-stage with Innodry, solar with Heliantis®).

Degrémont favours the drying solution which promotes reuse or incineration. In all cases, Degrémont takes care to provide the conditions needed for the best possible respect for the environment. In particular, priority is given to solutions that enable sites to achieve optimum energy usage by reuse of the biogas emitted.

Prioritising reuse

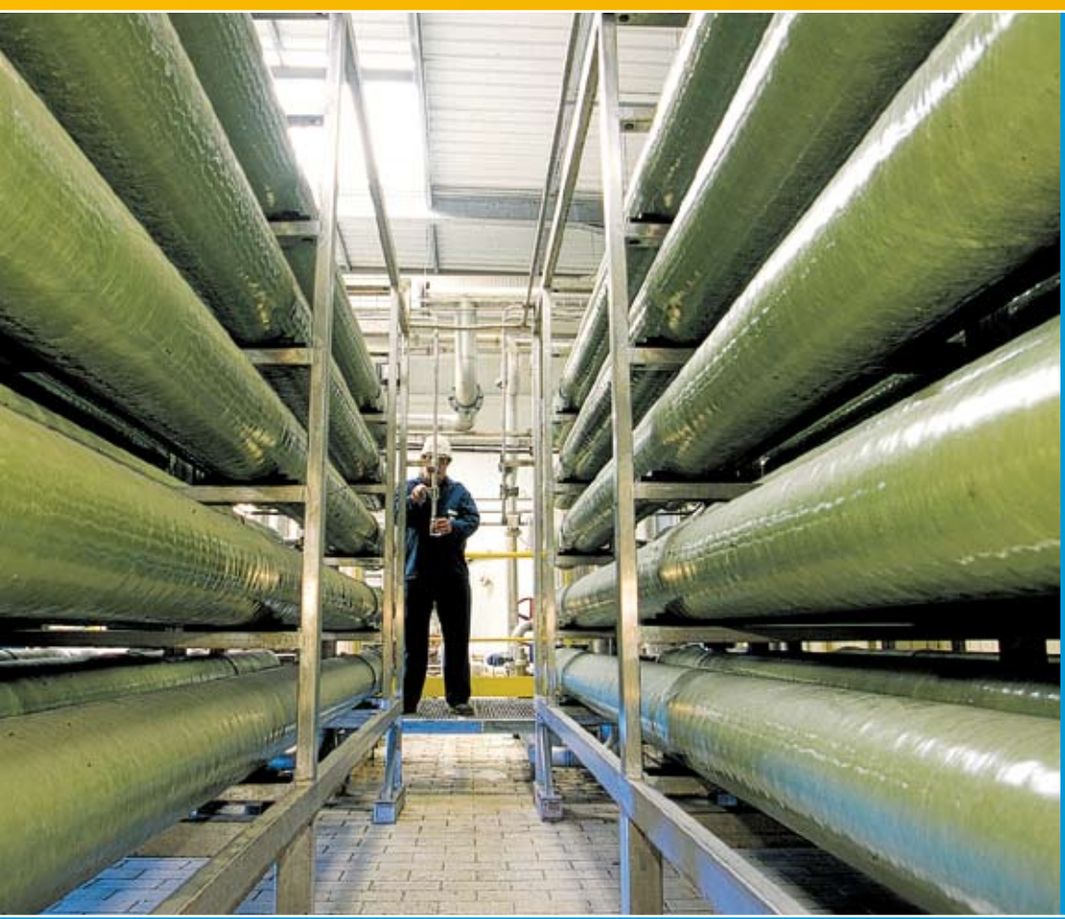
When a customer wants to undertake a sludge reuse approach, particularly with a view to agricultural usage, Degrémont gives priority to two major processes. On the one hand drying, which may be thermal and include an energy recovery mechanism (Innodry, a solution developed by Innoplana), or else solar (Heliantis® technology), and on the other hand composting. In both cases, the product obtained is sold for use in creating parkland or soil regeneration. ■

Two new Thermylis® systems in North America

Degrémont Technologies has strengthened its position as a market leader in North America by winning two contracts to design and build Thermylis® facilities at Duffin Creek (Canada) and Mill Creek, near Cincinnati (United States).
The process used in these facilities involves discharging the wastewater sludge onto a bed of sand fluidised at a high temperature, so as to make the water evaporate and the organic matter burn. Thermylis® is a safe and odour-free solution and is also ecological, as the heat released by the process can be used to produce steam or electricity.
At Duffin Creek, for example, the steam will be used to operate the fluidisation air blower, thus avoiding the expense of installing a 600 kW motor.
The two plants will process 210 and 238 tonnes of sludge per day respectively.

TREATMENT AND PRODUCTION OF INDUSTRIAL WATERS

Supporting the developments in regulations and processes



Internationally there is also wide recognition of Degrémont's expertise in water treatment on the industrial markets. The group is in a position to offer appropriate solutions for industrial wastewater (IWW) treatment, thanks to its mastery of a vast range of processes. Furthermore, its capacity to produce water which meets the requirements of the most sensitive industries also enables it to contribute to industrial processes and supply a raw material, which goes on to be used for the manufacture of numerous products. In these areas of expertise, Degrémont works closely with Ondeo Industrial Solutions (Ondeo IS), a major player for all needs linked to the water cycle in industry, particularly in Europe. Ondeo IS is also a subsidiary of SUEZ ENVIRONNEMENT.

Two questions for Gabriel Toffani

Chief Executive Officer - Degrémont South America

Degrémont signed a contract in October 2008 with the Petrobras group. What does this involve?

The REPLAN refinery is the largest Petrobras refinery and itself refines 17% of the oil produced in Brazil. Its aim is to improve its end product so as to be able to export to the United States.
In this context, Degrémont is refurbishing and extending the process water treatment plant that uses ultrafiltration, reverse osmosis and ion exchange on mixed beds. This will enable an increase in capacity from 400 to 600 m³/hr.

In addition, Degrémont will provide the new condensate treatment and modernisation of the wastewater treatment, that is 2,400 m³/hr, in particular to treat the gases emitted by the refinery's effluents. This development will mean the latter complies with the new Brazilian regulations on gaseous effluents. Zero pollution objective!

Which new technologies will Degrémont provide for REPLAN?

In the first place, ozone generators, but alongside disinfection using ultraviolet rays, are going to be introduced into the process water production line, in accordance with technologies that are unique to Degrémont.
Using a combination of these two techniques is an innovation for a refinery and REPLAN will be the first in Brazil to benefit from this equipment.
Another new development: biofilters will be used to treat the volatile organic compounds (VOCs) of the effluents. Finally, all the work will be carried out without a single interruption to the refinery's activity. A real challenge!

The strengthening of regulations on liquid discharge and the emergence of manufacturing processes generating new types of effluents, mean that industrial wastewater (IWW) treatment is a sector now experiencing rapid growth. Degrémont has a presence in this market and is especially well established in Latin America, the USA and China, where the group in particular fulfils the needs of the oil, steel, paper and agri-food industries, along with those of thermal power stations, in terms of compliance with the required standards concerning discharge. It is more and more the case that IWW, after additional treatment, is intended for recycling and reuse, in particular as make-up water, process water, cooling water, boiler water, etc. In each of these cases, Degrémont applies specific treatments, depending on the uses made of the water. This approach enables our customers to have a low-cost resource at their disposal, which contributes to limiting the quantities taken from the natural environment, along with the amount of royalties paid by industrialists with regard to discharge.

Specific techniques for all kinds of process water

Degrémont develops treatment systems and processing programmes which enable customers to obtain industrial water with a high enough quality to supply boilers, cooling systems and various processes, including the most demanding of these such as drinks production, the semiconductor industry and some pharmaceutical processes which require ultrapure water, from natural water or the drinking water supply network. The competitiveness of each sector means that technological advances enabling the provision of an impeccably high quality of water must be continually offered. Degrémont is, for example, developing a series of dedicated products for the drinks packaging industry: OZFIL® skids are the flagship product in this range. These skids were devised with the help of a major bottler. These units are made in eight standard formats for filling rates ranging from 15 m^3/hr to 70 m^3/hr, they enable industrialists to add a small quantity of ozone to the water before filling. The ozone quickly disinfects the water in the bottle, then is converted into oxygen, without affecting the organoleptic qualities of the water and without any risk for the consumer. An automatic and self-regulated solution that has already been taken on board by the largest global bottling companies. ■

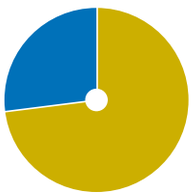
United States: an acquisition providing future prospects

In July 2008, Degrémont Technologies acquired the American company Water & Power Technologies (WPT).
WPT is a specialist in technologies involving reverse osmosis, membrane ultrafiltration and deionisation by ion exchange, and is well equipped to meet its customers' growing needs in terms of pure water. In fact, it has already earned itself a solid reputation by supplying equipment and services specific to water treatment to major players in the electricity, oil and gas, chemicals, pharmaceutical products and electronics sectors. Thanks to the synergy with Anderson, another Degrémont Technologies brand which specialises in water treatment systems for industrial processes, Degrémont is thus strengthening its spheres of action, optimising its capacity to offer its customers the best solution to fulfil their expectations. Another advantage of this acquisition: with its areas of expertise complementing Degrémont's, particularly in water production for medical use, WPT opens up new markets and new prospects for the group.

2007-2008 FIGURES

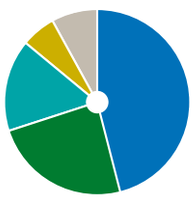
INCOME

SALES



	2007	2008
International	73%	**74%**
France	27%	**26%**

SALES BY GEOGRAPHICAL AREA



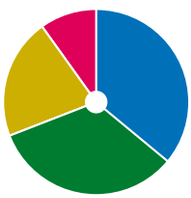
	2007	2008
Europe	46%	**46%**
Asia, Oceania and Middle-East	24%	**26%**
North America	16%	**17%**
South America	6%	**4%**
Africa	8%	**7%**

(figures in millions of euros)

REVENUES BY BUSINESS SECTOR	2007	2008
Construction	596	**623**
Equipment	147	**167**
BOT and Services	211	**224**
Total	954	**1,014**

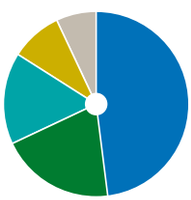
STAFF

STAFF DISTRIBUTION BY BUSINESS SECTOR



	2007	**2008**
Construction	34%	**36%**
Services	35%	**33%**
Support	21%	**21%**
Equipment	10%	**10%**

STAFF DISTRIBUTION BY GEOGRAPHICAL AREA



	2007	**2008**
Europe	52%	**48%**
North and South America	17%	**20%**
Asia	17%	**16%**
Africa	7%	**9%**
Middle-East	7%	**7%**

FULLY CONSOLIDATED SUBSIDIARIES

Degrémont SA France		**%**
DEGRÉMONT SAS	France	100.0
DEGRÉMONT SERVICES SAS	France	100.0
FRANCE ASSAINISSEMENT SA	France	100.0
HYDREA	France	100.0
OZONIA France	France	100.0
DEGRÉMONT S.P.A.	Italy	100.0
DEGRÉMONT SA	Spain	100.0
DEGRÉMONT SA	Portugal	100.0
DEGRÉMONT SA	Belgium	74.9
AQUASOURCE SAS	France	100.0
NICE HALIOTIS SA	France	100.0
DEGRÉMONT TECHNOLOGY	Switzerland	100.0
DEGRÉMONT SA	Switzerland	100.0
DEGRÉMONT LIMITED	Great Britain	100.0
DEGRÉMONT A.S.	Denmark	100.0
DEGRÉMONT A.S.	Norway	100.0
DEGRÉMONT LIMITED	Canada	100.0
NOVA SCOTIA LIMITED	Canada	100.0
DEGRÉMONT SA	Mexico	100.0
DEGRÉMONT SA	Argentina	100.0
DEGRÉMONT LTDA	Chile	100.0
DEGRÉMONT LTDA	Brazil	100.0
GUANGDONG DEGRÉMONT WATER ENGINEERING COMPANY	China	100.0
DEGRÉMONT WTS CO.	China	100.0
DEGRÉMONT LIMITED	China (Hong Kong)	100.0
DEGRÉMONT CO. LIMITED	South Korea	100.0
DEGRÉMONT LIMITED	India	50.9
DEGRÉMONT PRIVATE PROJECTS LIMITED	India	100.0
PT DEGRÉMONT	Indonesia	100.0
PT TIRTA GAJAH MUNGKUR	Indonesia	85.0
SERVICIOS DE AGUAS DE SALINA CRUZ SA DE CV	Mexico	50.1
TRATAMIENTO DE AGUAS DE PUEBLA SA DE CV	Mexico	100.0
INFILCO DEGRÉMONT INC.	United States	100.0
WATER & POWER TECHNOLOGIES	United States	100.0
ANDERSON WATER SYSTEMS	Canada	100.0
TRIOGEN	Great Britain	100.0
OZONIA NORTH AMERICA	United States	100.0
OZONIA KOREA	South Korea	100.0
DEGRÉMONT SA	Australia	100.0
LYONNAISE PROSPECT Pty Ltd	Australia	100.0
DEGRÉMONT SA	Japan	100.0
LYONNAISE ASIA PACIFIC	Australia	100.0
DEGRÉMONT MIDDLE EAST	United Arab Emirates	100.0
AQUATEX	France	100.0

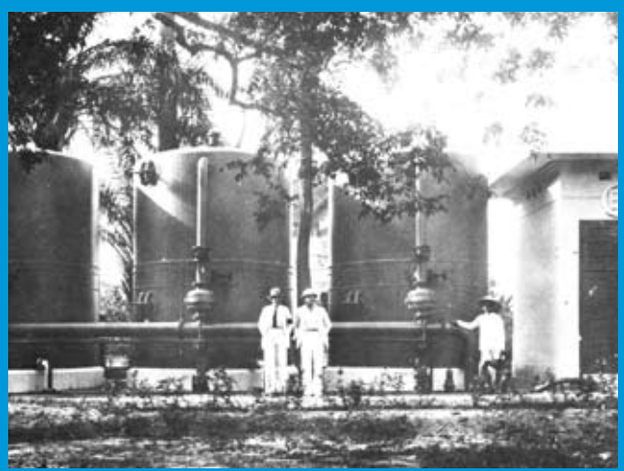
PROPORTIONATELY CONSOLIDATED SUBSIDIARIES

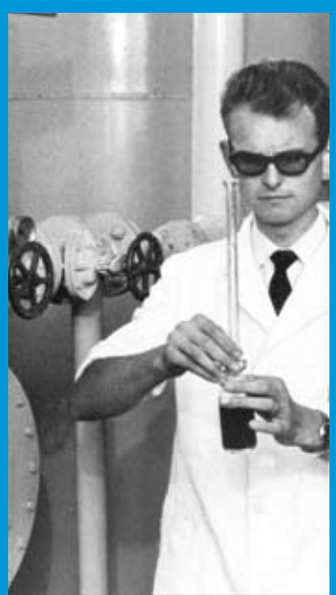
AQUASISTEMA DE SALINA CRUZ SA DE CV	Mexico	50.0
CONCESIONARIA DE AGUAS RESIDUALES DE JUAREZ SA DE CV	Mexico	50.0
EDAS	Chile	50.0
TRATAMIENTO DE AGUAS DE CULIACAN SA DE CV	Mexico	50.0
PROSPECT WATER PARTNERSHIP	Australia	51.0
GROUPEMENT RHODANIEN D'ÉPURATION S.N.C.	France	30.0
SEQUARIS	France	69.5

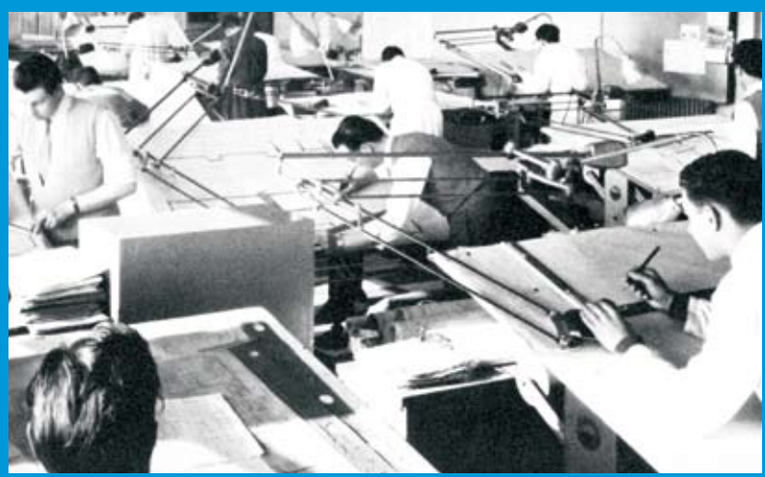
SUBSIDIARIES CARRIED UNDER THE EQUITY METHOD

AQUASYSTEMS	Slovenia	19.46
ARTE	Mexico	41.0
AS SAMRA	Jordan	30.0
MILANO DEPUR	Italy	22.5

History







1939 - 2009

70

ans years años anos anni nen 年 周年 ردرس

1939	Company founded in Paris	France
1947	First international subsidiary	Belgium
1948	First international drinking water facility in Cairo	Egypt
1953	Drinking water production facility in Jakarta	Indonesia
1954	Filing of the first patent for the Pulsator® process. This pulsed sludge blanket clarifier is now contributing to drinking water production in most of the world's capitals	
1956	First installation of the Pulsator® filtration process in a drinking water production plant	France
1967	Degrémont joins the Lyonnaise des Eaux group	
1975	First reverse osmosis desalination plant (200,000 m^3/day) built in Riyad	Saudi Arabia
1984	Development of the Biofor® process, a biological filtration system that treats carbon, ammonia nitrogen and nitrates, whilst at the same time removing suspended solids from wastewater. 1,000 plants are set up worldwide	
1988	First membrane ultrafiltration plant	France
1991	Award of the ISO 9001 certification. Degrémont is the first water engineering company to get this	
1997	Lyonnaise des Eaux merges with SUEZ: creation of SUEZ - Lyonnaise des Eaux	
2001	Development of the Heliantis® solar drying process for wastewater sludge, which is part of a sustainable development approach: limiting waste production, zero greenhouse gas emissions, using renewable energies	
2003	Commissioning of the world's first hybrid desalination plant in Fujaïrah (RO: 170,000 m^3/day – MSF: 280,000 m^3/day)	United Arab Emirates
2004	Launch of the Omega continuous quality improvement project. This is now the focal point for all actions aimed at developing the group's performance	
2005	Signature of five design-build contracts for drinking water production plants in Algeria The total installed capacity will exceed 1.6 million m^3/day	Algeria
2006	Start-up of the world's largest ultrafiltration plant in Moscow (1,344 membrane modules, 275,000 m^3/day)	Russia
2006	Start of operations at the world's largest thermal oxidation facility (400 tonnes/day) in Lakeview	Canada
2007	Inauguration of the southern hemisphere's largest seawater desalination plant in Perth (143,000 m^3/day)	Australia
2008	Award of the design-build contract for the extension of Africa's largest wastewater treatment plant in Gabal El Asfar	Egypt
2008	SUEZ ENVIRONNEMENT's listing on the stock exchange and the CAC 40, 1st player on a global scale entirely devoted to environmental areas of activity	

1950 2005

The **WATER TREATMENT HANDBOOK**, the essential reference for water treatment, depending on the year translated into English, Spanish, German, Russian, Chinese ...

The production of this document was co-ordinated by Degrémont's Communication Department.

Photo credits: GDF Suez, Degrémont, Shutterstock

Design and creation: Angelini Design - Paris - France

Writing: Avec des Mots - Paris - France

Printing: 102 Graphic – Paris - France

This document was printed on 100% recyclable and biodegradable coated paper, manufactured from ECF (Elemental Chlorine Free) bleached pulp in a European plant with ISO 9001 certification (for its quality management) and ISO 14001 certification (for its environmental management), CoC PEFC (for use of paper from sustainably managed forests) and EMAS accredited (for its environmental performance).

Certificate no. BVC/CDC/1778657.

S'engager ensemble pour l'eau, source de vie

Committed together to water, a source of life

Comprometidos juntos por el agua, fuente de vida

Degrémont - 183, avenue du 18 juin 1940
92508 Rueil-Malmaison Cedex France
Tél. : +33 (0)1 46 25 60 00 - Fax : +33 (0)1 42 04 16 99

DEG-RA-08/09-EN - 0907