

PLANET

#April 2015



Development for the benefit of all

Forum
A universal right
to water

Australia
A fish farm heated
by waste

France
Sedif add to
its water

Burundi
Microcredit: a source
of independence
for women

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by Antoine Frérot

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THE POST



Antoine Frérot
Chairman and CEO
of Veolia

November 19 In Barcelona, signature of a partnership with IBM for making cities smarter.

A city represents a multitude of flows to be continuously managed, day and night: flows of water, waste, materials, energy, air, passengers, etc. Put like this, it seems very simple, but in increasingly populated agglomerations, this could not be further from the truth. We wanted to master this extraordinary complexity through the intelligence of digital and intuitive technologies. In Lyon in France and Tidworth in England, we are already using automated solutions that are among the most advanced on the market. Our recent partnership with IBM looks to develop these technologies around the world. They allow us to detect the trends in demand, to constantly have an overall vision of the networks and their performance and, as a result, to improve urban policies, reduce cities' environmental footprint, control their costs better, and offer new services to urbanites. We are also developing what we have initiated with water systems for energy and waste management. Today's information and communication technologies make it possible to put more intelligence at the heart of the city. A new frontier of urbanism, the smart city concept offers cities the power to reinvent themselves. Veolia is playing a full part in this urban revolution, making cities more fluid, efficient and sustainable.

January 26 In Kuwait, inauguration of a new seawater desalination plant.

136,000 cubic meters of desalinated water per day is the capacity of the plant that we have built in Az Zour South and are going to operate for five years. It represents an additional asset for Kuwait in meeting the challenge of water stress. This equipment is distinctive in that it pumps raw water into the cooling system of the neighboring power plant rather than into the sea. In other words, the water that powers this desalination plant is hot – up to 40°C in summer, which reduces the electric consump-

tion required to operate the reverse osmosis system. Combining thermal and membrane processes, this plant can therefore be described as hybrid. We are not only proud of the performance of our processes, which are recognized by the most demanding clients. We are also proud of the fact that we are improving Kuwait's infrastructures, supporting its economic development, reinforcing its water independence and providing concrete solutions to satisfy the needs of its strongly growing population.

February 2 20 years of the Jouy-le-Moutier Campus.

The presence of French Prime Minister Manuel Valls at our Jouy-le-Moutier Campus, in front of the 450 students from the graduating classes of 2013 and 2014, once again demonstrates the interest of top French public officials in our training approach. Why is our Group receiving this level of attention? Because our professionalization policy puts apprenticeship at the center. When we built this first Jouy-le-Moutier Campus, which was intended to train young people with few - if any - qualifications, we appeared "original" at the time. However, this bold move has met with success: in total, over 13,000 work-study students have been welcomed and trained over the space of 20 years on our different Campuses, and 80% of them have decided to stay with Veolia. Twenty-one diplomas which are useful for working in our sectors of activity are offered, from a vocational qualification to a Masters. This success has only been made possible thanks to determination: the students' determination, of course, but also the determination of Veolia and its large number of educational, institutional, political, charitable, etc. partners. For two decades, the mutual trust between the young people, our business and its partners has continued unwavering. It just goes to show that this gamble on trust has paid off handsomely!

CONTRIBUTORS



Editor-in-chief Eva Kucerova

Director of Communications and Marketing,
Veolia Central and Eastern Europe

I am particularly pleased to be Planet's editor-in-chief for the issue devoted to a socially responsible economy. All the more so as Veolia, a socially responsible company, works on a daily basis to improve the living conditions of people in difficulty. In a world in which the gap between rich and poor is widening and half of the planet's population still lives on less than six dollars a day, often without access to essential goods and services, how can we help these people to achieve a better quality of life? In these pages, we present new models that offer social benefits for the most underprivileged, such as social business. We take a closer look at innovations in this area and the challenges to be met by this budding market. In Bangladesh, for example, Grameen-Veolia Water, a joint venture between Veolia and the Grameen bank, is developing a socially responsible, paying drinking water service. I hope that you will be as thrilled as I am on reading of these initial successes. I would also like to wish happy reading to the Czech teams, who are enjoying a Czech version of Planet for the first time, enriched with a regional supplement.

Also in this issue



Martina Bacigalupo
Italian photographer

After studying literature in Italy and photography at the London College of Printing, Martina set off to Burundi in 2007 as photographer for the United Nations peacekeeping mission. The country won her heart and she settled in Bujumbura, where she still lives today.

Justin Houghton

General Manager, Clyde and Woodlawn sites, Veolia Australia and New Zealand

His passion for repurposing resources led him to join Veolia Australia and New Zealand over nine years ago, where he is currently responsible for all the fermentable waste facilities in New South Wales. Alive to sustainable development issues, Justin has seen his commitments bolstered by the successful implementation of the Woodlawn eco-project facility, the first of its kind in the Southern hemisphere.



Stefan Geibel
Managing Director, Veolia Waste Recycling & Recovery Solutions Germany

Having joined Veolia Umweltservice Wertstoffmanagement GmbH in 2012, he puts his long experience in the paper industry in Germany to the service of the Group's leadership. Over his thirty-year career, he has held a succession of managerial posts in distribution, specializing in the Middle East, before acting as Executive Vice-President for prestigious firms such as Schneidersöhne and Elof Hansson Germany Ltd.

Maggie White

Secretary General of the ISW and SWE

Fifteen years' experience in the water sector — as international partnership officer for the NGO Eau Vive, founder of the Coalition Eau network, then external Communications Officer for Eau de Paris, the French capital's public operator — have taken her to the helm of the International Secretariat for Water and Solidarity Water Europe. These two NGOs help defend the right, and efficient and fair access, to water and sanitation for all.



Event

MAY 20 AND 21, 2015 AT UNESCO, PARIS BUSINESS & CLIMATE SUMMIT EN ROUTE TO COP21

AT THE INVITATION OF THE UN, BUSINESS LEADERS FROM ALL OVER THE WORLD AND EVERY SECTOR ARE GETTING ACTIVELY INVOLVED IN THE TRANSITION TO A LOW-CARBON WORLD.



<http://www.worldwaterforum7.org>

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CURRENTS



6/7



Down with plastic bags!

A global movement against plastic bags is underway. In October 2014, the state of California began its crusade against their proliferation. As from July 2015, a new bill will stipulate that supermarkets will only be allowed to hand out recyclable plastic bags to their customers. This measure, which excludes the fruit, vegetable, meat and fish departments, is already common practice in many cities or coastal regions of the United States. In Europe, an EU proposal adopted in March 2014 requires Member states to reduce their use of plastic bags by 50% by 2017, then by 80% by 2019. This bill has since been revised downward: by 2025, the use of disposable plastic bags must be reduced by three quarters. With 34,218 km of coastline, Australia emerges as the star pupil. As early as late 2008, the Minister of the Environment announced his firm intention to do away with plastic bags, drawing on sanctions and tax incentives, on a voluntary basis encouraged by wide-scale awareness-raising campaigns.

Beauduc, marine sanctuary

Mission accomplished! 450 hectares of sea grass beds and shallow water now form a no-fishing zone in the gulf of Beauduc, in the South of France. The aim is to reinforce biodiversity and restore the seabed by protecting this sanctuary from trawling and illegal anchoring. Born of a decade of dialogue between fishermen, scientists, local authorities, public institutions and the Veolia Foundation, the Beauduc marine reserve was inaugurated in November 2014 by Camargue Regional Natural Park. An artificial nursery for young fish is set to be established there. On the beach, colonies of little terns are once more able to cry out and nest in peace.



In Senegal, energy comes from abattoirs

The company Thecogas Sénégal is experimenting with the production of electricity and biogas from waste sourced from abattoirs in the agglomeration of Dakar. With a view to limiting pollution due to the dumping of offal in the sea, Thecogas generates over 50% of the energy required to operate the pilot abattoir of Pikine, in the Dakar suburbs. In the long term, the structure will have a recovery capacity of 1,500 metric tons of waste per day, 60% of which is fermentable. The company is already looking to expand its activity and its methods to the fermentable fractions of all urban waste.

Pure water within bottle's reach

A team of Swiss researchers has developed a water-purifying filter capable of meeting the drinking water needs of one person for a year. The innovation is all the more interesting when you consider that some 800 million people worldwide still do not have access to drinking water. Screwed onto a bottle and weighing less than 100 grams, Drinkpure filters particles, bacteria and chemicals of up to 90 nanometers. Thanks to crowdfunding, the team is getting ready to distribute its filter in Sub-Saharan Africa through partnership initiatives.

For more information: www.drinkpure-waterfilter.com



57 meters above the ground, visitors can walk on the Eiffel Tower's glass floor. Thrills guaranteed!

83%

Waste sorting reaches new heights

Two and a half years. This is how long it took to build the Eiffel Tower in 1888. It is also how long it took to renovate its second floor. Veolia has reprocessed 83% of the over 250 metric tons of waste generated by the building site. To limit the operation's environmental footprint, the Group has decided to sort the waste directly on site.

Agriculture fewer inputs, greater yields

The new Common Agricultural Policy (CAP), which came into effect in January 2015, should look kindly upon the results of an environmental program carried out for the past fifteen years by Inra and Veolia in the Yvelines region of France: growing corn and wheat with soil-enriching agents derived from household waste and sewage sludge. Applied to 40 plots of land over six hectares, the experiment is already showing that in the long term these soil-enriching agents limit the use of chemical inputs in farming practices. However, five years are still required to precisely measure the sanitary impact of this practice and its effects on plants and human consumption.

Telex

Hong Won Paper Manufacturing, the fourth largest company on the South Korean paper market, has entrusted Veolia with supplying thermal energy for its facilities. Worth €150 M over a ten-year period, this contract is the first in terms of energy services for Veolia in the country.

With the acquisition of the **only incinerator in Spain** dedicated to special waste, Veolia is supplementing its European special waste treatment platform – i.e. 64 sites in nine countries – and taking its recovery capacity to 1,100,000 metric tons per year, consolidating its position as a sector leader.

In the USA, no room for hazardous industrial waste

Every year for the past five years, 5 million metric tons of hazardous industrial waste have been added to the 40 million processed for the past fifteen years by only 21 American waste disposal sites. According to Seeking Alpha (a benchmark blog in terms of financial advice), the saturation of the infrastructures combined with the increasing popularity of "Not in my backyard!" campaigns "would suggest that new markets will come to light shortly."

CURRENTS



Precious dust

It is now possible to extract precious metals from the dust of cities. With the inauguration of the Ling Hall reprocessing plant, Veolia is proving the effectiveness of its separation process, which allows several kilos of palladium, rhodium and platinum to be extracted from urban dust. Dispersed in some 165,000 metric tons of road sweepings in Great Britain, this dust has an estimated annual value of £1 M. This is combined with a major initiative to reduce the volume of waste sent to landfill: 90% of inert, organic or recyclable materials find a second use in other sectors of the economy such as construction, agriculture or packaging.

Record budget for water in the UAE

Faced with a water demand that is set to double over the next fifteen years (according to the Emirati Ministry of Environment), reaching 8.8 billion m³ by 2030, the United Arab Emirates water budget for 2015 has risen from 20.5 to 22.8 million dirhams. At present, the average consumption is 550 liters of water per day per person, in other words three times higher than in Europe.

An Intel quality supplier

Aim for excellence. This is the motto of the American semiconductor specialist Intel Corporation, highlighted during its PQS (Preferred Quality Supplier) awards ceremony in recognition of their performance in 2014. One of the 19 winners, Veolia has helped make Intel a leader in the environmental arena (increasing recycling of chemical waste, etc.), without impacting its client's sustained growth or its lead when it comes to new technologies.



Frankfurt aims for 100% renewable

Frankfurt and its 75 neighboring towns – the real heart and soul of the German economy – face an ambitious roadmap to counter global warming: reducing CO2 emissions in their area by 95% by 2050 (base: 1990) thanks to energy production from 100% renewable sources. The main targets are households, industry, real estate and transport. These measures are bearing fruit as CO2 emissions per inhabitant have dropped by 15% while economic growth has seen a 50% rise and office surface area has increased by 80% over the same period! The region's 400,000 businesses enjoy special treatment, benefitting from a free advice and support program for their environmental and climate management. A large number of firms have already taken advantage of this measure, some of them finding new economic solutions and a real lever for growth on a national scale.

Assessing environmental awareness

Climate change has become the top environmental condition of concern. Followed by pollution and contamination of ecosystems, the decrease in biodiversity and poor management of land and sea resources. These are the results of the 23rd Questionnaire on Environmental Problems and the Survival of Humankind, funded since 1992 by the global leader in glass, the Asahi Glass Company, and conducted by its foundation. The idea is to measure the awareness of experts regarding the global environmental crisis. In a new development for 2014, the opinions of those questioned from the nine major regions of the world agree. University establishments and NGOs from the Asia region are responsible for half of the 2,343 questionnaires completed and returned. Another lesson learned is that the expectation of environmental decision-making on the part of the public authorities has risen sharply.

More details at: www.af-info.or.jp/en/

First wood waste channel on a European scale

In 2011, France, Germany and Finland launched the Demowood project to identify the main potential sources of wood waste and explore concrete solutions to recover it. The initial project has since been replaced by Carewood, coordinated by the University of Munich and supported by 17 partners from five European countries. This collaboration has made it possible to set a figure of 30 million metric tons of potentially recyclable European yard lumber. New extraction techniques have already been tested in order to better separate glues, solvents, coatings and heavy metals from recycled wood, a major issue at stake in ensuring the longevity of this channel. Nonetheless, Demowood has made it possible to study a host of possibilities for standardizing both the reprocessing channels (panels, paper and furnishings industry) and the regulations, which differ from one country to the next.

0.69°C 2014, the warmest year!

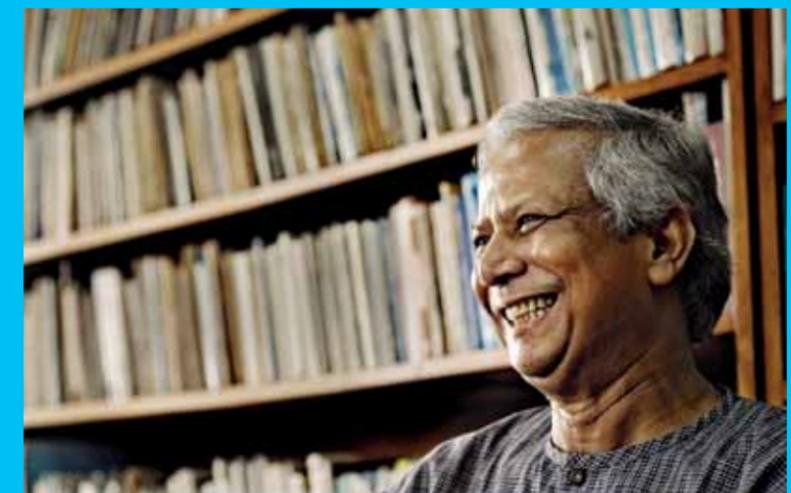
With 0.69°C above the average for the 20th century, 2014 beat the 2005 and 2010 records. It is to date the warmest year that the planet has seen since the first weather readings in the 1880s. In fact, fourteen out of the fifteen warmest years ever recorded have been in the 3rd millennium!

The Veolia Foundation, an MSF technical partner

In March, Doctors Without Borders (MSF) and the Veolia Foundation signed a multi-year research and innovation partnership. The first aim is to optimize and reduce the energy footprint of all the NGO's humanitarian actions. The second is to make its facilities on the ground more self-sufficient through the use of renewable energies, primarily solar energy. Starting with the installation of solar panels in Moissala, to secure the supply of electricity for MSF's mission to combat malaria in Chad.

“Social business is a model worth promoting as it combines the purpose of philanthropy with the methodology of business [...] The concept of social business can be used all over the world. Whether in the North or South, everyone is faced with problems of employment, housing, etc.”

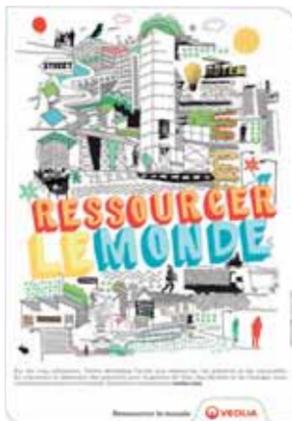
Muhammad Yunus, L'Expansion interview, July 1, 2014





A campaign for "Resourcing the world"

A new tagline, a new communication campaign! Since January 2015, Veolia has been appearing in the written press and on digital media. Five illustrations designed in a creative, urban style by the British artistic duo Rude imagine a playful city in which nature coexists peacefully with human activity and industry... and tell the story of the new Veolia, combining water, waste and energy. The themes depicted include transforming coffee grounds into energy in the Netherlands, dismantling ships in Bordeaux (France) to recycle their materials and supplying water to an industrial site in Singapore via a closed loop in which water can be almost endlessly reused.



Climate China and the United States finally make a commitment

In the wings of the 22nd APEC (Asia-Pacific Economic Cooperation forum) summit, which took place in Beijing last November, the United States and China signed a climate change agreement. Washington announced a 26% to 28% reduction in its greenhouse gas emissions by 2025 compared to 2005. For its part, Beijing has pledged to reach peak emissions by around 2030. In so doing, the two giants - the planet's leading polluters - recognized for the first time the reality of global warming, assuming their share of responsibility in this global issue. In response, the Chinese central government has since decided to toughen its legislation by revising its 1989 environmental protection law, applicable as of 2015. Accordingly, major measures have already been taken: environmental protection has officially become a national priority, the ceiling on fines has been removed, NGOs are authorized to take polluters to court, and environmental performance has risen to a criterion for assessing the career of members of the Chinese Communist party.

15% of "smart city" international patents are French

According to INPI, 15% of international patents concerning the "smart city" concept have been filed in France. The French National Institute of Industrial Property believes that businesses from the private sector are making a major contribution to this trend. An illustration: in its latest list of the 15 most innovative cities in the world, the Intelligent Community Forum ranked the city of Grenoble in 5th place.

Find out more: www.intelligentcommunity.org/

\$0.25 a day!

While 805 million people go to bed hungry every day, the World Food Programme (WFP) reminds us that solutions exist to eradicate this scourge in a single generation. Thanks to modern knowledge and tools, the sum of 0.25 dollars a day is enough to feed one person worldwide.

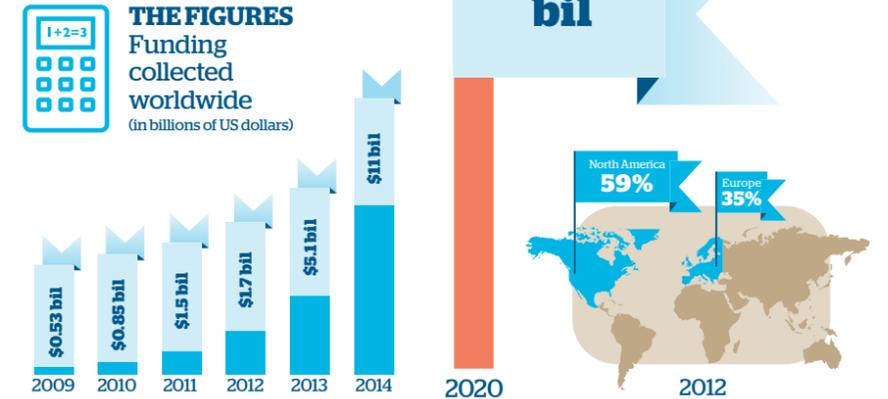
The World Bank comes to the rescue of drifting islands

In order to cope with natural disasters more effectively, have more rapid access to renewable energy sources and boost their resilience capacity, the World Bank has increased its annual aid for Small Island Developing States (SIDS) from \$140 M to \$190 M. The first to be impacted by global warming and particularly vulnerable to external (environmental, economic or energy-related) turmoil, these micro-territories already have water lapping at their feet. Gathered together in Samoa at the initiative of the United Nations in 2014, they reaffirmed their powerlessness in the face of rising water levels and the serious atmospheric disturbances that are eroding their coastlines and making their soils unfit for cultivation.



CROWDFUNDING DECIPHERING A GLOBAL PHENOMENON

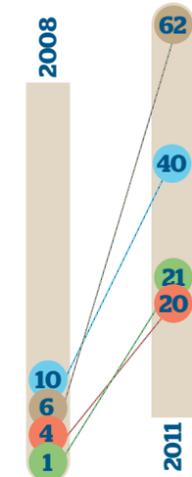
Since 2008 and the launch of the first online crowdfunding platforms, the phenomenon has gone from strength to strength. In 2013, the total funding collected worldwide via this method reached five billion US dollars. This figure had more than doubled one year later, reaching \$11 billion, and is set to be in the region of \$1,000 billion (according to Forbes magazine) in 2020! While today 90% of funding is generated for the most part in developed countries, Europe and North America, we haven't heard the last of Asia - and especially China...



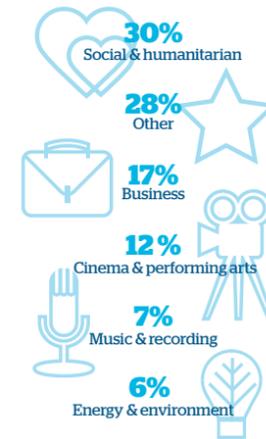
4 types of CROWDFUNDING



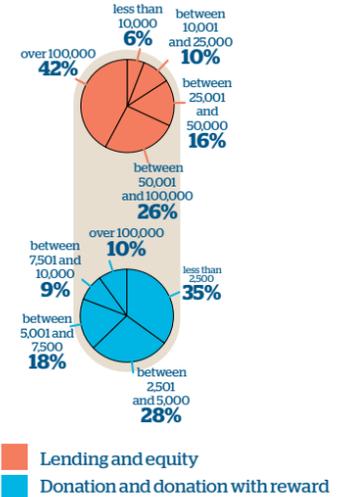
Number of platforms WORLDWIDE Growth between 2008 and 2011



Main SECTORS SUPPORTED in 2012

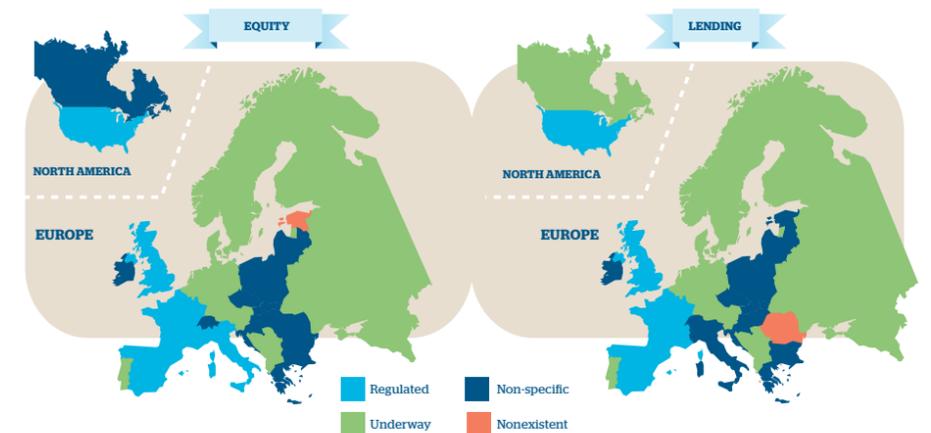


FUNDING COLLECTED broken down into major categories as a percentage and in US \$ in 2012



Crowdfunding becomes organized

Keen to avoid misappropriation and establish transparency in crowdfunding, governments are beginning to lay down prudential rules identical to those imposed by banking establishments. In the United States, the JOBS ("Jumpstart Our Business Startups") act of 2012 encourages investment in young companies. In the UK, the government takes action through the Department for Business Innovation & Skills and has loaned £110 M to SMBs. In 2014, France adopted a legal framework creating a status of advisor to investors and a status of intermediary to individuals looking to provide funding in the form of loans, whether interest-bearing or otherwise.



Sources: www.statista.com/topics/1283/crowdfunding/ and www.goodmorningcrowdfunding.com and massolution's 2013 Crowdfunding Industry Report

How do you guarantee a universal right to water?

Maggie White / Pierre Victoria, the big debate.

12/13

What are the issues at stake regarding a universal right to water in developed countries?



Maggie White

Secretary General of the International Secretariat for Water (ISW) and Solidarity Water Europe (SWE)

“This is a pressing issue in both developed countries and developing or transition countries. The aim is to respect the principles of the law — equity, participation, transparency, access to information, etc. — and the criteria for exercising it: the accessibility, quality, sustainability and availability of the resource.”



Pierre Victoria

Veolia's Sustainable Development Director

“Above all, helping the most destitute households to pay their water bill, via various aid mechanisms, such as socially responsible pricing, for example. This also involves dissociating the universal right to water from the right to housing...”

For citizens, governments and local authorities, as for industrialists, the universal right to water recognized by the United Nations poses the question of its implementation and compatibility with the economic demands inherent to the sector. What responses and strategies can be put in place, in terms of pricing or education, to allow the resource to be sustainably managed? Two experts deliver their analysis.

In 2012, 130 countries committed to accelerating the implementation of a universal right to water during the World Water Forum in Marseille. What importance do you give to this debate?

Pierre Victoria / Universal access to water and sanitation was recognized as a human right by the United Nations in 2010. It is one of the Millennium Development Goals and Sustainable Development Goals, which will be discussed during the United Nations general assembly in September 2015. In developed countries, such as France, the water bill represents 0.8% of the household budget on average. However, estimates put the number of households whose bill exceeds 3% of their income – a threshold deemed excessive by the OECD – at two million. The universal right to water also implies that it is no longer, as is still often the case, linked to the right to housing, in order to maintain the rights of the homeless and those without adequate housing, i.e. some 150,000 people in France.

Maggie White / The inclusion of the right to water and sanitation as a human right creates a clear operational framework with indicators for bringing about sustainable development in a more inclusive and participatory way, setting out everyone's obligations. This question of access to water for all must therefore steer all of the guidelines for the sector, including when this access can be threatened by global concerns, such as climate change. COP21, which is being organized next December in Paris, must not ignore this issue.

How do you reconcile the recognition of this right with the economic imperatives of production?

P. V. / Thinking on the social question of access to water cannot be dissociated from that of the financing and sustainability of water services. Any change in the pricing system can actually transform the economic balance. So it is imperative to look for new balances between

“Thinking on the social question of access to water cannot be dissociated from that of the financing and sustainability of water services.”

Pierre Victoria

“As water is a vehicle for all kinds of development, it must above all be seen as a long-term investment.”

Maggie White

maintaining investment capacities and the social and environmental dimensions. From an economic point of view, one of the most important imminent questions is the following: how can we deal with the aging of drinking water systems, which will require a large-scale renovation, within the context of a drop in consumption – due to deindustrialization and population decline – and therefore lower revenues for public water services?

M. W. / The production of drinking water has a cost and the right to water does not necessarily imply that water should be free. It's first and foremost a question of a fair price depending on the consumption and pollution of each user. As water is a vehicle for all kinds of development, it must above all be seen as a long-term investment. The majority of studies show that the poor often pay more for their access to water when they are not connected to a water network, buying bottled water, for example. The vast majority of users can pay for the cost of the service, its management and maintenance and the renewal of the facilities. However, as soon as the cost of the initial construction is included, this sends the price skyrocketing. Under these conditions, why oblige users in developing countries to pay all the costs of their equipment – full cost recovery – as is planned and often imposed by the IMF and the World Bank?

What are good strategies to put in place?

P. V. / There are no good or bad solutions. Normally, there is a mix of pragmatic solutions that come together on the ground: type of housing, water resources, social situation. If we take banded pricing, it is perfectly suitable when the resource is rare and must be used sparingly, for example in a coastal area in summer. However, this solution can be counterproductive – or even anti-social – in other contexts, in particular by penalizing large poor families. Excessive banded pricing can also encourage the largest consumers to



... adopt avoidance and substitution strategies, which has dramatic effects on the financial balance.

M. W. / What is true for the energy sector is also true for water: the best water is what you consume or don't waste. Wasting the resource or letting losses mount up in the networks increases the production and sanitation costs. Let's also admit that the largest consumers, wasters and polluters are not individuals, but farmers, industrialists and local authorities and their water operators – public or private bodies – who display sometimes major leakage rates in their networks.

Should we not act upstream, by educating people about water consumption, for example, and identify good drivers for consuming less and better?

M. W. / I would rather use the phrase "educating about water." It is essential to raise people's awareness, but we have a tendency to do this by guilt trips about usage, whereas we need to take a more holistic approach, illustrating the importance of water and managing it properly for our natural ecosystem and the planet's economic and geopolitical balance. By highlighting the importance of access to water and sanitation as a source of sustainable development, we can mobilize public opinion and governments to encourage more investment. This was the success of the Right to Water campaign that, by winning the support of over two million people in Europe, saw its recommendations taken into account by the European Union. In Africa, Asia, South America or Europe, many projects are being implemented by NGOs and development agencies. By raising awareness in terms of

good water management and the link between water, sanitation and hygiene, they help to improve living and environmental conditions, while reducing mortality and disease rates.

P. V. / Consuming less and better requires the commitment of those involved at every level. Upstream, this means less waste by maintaining the infrastructures and educating populations better. Downstream, the trend is to remunerate the operator no longer simply according to the quantities sold, but also the quantities that it helps its customers to save. In this respect, Veolia is assisting the city of New York with a performance program that aims to save between 100 and 200 million dollars a year. However, educating populations remains key, as does knowledge of consumption habits. ■

Committed to a universal right to water

> The ISW, based in Montreal, and its co-organization SWE, based in Strasbourg, are NGOs that work to facilitate access to water and sanitation for all. Their three major sectors of activity — lobbying/awareness-raising, youth and projects on the ground — lead them to jointly steer actions such as the Butterfly Effect international coalition, lobbying for decentralized and socially responsible funding, Youth Parliaments for Water, "Water and Cinema" international events, Blue Books and the Blue Passport, etc. For its part, in developed countries Veolia offers assistance with the payment of bills, whether curative — paying outstanding debts — or preventive — introduction of "water checks." The Group is also trialing pricing variation that is now also based on social criteria, rather than simply the volume consumed.

14/15



APRIL 12-17, DAEGU & GYEONGBUK
(SOUTH KOREA)
7TH WORLD WATER FORUM

WATER FOR OUR FUTURE

ORGANIZED EVERY THREE YEARS, IT IS THE LARGEST GLOBAL EVENT AIMING TO ADVANCE THE CAUSE OF WATER. IT DRAWS ON CREATIVITY, INNOVATION AND KNOW-HOW TO CONSIDER THIS QUESTION... AND FIRMLY PLACES WATER ON THE INTERNATIONAL AGENDA.



<http://www.worldwaterforum7.org>

Focus on two ambassadors of the Group's know-how. Pioneering Giovana, who has built Veolia's image in Romania, step by step. And Valentin, on an international business placement in Chile, the cream of young talent with an appetite for innovation.

Above and beyond

Meeting Veolia employees from all over the world.

Valentin Hervouet

International business placement,
Eco Environnement
Ingénierie (2EI)
Santiago de Chile, Chile

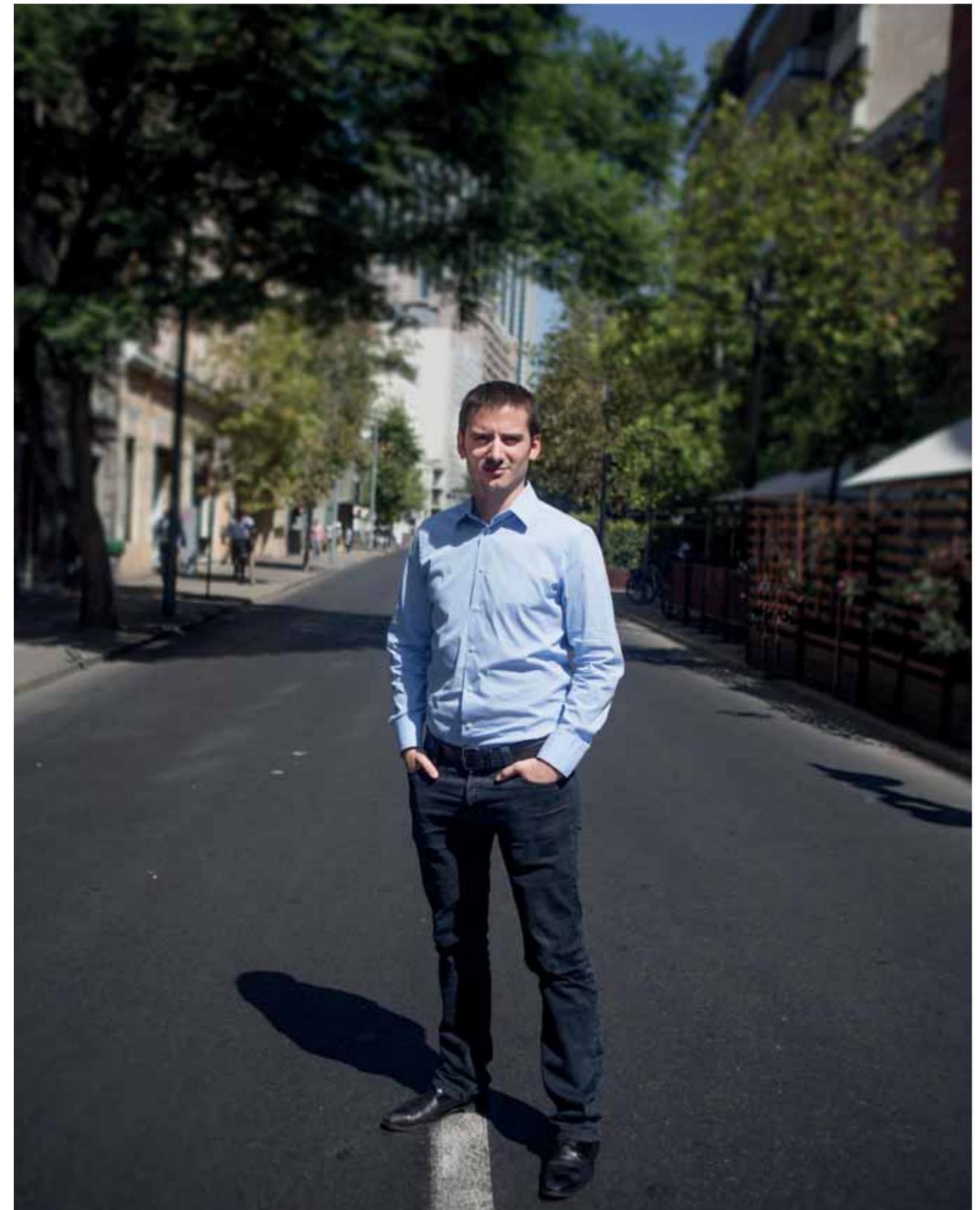
Valentin is 25 years old. He is the embodiment of generation "Z"* , both full of panache and blessed with creativity and an innate sense of adaptability. Valentin is part of the Pangeo program, Veolia's graduate program based primarily on international business placement contracts. An advisor for 2EI in Chile — Veolia's consultancy and engineering firm specialized in sustainable urban development — for an innovative project to create a 3D simulator of the sustainable city, he has been required to work "outside his comfort zone" since taking up the position. More at ease when it comes to writing and analysis, right from the start he has been forced to brave the ups and downs of organizing seminars and meetings in an unknown city. He is also becoming accustomed to speaking in front of municipal authorities and Chilean business leaders. "You have to be convincing, succinct and able to understand the cultural differences between Europe and Latin America." Due to the time difference with France, Valentin has to "make do" with the four short hours in common each day to effectively share the data he has collected with Veolia's engineers. "Valentin has learned how to work in an environment with more complex political and economic issues than anticipated. Both clear-headed and proactive, he has managed to establish an on-going dialogue between the French multidisciplinary team, the Chilean private and public players and local organizations," confirms Éric Hestin, deputy director of 2EI. "The pertinence of his analysis and his consistency in finding original solutions to improve his project management demonstrate a real maturity." The gamble has paid off as Valentin has significantly enriched the project with his curiosity, kindness and good humor. The young man from Nantes, who has not forgotten to make the most of Santiago's cultural life, says that he is "thrilled with this first long-term experience." ■

www.pangeo.veolia.com

Education

Engineering degree from the École Nationale Supérieure en Génie des Systèmes et de l'Innovation (ENSGSI Nancy)
Masters in International cooperation, humanitarian action and development policies (Paris I Panthéon Sorbonne)

*people born after 1990



SPOTLIGHT



18/19

Giovana Soare

Operational and Deputy
Managing Director
Veolia-Apa Nova Bucuresti
Bucharest, Romania

Think, participate and share are the mantras championed by Giovana, a dynamic woman with many years' experience. A member of the water service provision department in Bucharest, she devotes her time to consolidating Veolia's image in her country by demonstrating its expertise. Her excellent interpersonal and communication skills lead her to roam the streets with her teams. "It's our duty to ensure that our service commitments are being kept. I like this close relationship with our customers." A nuclear physicist in another life — "For ten years, until the nineties, I worked at Pitesti nuclear power plant, in close collaboration with Canadian experts. It was a welcome opportunity to open up to the world at the time, which allowed me to foster this interest in others" — for almost twenty years she has been passionate about "this extraordinary profession: managing water." She was Veolia's first employee in the field of water in Romania in 1997, and has patiently set about developing better access to "a universal and borderless resource" in a country in transition after half a century of communism. A terrific brand ambassadress, she initially steered Apa Nova Bucuresti's development and communication, before heading up human resources. Her most ambitious challenge has been "changing staff members' ways of thinking. After decades living cut off from the rest of the world, we had to instill in them a new attitude in line with the market economy and a private group. And we've succeeded!" This ability to diversify and take on varying responsibilities is one of Giovana's avowed character traits. Moreover, her civic involvement in water-related questions knows no bounds... As seen in her fight as part of the Biodiversity Club, alongside UNESCO, to protect the Danube Delta, one of the most extensive wetlands in the world! ■

Fra- nce



“Eau
Solidaire,”
a first in the right to water for all

Sedif is the first Water authority in France to have implemented a wide-scale program over its territory to help users having difficulty paying their water bill. In partnership with its delegatee, Veolia Eau d’Ile-de-France (Vedif), it is now carrying out a comprehensive social scheme: the Eau Solidaire program. A fund dedicated to taking users in difficulty into consideration under the supervision of elected officials.

**Relevant, simple,
reliable...**

The Eau Solidaire (Socially Responsible Water) program has been running for four years and won the general approval of those concerned: social action centers (CCAS), departmental councils, social workers and the beneficiaries. Initiated in 2011 on the renewal of

the delegated-management contract linking Vedif to Sedif (2011-2022), this program is a fund that receives over two million euros per year (1% of the revenue from water sales), dedicated to residents in difficulty, under the supervision of elected officials. Emergency aid, assistance and prevention form the trilogy of this program, which has already helped

almost 22,000 households in the space of four years.

Emergency management

The Aide Eau Solidaire tool provides an initial response to people in difficulty. Any household directly ...



The program's partner associations carry out preventive actions to help residents manage their water budget and their consumption better and control the facilities.

Issue at stake

> For the first time in France, adapt the right to water for all, created by the LEMA act of 2006 and reinforced in 2011 by the Cambon act*, over the Syndicat des Eaux d’Ile-de-France (Sedif)’s territory.

Objectives

> Develop and deepen the social aspect of the call for tenders launched in 2009 by Sedif, concerning the renewal of the delegated-management contract for public water services (2011-2022).

Veolia solution

> Implementation of a social and societal scheme: Eau Solidaire water access program, social pricing and assistance measures, dialogue with stakeholders and a consumption control program.

* The first article of the French act on water and aquatic environments (LEMA) of 2006 states: “The use of water belongs to all, and every natural person, for nutrition and hygiene, has the right to have access to drinking water under conditions which are economically acceptable for all.” It was supplemented – via a legal framework to encourage national solidarity – with the Cambon act, named after the senator and mayor of Saint-Maurice (94) and the first vice-president of Sedif, which came into effect on January 1, 2012 and allows water and wastewater services to allocate 0.5% of their revenue to departmental housing solidarity funds (FSL).

Aide Eau Solidaire for non-subscribers

Reserved for those who pay their bill directly, living in detached houses or individual apartments, Aide Eau Solidaire does not apply to some 75% of the inhabitants of the greater Paris region, who live in an apartment block and whose water costs are included in the expenses. The year-long experiment, which kicked off in January 2015, is being conducted with 15 communities and volunteer CCASs. The challenge for Vedif and each social landlord involved is for the aid to take the form of a smoothly executed reduction in the inhabitant’s expenses. After an assessment, the scheme may be extended to all of Sedif’s regions in 2016.

... subscribed to Sedif, in other words receiving invoices in its name, can benefit from it. "In concrete terms, Vedif provides the CCAS concerned with a budget and tasks it with determining the amount of aid to be allocated. This is the strength of the emergency service: assistance that is extremely fast and easy to set in motion," highlights Marie-Caroline Muller, the Eau Solidaire officer for Vedif. However, there are recommendations in attributing this aid: the household must have an annual water bill greater than 3% of its resources and the aid must not exceed 50% of this bill. If the family is not subscribed and lives in an apartment block (the expenses are included in the rent), in this case it can turn to the Housing Solidarity Fund (FSL) for help. This joint assistance, to which Vedif contributes, is managed by departmental councils. "Aide Eau Solidaire gives mayors a central role, placing them at the heart of a social assistance scheme, through a simple and effective local approach."

Supporting co-ownership properties

The program also provides aid solutions for co-ownership properties in difficulty or run-down, including an endowment fund to assist in financing renovation work on the interior system or the introduction of an individual water meter reading system. "We are also working with administrative receivers to study the payment of water debts, which often weigh heavily in a co-ownership budget. It is often the first item that a co-ownership body stops paying."

Prevention

Eau Solidaire also offers a comprehensive range of preventive actions for raising inhabitants' awareness of how to manage their budget. This involves in-depth work on the ground that the dedicated nine-strong team



Anne Charpy

Founder and Director of the Voisin Malin organization

What makes Voisin Malin original?

To allow the inhabitants of working-class neighborhoods to play a more active role in their life, we call on the services of "voisins malins" ("neighbors in the know") who work door to door in a radius of 15 minutes by foot from their home. Aged between 19 and 65, they are recruited for their excellent interpersonal skills and desire to be useful to others. Their mission is to raise awareness on topics such as recycling, water and electricity consumption, eradicating bedbugs, etc. Some are students, others housewives or retired people. The diversity of their profiles allows us to cover an extremely wide range of time slots, which is necessary for reaching people at home. We started our partnership with Eau Solidaire in Aulnay-sous-Bois (93) in 2012.

How do you approach the theme of water?

Water is an essential service for inhabitants. To the extent that

most people we meet don't know either the level or the cost of their consumption. Linked to everyday life - health, hygiene, etc., water can also become a significant economic factor in a household that prefers to buy bottled water in the belief that the tap water is undrinkable. This is the case for 35% of people seen in Aulnay-sous-Bois! It's up to us to allow people to discover the organization chain - production, distribution, sanitation, cost, etc. - in concrete terms, to appeal to people's everyday lives - their wallet, their responsibilities as tenants, etc. - and to strengthen the ties between them and contacts such as the building managers, water service representatives, social workers, etc.

How do you support Veolia on the ground?

We reach out to the residents. We open doors: 8 out of 10 on average! No one apart from us manages to enter these buildings and have the same credibility of one resident talking to another. Our message is credible because people know that the Voisins Malins are experiencing the same difficulties as them. In their way, the Voisins restore confidence in the water quality. We also create a closer connection between the residents and the operator. We collect a huge amount of data about their situation, their habits and what stops them from taking certain steps. Invaluable information for Veolia. Last but not least, we connect Veolia to the local players through our strong territorial links with the municipality, social landlords, other local organizations, etc.

<http://www.voisin-malin.fr/>

Sedif in figures

Created in 1923, the Syndicat des Eaux d'Ile-de-France (SEDIF) water authority provides drinking water for 149 municipalities spread over 7 departments in the greater Paris region, not including Paris, i.e. over 4 million users. Its budget amounts to 575 million euros.

With over 700,000 m³ distributed each day, it is the largest public water service in France and one of the leading providers in Europe.

Almost 236 billion liters were consumed in 2013 through a network of pipes stretching 8,387 kilometers.

... at Vedif cannot carry out alone. "Prevention means you must be everywhere in the neighborhoods, so that's why we've turned to community partners. Their know-how, charisma and credibility allow us to best correspond to the inhabitants' needs." These frontline action drivers on the ground go by the name of Voisin Malin (c.f. interview), Compagnons bâtisseurs (cf. testimonial), Unis Cités, PIMMS, etc. Their activities are regularly monitored by Vedif in order to increasingly help residents to manage their water budget and their consumption well and control the facilities. "For



us, encouraging these families to choose tap water is a real economic and environmental challenge. The organizations focus less on the water bill than on helping people to make budget savings and delivering sustainable development messages. It's all about empowerment!" Since 2011, the prevention aspect has been gaining ground and is going to be expanded, in particular with the arrival of new community partners. "With this program, Vedif is now recognized as a player involved on the ground by elected officials and local players." ■



Olivier Horvais

Director of the Compagnons Bâtisseurs Ile-de-France organization

Housing issues always involve water-related questions: water damage, hygiene, cost, etc. So, in 80% of the homes we enter, we discover water damage that is over a year old and has not been dealt with. Our role is therefore to advise and support these families, prioritizing "making do," a period of learning through working together and mutual help. First of all, together we carry out a shared diagnosis of the condition of the kitchen and bathroom, taking the time required for an educational approach. We then define the work to be carried out and how (with us, via maintenance contracts, the social landlord, etc.). The question of budget recurs at each stage: people want to understand their water expenses. We help them to differentiate between what they pay and what they consume, between hot and cold water... Over the course of our interactions, the residents build up their learning, which is customized and tailored to the household's profile.

<http://www.compagnonsbatisseurs.org/index.php?lg=fr&id=111>



Germany



Recovered paper as a resource

When it comes to recycling quotas, Germany comes out on top. One reason is that most private households collect their plastic waste, bio waste, recovered paper and glass waste separately. More than half of all household waste is separated, recovered paper representing the largest share with an annual amount of 5.8 M metric tons or 72 kg per person. Together with other sources (industry, commerce), a total of more than 15 M metric tons of paper are recovered every year. Veolia is the national leader in processing this material stream and a reliable supplier of this resource for the paper industry.



Once compacted, the different paper grades come out in bales measuring approximately one cubic meter, each weighing almost 900 kg.

Issue at stake

> Help to keep Germany among the leaders in waste paper treatment.

Objective

> Develop the paper circular economy (recycling paper up to 5 times), at a lower cost, to the benefit of the environment, the economy and employment.

Veolia solution

> Innovate in terms of increasingly complex recycling and sorting technologies and put in place coordination processes between producers, users and sorting plants.

Germany looks back on 625 years of paper production. Today, approximately 22.4 M metric tons of paper are produced by 165 companies and the industry is exemplary in terms of a functioning circular economy. With advanced recycling technology perfected over many years, Germany is one of the main players on the world paper market: German paper production is number one in Europe and ranks fourth worldwide behind China, the US and Japan.

Europe recycles 72% of its paper

According to the Confederation of European Paper Industries (CEPI), the use of recycled raw materials for paper and cardboard production has remained stable at 47.5 M metric tons over the past two years in Europe. As the demand for paper can no longer be met by using only fresh fibers, recovered paper is a valuable commodity. Depending on the quality grade, it is worth more than one hundred euros per metric ton - with prices subject to strong market fluctuations. While the recycling quota for recovered paper was approximately 45% in the 1960s, 72% is recycled and reused in Europe today - a new world record.

In Germany, Veolia collects and recycles a great variety of waste paper grades from its commercial and industrial customers, municipalities and private customers: mixed waste paper, unsold newspapers, magazines and books, office paper and other graphic paper,

files, used paper and cardboard packaging are all recycled. Veolia offers its customers individual full-service solutions for the collection, sorting and treatment of their recovered paper. Logistics and staff are provided on site, tailored to their needs. Veolia takes care of the logistics and processes the recovered paper in one of its nine sorting plants. The final products are different recyclables, which comply with the high standards of the paper industry and are marketed directly worldwide. In an integrated service offer for the paper industry, Veolia can also provide the expertise of its other branches: the management of the water cycle, energy efficiency services and energy production on site.

Partner of the industry

One problem of paper recycling is its success: statistically speaking, in Europe every fiber is recycled 3.5 times. This has its limits: cellulose fibers shorten with every recycling process and links between the fibers in the paper pulp become increasingly unstable. Ultimately, the paper will no longer be strong or tear-resistant enough for high-quality paper products. This is why less recovered paper was used for the production of graphic paper (e.g. newspapers and office paper) last year, while the amount of recycled raw materials in the production of other paper and cardboard products continued to rise. This development follows a global trend, says Stefan Geibel, ...

While the recycling quota for recovered paper was approximately 45% in the 1960s, 72% is recycled and reused in Europe today – a new world record.

Key 2014 figures

9 (270 employees)
Paper sorting plants in Germany

31
Employees of Veolia Umweltservice Wertstoffmanagement GmbH in Hamburg

€134 M
Turnover in 2014

1.21 M metric tons
Material flows
(marketed output excl. direct marketing)

Percentage of grades

43% 1.04 - waste paper from department stores consisting of corrugated paper and cardboard and packaging paper

26% 1.01 - mixed paper and cardboard, contaminants removed

15% 1.11 - sorted paper for deinking from private households

12% 1.02 - mixed and sorted paper and cardboard

4% special grades



In Europe, a paper fiber is recycled 3.5 times on average.

Paper recycled, fresh wood saved

AP Concept GmbH & Co. KG in Glückstadt is one of Veolia's many customers. Each year, Veolia delivers 43,000 metric tons of recovered paper to the company, which is a supplier to Steinbeis Holding GmbH's different paper mills in Germany. Marcel März, Head of Procurement at Veolia Germany, explains why this particular contract is especially noteworthy: "In 2014 Veolia ordered 17 million sheets of "Steinbeis TrendWhite" office paper for our administrative offices in Berlin, Hamburg, Leipzig and Brunswick. Since 2013 we have only bought office paper made from 100 percent recycled materials. It's a must for a green company like Veolia! Steinbeis is also one of Veolia's customers. In this case, we have closed the loop of the economic and raw material cycle!"

Altogether, an impressive 85 metric tons of paper are used in Veolia's offices every year. By using recycled paper Veolia protects many trees as natural resources from being shredded in paper mills, equivalent to 255 metric tons of fresh wood. Two other resources also benefit from the use of recycled paper: recycled paper production requires 83% less water (2,699,000 liters) and 72% less energy (554,200 kWh) than paper made from fresh fibers. "We spent €75,000 on this environmentally friendly paper in 2014. This not only reduced our carbon footprint, but also had an economic advantage: we saved about €5,000 compared to the fresh fiber paper we ordered before," März adds with satisfaction. And there is still room for improvement: "My aim is an international rollout at Veolia."



Sandro Viviani

Head of Veolia's sorting plant in Hamburg

What exactly happens in your sorting plant?

In 2014, Veolia sorted 53,746 metric tons of paper and cardboard here in Hamburg. This state-of-the-art sorting plant can process nine metric tons an hour, ready for sale. The material is collected in and around Hamburg. In addition, we buy recyclables for sorting on the recovered paper market. With regard to transport logistics, we are one of the few paper sorting plants in Germany with railway access in addition to the loading platforms for our trucks. This is a real competitive advantage. Here in Hamburg, for example, we deliver paper to the Steinbeis paper mill in Glückstadt (Schleswig-Holstein) and by rail to the Stora Enso paper mill in Eilenburg (Saxony). While we collect almost unmixed fractions from our commercial customers, like cuttings scraps and printing proofs, we find a mix of different paper materials and unfortunately also contaminants and impurities in containers collected from households.

Which processes does Veolia use for recycling?

First of all, contaminants and impurities - for example, more

than 3.5 metric tons per day of foil and plastics, which do not actually belong in the paper bin - are removed. However, unopened and shrink-wrapped brochures are not too much of a problem. For the actual sorting of the paper, we use different kinds of procedures, such as:

- an air separator, which separates heavy and lightweight fractions,
- a drum sieve that sorts different fraction sizes and
- a near-infrared scanner, which separates cardboard from newspapers and magazines through spectral analysis.

With a pressure of around 80 metric tons, the different paper qualities are finally compacted in the channel baling press into bales of approx. one cubic meter. These bales weigh around 900 kg each.

Which secondary raw materials are produced in your sorting plant and what are they used for?

- Our plant sorts recovered paper into the following fractions:
- 11.12% waste paper from department stores consisting of corrugated paper and cardboard and packaging paper (1.04),
 - 24.52% mixed paper and cardboard, contaminants removed (1.01),
 - 64.18% sorted paper for deinking from private households (1.11),
 - and contaminants and mixed plastics.

There are strict quality guidelines for recovered paper grades. With regard to mixed paper for deinking (1.11), paper mills will only accept a maximum cardboard content of 2.5%. This paper is reused for the production of graphic paper (office paper, newsprint etc.) or packaging, as well as the production of hygiene products like tissues or toilet paper or technical paper.



In Hamburg, one of Veolia's nine sorting plants in Germany, almost 54,000 metric tons of paper and board were sorted in 2014.

... quality standards, which stipulate lower tolerance levels of non-paper components in recycled paper bales. To maintain quality compliance, more complex sorting and recycling technologies are needed, as well as time-consuming coordination processes between producers, users and sorters. Therefore Veolia is developing specific programs in close partnership with the paper industry: one-stop solutions both for the supply of recovered paper as well

as integrated management of waste, water and energy.

Paper is here to stay

Despite all these challenges, 625 years after industrial paper production first started in a paper mill in Nuremberg, paper has lost none of its future potential. Smartphones and e-mails

will not replace paper as an information carrier, as it is uncomplicated to use, easy to distribute and does not depend on technology and software. Hygienic paper and packaging paper are still irreplaceable. More goods are bought online and require paper and cardboard packaging. So paper is here to stay - with ever-improving use of recovered material as a resource for its production. ■

... Managing Director, responsible for Veolia's recyclable fraction management, "The use of graphic paper, like newsprint, has seen a significant global decline and will stabilize at a lower level. This decline has only been partly compensated by the growth in the packaging paper business." As the current yield continues to decrease despite higher waste volumes and increasing sorting efforts, Geibel expects imports from countries such as the US and Brazil to rise. These countries are currently using up to 60% of fresh fibers from groundwood for the production of graphic paper.

Contamination hinders recycling

Paper recycling is a complex process that requires clean waste paper. Once it has been disposed of with household waste and become soiled, the material can no longer be used in paper production, as critical substances could find their way into food via cardboard and paper packaging. But even if collected separately, paper still contains contaminants that are difficult to sort or not recyclable at reasonable cost and effort: plastic foil in envelopes, staples, cosmetic samples in magazines and "upgraded" packaging for marketing reasons with coatings, stickers or laminations. At the same time, changing framework conditions and fierce competition are putting the paper recycling industry under constant pressure to deliver better solutions. For example, the revised EN 643 has specified higher ...



Canberra

Australia/New Zealand

30/31

Turning waste into a viable food source

Household waste and restaurant-quality seafood have held little in common. That is, until recently, when Veolia's team in Australia sought to use the energy produced from waste and yield this into high-quality barramundi retailed to the local seafood market.

It sounds simple, yet it is anything but, and this unique innovation raises the question as to why Veolia, a global leader in optimized resource management, would look to invest in aquaculture. "Veolia is not about the why; it is about the why not," explains Veolia Australia and New Zealand's Managing Director, Mr. Doug Dean, AM. "Australia's consumption of seafood is exceeding domestic supply at

an alarming rate. As such, the market has had to look to alternative methods like aquaculture to preserve our love affair with this type of food. The objective of investing in aquaculture was always clear to us and follows the principles of a circular economy. We have a sustainable method of heat production from our bioreactor facility on-site, therefore why not utilize the excess heat in a way that somewhat eases

the pressure on our already stressed food industry?"

Closing the loop one barramundi at a time

Veolia's aquaculture facility plays a small ...



The barramundi, the perch's tropical cousin, thrives in water at 28°C.

Issues at stake

- > Electricity generation is a highly regulated area, ensuring EPA license requirements for gas capture, groundwater and surface water emissions are both controlled and managed effectively.
- > Community relations are maintained.

Objectives

- > Rehabilitate 500 hectares of what was previously a zinc open-cut mine site.
- > Construct and operate Australia's largest bioreactor to ensure adequate gas capture.
- > Produce restaurant-quality seafood that meets Australian food quality standards.

Veolia Solution

- > Utilizing heat generated from waste energy, Veolia implemented an aquaculture facility capable of producing 2.5 metric tons of barramundi to the local Canberra market each year.

part in the overall Woodlawn Eco-Project story. Established in 2005, the Eco-Project offers a significant alternative for the recovery and disposal of putrescible waste in New South Wales, Australia's most densely populated state. Located on-site is the Woodlawn Bioreactor, which presently takes in 500,000 metric tons of waste per year. Upon disposal, the methane is then transformed into biogas, creating enough energy to power some 7,000 homes. To complement the bioreactor, in 2009 Veolia commenced an aquaculture and aquaponics trial with the simple objective of making the Woodlawn Eco-Project site as sustainable as possible. Excess heat from the generators was available, and with this in mind Veolia sought to use the surplus to create optimal water conditions for fish farming. The facility can currently produce approximately 2.5 metric tons of barramundi per year and, while this figure is relatively small in comparison to commercial fisheries, it is not least important to the overall viability of seafood within Australia. Veolia's Woodlawn Eco-Project also encompasses agriculture, horticulture, a wind farm and a soon-to-be-developed mechanical biological treatment facility.

Securing a sustainable food cycle

Challenges from urbanization, consumerism, population growth, competition for resources and environmental degradation all plague food production and consumption within Australia. It continues to have growing needs that are outstripping production and access to these resources. Australia's aquaculture project is an alternative solution not only for food manufacturers, but also end users, encouraging them to be more aware of how their food is sourced, produced and consumed. ■



Justin Houghton
General Manager,
Clyde and Woodlawn Facilities

Woodlawn is the largest bioreactor of its kind in the southern hemisphere. Has your team become a test case on how to successfully implement bioreactor technology on such a large scale?

The infrastructure at Veolia's Woodlawn facility is unique and, given the sheer scale of our operations, our team has consulted on various projects locally and globally. Our expertise lies within the areas of gas extraction and leachate management on a large scale and in a somewhat unforgiving environment.

What are the most challenging aspects of your role?

The scale and position of Woodlawn can present various challenges to myself and the 25 other operators at Woodlawn. The depth of waste is approximately 80m, and the consequent pressure on this waste from the surrounding climate can ultimately affect the amount of gas captured. As such, our team is always thinking ahead to manage and mitigate external factors as best possible.

Also, as this facility is a first of its kind, there is no textbook example to draw from. All new initiatives - much like our aquaculture facility - must be carefully planned and tested to ensure they will work effectively.

Given the slowdown in the "mining boom," do you see this solution being implemented at other disused open-cut mines throughout Australia?

Bioreactor technology is certainly a viable option but, as with all things, it depends on the environment. Veolia currently has an integrated approach to decommissioning and rehabilitating mining projects, and this has been demonstrated globally. However, if a disused mine is located in an appropriate area and if there is support from the local community, we should definitely look toward implementing renewable technology to close the loop.

What are the future expansion plans for Woodlawn?

In consultation with the community, Veolia's Woodlawn Eco-Project has a robust infrastructure plan in place with the aim of ensuring that our site is as self-sustaining as possible. Moving forward, we will look to build on our aquacultural and horticultural endeavors by implementing a mechanical biological treatment facility that will divert waste and convert this into compost for mine rehabilitation.

Have you tasted the barramundi?

Yes, it's great and it has been really well received locally. We've sold all our available produce to the Canberra restaurant market, all of whom have been extremely impressed by the quality of our produce.



Set up in a disused zinc mine, the bioreactor "digests" 500,000 metric tons/year of household waste from the Sydney agglomeration.

Each year, the fish farm produces 2.5 metric tons of barramundi, which are then sold to the Canberra restaurant market.

Key 2014 figures

- 520,000**
Metric tons of waste delivered to Woodlawn
- 19,200,000 m³**
Methane captured
- 272,640**
Metric tons of CO₂ abated
- 33,000**
Energy potential (megawatt hours)
- 7,300**
Potential homes powered for one year
- 2.5**
Metric tons of barramundi produced



Doug Dean, AM

Managing Director Veolia Australia and New Zealand

How does Veolia actively engage with the local community surrounding Woodlawn?

Active engagement with the local community is vital for our license to operate and we're uniquely lucky in that we have a really great relationship with the locals. To support the community, Veolia set up the Mulwaree Trust, which has distributed more than \$4 million dollars to local community initiatives since its inception in 2004. Coupled with our commitment to constantly improving and developing sustainable outcomes, the community has truly become a vested partner.

What is the benefit for Veolia in investing in aquaculture?

Typically when you think about aquaculture, you don't associate its production with heat generated from waste. As such, the benefit is really a social one. It's a win-win approach and demonstrates to the local community Veolia's commitment to turning waste into a resource.

The challenge of profitable fair trade

In many countries, the question of market access for low-income communities is a source of considerable opportunities for companies¹. In this context that encourages the adoption of new strategies, economic performance is closely linked to the acquisition of social benefits by the populations concerned. The issues at stake particularly apply to Last Mile Delivery. To cross this decisive distance, co-creation is an essential element and innovation a key.



Benoit Ringot

Veolia Innove Project Director

“Separate recommendation from the act of sale”

The alluvial soils of Bangladesh, naturally contaminated with arsenic, pose a major public health problem. In response, the joint venture Grameen-Veolia Water has chosen to try out a drinking water distribution model among the communities in a rural area. A pilot social business project with many lessons to teach, as shown by Benoit Ringot.

What have you drawn from an understanding of the local socio-cultural mechanisms to develop a paying drinking water service that, at the outset, was not self-evident for its beneficiaries?

In Bangladesh, everyone is aware of the role of arsenic water in the appearance of cancers, but a number of cultural and religious factors make the consumption of contaminated water a taboo subject. At the outset, the sale of water was entrusted to a network of water dealers - women from the village, recruited both to communicate about the service and carry out the distribution. Without much success. With the aid of an anthropologist, we came to understand that, under market creation conditions, the more a product is seen in a complex way, the more necessary it is to separate the act of sale from recommendation. Assistants were therefore trained to raise awareness among their neighbors with a more tailored message. Since then, the added value of the service has been much more appreciated.

Launched in 2009, the service now counts a treatment plant and over 100 water intake points for 7,000 consumer households. How are you planning to find an economic balance?

As the consumption threshold required to cover costs has not yet been reached, we have developed an activity selling large bottles of water in the city. This service with a larger margin will allow us to develop in other rural areas. While it is not designed to make a profit, our model looks to be self-sufficient and capable of making an impact on health and hygiene with long-term benefits: a population that lays itself open to fewer health risks supports a more sustainable local economic environment.

For the past twenty or so years,

a number of alternative business models have been shaking up the established economic and philanthropic standards (pure profit on one side, patronage on the other). Whether they are calling themselves social business or taking their inspiration from BoP² strategies, these new practices fall in line with issues of corporate social responsibility. In fact, a growing number of them are asking questions about how to meet economic objectives while playing a positive role in the social challenges affecting a large section of humanity. In other words, what to do to improve the everyday life of a potential market of four billion consumers living on less than \$5-6 a day... Bearing in mind that in emerging countries, access to essential goods and services (water, electricity, health, education, etc.) is hindered by inexistent or incomplete infrastructures, new solutions are a must. At the critical last mile delivery step, it is down to companies to rethink their operations and implement projects that profit everyone.

Innovate and deliver

The challenge lies in the ability to develop and maintain economic activities that are socially beneficial for the targeted populations (in

4 billion

consumers live on less than US\$5-6 a day

46% within 50 years

according to the World Bank, this is the share of global GDP that China and India could reach

terms of standards of living, hygiene or health, as well as employment, empowerment, etc.). "To break into a market, a company must work with the players on this market," David Ménascé, associate director of the consulting firm Azao, reminds us. And rightly so, given the number of multinationals who have learned to their expense that by remaining far removed from the

consumer and their concerns, very few solutions find takers at the end of the value chain. Through their ability to give the beneficiaries a role in their access to the market, "inclusive" models prove to be most suitable for establishing a co-creation dynamic. As Sanjeev Rao, associate director of the company Sattva (c.f. boxed text page 45), explains, "it is important to reveal the 'local

talent' present in communities, which should not be viewed merely as consumer pools, but also as a network of local skills. These company partners - whether distributors or suppliers - increase their chances of succeeding and expanding their market." In direct link with the needs of the populations, civil society players, political leaders and local decision makers are also

CONTINUED ON P. 46



"In India, where basic services are not even provided, there are one billion cell phones in circulation."

Sanjeev Rao

Founder of Gateway 2 India

"The aspirations of four billion consumers must urgently be considered"

The company Sattva ("balance" in Sanskrit) provides advice and means of implementation for companies looking to invest in markets in emerging countries, as well as NGOs keen to ensure the longevity of their actions beyond the framework of subsidies. A proponent of an experimental approach, the Indo-French businessman and teacher Sanjeev Rao speaks of the need to create more inclusive economic models.

How would you describe this social business model that you support through your activities?

As a third possible way between two models - patronage and conventional business - that are showing their limits when it comes to the fight against poverty. It is less about creating a new paradigm than expanding the roles and resources

of the existing models. Accordingly, this economic model must be inclusive, in the sense that it takes care of populations. It must also be lasting in order to provide investors with guarantees. Last but not least, this model must be reproducible, in support of a multi-partner approach: the companies who will succeed are those who include both NGOs and communities as well as other companies in their project.

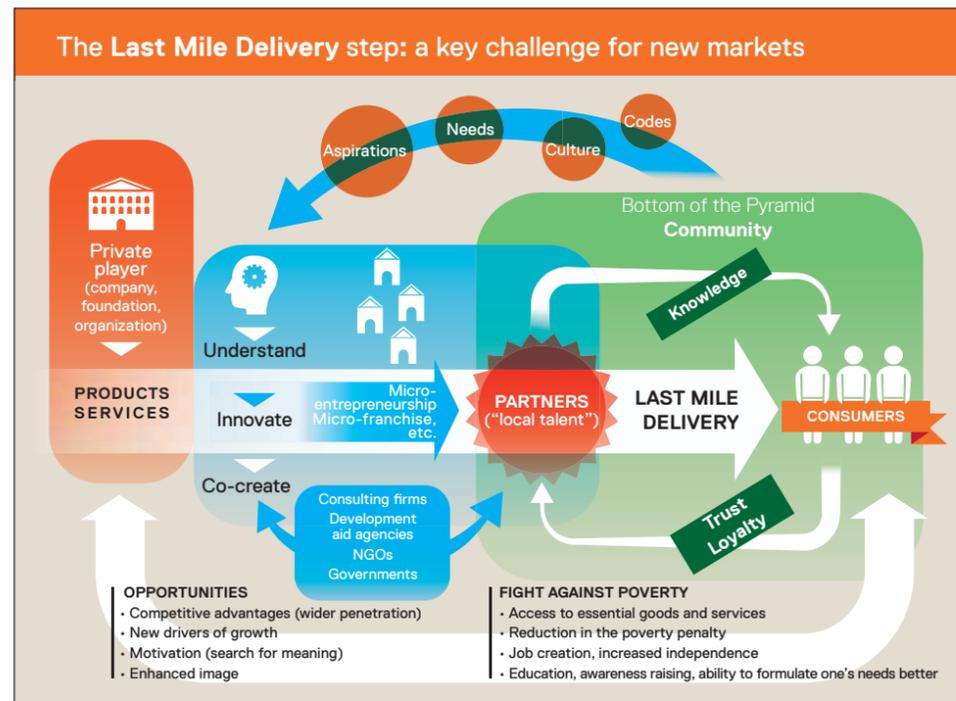
What priorities should be taken into account with regard to low-income populations?

Above all, it is important to look to increase their means of existence by encouraging their involvement through employment and entrepreneurship. Moreover, too often we

forget that beyond their essential needs - which must of course be met - these populations have aspirations and freedom of choice. The proof: in India, where basic services are not even provided, there are one billion cell phones in circulation... This figure represents almost as many individuals constantly connected to the world and little inclined to consume products "for poor people" that businesses with an outdated economic model are attempting to impose on them. For no one aspires to be poor! In my view, these aspirations must urgently be taken into consideration, because sooner or later, there will be four billion consumers around the world looking to satisfy them in one way or another.

Over and above advice, how do you help your clients to launch in emerging markets?

We invite them to test and learn on the ground on a small scale. For we are convinced that any concrete experience, even if it ends in failure, is productive. There's nothing like India with its unique social innovation dynamic. To take advantage of this field of experimentation, you must dare to move away from traditional schemes of analysis. This is the aim of the Action Lab that we offer to project sponsors looking to approve economic solutions that are otherwise difficult to grasp.



... credible links on the ground. Via micro-entrepreneurship, micro-franchise or micro-finance, new distribution systems can thus come to light in areas where rural isolation and the informal organization of peri-urban areas allow very little - if any - access to the formal market.

Market access, social conquest

Accordingly, the Bel group has relied on the network of fruit and vegetable street sellers to

develop its sales in the outlying districts of Ho Chi Min City. On the strength of its key product's reputation in Vietnam, the company has successfully experimented a new driver of growth based on the *Sharing Cities* program, a model incorporating partners (NGO, insurer) tasked with recruiting and winning the loyalty of these local middlemen. In exchange for including the Bel product in their basket, the street sellers are offered training, marketing tools, micro-insurance solutions, administrative support, etc. For hundreds of small

entrepreneurs, these are all previously impassable bridges toward the formal market and prospects for social mobility. In Bangladesh, the NGO Care and its partners have founded JITA, a social company behind a distribution platform entrusting marginalized women with the sale of mixed baskets (local produce and name brand products) in villages. "This sales system boosts their social standing and also fosters a more modern approach," considers David Ménascé. "Today, the influence acquired by the *Aparajitas*³ allows them to

talk about contraception with other women, supported by the sale of condoms. This experience shows that wherever market mechanisms are introduced, the circulation of ideas is also encouraged," he concludes. A further reminder that - contrary to their reputation as being irreconcilable - economic interest and social impact gain from dialoging more often. ■

1- According to the World Bank, China and India's share in global GDP could reach 46% within 50 years.
2- "No loss, no dividends" is the social business economic model popularized by Muhammad Yunus, the pioneer of micro-credit and founder of the Grameen Bank. The Bottom of the Pyramid strategies theorized by C.K. Prahalad are based on the idea that opportunities for growth exist within the framework of the fight against poverty and require the provision of a tailored offering.
3- Hindi term meaning "undefeated."

"It is important to reveal the 'local talent' present in communities, which should not be viewed merely as consumer pools, but also as a network of local skills."

SANJEEV RAO
FOUNDER OF GATEWAY 2 INDIA

Community



In Southwark, just a stone's throw from London's City district, the social enterprise organization The Conservation Volunteers (TCV) protects green places, creating an oasis of nature in the neighborhood. Veolia works with TCV in one of its key programmes: reusing used tools. One of its staff members explains.

The Conservation Volunteers: insight

Cultivate your garden

Stave Hill Ecological Park is a mosaic of meadows, woods, undergrowth and wetlands, stretching over 5.2 acres in the north of Southwark. It is a nature reserve, educational facility, research centre and recreation area in one. It is also the territory of TCV's recruits. Over 500 of them take up their gardening tools on an annual basis to maintain this verdant setting and its leisure and recreation infrastructure. Speaking of tools, TCV collect these from Veolia's flagship Integrated Waste Management Facility (IWMF). "The volunteers are interested in all kinds of tools that Veolia provide. They clean, repair, sharpen and oil them. Once they have been made as good as new again, they are invaluable to Stave Hill's maintenance teams," explains Ian McGeough, Veolia Programme Manager. As part of its social value work, integration and training plan contract, Veolia has signed

a partnership agreement with TCV regarding the tool reuse program that Ian coordinates for the site. "This program is particularly useful for young people, conditioned by the consumer society to automatically throw out damaged goods. What they learn with TCV will be useful to them throughout their life," states Ian. Veolia also employs TCV to monitor biodiversity at the IWMF and build shelters for birds, bats, stag beetles and different species of insects. "Payment for this service goes towards the different training sessions offered to TCV's network of volunteers. Sessions range from creating a working garden to working with wood; fundraising; organising a work day or skills management," adds Ian. It's no surprise when you consider the motto championed by TCV for over half a century: "Looking after green places is about caring for people as well."

- In the United Kingdom, green spaces and recreational areas that survived the widescale sale of urban land in the last two decades of the 20th century do not have any special protection nowadays.
- According to TCV, a third of them are endangered.
- TCV is a network of some 2,000 groups involving hundreds of people in Britain.
- At Stave Hill, the volunteers did the equivalent of 2,533 days' work in 2014.

Move2Chem, the birth of a sector

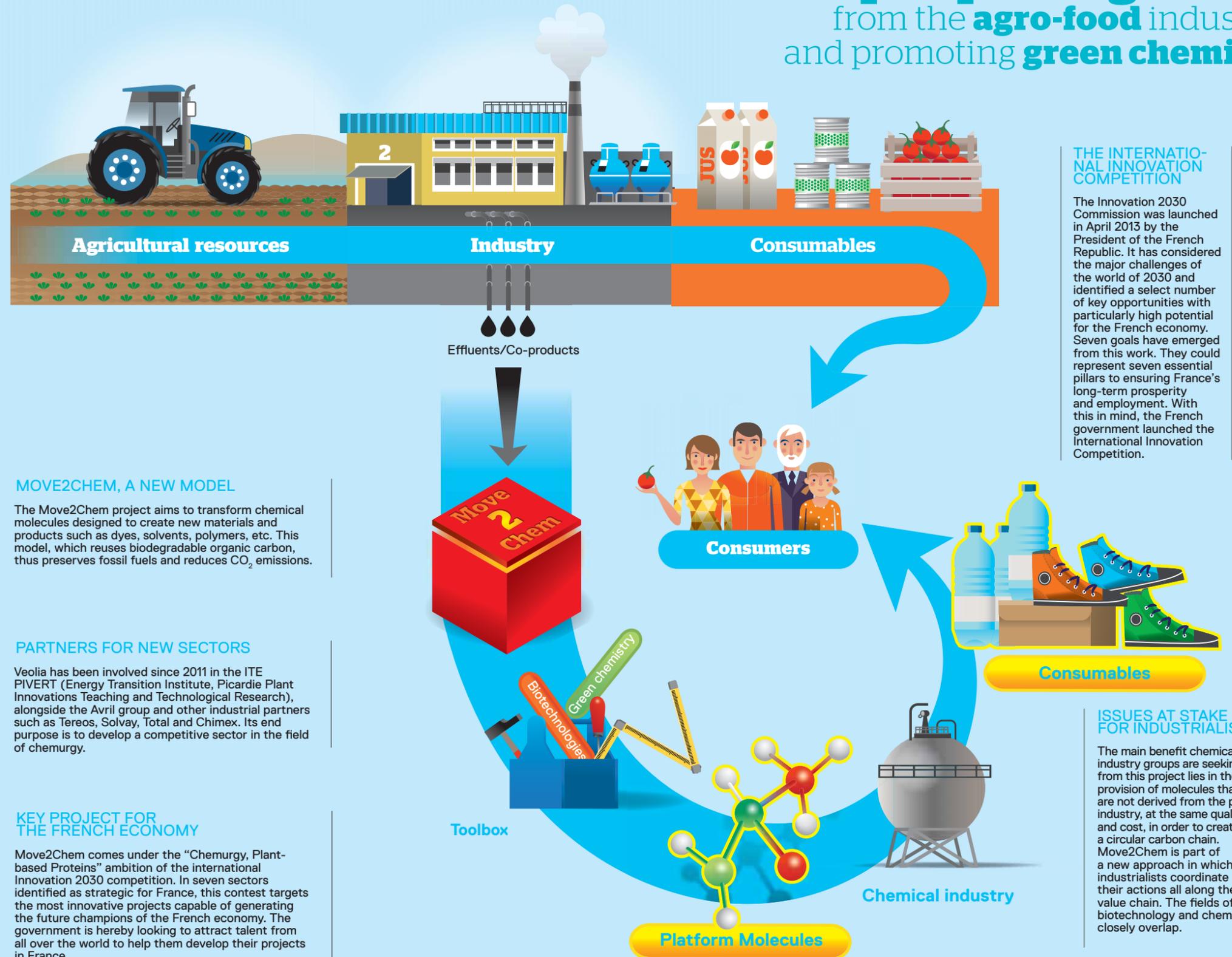
With its Move2Chem R&D project, Veolia is looking to move from a waste treatment to a waste repurposing approach. But how? By giving new life to molecules derived from the agro-food industries. We explain more.

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A winner of the international Innovation 2030 competition launched by the French government in 2013, the Move2Chem research program dedicated to chemurgy is sponsored by Veolia and conducted by its Research and Innovation entity (teams from the Applied biotechnologies unit). Its aim is to repurpose, as part of a fully-fledged sector, the by-products and other waste produced by the agro-food industries. By transforming these by-products and waste into biosourced chemical molecules, Move2Chem provides a way of exploiting a potential hitherto neglected and offers a solution to chemical industries keen to find an alternative to fossil fuels.

Going beyond a simple treatment approach, Move2Chem delivers a waste repurposing concept that aims to design a model in which biodegradable organic carbon is reused to create new materials and products (solvents, polymers, lubricants, etc.). In this way, limited fossil fuels are preserved and CO₂ emissions reduced. The Move2Chem project - which falls entirely in line with Veolia's priority circular economy initiative - is of potential interest to all agro-industrial sectors (especially oilseed crops). The players in the field are looking to rely on processes that will be developed to open up new repurposing avenues alongside those that already exist in the fields of biofuels or green chemistry. ■

Repurposing waste from the agro-food industries and promoting green chemistry



THE INTERNATIONAL INNOVATION COMPETITION
The Innovation 2030 Commission was launched in April 2013 by the President of the French Republic. It has considered the major challenges of the world of 2030 and identified a select number of key opportunities with particularly high potential for the French economy. Seven goals have emerged from this work. They could represent seven essential pillars to ensuring France's long-term prosperity and employment. With this in mind, the French government launched the International Innovation Competition.

MOVE2CHEM, A NEW MODEL
The Move2Chem project aims to transform chemical molecules designed to create new materials and products such as dyes, solvents, polymers, etc. This model, which reuses biodegradable organic carbon, thus preserves fossil fuels and reduces CO₂ emissions.

PARTNERS FOR NEW SECTORS
Veolia has been involved since 2011 in the ITE PIVERT (Energy Transition Institute, Picardie Plant Innovations Teaching and Technological Research), alongside the Avril group and other industrial partners such as Tereos, Solvay, Total and Chimex. Its end purpose is to develop a competitive sector in the field of chemurgy.

KEY PROJECT FOR THE FRENCH ECONOMY
Move2Chem comes under the "Chemurgy, Plant-based Proteins" ambition of the international Innovation 2030 competition. In seven sectors identified as strategic for France, this contest targets the most innovative projects capable of generating the future champions of the French economy. The government is hereby looking to attract talent from all over the world to help them develop their projects in France.

CONSUMERS
CONSUMABLES

ISSUES AT STAKE FOR INDUSTRIALISTS
The main benefit chemical industry groups are seeking from this project lies in the provision of molecules that are not derived from the petro industry, at the same quality and cost, in order to create a circular carbon chain. Move2Chem is part of a new approach in which industrialists coordinate their actions all along the value chain. The fields of biotechnology and chemistry closely overlap.

Futurist



The kickTrike®, concentrated mobility

It weaves in and out everywhere during the weekend shop and folds up neatly to be carried at our side on public transport. Nothing stops the kicktrike® in the city! Not even pedestrian areas where this little “e-three wheeler” can turn off its engine and

be ridden like a scooter. This compact mobility solution is the fruit of an inch-perfect design from the Berlin company Constin GmbH. “Our vehicle had to remain compact enough to fit in the trunk of a car,” states its inventor, Hans-Peter Constin. Mission

accomplished for this new intermodality gem: featuring an ingenious front carrier, the kickTrike® brilliantly combines personal transport (up to 50 km of autonomy) and carrying loads (up to 50 kg) or young passengers

(optional seat). With its successfully completed prototype, the kickTrike® already offers a promising prospect: “in the field of care for the elderly, it is seen as a means of transporting nursing aides to their patients’ bedrooms free from

parking restrictions,” illustrates its designer. The production of twenty test models is set to inspire a host of uses, given the many services we can imagine such a functional vehicle could provide to citizens, companies and local authorities.

The GreenPack® battery: truly green energy



But where does the kickTrike® get its energy from? From this equally innovative little “green electricity jerry can.” GreenPack® technology could very well set a new standard for the energy

uses of tomorrow. For GreenPack® is first and foremost an easy-to-handle accumulator intended to power e-vehicles (“service stations” would be battery exchange machines) and other compatible equipment

(lawnmowers, vacuum cleaners). However, it is also, adds Hans-Peter Constin, “a system that aims to supply households with green energy”: plugged in “bunches” into a storage space provided to this end,

GreenPack® batteries can both be recharged and store solar or wind power electricity for domestic use. This open source solution is also of interest to certain players on the energy storage solutions market.

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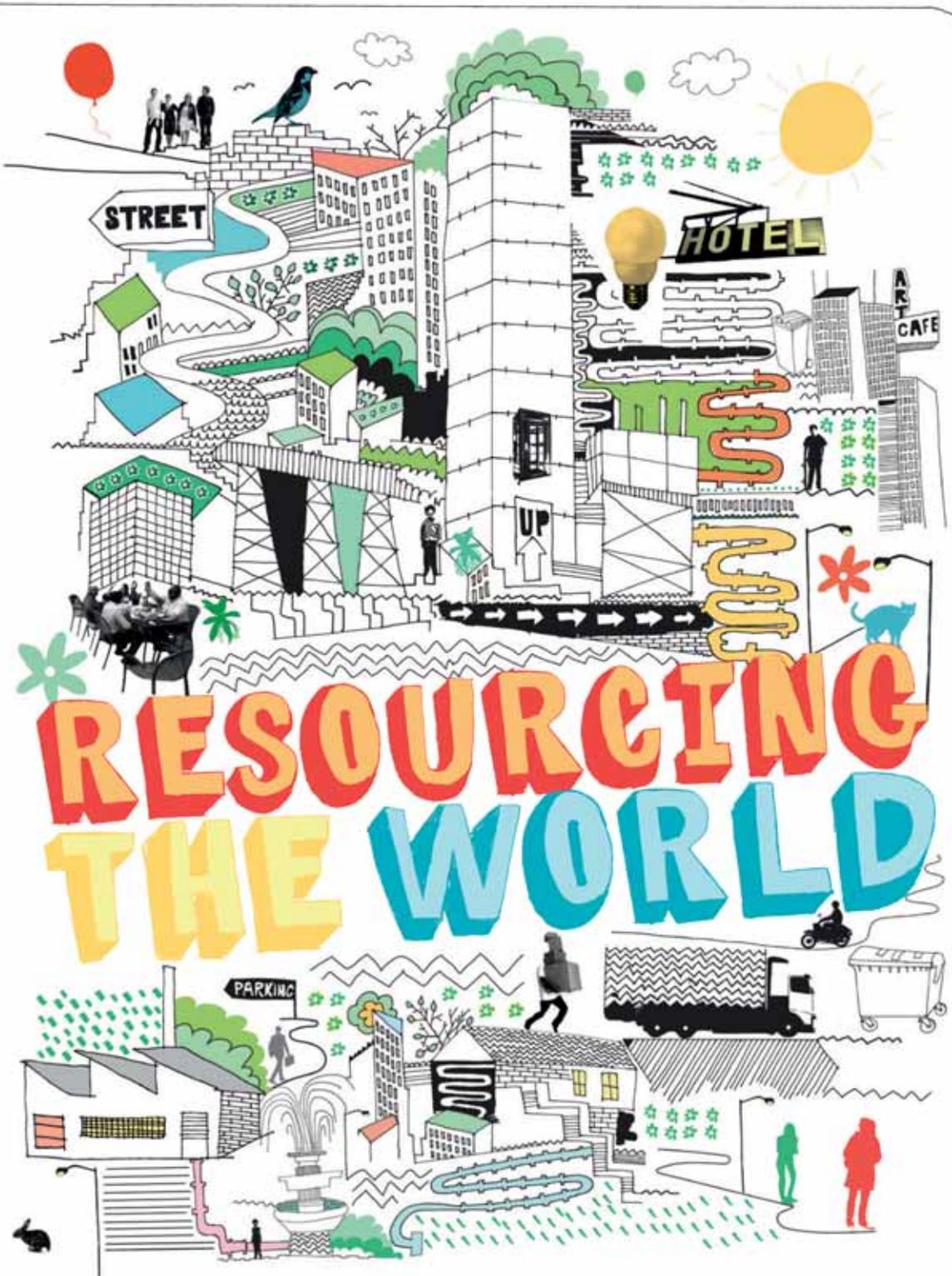
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RESOURCING THE WORLD

Veolia develops access to resources, preserves them and renews them on five continents. We devise and implement water, waste and energy management solutions to help develop the circular economy. Find out how at veolia.com

Resourcing the world



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