

RENEWABLES

100% green  
energy  
for Google

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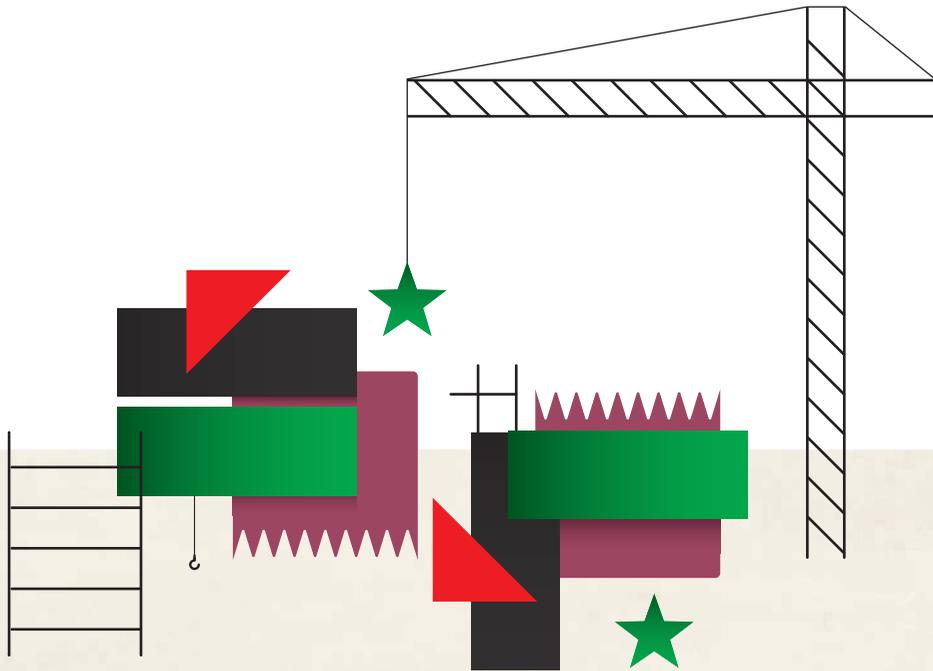
2017 DAKAR RALLY

Our electric  
racing car  
makes history

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N.65 MARCH 2017



MIDDLE EAST  
THE ART OF BUSINESS

BY YOUR SIDE SINCE  
1917

A **hundred years** have passed.

A **hundred years** of history, or rather, **a hundred years** of striving to improve each day.

A **hundred years** of joining the Peninsula with the Balearics, the Canaries and North Africa on journeys filled with history, moments and stories, with the best navigators on board, offering our clients the best possible experience and always treating the sea as it deserves to be treated.

**One hundred years** behind us and many more to come.

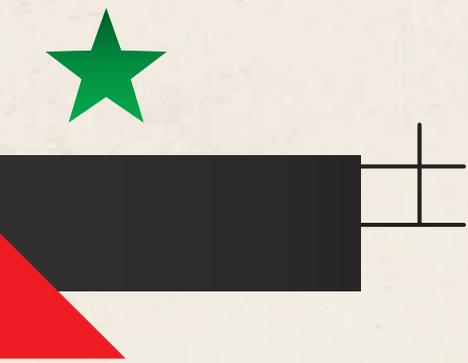
Trasmediterranea, a hundred years  
bringing destinations closer  
and caring for the sea.



[trasmediterranea.com](http://trasmediterranea.com)

App TrasmeFerry

**100**  
1917-2017  
TRASMEDITERRANEA



## A COMPANY OF THE WORLD



The expression “of the world” was once pretty widespread. Although it now sounds dated, the notion behind it is picking up speed in an ever more globalized economy. It refers to a person who is well-travelled, open-minded, unprejudiced and willing to understand other mentalities as a means to self-improve. That definition can easily be extrapolated to a group like ACCIONA. We are companies of the world.

Cultures are diverse by definition. A group with activities ranging from infrastructures to designing exhibitions, and from wineries to renewable energies, is diverse by nature. Our international approach is strengthened by our experiences in different industries and markets, and this allows us to gain a competitive edge.

Expansion enables multiculturalism. Our teams adapt their personal and professional profiles to each country. Working hand in hand with native teams, they understand the idiosyncrasy of each country and project. Rivalry with multinationals in each tender completes us. And our experiences abroad put us in touch with our domestic clients. Sharing their synergies makes us versatile.

This magazine depicts the challenges and opportunities of globalization. As we enter the strategic market of the Middle East, we shine a light on the context: the development of those societies and their economy as

they navigate tradition and change. We listen to expert scholars and foreign correspondents. We also review three world summits: Davos, Abu Dhabi and Marrakesh.

The newly-appointed General Manager analyzes the *know-how* of ACCIONA Producciones y Diseño, leading company in the field of cultural engineering, after successfully implementing innovative museum designs from Russia to Oman and China to Brussels. In Peru, we provided basic solar energy services for remote locations. In Chile, we guarantee 100% clean energy to Google’s new Data Center for the region.

We are also here to rejoice: Bestinver turns 30; Trasmediterranea turns 100. And we celebrate an important milestone for sustainability: ACCIONA EcoPowered becomes the first zero-emissions car to complete the most extreme of rallies, the Dakar 2017. ■

“ Our experiences abroad put us in touch with our domestic clients ”



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The ACCIONA 100% EcoPowered is the first zero emissions car to finish the world's toughest rally. Proved: clean competition is both desirable and possible.



**06 IN NUMBERS BESTINVER TURNS 30**  
Spain's leading independent investment fund and retirement plan manager celebrates sustained growth and profitability.

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**MUSEUMS AND EVENTS NEVER TO BE FORGOTTEN**



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**WORLD SUMMITS**  
**DAVOS,**  
**ABU DHABI,**  
**MARRAKESH**  
**AND CLIMATE CHANGE**

Are we making progress? Yes, but we need to pick up the pace. Three recent summits evidence the implementation of the Paris Agreement. However, the poorer countries need help, while the biggest polluters need to become more aware.



# BESTINVER TURNS 30



## MISSION ACCOMPLISHED AFTER THREE DECADES

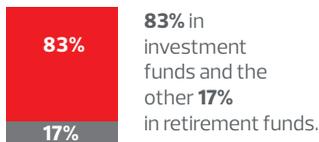
**BESTINVER IS SPAIN'S LEADING\***  
INDEPENDENT INVESTMENT FUND AND RETIREMENT PLAN MANAGER

*QUICK BRIEF*

IT HAS 4 HEADQUARTERS IN:  
Madrid, Barcelona, Pamplona and León.

MANAGING ASSETS AMOUNTING TO **5,2 BILLION EUROS** for more than

**40,000 INVESTORS:**



1993 SAW THE CREATION OF **BESTINFOND**, ITS FLAGSHIP FUND.  
Yield since its inception:  
**15,4% ANNUALIZED RETURN**



In other words, an accumulated return of **2,988.4%**.  
**€10,000** invested at the time would have yielded almost **€300,000 today**.

Bestinver is also active in other European countries, mainly serving Spanish clients, and over the last two years the Company's international portfolio HAS YIELDED A

**25.73% RETURN**

That **SUSTAINED PROFITABILITY** accounts for the Company's stunning track record, including more than



## CULTURAL DIVERSITY:

spanish employees work alongside British and South African professionals

The team of **12** MANAGERS AND ANALYSTS



DRAWS ON **200 YEARS** OF EXPERIENCE

AND SPENDS **30,000** HOURS PER YEAR



analyzing business opportunities (which they call, "the shopping list").

Its portfolios offer over **40% GROWTH POTENTIAL** in more than **60 COMPANIES** in

### 4 MAJOR SECTORS



FINANCE



INDUSTRY



COMMUNICATION AND TECHNOLOGY



CONSUMER

\* Leading independent manager of managed assets according to data from Inverco at the end of December 2016.



<http://acciona.sa/Na3Q3081QRY> VIDEO

**WE BUILD  
HOMES,  
TO FILL  
WITH ALL  
YOUR STORIES.**



We have a house for you to fill with plenty of stories. A home to take care of your loved ones and the environment, thanks to ACCIONA's commitment to sustainability.

**Madrid • Zaragoza • Alicante • Valencia  
Estepona • Marbella • Pamplona**

[acciona-inmobiliaria.com](http://acciona-inmobiliaria.com)







HISTORY

## A BRIDGE TO GROW

DEUSTO WAS SPAIN'S FIRST BASCULE BRIDGE. TODAY IS A SYMBOL OF THE GREATER BILBAO.

by Patricia Alcorta

1930s. Bilbao is overrun with shipyards, factories, labourers and engineers. The city is becoming an industrial hub, but outgrowing the limits of its capacity. By connecting the districts of Abando and Deusto over water, Bilbao could gain some much-needed real estate. However, the project is faced with an unprecedented problem: the river is a busy shipping channel and a permanent bridge would block cargo vessels. So Deusto introduced Spain's first bascule bridge. Entrecanales and Távora built the foundations and four years later, in 1936, the bridge was completed. It had to be constructed twice, though. Blown up in 1937, it was back up and running two years later. ■

# NET PROFIT GROWS BY 70%

2016 FINANCIAL RESULTS

**352** MILLION EUROS  
In net profit

GROSS INVESTMENTS:  
**916** MILLION,  
quadrupling  
the 2015  
figure

Last year's results include an extraordinary income of 721 million euros from the ACCIONA Windpower (AWP) and Nordex merger, plus extraordinary costs of 626 million arising from improvements to infrastructure and debt conditions. Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) rose slightly to 1,192 million euros, meeting planned targets, mainly due to the solid growth seen

in Infrastructure: +91.8%. The Renewables division is still the main generator of EBITDA, at 62% of the group total. Business turnover stood at 5,977 million. The Company's growth is underpinned by the 21% increase in the Construction portfolio to 8,140 million euros and the almost 700MW of renewable energy orders following bid processes in Chile, Mexico and Australia.

DEBT REDUCTION:  
**-0.5%**  
Now standing  
at 5,131  
million

## SAN ROMÁN, ACCIONA ENERGY'S EIGHTH WIND FARM IN THE US

ACCIONA Energy has built San Román in Cameron County (Texas), a 93-MW project with capacity to power approximately 30,000 homes. Alongside the Company's other seven US-based wind farms, San Román brings the wind power capacity to 721MW. Built on schedule in 11 months, San Román has 31 wind turbines.



## WATER AND BEACH PROJECTS IN THE DOMINICAN REPUBLIC

Two new developments related to water. On the one hand, the implementation of the Peravia Multiple Aqueduct Project in the south of country, which services around 138,000 people in a region that has suffered from a lack of drinking water for more than 40 years. The €130m project has been developed by ACCIONA Agua in partnership with a local business. On the other, ACCIONA Infrastructure was awarded a contract to restore and improve 13 beaches in seven villages in some of the most popular tourist areas on the island.



## ACCIONA CONTINUES TO BE THE GREENEST ELECTRIC UTILITY IN THE WORLD

The Company ranked first in the "New Energy Top 100 Green Utilities" list compiled by Energy Intelligence (an independent US consulting firm specializing in energy markets). The ranking classifies companies by assessing both their efforts to reduce CO<sub>2</sub> emissions and their installed renewable capacity. The Company topped the same list last year. For the study, Energy Intelligence selected the top 100 power

generators worldwide, with capacities between 160 Gigawatts (Huaneng, China) and just under 7 GW (OGE Energy, US). Among other issues, the analysis also highlights that almost 80% of new electric power capacity installed in 2015 by those 100 companies is renewable; European companies occupy 5 of the top 10 positions; and Chinese companies hold 6 of the 10 first positions in terms of renewable capacity installed.

## Partnership with National Geographic to fight climate change



Disseminate, inform and raise awareness. The agreement with National Geographic aims to underline the need for us all to do our bit to fight climate change. ACCIONA has teamed up with National Geographic to support the launch of new episodes of *Years of Living Dangerously* (National Geographic Channel) in countries where the Company has built iconic projects: Canada, Chile, Mexico, Australia and Spain. The series is set to be a hit: it has aired in 171 countries and 45 languages with celebrity presenters (Thomas Friedman, David Letterman, Nikki Reed, Sigourney Weaver...) traveling around the world highlighting the effects of global warming and how we can mitigate them.



### A NEW TERMINAL FOR MEXICO CITY'S AIRPORT

Mexico City's future airport is one of the largest infrastructure projects currently underway in Latin America. ACCIONA Infrastructure, in consortium with Mexican and other Spanish companies, has been awarded the contract to build the terminal. The building will be an X-shaped design created by Norman Foster and Fernando Romero with a floor area of 743,000 m<sup>2</sup>, distributed over four levels, which is expected to serve around 68 million passengers a year. Proposed budget: 3.93 billion euros.



### WATER MANAGEMENT SERVICES FOR SEVEN MILLION PEOPLE IN PERU

ACCIONA Agua has been awarded a new contract in Peru (three years, 16 million euros and 170 jobs) including the management, preventive and predictive maintenance, and evaluation of the drinking water and sewer systems in eight districts of Lima. Among other tasks, almost 100 kilometers of water supply and sewerage piping will be installed or replaced, 47,000 domestic connections will be renewed and 100,000 points for checking pressure and chlorine levels in the network will be installed.

After just failing to complete the 2016 Dakar Rally, the ACCIONA 100% EcoPowered succeeded in powering its way to the finish of the 2017 edition, recognised as the toughest yet to be hosted in South America.



THE ACCIONA 100% ECOPOWERED HAS MADE HISTORY AS THE FIRST ALL-ELECTRIC CAR TO FINISH THE DAKAR RALLY, THE WORLD'S TOUGHEST RACE. THAT'S BAD NEWS... FOR POLLUTION!

# CONQUERING THE WORLD'S TOUGHEST RALLY



by  
Juan Pablo Zurdo



# THIS RALLY IS ONE OF THE GRIMIEST AND MOST GRUELLING TESTS IN THE MOTORSPORT CALENDAR.

It has become a highly technological race. A trial that tests the grit and skill of the drivers and their technical support teams. And a milestone in the history of energy. More than 18,000 trucks, cars, motorbikes and quads have bitten the dust (and mud, ice and rock...) over the course of the rally's 39 editions, but the ACCIONA 100% EcoPowered is the only one to have completed the race without burning a single drop of fuel or emitting a single molecule of CO<sub>2</sub>. Amazing news for sport, technology, business and adventure. But, above all, this landmark represents a promising step for-

ward for sustainability. It breaks new ground for the green economy and could be a game-changer for society. "We've always had great expectations. This car is something else. We have a lot of followers; we connect with concern about climate change. That fuels our goal, which is to raise awareness of the need for renewable energy," says Argentine driver Ariel Jatón (on the right in the photo, next to his co-pilot).

## IMAGINE 80%

If a 4x4 is able to complete the gruelling 9,000 kilometers (5,600 miles) between Asunción, La Paz and Buenos Aires (the route completed by 14 February), motor sports as a whole will be able to embrace electric engines and emit less pollution. "I imagine 80% of the cars competing in the Dakar Rally will eventually be electric," said Jatón, shortly after crossing the finish line.

Jatón knows what he's talking about: besides driving the vehicle, he's an engineer, mechanic and has been a part of the process from the design stages all the way through to assembly. He also brings with him the experience gained last year, when they were just three days away from completing the race due to a 45-minute delay in one of the final stages. His partnership with fellow Argentine,

## THE SMELL OF GRASS AND SKIDDING OF TYRES

What's it like to drive this machine? The engine in a 100% electric car is very different from a 100% fuel-powered car, as is the sensation of driving it. Electric propulsion is more progressive, even in manual vehicles. Above all, it's quieter: the noise from the engine cylinders give way to high voltage that barely even hums. The sound level in the driver's seat is something else.

"You can hear what's going on outside: the suspension, the friction of the wheels on the terrain. Other drivers don't hear us coming and we have to hoot for people and journalists to get out of the way," explained driver Ariel Jatón. "The level of focus also changes. We could smell the grass and the plants as we drove over them."



Germán *Tito* Rolón, has also played a critical role in their success. Being on the same wavelength with your co-pilot is like achieving synergy in a group of companies. Tito is an electronics engineer (experienced in drones and electrical systems) and last year he was the technical director for the EcoPowered batteries and recharge system.

An electric vehicle runs on two hearts: the engine that transforms electricity into power and the battery system that charges it. This element has evolved year on year to the point of improving the vehicle's autonomy by 20%, absolutely unthinkable in traditional mechanics. "Unlike internal combustion, this technology is still developing fast," says Jatón.

The look and mechanics are the same as in 2016, but the internal design of the current version was overhauled to add more battery charge, reduce the

weight, feature an improved cooling system for the engine, and better electronics and logistics to cut down the fast charge time.

## HEAT AND ALTITUDE

But, even with Dakar 2016 behind them, the truth was the chances of 100% EcoPowered completing the 2017 rally also seemed doubtful. Marc Coma, the event's sports director, described it as the most arduous of all five editions hosted in South America to date. On top of the difficult route, the extreme weather — scorching temperatures in Paraguay and the Austral summer — and the high altitude in Bolivia, drivers would have to deal with surprise flooding from the Rio Grande in Argentina. The huge amount of mud forced the race to be rerouted and saw the withdrawal of 26% of cars.

So, the result proved the great potential of a zero-emissions contestant. The goal this edition was to complete the rally. Like a small football team hoping to stay in the First Division, Jatón says they can now dream bigger and aim to move up the rankings and gain traction in the media.

The race confirmed the car has some technological advantages over its polluting rivals: for one, the EcoPowered performs better at high altitudes. At more than 3,000 metres in the Bolivian Andes, naturally aspirated vehicles were spluttering due to the lack of oxygen for combustion, whereas it was plain sailing for the electric car. On top of that, the world's most powerful electric engine outperformed favorites, including Alejandro Yacopini's Toyota, on the dunes and soft sand.

The hardest part? "The marathon stage: two consecutive days when assistance vehicles are prohibited. Not only is it a huge physical and mental effort, but you also have to prepare absolutely everything yourself. In this edition, we had to do it all at an altitude of more than 4,000 metres in Uyuni [Bolivia]," says the pilot. The best part? "Crossing the finish line in Buenos Aires [his home town]. We felt like we'd made history." ■



VIDEO  
[www.acciona.sa/X4gK308iRfT](http://www.acciona.sa/X4gK308iRfT)

@ACCIONADAKAR @arieljaton

HOW IT WORKS

# INSIDE A GENUINE ORIGINAL

MADE ENTIRELY IN SPAIN, IN VILANOVA DEL VALLÉS  
(BARCELONA), THE ECOPOWERED IS THE MOST  
POWERFUL ELECTRIC CAR IN THE WORLD.



**1 SOLAR PANEL**

Built by ACCIONA for high performance competition. It measures 250cm<sup>2</sup> and has an energy generation capacity of 100Wh (12V). The solar panel feeds the vehicle's electronic system.

**2 ELECTRIC CHARGING**

Three phase 220-415V, 16 to 32A. Ultrafast charging can prime batteries in one hour. There are also charging ports inside for the front batteries.

**3 SEQUENTIAL GEARBOX**

Six-speed. Not strictly necessary, since electric vehicles can be driven in automatic. However, it has been built into the car for drivers to adapt to the conditions of the route and optimize consumption. Given the terrain, the driver can shift from 2nd to 6th gear and keep the vehicle in 6th for kilometers. This setup drastically reduces the number of gear changes compared to a traditional car.

**4 CARBON FIBER BODYWORK**

Ultra-light and durable.

**5 SYNCHRONOUS ELECTRIC MOTOR**

The most powerful electric motor in the world: 250 KW (340 HP). Outstanding engine torque (i.e., the force that can be expressed on the gear shaft): 800 Nm. In fact, the torque is lowered by 50% or more because it generates more than enough power for the surfaces in the rallies. The motor usually runs between 2,500 and 3,500 rpm, but can easily reach 10,000. It is more reliable than natural aspirated engines both in high altitude locations, where the latter suffer from a lack of oxygen, and over dunes and soft sand. The vehicle has outperformed competitors on this type of terrain. How much does it weigh? Just 55 kg.

**6 SUSPENSION**

Fully-regulated Hydraulic-Nitrogen.

**7 SERVO-ASSISTED STEERING**

High performance. Durable enough to withstand a Dakar rally.

**8 TYRES**

Size: 245/85 cm. R16. Designed to reduce friction on different surfaces.

**9 BATTERY MODULES**

Alongside the motor, the batteries are by far the most important pieces in the vehicle and deliver power and autonomy. Weighing in at 920 kg, the batteries are located in the front and back of the car and under the pilot and co-pilot seats. There are 12 packs in the front, 12 in the middle and 24 at the back to balance out the weight and add grip. Each pack contains 330 lithium batteries, similar to the ones used in television controllers. That adds up to a grand total of 15,840 batteries. The engine recharge system leverages the energy generated by the brakes to feed back 10-15% of electricity consumed to the batteries. Batteries also feature a control module that adapts the current to the accelerator. Battery packs and cables are covered in watertight material to avoid failures when driving through waterlogged areas, mud or rain.

**10 CONTROL MODULE**

Like a built-in display on a dashboard, the screen on this vehicle monitors consumption. This is a vital function for optimizing performance and autonomy. The control module supervises the charge level and range of consumption and power, which goes from 290 V (min.) to 380 V (max.), with the optimal average set at 350 V. Drivers keep one eye on the road and the other on the screen at all times.

**Weight:** 2,100 kg. **Length:** 4.6 meters. **Width:** 2.20 meters. **Maximum speed:** electronically self-limited to 150 km/h. **Energy consumption:** from 20 to 45 kWh/100 km. **Autonomy:** 200 km in race conditions.

---

**JOSÉ MARÍA LÓPEZ-GALIACHO**  
MANAGING DIRECTOR OF ACCIONA PRODUCCIONES Y DISEÑO



# Museums and events never to be forgotten



by **Juan Pablo Zurdo** photos **Luis Rubio**

---



José María López-Galiacho has a background in marketing, consultancy, energy, industry and construction.



100

OFFICES IN SEVILLE,  
MADRID, OMAN, DUBAI  
AND ASTANA

employees

PERFORMANCES IN  
36 COUNTRIES ACROSS  
5 CONTINENTS

600

projects  
20 IN ACTION

## KIDS INTERACTING WITH PROJECTIONS

using laser pointers. Cameras that record visitors and incorporate them onto giant screens. Reconstructions of Russian neighbourhoods. Highly creative cultural engineering projects that denote a striking ability to understand the heritage and philosophy of 36 countries across five continents.

ACCIONA Producciones y Diseño (APD), the company behind these projects, is embarking on a new phase of its corporate life under a new managing director, José María López-Galiacho, appointed in March 2016. After studying at several European universities (business, law, trade and Latin American studies), López-Gali-

acho moved on to hone his professional experience in Latin America and Africa, and is currently focusing his global influence towards strategic markets in Asia and the Middle East.

### **Do APD projects combine interaction and traditional museum visits?**

The traditional model is based on a static notion of the narrative discourse and disregards educational approaches, enhancing the importance of the artwork. There is no dialogue between the museum and the visitor. However, visitors enter museums with different expectations nowadays. New technologies and social media interactions between individuals and the outside world have rendered that traditional approach obsolete. The new model lets visitors interact and deepens their understanding of the content in a bespoke manner because comprehension and assimilation are more intense.

### **How does a city benefit from a museum that implements leading cultural engineering?**

In this type of museum, the main goal is to build a modern and appealing narrative that piques an interest and sparks emotions, making the visitors feel included as they embrace a unique experience. The challenge lies in transforming a static museum into a 21<sup>st</sup>-Century venue that is creative, educational and fun, and has solid economic potential regardless of seasonal peaks. That sort of place can change a city's spirit. Not only with its content, but by means of social innovation, technological and economic innovation, and sustainable development.

### **Could you elaborate on a specific case where you saw that positive impact?**

The night-time visit to Cordoba's cathedral *El Alma de Córdoba* (The Soul of Cordoba) is a prime example. When visiting at night, this permanent installation introduces visitors to the history of the temple using modern technology and state-of-the-art audiovisual projections, integrated in a manner that respects the building's certification as a UNESCO World Heritage site and an active Catholic holy place. The addition of an evening visit has reactivated the temple and made tour-



The goal of a museum is to build a modern and appealing narrative that piques an interest and sparks emotions



## UP CLOSE AND PERSONAL

### **A project you'd like to work on with APD.**

The National Museum of Qatar, the largest museum in the whole of the Middle East. And an Olympics opening ceremony.

### **Where did you learn the most?**

Africa. It was a humbling experience. The people there reminded me what principles we should really be fighting for.

### **A sentence about travelling...**

Mark Twain said travel is an exercise with fatal consequences for prejudice, bigotry, and narrow-mindedness.

### **What do these experiences**

### **contribute to your work?**

You learn to adapt and realize that our problems are tiny compared to the hardships people suffer elsewhere. You make friends.

You sign international deals with a diverse range of clients. And you become resilient.

### **How much of an adventurer does it take to travel the world?**

It's one thing to travel for fun and another to merge with the destination you're visiting. More than an adventurer, you must be a mad adventurer. Travelling teaches you to adapt and be happy abroad.

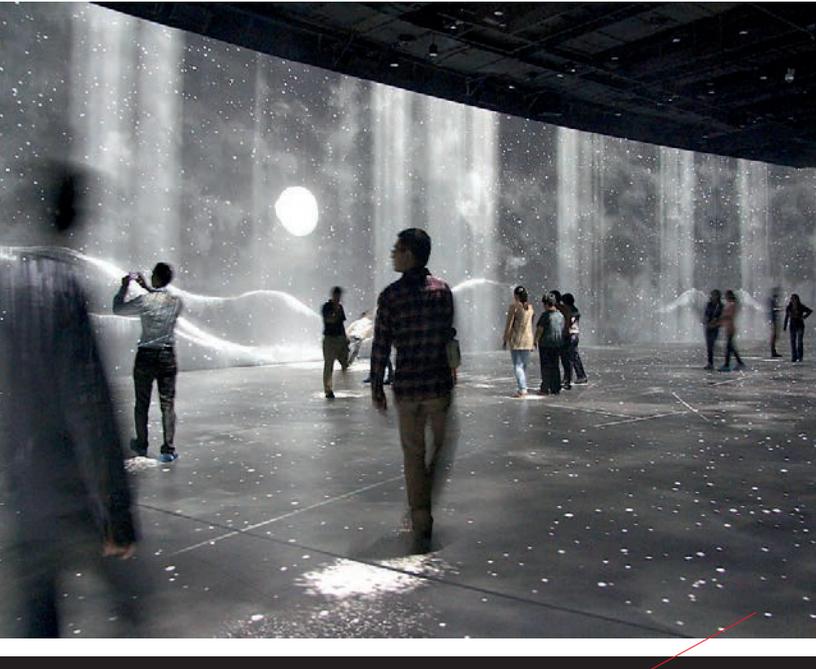
They don't teach that in the best business school in the world.

### **If you weren't doing this, you'd be...**

Trying to squeeze my way into a verse of Sabina's *El pirata cojo*. I'd fail, reconsider and set up a company that combined one of my hobbies with new technologies.

### **A fictional character you admire...**

Don Quixote. We're both from La Mancha and he had the ability to dream up a world of his own. I admire Chaplin's ability to survive. Phileas Fogg's love of travel. Jay Gatsby's ability to life live to the fullest.



## MEMORABLE EXPERIENCES

### **Kazakhstan National Pavilion, UAE National Pavilion and Spanish Pavilion.**

**2017 Astana Expo (June 10 – September 10).** The theme will be Future Energy. After the Expo, the Kazakhstan National Pavilion will house the Energy Museum.

### **House of European History of Brussels.**

**Opening in the first half of 2017.** Visitors are given a tablet that translates information into the EU's 24 official languages. Most of the written information will appear on the tablet so as to not to give priority to some languages over

others. The immersive, interactive settings appeal to sight, hearing, touch and even smell.

### **Opening ceremony for the Abu Dhabi Sustainability Week (ADSW) 2017 (January 16, 2017).**

The most important sustainability event hosted in the Middle East. Every year, the event attracts leading international politicians, entrepreneurs, scientists and academics. APD designed the set, staging and lighting, and audiovisual content, including a video-mapping projection.

### **National Museum of Oman.** The greatest cultural project in the Gulf area in terms of size and heritage.

Fourteen rooms, 250 cabinets and 6,000 objects. The collection is contextualized with interactive and audiovisual elements, one of which is in ultra-high-definition.

### **Olusegun Obasanjo Library and Museum.**

**Abeokuta, Nigeria.** The design combines traditional African elements with interactive modules, original objects and sophisticated audiovisual resources. Exhibition area: 2,300 square meters.

ism less seasonal. The cathedral is always packed, even during off-season months.

### **Both contents and consumers rely more on audiovisual resources. How does this affect the Company?**

Our most recent projects featured augmented reality, mobile devices and tablets, ultra-high-definition projections, 4D videos, drones, *video mapping*, etc. The most innovative audiovisual technology doesn't simply evolve in leaps and bounds, it reaches a huge number of people in very little time following inception. Therefore, the challenge for contemporary museums and events is twofold: on the one hand, museums need to keep tech resources updated, and; on the other, they need to offer exciting experiences. For instance, last year's Christmas event in Seville incorporated an audiovisual element that children could interact with using laser pointers. At the Habitat Muse-

### **Wu Kingdom Helv Relic Museum.**

**Wuxi, China.** The largest immersive audiovisual installation in the world.

A 650-square-meter screen (above) surrounds visitors, allowing them to interact with the scenes. Covering the history of the Kingdom of Wu, the audiovisual show synchronises 22 screens, more than 30 computers and 14 surveillance cameras that capture images of the visitors to create 2D and 3D graphics, which are mixed with the film.

The installation has received four international awards for design and innovation in new technologies.

## A CUTTING-EDGE MUSEUM IN THE FIELD OF CULTURAL ENGINEERING IS...

- **Memorable**, visitors want to come back.
- **Interactive**, the narrative dynamic invites participation.
- **Inclusive**, it incorporates the collection in a historical context.
- **Educational and Informative**. It speaks to scholars, the general public and children.
- **Accessible** to people with disabilities.
- **Technological**. New technologies take visits to another level and bring added value to the collection.
- **Intuitive**, inclusive and interesting to a vast diversity of visitors. In several languages.
- **Understandable**. Information is concise and legible.
- **Updatable** or renewable.
- **Original**. There are no universal keys to success, and the design should be unique.

um in Kuwait, on entering visitors get a *Seed Ticket* embedded with a real seed that includes a chip featuring information on the seed which can be used to interact with the multimedia elements in the museum.

**Technology has made culture available to groups of people who were previously unable to access it. As has social engineering, quite literally...**

We have a firm commitment: everyone has the right to enjoy a museum, exhibition, event, trade fair. Why would a disability prevent someone from having the experience? We are very proud of the National Museum of Oman, the first museum for blind people in the whole of the Middle East and the first in Oman that will be accessible to people with reduced mobility.

**Transferring that social concern to the whole of the population brings sustainability into the mix...**

All our projects are designed with a solid focus on environmental awareness, minimizing the negative impact on the environment by optimizing energy use, reducing waste and curtailing and compensating emissions. We blazed the trail in Spain by fitting out the entire Museum of Under-

water Archaeology (ARQUA) with LED lighting and have since implemented this technology in all our designs. Since 2012, all the events we develop for our clients are 100% carbon neutral.

**Is creativity the key to surprising and exciting visitors with memorable content?**

Creativity is key regardless of the type of project: events, museums, shows, etc. Not only within our team, but also when picking the best specialists in each area. That is how we can push the envelope in all our efforts. Luckily, our projects are so innovative that they generally appeal to the top professionals in the business. The fact that we offer an ideal setting for them to hone their talent also adds to the appeal. I think talent and creativity bounce off each other, particularly in multicultural and global teams like ours. Our colleagues are from Russia, Italy, Germany, Poland... from all over the world in fact.

**How do you adapt projects to the difficult cultures and mentalities of the visitors?**

By working very closely with local professionals. Getting immersed in the culture of each country is also a key factor for our teams. We understand them by living with them, getting a feel for their culture and discovering not only what they like, but also what excites them. We also identify what they look for in a foreign company and involve them in the design process.

**Does that cultural immersion go beyond a professional interest?**

The great thing about this job is that it introduces you to countries and cultures that would be hard to access as a tourist. You get to know people, learn about their customs and traditions and share experiences in a very intense manner. You forget clichés and can focus on the big picture. It's a very enriching experience. I have discovered that we have a lot of things in common with Middle Eastern countries, more than you'd imagine. Especially in terms of friendliness and hospitality. ■



VIDEO  
<http://acciona.sa/xlzz308iR9N>

THE REINVENTION OF THE

# MIDDLE

by  
**Ángel Luis  
Sucasas**

Project for the  
Expo 2020  
underground  
station in Dubai,  
after the extension  
of the line to the  
fairground site.

THE COUNTRIES IN THE ARABIAN PENINSULA ARE EXPERIENCING UNPRECEDENTED ECONOMIC AND TECHNOLOGICAL GROWTH. THEY HAVE TURNED THE OIL CRASH INTO AN OPPORTUNITY FOR ECONOMIC DIVERSIFICATION AND STRENGTHENING INFRASTRUCTURE, TRIGGERING AMPLE OPPORTUNITIES FOR WESTERN COMPANIES WILLING TO ADAPT TO THE LOCAL MARKET.

# EAST





# MAN. QATAR. UNITED ARAB EMIRATES. SAUDI ARABIA... COUNTRIES WITH NEW FRONTIERS.

New frontiers are helping to redefine the Middle East. Known for many years as the land of oil, the region is now also benefiting from the kind of wealth generated by multinationals such as ACCIONA. With its expertise in infrastructure, water, engineering, construction, cultural, industrial and services engineering, and more than 2,000 employees on sites in the region, ACCIONA has a strong presence in the Middle East.

This is also demonstrated through its strategic contracts, including the Dubai metro extension for Expo 2020 (as part of the Expolink consortium, alongside Alstom and Gülermak); the world's largest photovoltaic plant, the Mohammed bin Rashid Al Maktoum Solar Park (Phase III), also in Dubai; and the Ras Abu Fontas 3 desalination plant in Qatar, the first in the country to use reverse osmosis technology.

Despite the apparent recession caused by the plummeting price of oil (after selling at more than \$120 per barrel in 2012, rates have dropped to just over \$50 in early 2017), the region is a land of opportunity for companies that can adapt to the cultural and economic puzzle. Goodbye carbon dependence. Hello, digital transformation, transport technologies, media and quality tourism.

In its report, *Accenture Technology Vision*, the consulting company showcased the top five trends

to speed up modernization in the Middle East, from artificial intelligence to customized Internet experiences (The Internet of Me). In late 2016, Elon Musk, the tech mogul of the hour, confirmed Dubai would host the first network of his groundbreaking Hyperloop train, which can travel at more than 600 mph.

The cash-flush region aims to spearhead future innovation primarily using multinationals. "We identified a strong need for infrastructure, from transport to water cycle processing. We looked in the mirror and saw our own reflection. This has become a strategic region for a lot of companies," points out Jesús Sierra González, regional manager for ACCIONA Infrastructure in Europe, the Middle East and Africa.

Ángeles Espinosa, correspondent for Spanish newspaper *El País* in Dubai, says "there is a notable trend turning certain countries into tech hubs," mainly driven by economic motives, but also by social issues, such as creating jobs for Dubai's youths, who are notoriously overprotected.

## SUSTAINED STRENGTH

From a macroeconomic point of view, the Middle East is dropping down a gear, due to the falling oil prices and increasing foreign debt. After growing at a steady 6% for decades, countries

On the right, Dubai's skyline. The dunes evidence the huge investment required to build a city of 1.5 m inhabitants in the middle of the desert.





like the UAE have slowed to 3.4%. A big-picture approach reveals a whole different story, however. Saudi Arabia's debt is only worth 5.9% of its GDP. The UAE's fiscal deficit is only 15.68% of the GDP, while in the US it stands at 104% and is double that in Japan.

The World Bank report, *Doing Business 2017: Equal Opportunity for All*, provides a detailed look at the spectacular growth of countries ranked by their ease of doing business. Oman has seen the greatest improvement, after shooting up from number 159 to 32 in one year. Bahrain is up 69 positions compared to last year. UAE tops the regional ranking and is one of the ten countries worldwide that most improved their ratings.

#### TOLERANCE

"Many companies say opportunities have dried up in the Middle East. If that's what they think, fair enough. We're doing very well over here. We've identified two key issues: trust and respect," says Jesús Sierra. "Companies used to come and tell clients what they needed, without actually listening to them. Nowadays, you must be flexible, understand your client's needs and

## SERVICES, WATER, ENERGY AND TRANSPORT

### EXTENSION OF THE DUBAI METRO

The network is to be extended 14.5 km to connect to the Expo 2020 site.

**THE QUOTE:** "Construction will include 11.8 km over ground, 3.2 km underground and seven stations, including the Expo stop." **Marcos Dorao Madruga** – Business Development Manager for the Middle East at ACCIONA Construction.

### RAS ABU FONTAS 3 DESALINATION PLANT, QATAR

Capacity of 164,000 m<sup>3</sup> per day. Supply for 1 million inhabitants.

**THE QUOTE:** "The first desalination project to use reverse osmosis technology in Qatar, completed on schedule." **Julio Ratia Romero** – Operations and Maintenance Manager for the Middle East at ACCIONA Agua.

### MAINTENANCE AND SERVICES

Airports, schools, hospitals, embassies and hotels in Oman and Qatar.

**THE QUOTE:** "Apart from paying our employees a salary, we contribute to their welfare." **Maximiliano Ades Alsina** – General Manager for the Middle East at ACCIONA Service.

### DEWA PHOTOVOLTAIC PLANT IN DUBAI

Consisting of 3.1 million panels, with 800 MW capacity.

**THE QUOTE:** "We are building one of the largest solar plants in the world and it will be ready for Expo 2020." **Alfons Juan Tomás** – Development Manager for ACCIONA Industrial.



The quest for diversification and entry into global markets are strategic goals for the region.



## CONNECTING MINDS. CREATING THE FUTURE

**A** barbecue burns with Dubai's horizon in the background.

What seasoning is that? Could it be Indian turmeric, Mexican chili or maybe it's Cajun cayenne pepper? Perhaps all the spices.

"Most people have children. Their families are far away, so everyone is open to creating new bonds. Weekends are packed with birthday parties and barbecues thrown by international hosts. Daily life is more interesting than you imagined before arriving," Maximiliano Ades Alsina – General Manager for the Middle East at ACCIONA Service.

The blend of cultures is reminiscent of the most cosmopolitan cities: "There are 22 kids in my son's school, from 15 different nationalities. That speaks for the integration of cultures, religions and ethnicities," explains Jesús Sancho (Manager for Middle Eastern Countries at

ACCIONA Infrastructure). Julio de la Rosa (director of ACCIONA Agua in the Middle East, six years in UAE) sees Spain's multicultural nature as an advantage when it comes to adapting to life in the region.

According to statistics from Dubai's government, 71% of residents are not Arabic. Although the State is openly Sunni and Islamic, other religions including Christianity and Hinduism are also allowed.

Events such as the 2022 World Cup in Qatar and the Expo 22 in Dubai (October 2020 to April 2021) will open the region up to other countries. The Expo fairground (the photo below shows a detail of the project) will accommodate 180 nations and hopes to attract approximately 25 million visitors.

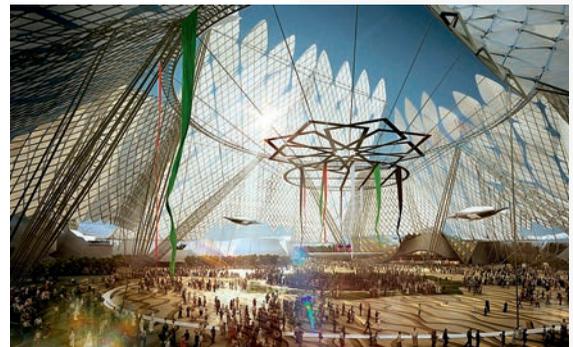
The theme chosen for the event partly defines the attitude companies should take to succeed in the Middle East in the long term: *Connecting minds. Creating the future.* ■

deliver on your commitments. That's the way to do business and win big contracts."

*Fajr. Dhur. 'Asr. Maghrib. Ishā.* Dawn. Midday. Afternoon. Sunset. Night. Islam's five calls to prayer take priority over business meetings and construction work. Foreigners are expected to respect local customs, such as reducing their alcohol intake, toning down their dress code and eating modestly during the month of Ramadan. "There are four or five red lines. As long as you don't cross them, you're fine," says Jesús Sancho Carrascosa, Director for Middle Eastern Countries at ACCIONA Infrastructure, which has boomed spectacularly over the last five years. That respect should also be felt on a personal level. "Delivering on commitments and completing contracts on time has enabled us to build trust with our clients and partners, which is essential in the Middle East. In addition, we have been able to foster a transference of know how," underlines Jesús Sancho.

### IN STEP WITH CULTURE

Spanish companies have to break down some internal barriers to understand the region. The media bias often conceals the fact that the Middle East has



## GONZALO ESCRIBANO

Director of the Energy Program,  
Real Instituto Elcano.

### “You need a long-term vision to succeed”



Although foundations are being laid for a more diversified economy in the region, Escribano still sees the need for a solid scientific and technological fabric, both domestic and outsourced, “even though a lot of hiring is going on.”

“Some countries are implementing reforms; take Saudi Arabia, for instance. But the industrial fabric hasn't grown for two years. There is obviously room for improvement, but creating tech hubs is easier said than done.” In his expert opinion, these reforms need a long deadline: “We are talking about the mid or long term.”

The same goes for the presence of foreign stakeholders to accelerate change. Escribano posits

that they also need to be planned with a long deadline in mind, since connections are not strong between native and foreign communities. In this sense and in most cases, these are dual markets. On the one hand, “a public sector with good jobs and a welfare state for citizens.” On the other, a diverse job market for foreigners. “That goes for everyone from a Spanish engineer to a Filipino maid.”

As regards opportunities for Spanish companies, Escribano does not feel that the aforementioned cultural proximities with the Arabic world can generate clear competitive advantages. It is more important to have a strong presence on site. “We do offer excellent services and have very solid companies, but the Spanish need to be more present in the region.” He affirms a long-term vision is the ticket for success and claims that, except for a few cases, most companies err on the side of excessive short-sightedness.



Above, press conference held by the consortium extending the Dubai metro and UAE authorities, attended by José Manuel Entrecanales, Chairman of ACCIONA. Below, Umm AlHoul Desalination Plant, Qatar.

left an indelible mark on a good part of Spain's culture, from its customs to its languages. “Although Spanish companies disembarked in the Middle East after their international counterparts, they share a special relationship with the Arab world that is based on ties that go back many centuries. They feel a lot closer to us,” Jesús Sancho points out.

Correspondent Ángeles Espinosa believes that Spanish nationality can often lead to more favorable treatment. Not so much based on our history, but on other trivial things: “When you arrive at the airport and show your passport, nine out of ten times the officer asks ‘Real Madrid or Barcelona?’ One of my acquaintances invites four of his top clients to a Real Madrid match every year.” However, that relative link can never replace the offer of a good product that is necessary and competitive in a market attracting strong companies from all over the world.

## THREE KEYS TO NEGOTIATION

### 1. Previous experiences in the Middle East.

Clients are very interested in foreign companies that have worked on similar projects in the region. Information flows freely between countries in the area. Consequently, clients frequently research exactly how other projects have been implemented.

### 2. Deliver on commitments.

The terms of the agreement should be set in stone.

Every single deadline and condition agreed when signing the deal should be met. Clients will always value the ability to deliver exactly on the terms agreed upon.

### 3. Renegotiating deals.

Prices and conditions are negotiated over long processes. Clients usually request several BAFO (best and final offers) over the course of the project and value aspects such as value engineering.



## “CLIENTS AND CONSULTANTS DEMAND WORLD-CLASS QUALITY STANDARDS”

Jesús Sancho is well aware of the fierce international competition, despite cultural similarities between foreign entrepreneurs and local contractors: “The clients and international consultants based in the Middle East demand world-class levels of competition and quality standards. You can’t come here thinking that the level of demand is lower than in

more competitive markets. Things are very different, both commercially and technically.”

ACCIONA has also embraced another key aspect: specialization in a range of different sectors that can be complementary. “Despite the plummeting price of oil, we have the means and know how to replicate our achievements. We have adapted to a changing market in real time. Many of the infrastructure projects, such as water processing plants, power facilities, transport, privatization and concessions, are in line with our experience and strategy of specialization. In addition, the Company has a net added value in these areas,” concluded Jesús Sancho. ■

CLIMATE CHANGE

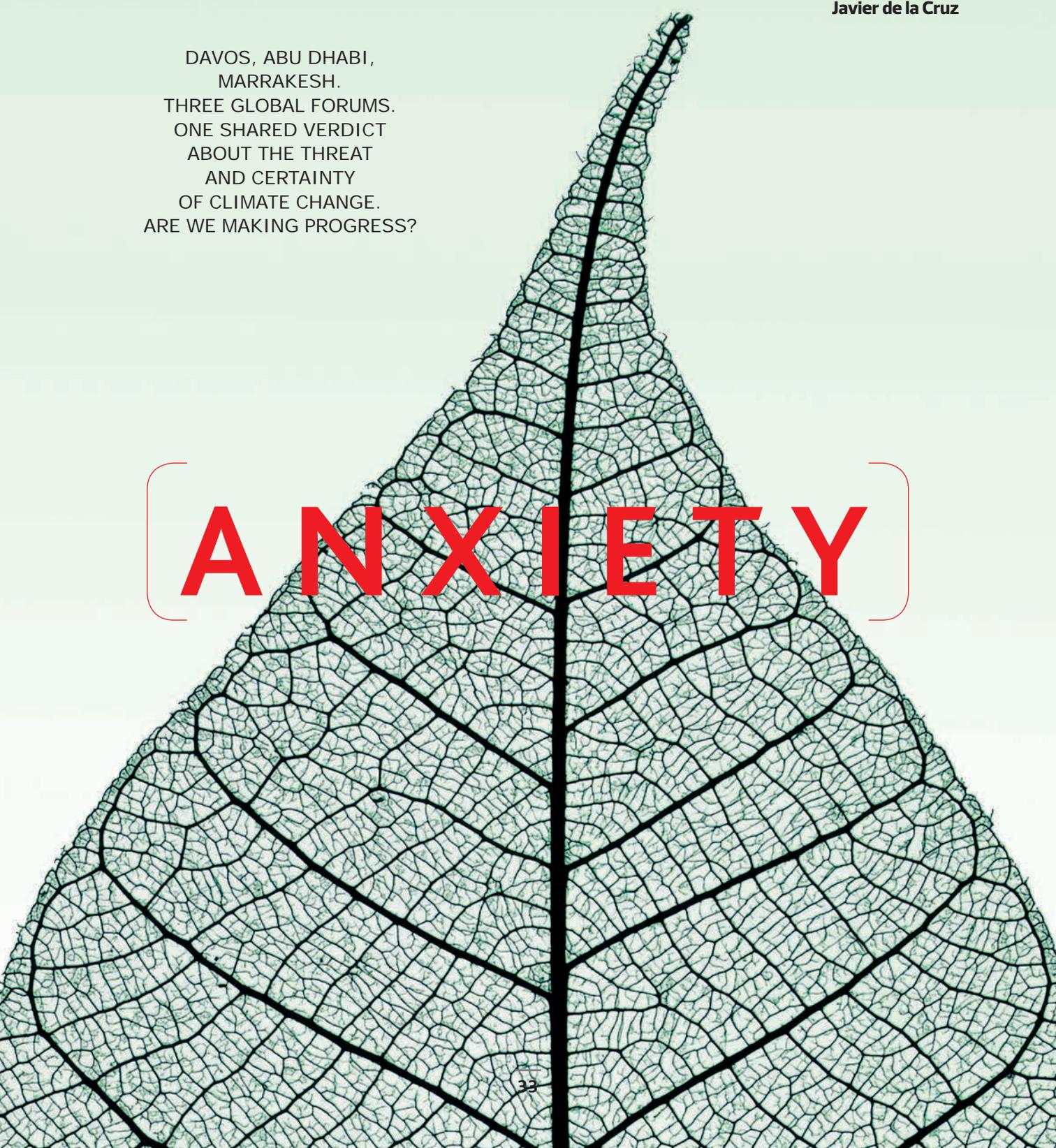
A photograph of several ice cubes melting in a pool of water. The ice is melting, with water droplets visible on the surface. The background is a light, neutral color.

# GLOBAL

by  
**Javier de la Cruz**

DAVOS, ABU DHABI,  
MARRAKESH.  
THREE GLOBAL FORUMS.  
ONE SHARED VERDICT  
ABOUT THE THREAT  
AND CERTAINTY  
OF CLIMATE CHANGE.  
ARE WE MAKING PROGRESS?

# ANXIETY



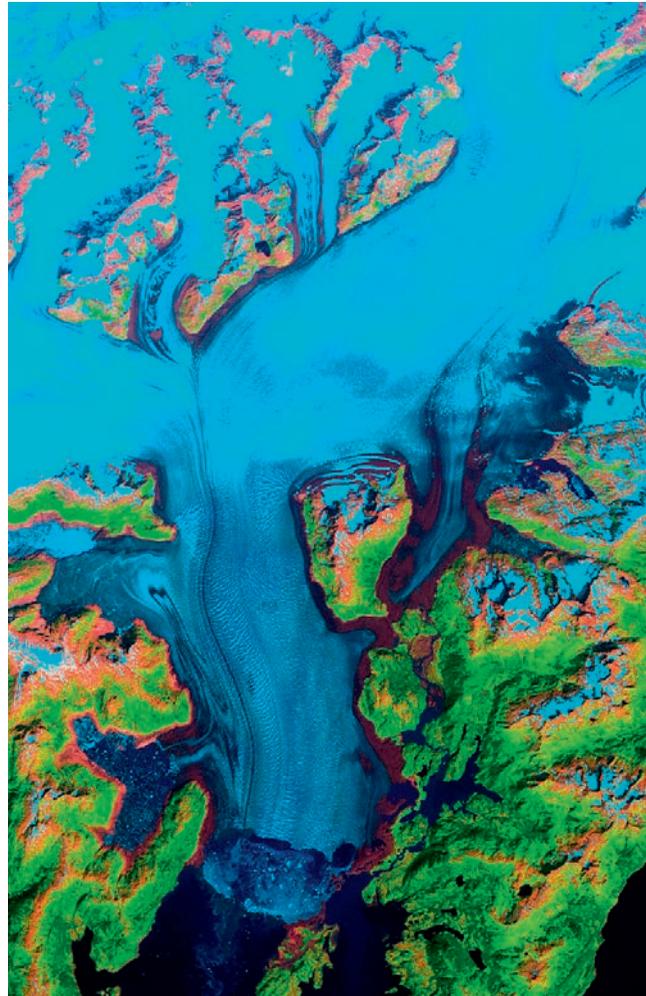
# THE EFFECTS OF GLOBAL WARMING RAISE RED FLAGS ON THE AGENDA. 2016 WAS THE HOTTEST YEAR

ever on the books. 16 of the 17 hottest years on record will have been this century. It's time to stop chilling.

The World Economic Forum in Davos raised the alarm in January. For the third year running, environmental dangers were one of the top three trends included in the *Global Risks Report*, alongside economic inequality and social polarization. Davos devoted 15 sessions to climate change and nine to clean energy. Impressive.

Donald Trump's skeptical shadow has not eclipsed the widespread goal to cut greenhouse gas emissions and implement the Paris Agreement. Renowned economist Nicholas Stern pointed out that: "The US is composed of states and cities that will be able to act on climate change regardless of their president's actions." For instance, California aims to reduce emissions by 40% by 2030.

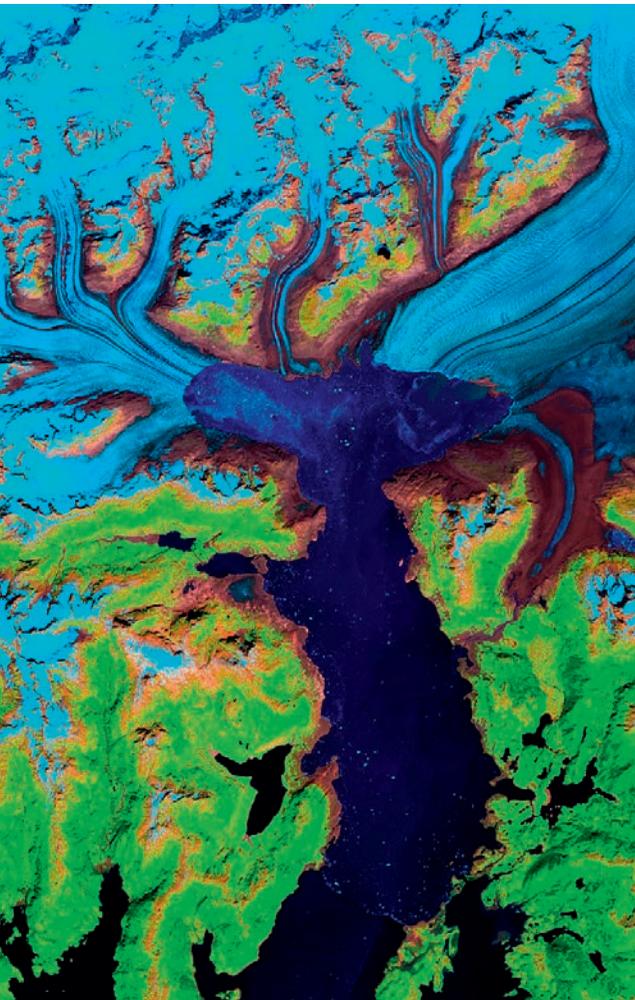
While at Davos, and in line with previous statements, Chinese president Xi Jinping pledged to slash the emissions of the world's top polluter (40 billion tons/year in carbon dioxide), whatever the US does. Although the North American country's per capita pollution is higher, China is key because it consumes and produces almost 50% of world coal. Coal accounts for 45% of all CO<sub>2</sub> emissions from energy consumption and 40% of sulfur dioxide emissions. Hence the role Beijing politics play in the price of coal.



## RESISTANCE TO CHANGE AND LAX ATTITUDES

According to sociologists and psychologists, a common drawback appears when attempting to tackle major issues that require a common effort. This is how it goes: people voice their concern about sustainability, but do not change their

behavior to practice what they preach. This reveals an underlying, old belief that changing one's behavior is pointless in the face of the world's apathy. Consequently, justifying our own uselessness and blaming governments or the rest of the planet.



Davos revealed some promising trends. Renewables are on the rise: in 2016, 300 billion US dollars were invested in clean technologies, following a record 348 billion in 2015. The International Energy Agency (IEA) estimates that strictly complying with the Paris Agreement could require 12.6 trillion euros until 2030. A number of the Paris commitments focused on the electricity industry: according to the IEA, renewables are expected to cover almost 60% of the increase in electricity generation by 2040 and forecasts that most companies will be competitive and receive no funding.

#### FUTURE ENERGY

Running almost parallel to the Swiss forum, Abu Dhabi hosted the 10th edition of the World Future

#### ADOPTING LAWS IN SOUTHERN COUNTRIES

SPAIN IS UNDER INCREASING THREAT.

At the moment it's just an announcement, but following ratification of the Paris Agreement, the Spanish government announced a law on climate change that converts the commitments acquired with the European Union into obligations and actions. The process is urgent because Spain would be one of the most affected European countries. According to a study by Berkeley and Stanford universities published in Nature, global warming would cause lower crop yields and transform the work culture, resulting in fewer working hours and a gradual decline in productivity. There would be a drop in income in southern nations compared to those in the north that would aggravate social inequality. In the worst case scenario forecast by the analysis, average income could fall by 46% in Spain, by 41% in Portugal and by 26% in Italy.

## IN THE WORST CASE SCENARIO, SPAIN'S GDP COULD PLUMMET MORE THAN 40%

The Marrakesh Summit pledged to increase help for poor countries. The global strategy cannot advance without that change of course.

Energy Summit, focusing on renewables, energy efficiency and clean technologies. The International Renewable Energy Agency held its seventh general assembly with the same focus. "An unprecedented transformation of our energy system is underway. Plummeting costs and rapid innovation have positioned renewable energy solutions as an excellent option," said director-general Adnan Amin. One of their goals is to double the share of renewables, particularly in sectors including heating, air conditioning, industry and transport. In fact, 2016 saw several landmark achievements. Between May 7 and 10, all of Portugal's electricity demand was produced by hydroelectric energy and wind power. The Netherlands is another leading example, as Dutch trains are 50% powered by wind



## JOSÉ MANUEL ENTRECANALES

Chairman of ACCIONA.

**“We need to reconnect with the people, to get the message across to society”**

The Chairman of ACCIONA took part in two events at the Davos Forum: a round table on the price of coal (alongside senior officials from LafargeHolcim, CNBC Africa, the British Academy and Canada) and a meeting organized by the *New York Times*. “The world is divided into two parts: on the one hand, the part that needs new energy and on the other, the part of the developed economies, which need to replace conventional contaminating fossil fuel-based energy

production with renewable, clean energy sources,” said Mr Entrecanales. New energy areas “do not emit CO<sub>2</sub> and implement a model that is more cost-effective than those supplied by traditional energies.” Mr Entrecanales stressed the importance of changing behavior and setting appropriate prices for coal that allow producers to be profitable and implement climate change agreements signed in Paris. “The focus must be placed on R&D. In other circumstances, this factor has received more help, even in the most basic research. Now the capital must be allocated to those new ideas, applying them to this new reality and getting the private sector involved, instead of funneling millions into new technologies, where the risk is greater.”



energy. Costa Rica went 76 straight days using clean sources to supply its five million inhabitants, industries and businesses.

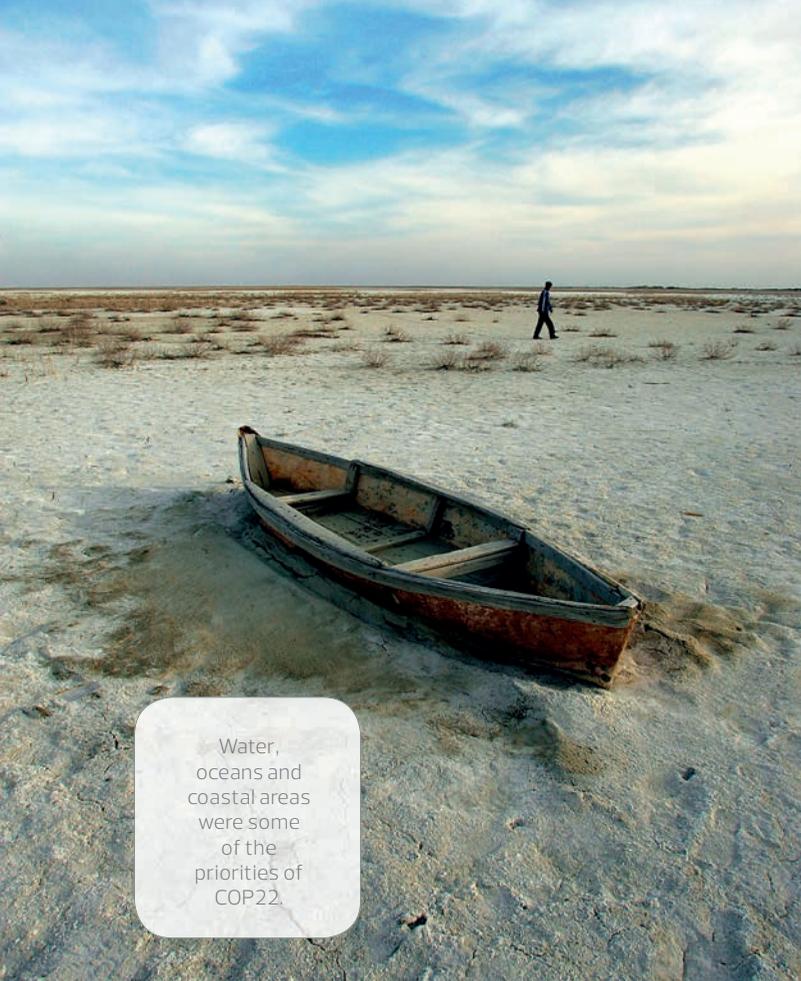
### HELP THE VULNERABLE

Progress in 2017 will be a direct consequence of the introduction of the Paris Agreement in November 2016. A week later, on November 4, the Conference of the Parties to the Convention on Climate Change (COP22) met at the Marrakesh Summit. In their final declaration, almost 200 signatory nations stated that the fight against global warming was “irreversible” and called for “strong solidarity with those countries most vulnerable to the impacts of climate change” as the best strategy to implement Sustainable Development Goals.

An estimated USD 100 billion budget will ensure that, after 2020, these countries can access clean energy, advance towards green economies and the eradication of poverty, guarantee food safety and mitigate disasters including flooding caused by ris-

## COP22 MADE PROGRESS ON THE IMPLEMENTATION OF THE PARIS AGREEMENT, BUT AT A SLUGGISH PACE

ing sea levels, storms and drought. The signatories pledged the budget (additional to the Paris Agreement), and quantified goals to organize allocations. Other specific advances include the establishment of a decision-making body that will meet annually to implement the Paris Agreement commitments. An agenda was also set out as a road map leading up to the 2018 COP to ensure the implementation of the Paris Agreement (outlining nationally determined contributions, bringing more transparency to emissions, etc.). However,



Water, oceans and coastal areas were some of the priorities of COP22.

COP22 proved that the progress and scope of these initiatives needs to pick up speed. Despite growing support for renewables and carbon quotas, no major advances have been seen in terms of abolishing fossil fuel subsidies or progressively retiring coal-fired power plants.

There is no doubt that the fight against climate change requires a common, crosscutting approach. In Marrakesh, the private sector was called on to strengthen its strategy from now to 2020. Civil society, companies, universities and scientific institutions need to contribute their technical insight and vision in seven major areas: land use, oceans and coastal areas, water, human settlements, transport, energy and industry. In this sense, NAZCA is the benchmark platform to gather initiatives from the private sector and the civil society. ■



<http://acciona.sa/Zb7A308iRkz>

VIDEO

Senior Executive Director of Sustainability at ACCIONA.  
**JUAN RAMÓN SILVA**

## THE MEDIA: LINESMEN OR PLAYERS?

**W**ithout the mass global scope of the press and media, public opinion would not have enough information to favour this or that measure or use its preferences to influence the political decisions required to tackle major challenges like climate change and the world shift towards a low carbon economy. Over the past four years, a lot more information about climate change has entered the public domain. Both in the press and on television, we regularly see news

about the consequences of global warming in the shape of drought, fires, extreme storms and increasingly powerful hurricanes, as well as articles on the changes that must be made to economy and production models if we are to reduce the main cause of this phenomenon, namely human activity and our dependence on the use of fossil fuels. In his latest book, *Homo Deus*, historian Yuval Noah Harari observes that, in a data-saturated society and bombarded with often contradictory signals, individuals are drowning in noise preventing them

from identifying messages critical for their future. From the many thousands of inputs we receive every day, it's difficult to tell which ones are really urgent and important. The media are in this contradictory situation because of some practices basically only on the lookout for news headlines, which give information only in that type of format. But an issue like the fight against climate change, which should be constantly addressed and carefully explained, cannot always be reduced to a news item. One example is the question

of how ordinary citizens should react to the report by the Intergovernmental Panel on Climate Change (IPCC), the alarming content of which, on the possible catastrophic consequences of global warming, has the backing of 97% of the scientific community. It is of little use to society if information is only given every five years, when a new edition is published. So, in this great match with no referees, it is in our interests to ask ourselves whether the media should be getting more involved as players instead of standing on the sidelines like linesmen. ■

# 100% RENEWABLE ENERGY FOR GOOGLE CHILE

ELECTRICITY FOR GOOGLE'S FACILITY IN CHILE WILL COME FROM EL ROMERO SOLAR PHOTOVOLTAIC PLANT. OUR PARTNERSHIP DEMONSTRATES THAT DIGITAL ECONOMY GIANTS AND OTHER STRATEGIC SECTORS HAVE EMBRACED RENEWABLE ENERGY.

by **José Arrieta**





# THE ALLIANCE IS CULMINATION OF PROCESS THAT BEGAN AT PARIS CLIMATE CONFERENCE.

This agreement between ACCIONA and Google was announced during the Paris Climate Change Summit (December 2015). El Romero Solar photovoltaic plant started operating in November 2016 and since 1 January 2017 has

covered part of the tech giant's electricity consumption in Chile. The agreement is framed within 2017 Google's strategic goal to ensure all its facilities worldwide are powered by renewable energies. The contract will continue until 2030, with an option for an additional five-year extension at the client's discretion.

ACCIONA will supply Google with up to 80 MW/year of electric power through the Central Interconnected System (SIC), Chile's main power grid, to which the photovoltaic plant and Google's Quilicura Data Center are connected. "We are proud to supply renewable energy to such an important customer as Google, a company firmly committed to renewables. And to do it from this plant, the biggest photovoltaic installation in Latin America and a benchmark within the sector," commented ACCIONA Energy Chile CEO José Ignacio Escobar.

Florencia Bianco, Google Corporate Communications Manager for Latin America, pointed out that "in 2017 Google will achieve the challenge of powering its global operations with 100% renewable energy. The agreement with ACCIONA



El Romero will supply energy to Google Chile until 2030 and the agreement can be extended at the client's discretion.



Google's new facility in Chile is the Company's only data center in Latin America and will power the entire region.

is essential to achieving this objective.” El Romero Solar plant, located in the Atacama Desert (in Vallenar, some 645 kilometers north of Santiago), is a stunning facility in terms of both its size and characteristics. With a maximum capacity of 246 MWp (196 MW rated power), the panel structures consist of 776,000 photovoltaic modules with a solar capture area of more than 1.5 million square meters (equivalent to 211 soccer pitches). Placed in a straight line, the panel structures would measure approximately 196 kilometers. El Romero will produce 493 GWh/year, equivalent to the average elec-

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## NEW BUSINESS LINE

SELLING ENERGY TO LARGE GLOBAL CORPORATIONS.

The supply to Google outlines one of ACCIONA Energy's strategic business lines: working with major corporate clients that wish to reduce their carbon footprint by using 100% renewable energy. The Company builds its business on renewable electricity produced in own power plants and

projects awarded by public tender or contract for the purchase and sale of energy, signed primarily with electricity companies. The new business line is gaining traction, however, favored by the falling price of renewable energy: photovoltaic energy has dropped 80% and wind 50% since 2009. In view of volatile

oil and gas prices, renewable energy can lock in prices in the long term and provide financial stability for purchasing companies. More than 80 companies promote the RE100 (100% renewable energy) initiative, including Google, Apple, Facebook, HP, GM, BMW, Coca-Cola, Unilever, Nestlé, IKEA, Walmart, H&M, BT and Philips.



tricity demand of 240,000 Chilean homes (approximately one million people), and avoid the emission of around 475,000 metric tons of CO<sub>2</sub> from coal-fired power stations. A staggering amount equivalent to the work of 23.7 million trees through photosynthesis. Part of the production is already being injected into Google and, as of 1 January 2018, another tranche will power distribution companies operating in the Central Interconnected System

The building of the plant has fulfilled all the environmental commitments made to the Chilean Administration. In terms of flora, initiatives involved rescuing and relocating 12,000 shrub species to plant nurseries. For fauna, a guanaco preservation plan was designed, including the study of populations and a five-year community environmental education program, alongside the rescue and relocation of three reptile species at risk.

## THIS IS GOOGLE'S FIRST RENEWABLE ENERGY CONTRACT IN LATIN AMERICA

(SIC), with which ACCIONA signed energy contracts after being awarded the supply in public tender 12/2014, called in December this year.

### RECORD TIME

Located in the area with the highest solar radiation in the world, the plant was built over a record-breaking 13-month period, two months fewer than initially planned, with a total investment of USD 343 million. An average 400 employees have taken part in a construction process based on innovative criteria and strategies, contributing their know-how to the development of future plants.

Construction works were also carried out with the utmost respect for the country's archaeological heritage after stone carvings were found in one of the most important areas where the plant was being developed. Archaeological tasks were performed over the course of 100 days across more than 50% of the surface area, without affecting estimated construction deadlines. ■

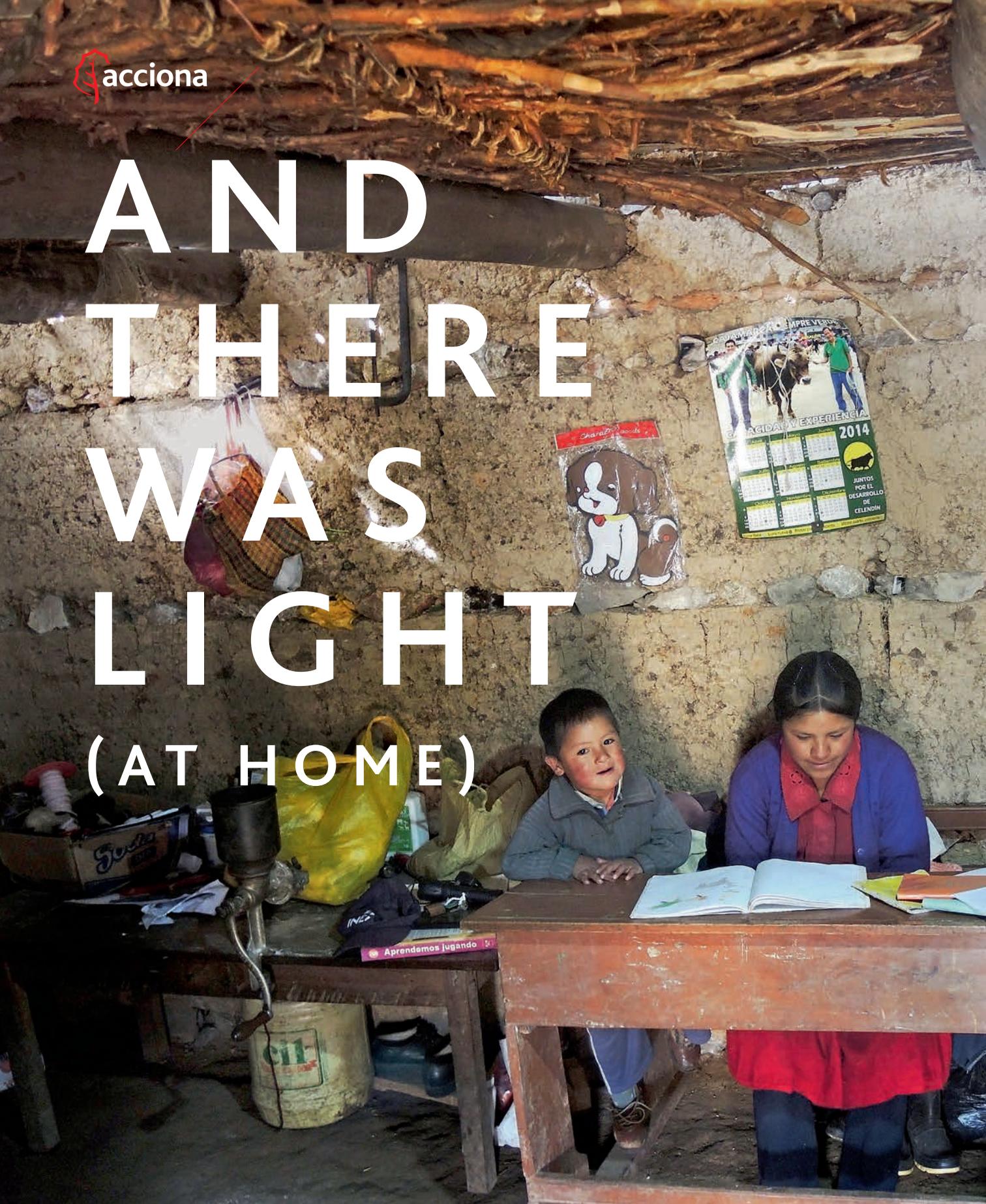
## BIGGEST BUYER OF GREEN ENERGY

**G**oogle is the world's biggest renewable electricity buyer. Last year, the tech giant signed 20 agreements to purchase energy that could power its 60 offices and 13 data centers located around the world. In addition, the contract signed with ACCIONA represents the first purchase of renewable energy by Google in Latin America. Consumption in data centers is growing exponentially. Florencia Bianco, Google Corporate Communications Manager for Latin America, notes: "Currently, three billion people in the world connect to the Internet and eventually another four billion consumers will surf the Web. Therefore, we need to guarantee a solid energy supply to our data process centers, where we store users' information." The Chilean facility is Google's only data center in Latin America, although all the company's centers are interconnected. Google's renewable transactions are motivated by both "environmental and business considerations, since renewable energy is increasingly becoming the lowest cost option. Businesses play a huge role in transitioning towards a clean energy economy," said the company. ■



<http://acciona.sa/zzK5308we8j> VIDEO

# AND THERE WAS LIGHT (AT HOME)





The electricity system means children can study at night, eliminating the smoke from candles and lamps that can cause disease and reducing fire risk.

CAJAMARCA, PERU. AT AN ALTITUDE OF MORE THAN 3,000 METERS. THOUSANDS OF FAMILIES USED CANDLES FOR LIGHTING UNTIL SOLAR PANELS ARRIVED. NOW LOCAL MICRO-ENTERPRISES HAVE TAKEN ANOTHER TECHNICAL, ECONOMIC AND SOCIAL LEAP FORWARD.

By  
**Rosa Alvares / JP Zurdo**

# I'M PLAYING HERE, I'M TURNING THE LIGHT BULB ON AND OFF...

The future looks brighter for the little boy saying this to his father. Even though he lives in Cajamarca, the place with the worst shortage of electrical power in Latin America's second poorest country in terms of electricity supply. But his house, along with 4,000 others in the Cajamarca Region, all at an altitude of 3,000 meters, bucks the trend. They already have electricity, lighting and a feeling of progress thanks to Light at Home ("Luz en Casa"), an ACCIONA Microenergy Foundation program. Imagine having to travel over kilometers of high mountain terrain just to charge your mobile once. Or being faced with a medical emergency and being constrained by the same obstacle. Or having to spend money your precarious finances really can't afford on fuel, candles, batteries and

## THE PROJECT GENERATES NEW ELECTRICITY SERVICES, MICRO-ENTERPRISES AND JOBS



so on. Your working day is confined to the hours between sunrise and sunset.

But now, thanks to the sun, an 85-watt panel, three 12-volt LED light bulbs, a plug, voltage regulator and sealed battery, all that has changed. The program supplies dual sustainability: long-term renewable energy that's affordable for families, who pay for their electricity supply in small monthly instalments (less than three euros).

### POWER PLANTS AT HOME

Having achieved the aim of lighting homes, the next phase has now begun. The Foundation looked at how to make electricity also serve as an economic driver, generating new jobs and broadening the range of services and devices other than light bulbs. The context isn't an easy one, as local markets for these uses are scarce and few people have technical skills. The electrical appliances

available are poor quality and very expensive. The solution: training, coupled with entrepreneurial spirit. Communities generate their own micro-enterprises to develop and diversify electricity performance.

The result was the Power Plants at Home project, involving the ICAI Engineers Foundation for Development and the Technology Innovation for Human Development Centre at Madrid Polytechnic University. It's also jointly funded by the Spanish International Development Cooperation Agency.

The ACCIONA Microenergy Foundation had already trained some 40 users in the installation, operation and maintenance of photovoltaic systems. Fifteen of them are now working continuously for the program. From this group, the most skilled are selected to set up micro-enterprises for selling and repairing new appliances that are compatible with the domestic system.

### COMMUNICATION AND INFORMATION.

Power Plants at Home contributes to developing local markets. As well as the radios or mobile phones they couldn't charge before, families suddenly have access to TVs, DVD players, tablets, better radios and torches, battery chargers, LED spotlights, domestic appliances and the like. Good quality, at affordable prices and efficient in terms of electricity consumption. In other words, they have access to communication, information, unprecedented entertainment options and new economic activities in these almost exclusively arable and livestock farming regions.

There are already 12 Power Plants at Home, managed on the micro-franchise model (the Foundation acts as franchisor) and spread over the entire project area. They don't only provide a service to the community they're based in, as in such scattered villages it's very important to take supply to demand. This is why the project also trains and supplies resources to each entrepreneur so they can sell in street markets (top photo on the next page). Manuel and his father go to a plant in El Rejo de Unanca: "My neighbors were very impatient to see all the new things. It's an opportunity for us to develop." In the Vista Alegre region, for Gilmer it's

Local technicians (program users) trained to install, operate and maintain the photovoltaic systems are the ones doing these jobs. They're also helped by ACCIONA employees and volunteers from several countries.



## THE MEXICAN SUN

The ACCIONA Microenergy Foundation program also makes the most of sunlight in the Mexican state of Oaxaca. Just like the Peruvian version, both the facility itself and the access and maintenance services are based on a social enterprise model. Since 2012, some 30,000 people have benefited from 7,500 third-generation photovoltaic systems. It also runs the Power Plants at Home project. The first plant has been officially opened and the goal is to set up many more across the region where the program operates.

been a chance for both family and personal growth: “Before I had this business, my income was very low. Now it has improved and I can use it for my children’s food and health.” In the town of Alto Yerba Buena–Namora, Segundo Aurelio and María Aurea’s family have bought a spotlight to replace the broken one in their home. “Here in the Plant they give us a guarantee on things we buy, back then we didn’t even get a receipt,” they say.

## FAMILY BUSINESS

The ACCIONA Microenergy Foundation believes the model has brought significant benefits. It has even proved beneficial for gender equality, as in several cases the business is run by the technician’s wife, with the franchise contract in her name, while he travels around doing repair and maintenance work in local facilities or sells in the market.

Beyond local experience of the project, Light at Home has left an interesting impression on the discussion about development, green economy and the energy model. Isolated villages that have been left out of electricity supply plans for more than a century, that never saw overhead wires, are suddenly plugged into the other extreme, a model of self-management and micro-enterprises with affordable, non-polluting and an inexhaustible supply of electrical power. ■



VIDEO  
<http://www.youtube.com/watch?v=aTYHIVnKGX0>

@ACCIONA\_ME

# TRAINS THAT SHINE SO BRIGHT

ACCIONA'S END-TO-END CLEANING SERVICE FOR RENFE GOES ABOVE AND BEYOND HYGIENE. IT'S ALL ABOUT SAFETY. CLOSE ATTENTION TO DETAIL PREVENTS ACCIDENTS AND BREAKDOWNS.

by  
**Octavio Fraile**

José González's labor might not be heard, but it's certainly seen. Every now and again, a passenger will look up and notice him way up high, cleaning the dome of Atocha Station in Madrid. If it wasn't for him, dirt would block out the sunlight.

José is just one in a pool of more than 2,000 ACCIONA employees who strive to keep rail operator Renfe's trains, stations and offices clean and hygienic all over Spain. There are over 1,800 railway stations in the country, some as iconic as Sants (Barcelona), Santa Justa (Seville) and Delicias (Zaragoza).

ACCIONA Service took on this all-round job last year, marking a turning point for Renfe's maintenance, which used to be performed by several companies. "People aren't aware of how much coordination work goes into running a tight ship (or train, in this case). Attitude is key. If we're faced with an emergency, we have to respond in seconds, like firefighters," explains Ignacio Agüedo, Manager of Renfe's Madrid area operations.

Cleaning is its mission, but safety the ultimate goal. Teams clear snow from platforms, switch signs,



The equipment is straight off a movie set: suction machines ("baby elephants" they call them in Seville), absorbent spill clean-up blankets that prevent chemical contamination, microfiber mops, ultra-concentrated bactericide, poles, adapted to each worker's height, for cleaning the top part of the train without touching the dangerous overhead power cable - the list goes on.



## AROUND THE CLOCK

The Cerro Negro facility, a 15,500 square-metre center located a stone's throw from Atocha Station, is where cleaning and maintenance is performed on trains from all over Spain. Cerro Negro is a hive of activity around the clock, but work really picks up at night when carriages line all 27 platforms. Most trains are cleaned by hand, but some go through the train washing machine: an impressive car wash-like machine measuring over 20 metres long that can clean a whole convoy in one go. "Things get pretty hectic around here. We clean hundreds of trains every day, often in record time," explains Julio



Verjillos, who manages the service. Yet workers don't seem tired when they have completed their shifts. "You've got to love this job. Many of our employees are train enthusiasts. And so, the more you learn, the more you enjoy it," Julio added.

prune branches, remove miscellaneous objects from the tracks, and even pull trains apart to clean them piece by piece. This extends the life of the trains, preventing breakdowns and avoiding accidents.

"Safety has increased in leaps and bounds. The Cercanías (local trains) didn't exist when I started working here. They all ran on diesel. I'd get home with dark circles under my eyes; not from lack of sleep but from the engine oil," says Juan Francisco Osuna (61 years old, 37 years in the service). "That was life back then."

## FROM ZERO TO FAST

Train cleaning services are broken down into well-defined categories. From Zero – tasked with dismantling the train once every one or two years – to Fast – which may be deployed several times a day. "Engine drivers tell us which actions are required when they complete the journey. Jobs go from fixing vandalized fire extinguishers to wiping down mosquito-splashed windows. Cleaning operations have to run like clockwork, just like the trains," explained one operator.

Vandalized trains and graffiti are pretty commonplace. "Graffiti has to be gone in under 24 hours. We use special products, but it's a real pain all the same. I've seen trains sprayed from top to bottom," Ignacio recalls. Other constant companions include chewing gum: "It always leaves something behind, no matter how you try to remove it."

And, obviously, emergencies. The brigade employees are ACCCIONA's go-to team for urgent matters; always on call to fix potential mishaps. This team works in the manner of a multipurpose commando unit: cleaning, scrubbing, pruning, disinfecting, painting... sometimes in the most unlikely places and in complex conditions: high windows, iced-up or flooded areas, dead spots in lifts. "It's the hardest job around, and it takes a lot of sacrifice and dedication. That said, you learn more from it than anything," says one of the brigade members. ■



# SEA, AHOY!

FEW SHIPPING COMPANIES TURN ONE HUNDRED. TRASMEDITERRANEA JUST DID. THE COMPANY'S HISTORY HAS RUN PARALLEL TO SPAIN'S SOCIAL AND POLITICAL PROGRESS. FROM TRADE TO CULTURE AND THE VERY EXPERIENCE OF TRAVELING.

by

**Rosa Alvares**

Joseph Conrad used to say that the sea has never been friendly to man. At most it has been the accomplice of human restlessness. And this is even truer in a country that's seafaring, island-dwelling and peninsular.

January 17, 1917. The date captains wrote in their logbooks as they set sail under the banner of a new company. Fast forward a few months to when four shipping companies from Catalonia and Valencia (Sociedad Línea de Vapores Tintoré, Compañía Valenciana de Vapores Correo de África, Ferrer Pesset Hermanos and Navegación e Industria) joined forces to establish a holding company. A bold move for the early 20th century that gave way to a global com-

The adventure of the journey is the adventure of a growing business. Above, motor ship 'Ernesto Anastasio' loading at Puerto de la Luz (Las Palmas). The precedent to modern super freighters like 'Entrecanales'.

pany, transporting passengers and freight between the Balearic and Canary Islands and the Peninsula, as well as from the Peninsula to the territories Spain then had in Africa, from Morocco to the Gulf of Guinea. In under a year, the conglomerate absorbed other companies and became a benchmark for maritime transport in the country.

The circumstances were ripe for success and the model took off; commercial aviation was yet to become a rival, and the company cherry-picked the best-qualified crew and boasted ships equipped with cutting-edge naval technology. A few years in, Trasmediterranea decided to renovate its fleet, replacing old steamboats with motor ships. This philosophy



## ONE HUNDRED YEARS FROM PORT TO PORT

The traveling exhibition Trasmediterranea's Century (which launched from Madrid and Barcelona) will call at all the ports serviced by the shipping company, including the Elder Science and Technology Museum (Las Palmas de Gran Canaria). The concept and format of the audiovisual exhibition has been designed to surprise viewers: housed within an aluminum-plated cube is a collection of navigation instruments, log books, ship wheels, detailed ship models, silverware, dinner services and furniture that recreate part of the intimate on-board experience. Further information: [www.centenariotrasmediterranea.es](http://www.centenariotrasmediterranea.es)



still stands today. In the 1960s, the expansion of the fleet brought in a range of modern ferries, equipped with ramps, capacity for vehicles and luxury cabins. In the 1970s, as Spain entered its transition to democracy, the Company renovated the fleet again and assigned each line the most suitable ship. During the following decade, Trasmediterranea spearheaded high-speed maritime transport and introduced the innovative jetfoil model, a waterjet that redefined traveling to the capitals of the Canary Islands and preceded contemporary high performance mono-hull ships and super ferries.

## FLAGSHIPS

Merchant marines, navies and naval academies have flagships. So does this Company. The history of these ships often merges with the development of the territories they connect, such as the *Domine*, which covered the Equatorial Guinea line from the 1930s until the country's independence. Its cabins accommodated the main figures that took part in political intrigues, financial investments and multicultural adventures between the metropolis and the former colony. It acted as a meeting point even when moored.

Or the motor ship *Plus Ultra*, the last vessel to sail away from the Sahara when it gained independence from Spain. Or the *Ciudad de Cadiz*, which in 1933 cruised to Carthage, Egypt, Crete and Pompeii, cradles of European civilization, transporting students, university professors and intellectuals (image above), including Salvador Espriu, Isabel García Lorca, Gregorio Marañón and Chueca Goitia. That culturally enlightening cruise inspired Miguel de la Cuadra Salcedo to set off on the Ruta Quetzal aboard his legendary *J.J. Sister*: the Aula Navegante de Estudios Iberoamericanos, which completed five transatlantic voyages for the Fifth Centenary.

Those ships were not merely means of transport; they embodied the personal history of the passengers. And of the freight, the post, the search for possibilities and knowledge. "No man was ever alone at sea," said Ernest Hemmingway. Amen. ■



VIDEO

<http://acciona.sa/Pu1D308iRq4>

# CUISINE THAT'S CREATIVE, SUSTAINABLE... AND CARING

THE BODEGAS PALACIO 1894 GROUP COLLABORATES WITH THE GASTRONOMIX PROJECT, PROVIDING INNOVATIVE EDUCATION FOR YOUNGSTERS FROM VULNERABLE BACKGROUNDS.

by **Patricia Alcorta**



Like a good recipe, Gastronomix sets out to find an effective combination of ingredients.

It's a social initiative: providing free training for 50 youngsters who are unemployed or from vulnerable backgrounds.

It's an inclusive project: headed by chef Carlos Sancanuto, with backing from the Basque Culinary Center and the Escuela Superior de Hostelería y Turismo based in Casa de Campo, Madrid. Classes are taught here every Saturday from October to May. A collective intelligence experience:

started by the La Casa Foundation and El Mundo, but immediately joined by allies such as Fabián León (finalist in the first series of *Masterchef*), the Tomillo Foundation (which works with youngsters at risk), the Ebro Foundation (sustainability through education) and the JP Morgan Chase program against youth unemployment. It delivers innovative education: providing motivating encounters with artists and famous professionals; emotional, creativity and entrepreneurship education techniques; art and cultural expression at its own ven-

ue, the Escuela-Cantina Gastronomix. And it's sustainable cuisine: working with eco-friendly artisan companies like Ecosecha, Tu pesca día a día and Grupo Norteños.

And with top quality suppliers, for example *Glorioso* and *Viña Mayor* wines from the Bodegas Palacio 1894 Group, featured in wine tasting and pairing courses, whose menus can be savored in La Cantina restaurant.

Out of last year's students, 92% have completed placements, 23% are already in work and 8% are continuing their studies at a higher level.

WINE IN MODERATION  
WINE IS BEST ENJOYED IN MODERATION

## THE BEST KEPT SECRET OF THE RIBERA DEL DUERO

In the Ribera del Duero there are vines that speak with their own voice, tell you best about the region, make you dream... Now is the moment to share their secret. Thanks to an exhaustive selection of the Ribera's best parcels, Bodegas Viña Mayor have created a fresh, intense and expressive wine: a modern Ribera del Duero. A new way of interpreting this Designation of Origin through respect for its *terroir* and fruit.

Made of Tempranillo, El Secreto is a wine that has roots, is proud and alive. A wine of the moment, that pleases, is convincing, enjoyable... and, like all good secrets, should be shared.

EL SECRETO  
RIBERA DEL DUERO  
DENOMINACIÓN DE ORIGEN  
2014

EL SECRETO  
RIBERA DEL DUERO  
DENOMINACIÓN DE ORIGEN  
2014

93 POINTS · GUÍA PEÑÍN 2017 

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