



Congreso Nacional del Medio Ambiente (Conama 2012)  
Madrid del 26 al 30 de noviembre de 2012



# JORNADA IBEROAMERICA: ACCIÓN PARA EL AGUA

OPORTUNIDADES DE NEGOCIO EN EL SECTOR DEL AGUA

MADRID, SALA NEPTUNO CENTRO  
CONVENCIONES NORTE - PABELLÓN 10  
28 de Noviembre de 2012

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DGE ATTA

# SPANISH COMPANIES STRENGTHS



DRINKING WATER  
TECHNOLOGIES

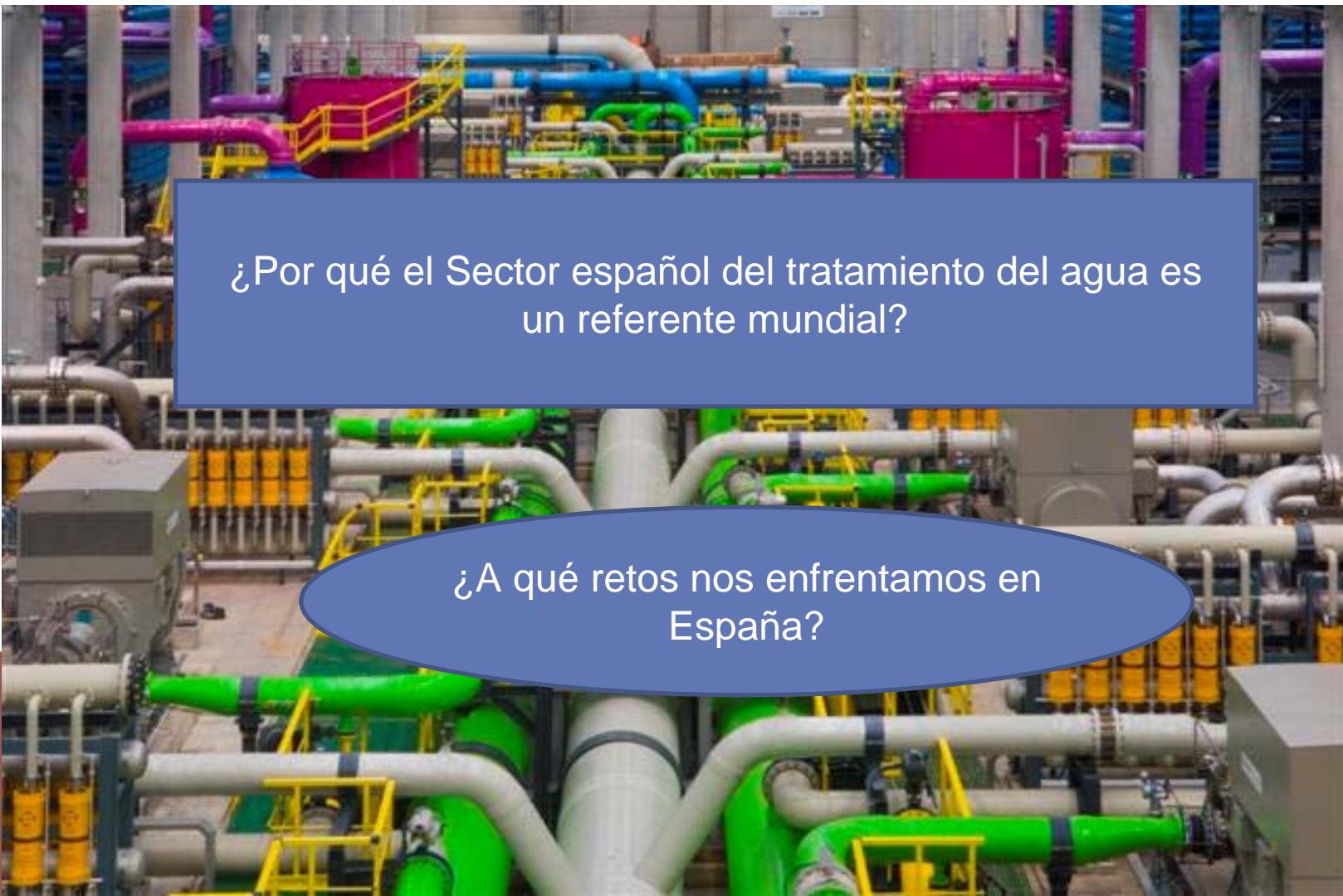
DESALINATION



WASTEWATER  
TREATMENT

RECLAMATION  
AND WATER  
REUSE





¿Por qué el Sector español del tratamiento del agua es un referente mundial?

¿A qué retos nos enfrentamos en España?



# SPANISH WATER CHALLENGES

Since the 1970's, the main water challenges in Spain have been

- Availability of hydraulic resources
- Inadequate water quality

These problems have been solved by

- Planning
- Legislation
- Public administration of water resources
- Private sector

## SPANISH WATER CHALLENGES


### PLANNING

#### ■ MILESTONES:

- Water law 1985
- Wastewater European Directive 1991
- Wastewater National Plan 1995
- Hidrologic National Plan 2004
- New wastewater Plan 2007
- Water Reclamation Act 2007



## Current Situation Wastewater Plan:

- 
- A satellite map of the Iberian Peninsula, specifically focusing on Spain. The map shows the coastline, major rivers, and inland terrain. The text is overlaid on the central part of the map.
- More than 1.300 wastewater treatment plants. 400 WWTP from 2.000
  - $\geq 4.000 \text{ Hm}^3$  of wastewater treated per year
  - More than 85% of equivalent-inhabitants according to European Directive (91/271/CEE)

# Current Situation Reclamation:

- ❖ 500 Hm<sup>3</sup>/year of capacity producing reclaimed water to REUSE
- ❖ Agriculture, golfcourse watering, streets cleanning, environmetal uses, etc.
- ❖ New reclamation Plan foresee more than 1.000 Hm<sup>3</sup>/year next decade





# Desalination in Spain



❑ First desalination plants in Canary Islands, end of the 60's.

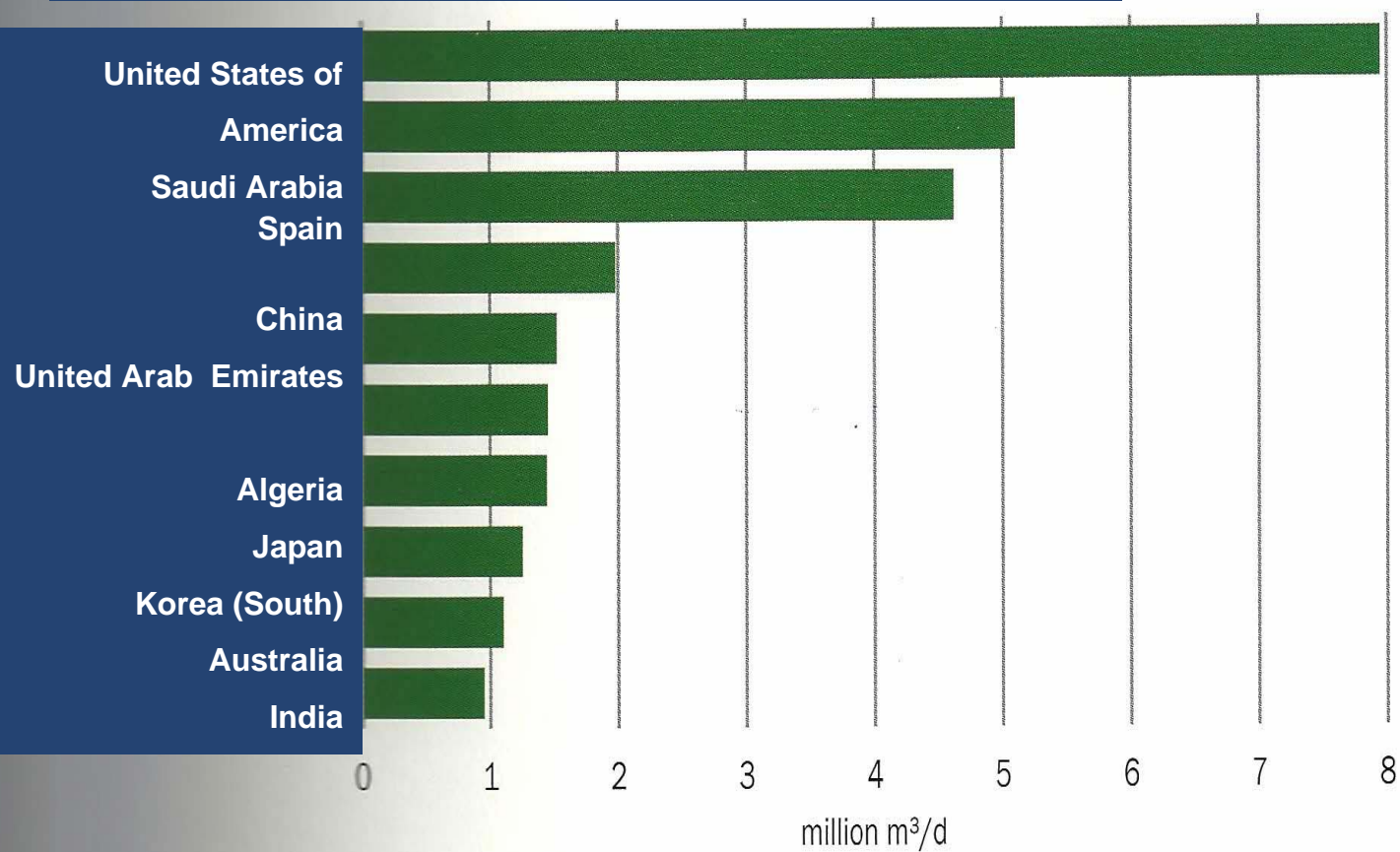
❑ The reverse osmosis implementation in desalination produces a gradual increase in the output capacity.

❑ 1 Million m<sup>3</sup>/day (year 2000)

❑ Desalination Plan 2004 (MIMAM), at the present under construction.

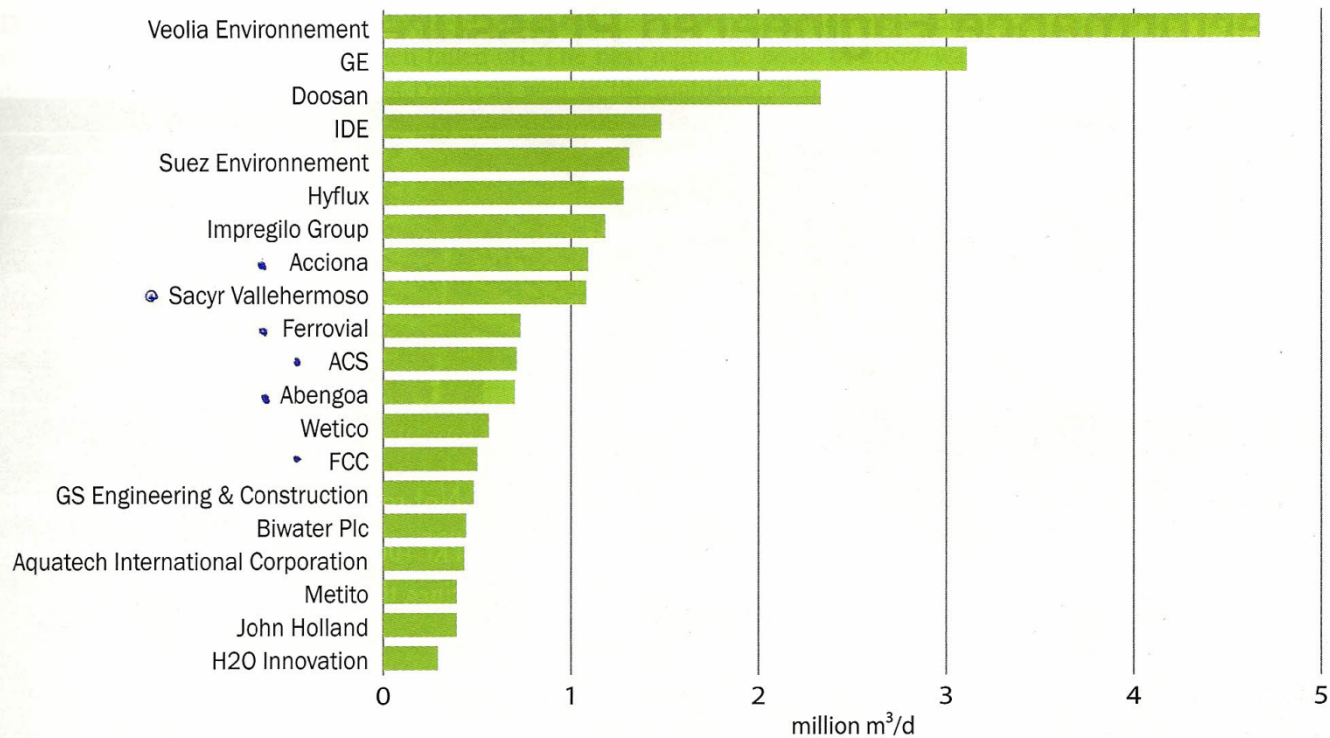
❑ Output capacity estimated 800-1000 Hm<sup>3</sup>/year (2011)

## Top 10 countries by total installed membrane capacity since 1945



Source: GWI DesalData/IDA

Figure 14: Top 20 EPC contractors by capacity, 2006–2012



Source: GWI DesalData / IDA

Spain is the first country  
in Europe on reclaimed  
water

Spain is the third country  
in the world by total  
installed desalination  
capacity since 2003

Eight spanish companies  
are on TOP 20 membrane  
contractors since 2000

Spanish companies  
produce more than 3  
mill/m<sup>3</sup> day desalinated  
water around the world

## ***CONCLUSIONS:***

**SPANISH COMPANIES BECOME  
LEADERSHIP ON WATER  
TECHNOLOGIES**





Las empresas de **ATTA** lideran en potabilización, depuración y regeneración de las aguas.

**ATTA's** companies lead in water treatment and wastewater treatment and reclamation.





# TRATAMIENTO DEL AGUA EN EL MERCADO INTERNACIONAL

## Drinking Water

Pu-Dong (China)  
Mundaring (Australia)  
Arequipa (Peru)  
Peravia (Dominican Republic)  
Hogenakkal (India)  
San Luis Potosí (Mexico)  
Querétaro (México)  
Zapotillo (México)  
Realito (México)  
Tucumán (Argentina)  
Others:  
Cerdeña  
Portugal  
Angola

## WWTP

ATTONILCO (México) 3 mill m<sup>3</sup>/day  
New Cairo (Egipto) 250,000 m<sup>3</sup>/day  
Cagliari (Italy) 260,000 m<sup>3</sup>/day  
Wroclaw (Poland) 140,000 m<sup>3</sup>/day  
Santiago (Chile) 760,000 m<sup>3</sup>/day  
Arrudas (Brazil)  
Sanganagh (Ireland)  
Estoril (Portugal)  
Campos de Jordao (Brasil)  
Sao José Dos Campos (Brasil)  
Ribeirao Preto (Brasil)  
San José (Costa Rica)  
Taboada-Lima (Perú)  
La Chira-Lima (Perú)  
Medellín (Colombia)  
Arequipa (Perú)  
Caracol (México)  
Others:  
Turquía  
Bulgaria  
Rumania  
Montenegro  
Omán

# MIDDLE EAST



## ARGELIA

CAP DJINET - INIMA/AQUALIA	100.000 m <sup>3</sup> /day
FOUKA - ACCIONA	120.000 m <sup>3</sup> /day
HONAINÉ - BEFESA/SADYT	200.000 m <sup>3</sup> /day
MOSTAGANEM - INIMA/AQUALIA	200.000 m <sup>3</sup> /day
SKIDDA - BEFESA/SADYT	100.000 m <sup>3</sup> /day
TENES - BEFESA	200.000 m <sup>3</sup> /day
ORAN? - BEFESA	150.000 m <sup>3</sup> /day
BENI SAF - COBRA	200.000 m <sup>3</sup> /day

## CHIPRE

DHEKELIA - CADAGUA	40.000 m <sup>3</sup> /day
KUNKOY - CADAGUA	27.000 m <sup>3</sup> /day

## ISRAEL

ASHDLOD - SADYT	380.000 m <sup>3</sup> /day
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## ARABIA

YAMBU - CADAGUA	50.000 m <sup>3</sup> /day
AL JUBAIL - ACCIONA	100.000 m <sup>3</sup> /day
...	

## EAU

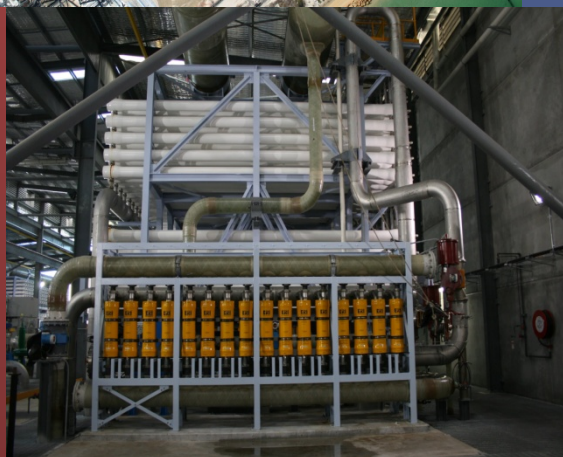
FUJAIRAH - DEGRÉMONT	170.000 m <sup>3</sup> /day
AL - ZAWRAH - CADAGUA	45.500 m <sup>3</sup> /day

## MARRUECOS

JORF LASFAR - CADAGUA	75,800 m <sup>3</sup> /day
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## DESALACIÓN: AUSTRALIA



- ◆ Perth DEG 143.000 m<sup>3</sup>/day
- ◆ Soutrhen Seawater SADYT 153.000 m<sup>3</sup>/dayx2
- ◆ Adelaida ACCIONA 300.000 m<sup>3</sup>/day
- ◆ Melbourne (Reclamation Wastewater) DRACE

## DESALACIÓN: AMÉRICA

CABO SAN LUCAS (Mexico) INIMA 21.000 m<sup>3</sup>/day

HIALEAH (Florida) INIMA 40.000 m<sup>3</sup>/day

TAUNTON RIVER (Boston) INIMA 19.000 m<sup>3</sup>/day

ANTOFAGASTA (Chile) INIMA 52.000 m<sup>3</sup>/day

MEL-EL COLOSO (Chile) DEGRÉMONT 45.000 m<sup>3</sup>/day

CANDELARIA (Chile) AQUALIA 30.000 m<sup>3</sup>/day

SANTA BÁRBARA (Curaçao) DEGRÉMONT 18.000 m<sup>3</sup>/day

COPIAPO VALLEY (Chile) ACCIONA 17.000 m<sup>3</sup>/dayX2

EL MORRO (Chile) CADAGUA 64.000 m<sup>3</sup>/day

ENSENADA (México) INIMA

PUERTO GAITAN (COLOMBIA) TEDAGUA 79.500 m<sup>3</sup>/day





# DESALACIÓN: OTROS



Thames Gateway (UK)  
**ACCIONA**  
150.000 m<sup>3</sup>/day



Chennai (INDIA)  
**BEFESA**  
100.000 m<sup>3</sup>/day



Quingdao (CHINA)  
**BEFESA**  
40.000 m<sup>3</sup>/day

# PREMIOS A LA EXCELENCIA GWI





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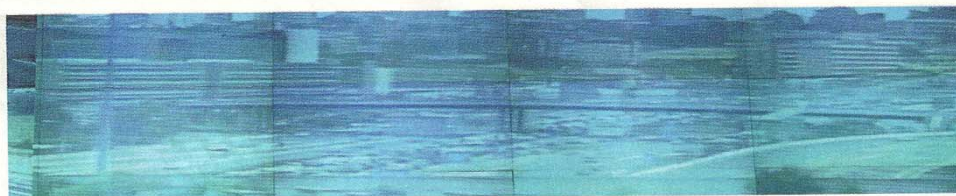


# Spain: Innovations and International Successes

**S** PAIN'S TECHNOLOGY SECTORS

have made dramatic advances in recent decades. In personalized medicine and electronic health records, in desalination, in renewable energy, and in many other areas, Spanish companies have built experience at home that they have taken overseas with great success.

In the transportation sector, Spain has built a remarkable network of high-speed rail lines, which stretch around the country and link major economic centers. This achievement has made Spanish rail a real inspiration. Here in the United States, President Obama presented Spain's rail success as a model when he detailed the administration's goals for our own rail system.





high-speed connections with airports—and how institutions and private companies together have financed these projects. These are excellent references for Spanish companies.”

Spanish companies have completed or are involved in rail projects in more than 90 countries on five continents, including Turkey, Brazil, the U.S., India, and Ireland, and countries across North Africa and Central Asia. One Spanish consortium—CAF is furnishing the trains, the OHL group is in charge of engineering and construction, and Dimetronic is supplying signals—won the bidding for construction of a high-speed line between Ankara and Istanbul. OHL also recently won a contract to extend the Miami-Dade County Metrorail to the nearby airport.

India presents major opportunities for Spanish rail companies: the Talgo train manufacturing company will soon be opening an office there, and CAF is already building a factory in New Delhi. The engineering company Ineco won the feasibility study contract for one of India's planned high-speed lines.

In the most significant news for the Spanish rail industry, a consortium of a dozen Spanish companies and public authorities was recently awarded a 12-year contract to construct, operate, and maintain a new high-speed line between Mecca and Medina in Saudi Arabia, in partnership with the Saudi Railway Organization.

This rail consortium is the largest one created to date by Spanish companies, and the project is the largest so far of its kind. Talgo, one of the country's two top train manufacturers, will supply the trains. OHL, Copasa, and Imathia will develop the infrastructure, and Dimetronic will supply the signaling. The information company Indra will manage telecommunications and control, and Cobra, Inabensa, and OHL will install the electrical infrastructure.

Three government-owned companies will also provide services to the Saudi project: Renfe, Spain's national service provider, will manage operations, and its infrastructure administrator, Adif, will provide the critical expertise for the management of stations and traffic control. Ineco, a government transportation consulting company, serves as the project's lead contractor.

“Even though we have a lot of experience developed in Spain, this is a huge opportunity to show our experience abroad,” says José Solorza, Ineco's Asia and Africa area manager.

Manuel Benegas, director of operations at Ineco, estimates that the on-track tests should begin by the end of 2014. The Spanish Ministry of Development hopes to capitalize on this success to sell similar complete projects in the U.S., Russia, and Brazil, whose governments have stated their commitment to developing high-speed rail.

Advances in transportation management extend beyond railways, onto highways and city roads as well. Spanish companies are world leaders in the management of toll roads, expert at developing and integrating sensors and barrier-free tolls to enhance traffic flow and make ticketing easy. Other companies are pioneering parking guidance systems, which direct drivers to free spots in parking garages or along city streets.

PHOTO: ACCIONA

## PURIFYING WATER

In the 1960s, Spain's government saw a potential problem brewing. The rocky, sunlit Canary Islands, off the coast of northern Africa, were attracting tourists in increasing numbers. But while there was plenty of space to house those tourists, the supply of potable water could not increase to meet the demand. And so Spain turned a challenge into an opportunity. The government invested in developing brand-new technology that uses membranes to filter the salt out of salt water, and Spanish companies eventually developed the technologies to utilize those membranes in treatment plants. The result: Europe's first desalination plants.

Today, Spain produces more desalinated water than any other country in Europe, and is one of the world's top producers. Spain's more than 500 plants treat more than 200 billion gallons of water per year.

“In only a short period of time in Spain, we developed a great deal of infrastructure,” says Angel Cajigas, director of ATTA, the Spanish business association for water treatment. “And this has given us a lot



The Alicante desalination plant is one of more than five hundred in Spain.



of experience in design, construction, and operations. The technology has developed as well," making Spanish companies extremely competitive on the world market. In fact, Cajigas adds, of the top 20 companies in the world active in desalination, seven are Spanish.

In 2009, a new large-scale desalination facility was completed in the city of Barcelona. The Prat de Llobregat plant, which can supply up to 20 percent of the city's drinking water, won a 2010 Global Water Award for technical achievement from the industry magazine *Global Water Intelligence*.

The plant employs more than 5,200 solar panels and a wind turbine, along with energy efficiency technologies and energy recovery features. All together, these reduce the facility's environmental impact and its operating costs. (A significant percentage of the cost of running a desalination plant derives from its energy requirements.)

"Companies are always innovating," says Cajigas. He adds that companies are beginning to use filtration membranes to reutilize wastewater. Companies are designing more compact plants, and ones that are powered by renewable energy. Some companies are also developing new methods to disinfect water, increasing the ability to

treat extremely low levels of contaminants. Information technology companies have developed systems to manage and integrate the massive information stream water treatment plants require—pressure and flow data, home meters to measure consumption, information about the available and consumed volumes of water, among other data—to enable smarter water management.

Innovations such as these have made Spain's desalination plants some of the best in the world, and have enabled Spanish companies to compete worldwide to design, construct, and operate water treatment and desalination plants. Some Spanish companies are involved in building and operating the plants, while others manufacture products to serve the water treatment market, such as valves, motors, pumps, and filtration systems.

Spanish water purification companies are active today in more than 30 countries, from Chile to Australia, in North Africa, the Middle East, India and China. They're developing more than 30 desalination plants, along with dozens of other water purification plants. Acciona Agua is part of the partnership behind one of the world's largest desalination plants, in Adelaide,

Australia, and Valoriza Agua is constructing one in Perth. And discussions are underway for the first desalination plant in sub-Saharan Africa, in Namibia. Other companies, including Befesa, Aqualia, and Cadagua, are also well-positioned internationally.

The U.S. is also home to three desalination plants built or operated by Spanish companies: two in Florida and one outside Boston. In Tampa, the Tampa Bay Desalination Plant had been beset with problems since its construction began in 1999. After Acciona Agua took over the plant, in partnership with American Water, it finally began operations in 2008. Today the plant purifies 25 million gallons a day and supplies 10 percent of the drinking water for the region.

Water treatment extends, of course, beyond desalination, into conventional water purification for drinking water and beyond, and into industrial purification to deal with waste from industries like mining.

"Spanish companies are very competitive in water treatment," says Cajigas. "This is one of our fundamental strengths."

## INDUSTRY TO SUPPORT INDUSTRY

Industries in sectors as varied as power generation, aerospace, automotive, rail, and domestic appliances depend on machine tools to create their products. And the Spanish companies that support their efforts—machine tool manufacturers as well as companies that produce accessories, component parts, and tools—provide the necessary means. In 2011, exports from Spain reached 120 countries and accounted for more than 80 percent of the country's overall business in this sector.

Spain's machine tool industry has been "supplying technology and production equipment to the main sectors of the economy for more than 65 years," says José Ignacio Torrecilla, president of Advanced Manufacturing Technologies, the Spanish trade association. This has helped Spanish companies "improve their competitiveness and that of the country," he adds.

Today, Spain's machine tool sector is the third largest in the European Union, and includes some of the world's leading companies. "To make things in steel—machinery, foundry, mills, stamping, lathes—these are traditional skills of people here," explains Félix Remírez, commercial manager of the machine tool company Fagor Arrasate, referring to the long metalworking tradition along the lush, green mountains in the north of Spain.

Machine tools can transform coils or sheets of metals into all the shapes and components needed for the trappings of modern life. They perform tasks such as rolling and stretching metal into flat sheets; stamping it into all manner of shapes; cutting, drilling, and grinding to precise specifications. And their precision has increased dramatically in recent years, as companies such as Nicolás Correa,





# REUNIÓN CODIA 2012



 **ISOLUX CORSÁN**

**ABENGOA**

**cadagua**

 **tedagua**

 **acciona**  
Agua

 **aqualia**  
infraestructuras

 **suez**  
environnement

 **Degremont**

**DRACE**  
infraestructuras

**Sadyt**

 **GS Inima**

**The Technological  
association of  
water treatment  
(ATTA) gathers  
the most  
outstanding  
companies on the  
water technology  
sector in Spain.**

***GRACIAS POR SU ATENCIÓN***

