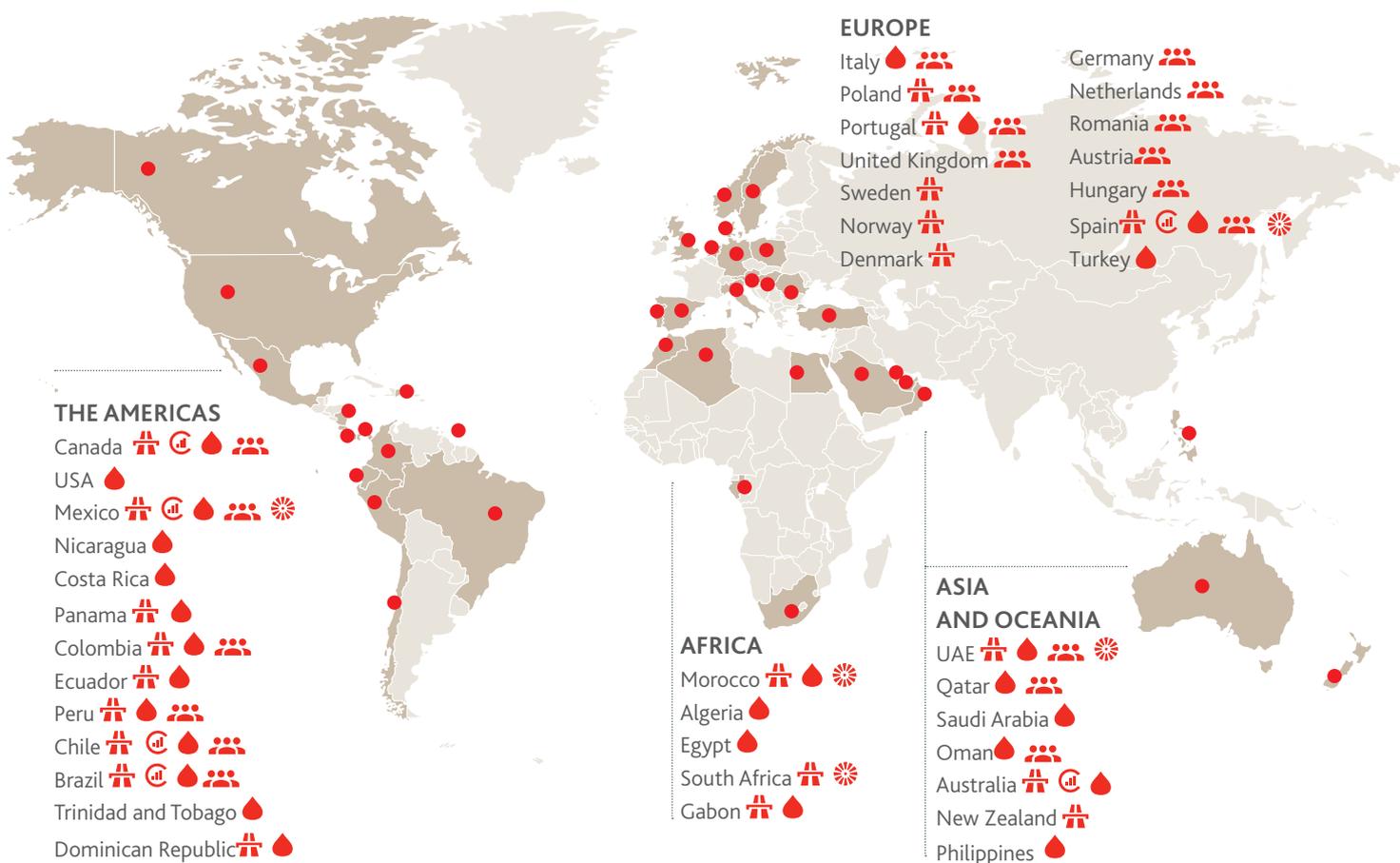


# ACCIONA INFRAESTRUCTURE'S COMMITMENT

ACCIONA Infraestructure has extensive experience in the development and execution of large-scale projects throughout the world. Its activities are broken down into five main lines of business: Construction, Concessions, Water, Industrial and Services.



## ACCIONA INFRASTRUCTURE IN 2016

28,880

EMPLOYEES

772 hm<sup>3</sup>

WATER MANAGED

93.3 %

LOCAL SUPPLIERS

40

COUNTRIES ON FIVE  
CONTINENTS

€120 MILLION

IN INNOVATION

98.42 %

CUSTOMER SATISFACTION

## HIGHLIGHTS IN 2016

### Economic Dimension

» EUR 3,611 million in revenue and EUR 321 million in EBITDA

» Innovation figure EUR 120 million, a 4.5 % increase over the previous year

» EUR 22.3 million is savings through operational improvements in processes

### Social Dimension

» Implementation of the Social Impact Management methodology in several phases of 64 projects, compared to 45 projects in 2015

» 7 % reduction in the frequency rate for employees, down to 4

» Measurement of the socioeconomic impact begins for two (Industrial and Construction) projects: the Kathu solar thermal plant in South Africa and the metro in Quito, Ecuador

### Environmental Dimension

» 53,241 hours of environmental training

» Water consumption dropped by 22 % compared to 2015

» 306,715 t CO<sub>2</sub> equivalents generated

## ACCIONA Infraestructure sustainability performance

This chapter details some of the main issues that were identified in 2016 as being highly relevant to ACCIONA Infraestructure's key stakeholders. Based on the relevance of the issues identified in the materiality analysis for each business in the division and the amount of available information, the division's sustainability performance during 2016 is described below.



## HEALTH AND SAFETY AT ACCIONA INFRASTRUCTURE

The health and safety culture in the Infrastructure division is undergoing transformation, through the use of programmes that reinforce employees' commitment to the company's current vision and that of its stakeholders in this area.



### Behaviour-Based Safety for You (BBS4U): safety based on behaviour

This project aims to control and avoid the onset of risk connected with worker behaviour. It is based on actions intended to strengthen and modify behaviour, as well as achieve a positive focus on change through a system of observation, intervention and incentives.

In 2016, it was used in 32 projects, reaching around 6,000 workers.



### Leader Project: establishing leadership habits in OHS

The programme is based on improving behaviour through its modification, ensuring that leaders are directly involved in worker safety.

In 2016, the programme trained 324 directors and 165 middle managers through days during which basic and essential aspects of communication that influence the correct use of the leadership programme tools were presented.

ACCIONA Infrastructure's management system is global. This strategy will generate savings in certification costs as soon as the basic methodologies are standardised based on OHSAS 18001 standard processes. It will also maintain a flexible balance between local demands and customer demands.

The roles and responsibilities structure is highly developed within the company, which has created an Occupational Health and Safety (OHS) Steering Committee in addition to Steering Committees in the various countries.

It must be highlighted that, in 2016, OHSAS certification was attained in 95.79 % of the Construction business, in line with the Sustainability Master Plan 2020 (SMP 2020) objectives. The ESA Plus project was also launched and distributed in two languages for the creation of safety standards for special projects at ACCIONA Construction.

Training is an essential aspect of occupational health and safety. The division promotes training as a measure for preventing occupational risks for its own employees and for contractors. In Construction, for example, there is an annual Training Plan in place and it is worth noting that the company's general objectives included implementation of the international OHS course worldwide and that the 5<sup>th</sup> Edition of the International OHS Course took place in an Open Programme format on the online campus platform.

In the ACCIONA Agua business, besides the launch of the Leader Project, additional significant progress has been made in OHS management systems, such as the revision of the health and safety training tracks, in which a new course on chlorine gas has been added and the contents of the basic courses have been adapted for office and design staff.

Within the risk management model, reporting of and response to incidents by the company is key. Therefore, ACCIONA Infraestructure provides communication channels with employees available for managing any incident. In 2016, a new communication channel was created (prl.infraestructuras@acciona.com) to enable a faster response to incident management.

This progress made in 2016 is reflected in the results for accident rates. The frequency rate for the division dropped by 7 %, from 4.3 in 2015 to 4 in 2016.

### Frequency rate evolution

	2015	2016
Infrastructure	4.3	4
Construction*	1.5	1.9
Concessions	1.7	2.3
Water	4.1	4.1
Services	5.2	4.6
Industrial	0	0

\* Construction includes: AMISA, ACCIONA Engineering. In the Concessions and Construction businesses there was an increase in the frequency rate as a result of the change in criteria for calculating the number of hours worked.

In the case of in-transit and on-the-job accidents<sup>1</sup> related to road safety, despite the road safety awareness campaigns carried out, there was a significant increase during the year. Most on route accidents occurred in the Services division and in Spain, at a much higher percentage than in other countries.

### On route incidents (with and without work leave) for own employees

	2015	2016
Infrastructure	87	178
Construction*	38	17
Water	11	14
Services	29	146
Industrial	1	1

\* Includes ACCIONA Infraestructure S.A., Engineering and Concessions.

Reducing the number of accidents during travel is one of the company's lines of action. Several initiatives have been carried out in relation to road safety, including the following in Latin America, for example:

- Research project funded by Mapfre Foundation for analysing measures aimed at pedestrians contained in road safety plans in Latin America.
- Drafting of the Comprehensive Road Safety Scheme for Mexico City in collaboration with the Spanish Road Association and developed within the framework of a technical cooperation agreement with the Inter-American Development Bank.
- Road safety audit of Zone 3 in Ecuador for the Ministry of Public Works and Transport, on approximately 1,000 km of roads.

1. This figure includes accidents related not only to vehicle traffic but also any other type of case occurring on the way to or from work.

**Health and safety in the supply chain**

There is full collaboration from contractors or subcontractors and suppliers in almost all prevention activities, given that they participate in the company's normal management system procedures. The frequency rate for subcontractors at ACCIONA Infraestructuras rose slightly as a result of the increase in this rate in the Water business due to its entry into new service, operation and maintenance activities. The indicator dropped in comparison with 2015 for the other businesses.

**Accident rate indicators in ACCIONA's supply chain**

	Severity rate		Frequency rate	
	2015	2016	2015	2016
Infrastructure	19.7	29.6	1.7	2
Construction*	30.1	31.1	2.8	2
Concessions	43.2	75.7	2.8	3.1
Water	2.5	12.8	0.3	1.7
Services	53.2	0	2.1	0
Industrial	1.5	6.8	1.5	1

\* ACCIONA Construction includes: ACCIONA Infraestructure S.A., AMISA, ACCIONA Engineering.



**VPP Project. Voluntary Protection Programmes (VPP) to foster best practices and participation by suppliers in occupational health and safety policies**

The Voluntary Protection Programme, aimed at partner companies, is a project based on the assessment and practical improvement of projects or workplaces and their line of subcontracting. The main goal is to reduce accident rates and improve occupational well-being conditions in order to increase productivity and effectively integrate occupational health and safety.

ACCIONA's Protection Programmes revolve around the concept of willingness and shared participation by all the agents directly involved in occupational health and safety.

The programme offers awards in three categories: Candidate, Silver and Gold.

In June 2016, by including OHS criteria into the Supplier Approval and Assessment process, the improvement plans used that were aimed at supplier health and safety conditions performed within the VPP programme were included. In 2016, 23 Improvement Plans were implemented.

**In 2016, a new communication channel was created to enable a faster response to incident management**

## QUALITY AND CUSTOMER RELATIONS

ACCIONA Infraestructure sets quantifiable objectives as part of its commitment to ongoing improvement and customer satisfaction within the framework of its management systems. For 2016, the following examples are detailed:

2016 IMPROVEMENT GOALS	ACHIEVEMENT AND ACTIONS TAKEN
<b>Improving the quality of products and services</b>	
<b>Services:</b> Increasing the degree of quality compared to 2015 in the provision of services as regards food safety.	100 % achieved <ul style="list-style-type: none"> <li>■ The hygiene verification audit was passed.</li> <li>■ Quality standards were raised.</li> </ul>
<b>Industrial:</b> Enhancing the design control system, establishing an optimisation methodology in the following aspects for projects that are implemented: <ul style="list-style-type: none"> <li>■ In the execution phase: financial, construction and assembly issues.</li> <li>■ In the operation phase: safety and sustainability issues.</li> </ul>	60 % achieved <ul style="list-style-type: none"> <li>■ A procedure was drafted that establishes a methodology for reviewing key aspects during the design phase.</li> <li>■ An Engineering Plan was created.</li> </ul>
<b>Progress in the certification of management systems</b>	
<b>Water:</b> Passing the external audit for ISO 9001 and ISO 14001:2015 according to standard.	90 % achieved <ul style="list-style-type: none"> <li>■ Documentation was prepared, compliance with audit requirements was verified and the external audit for certification was conducted.</li> <li>■ Pending receipt of the ISO certificate.</li> </ul>
<b>Industrial:</b> Expanding the scope of activities certified according to ISO 9001 Oil & Gas and ISO 14001.	100 % achieved

ACCIONA  
 Infraestructure  
 sets **quantifiable objectives** as part  
 of its commitment to  
 ongoing improvement  
 and customer  
 satisfaction

To ensure its technical capacity, guarantee competitiveness and improve its processes, the company's Quality Management Systems (9001) and its Environmental Management Systems (14001) are certified for the following activities:

**ACCIONA Infraestructure**

Construction	<p><b>ISO 9001 AND ISO 14001 CERTIFICATIONS</b>                  100 % construction activity in Spain, Chile, Brazil, Mexico, Colombia, Canada, Poland, Australia, Abu Dhabi, Ecuador, Peru and Panama.  <b>New in 2016:</b> Certification of the Saint John Water Treatment Plant (New Brunswick, Canada), under both standards.</p>
Concessions	<p><b>ISO 9001 AND ISO 14001 CERTIFICATIONS</b>                  90 % of directly managed concessions.  <b>New in 2016:</b> certification of Novo Hospital in Vigo (Spain), under both standards.</p> <p><b>OTHER CERTIFICATIONS OBTAINED IN 2016</b>                  A road safety management system was implemented and certified according to ISO 39001 at two concession in Spain: Sociedad Concesionaria A2, section 2, and Autovía de la Plata.</p>
Water	<p><b>ISO 9001 AND ISO 14001 CERTIFICATIONS</b>                  100 % of water treatment activities in Spain, Italy and Australia (100 % Chile under ISO 9001) and 100 % of complete water management services in Spain.  <b>New in 2016:</b> implementation and certification of the quality management system in Chile according to ISO 9001 and ISO 14001.</p> <p><b>OTHER CERTIFICATIONS OBTAINED IN 2016</b>                  ACCIONA Agua's energy management system is ISO 50001 certified at three new centres: Villarrubia de los Ojos Water Services, Gartxeta DWTP and Falset WWTP.</p>
Services	<p><b>ISO 9001 AND ISO 14001 CERTIFICATIONS</b>                  100 % of the ACCIONA Servicios Urbanos y Mediambientales [Urban and Environmental Services] activities.                  100 % of the Renewable Energy Operation and Maintenance (REOM) activities.                  100 % of the ACCIONA Servicios Ferroviarios [Rail Services] train and station cleaning activities.                  100 % of international transit activities under ISO 9001 (ACCIONA Forwarding).                  100 % of passenger boarding bridge handling and driving activities at ACCIONA Airport Services in Spain (100 % Germany under ISO 9001).                  100 % event organising and exhibition staging and museums (ACCIONA Producciones y Diseño [Productions and Design]).                  All activities by ACCIONA Facility Services, except conventional cleaning.  <b>New in 2016:</b></p> <ul style="list-style-type: none"> <li>■ Work on integrating the Division's management systems is ongoing, including ACCIONA Forwarding and ACCIONA Multiservicios into the ACCIONA Service Integrated Management System in 2016.</li> <li>■ Certification of the Integrated Quality and Environmental Management System (ISO 9001 and ISO 14001) at ACCIONA Servicios Urbanos y Medioambientales México SA de C.V.</li> </ul> <p><b>OTHER CERTIFICATIONS OBTAINED IN 2016</b>                  Facility Services certified its Energy Management System according to ISO 50001:2011 within the following scope: "Energy efficiency services and energy management at facilities, performance of energy audits, development of engineering, design and execution projects for facilities intended to improve energy performance, monitoring energy consumption, energy tracking, measurement and verification of energy savings in projects with associated investment".                  Airport Services certified its Energy Management System according to ISO 50001:2011 at Frankfurt Airport.</p>
Industrial	<p><b>ISO 9001 AND ISO 14001 CERTIFICATIONS</b>                  100 % of the activities conducted by ACCIONA Industrial.</p>

### Improvement tools

ACCIONA Infraestructure launched 25 improvement groups with the aim of identifying and implementing innovative solutions that also aid in managing risks. Some of the most significant of these are as follows:

#### ACCIONA Agua organisation and process committee:

its purpose is to make proposals, track and implement improvements in business and support processes. Throughout 2016, it proposed and supervised implementation of several initiatives, such as the "Colabora" Project, a virtual space for collaboration and structured specialised knowledge.

#### ACCIONA Service Process Management Model (MGAS):

in this improvement group, work was carried out to develop and implement the processes described in the service provision management model in various contracts with customers. Its main objectives are: 1) to standardise the main processes from the service delivery perspective and 2) to identify and implement improvements. In 2016, seven standard processes were defined and they are starting to be implemented in the company, by training the staff involved.

Lessons learned and best practices are a key tool for documenting and sharing experiences to the benefit of the entire company. Some examples are explained below:

In the Water business, a working group was formed to prepare the operational lessons learned on technical, management or safety issues identified during the course of the business processes. After they are reviewed by specialists in the relevant subject area, they are published on the Colabora platform. In 2016, 12 technical case studies, 6 project phase-end cases and 4 related to worker health and safety were published.

A method for measuring the weekly results of the service provided to a customer was developed at ACCIONA Service, establishing a system of indicators managed through the use of mobile devices.

### Customer relations and services at their disposal

Considering the diversity of ACCIONA Infraestructure's customers (please refer to the Company Profile chapter), communications and relations with them take place through a wide variety of channels, among which the following are worth noting:

- **Physical points:** water services concessions that have physical customer assistance offices and the commercial department of Airport Services that handles direct relations with customers, to name a few.
- **Online Channels:** such as websites for each of the Infrastructure businesses or virtual offices in ACCIONA Agua Servicios concessions.

Additionally, in relation to managing claims, complaints, suggestions received and solving incidents, ACCIONA Infraestructure has several communication channels for providing feedback to customers. The development of several digital channels in 2016 is worth noting: in one contract managed by ACCIONA Agua, an app was developed that enables citizens to report incidents via smartphone. ACCIONA Service launched two apps: *Cuidalosbarrios*, in the parks and gardens service in Los Barrios (Cádiz), so that citizens can report incidents; and "24 hours at your service", in which customers can use their mobiles to send service requests, surveys and suggestions, in addition to consulting incidents.

After complaints and claims are received, the parties in charge of assessing and resolving them are assigned. Taking into account the diversity of ACCIONA Infraestructure customers, the responsible area or party varies from one business to the next. For example, in the case of ACCIONA Agua Servicios, all complaints, claims and suggestions are registered and then each service has a limited number of days to provide a response. If the customer is not satisfied with the solution, a new treatment is given and, if this is still insufficient, the customer can file a claim with the relevant administrative court. The Quality Department requires technicians to send them the solution to non-conformities related to each claim, in order to ensure they are correctly resolved.

**Customer satisfaction and loyalty**

In 2016, the customer satisfaction rate was 100 % for the Water and Industrial businesses, 99 % for Construction and 95 % for Services. This is a reflection of ACCIONA Infraestructure's commitment to its customers.

In addition to the tools mentioned in the Value Chain chapter, the following specific methods for measuring satisfaction used by the Infraestructure division should be mentioned:

- **Online surveys:** ACCIONA Service used an e-survey platform in 2016 to design, send and issue reminders about surveys.
- **Internal information assessment:** ACCIONA Infraestructure's also uses assessment of existing internal information in the company arising from the day-to-day interactions with customers.

Regarding the degree of customer loyalty and recommendation, 100 % of ACCIONA Industrial customers and 91 % of Construction project customers in Spain confirm that the company is "better/ much better" than the competition. This figure is bolstered by the NPS index, which measures the recommendation rate as the difference between "detractor customers" and "promoter customers". According to this index, 100 % of the customers surveyed state that they would recommend ACCIONA Construction in Spain and ACCIONA Industrial.

**Input elements for assessing ACCIONA Industrial customer satisfaction**

1. Assessments made by customers themselves
2. Information garnered from claims and complaints
3. Direct communication or interviews held with customers
4. Certificates of satisfactory completion of work: Certificates of satisfactory completion were received for the solar thermal plant in Ouarzazate (Morocco) and Baja California V (Mexico)
5. Expressions of congratulation by customers
6. Market positioning studies
7. Figures on bid awards
8. Information from associations in the sector
<b>The overall assessment by ACCIONA Industrial customers in 2016 resulted in a score of 10</b>

## ACCIONA Infrastructure maintains a **firm commitment** to the socioeconomic development of the communities in which it operates

### CONTRIBUTION TO SOCIETY

The Infrastructure division, like the group's other businesses, helps improve society with its projects.

Two types of projects have been implemented in the division, focused on adding value to society:

- Using the Social Impact Management (SIM) methodology, the positive and negative social consequences of the projects on people are analysed and dealt with.
- In addition to this, investments linked to projects represent the company's contribution to improving the social well-being of communities.

#### Social impact management

During 2016, the Social Impact Management methodology was implemented in 64 projects at different phases (43 in Construction, 17 in Water, 3 in Services and 1 in Industrial), compared to 45 projects in 2015.

The methodology was applied in construction, operation, maintenance and service provision projects: metro lines, water purification plants, roads and highways, bridges, airport terminals, airport services and treatment plants, to name a few.

The projects are located in 18 different countries, namely: Australia, Brazil, Cape Verde, Canada, Qatar, Chile, Colombia, Costa Rica, Ecuador, United Arab Emirates, Spain, Mexico, Norway, Peru, Nicaragua, Oman, Portugal, Trinidad and Tobago and Turkey.



### Los Angelinos DWTP in Bucaramanga (Colombia). ACCIONA Agua

ACCIONA Agua is working on construction of the Los Angelinos drinking water treatment plant in Bucaramanga (Colombia). This DWTP will generate water to cover the needs of the cities of Bucaramanga, Floridablanca and Girón, zones which are classified as having a high risk of drinking water shortages in dry years.

As part of the implementation of the SIM methodology, a series of social initiatives linked to identification of impacts are being carried out in this project. One of the impacts identified has to do with interference by the project in access to the Rural Bosconia educational centre. This centre is located along one of the roads in the Bosconia sector that vehicles and machinery related to the project use, leading to transit and road safety issues.

To minimise this impact, several initiatives have been undertaken, such as having educational talks about prevention measures with the boys, girls and teaching staff at the school and also with consortium workers, particularly with tipper lorry drivers. Furthermore, as a result of these talks, vertical and horizontal signage has been installed in strategic places, and a pedestrian path has been created for the pupils of the centre.

**Investment associated with projects**

ACCIONA Infraestructure maintains a firm commitment to the socioeconomic development of the communities in which it does business. To this end, it performs specific social initiatives in each country where it operates. In 2016, these include:

**High Specialisation Hospital in Bajío (Mexico). ACCIONA Service and ACCIONA Construction**

These businesses were commissioned to carry out the design, construction, financing and management of the services of this hospital, which serves the Bajío region in Mexico. In 2016, an agreement was signed with the Cáritas Foundation, under which some 200 computers were donated, to be distributed to different rural schools and educational centres in the area, for use by both children and adults. Furthermore, large amounts of medical equipment were donated to rural clinics (IV stands and gurneys, among other items).

**Infanta Sofía University Hospital (Spain). ACCIONA Concessions**

ACCIONA is responsible for managing the non-hospital services at Infanta Sofía Public University Hospital in Madrid. In 2016, several initiatives were carried out, including the following:

- Decoration of the paediatric unit in collaboration with the Department of Health and Juegaterapia Foundation to make children's hospital stays more enjoyable.
- Solidarity market, with participation by diverse NGOs.
- Agreement with the Integra Foundation, aimed at hiring people at risk of social exclusion as substitutes for staff on holiday.
- Support for the 'Una carta para todos' (A Letter for Everyone) project by the Gil Gayarre Foundation, which helps people with intellectual disabilities and their families.
- Support for other initiatives related to sport and music, to name a few.

**Metro in Quito (Ecuador). ACCIONA Construction**

ACCIONA is in the process of building the Labrador and La Magdalena stations in the Quito Metro system. In 2016, the following initiatives were carried out, which benefited more than 1,000 people:

- 33 types of plant life were relocated to areas near the intervention site. More than 143 pieces of wood were given to the Metropolitan Mobility and Public Works Public Utility to be made into benches for the city's parks.
- Reduction in cutting down trees.
- Periodic information campaigns on the project for members of the community.
- Support for recovery of the economy in the communities adjacent to the work site.

**Integrated Sectorial Program for Water and Human sanitation in Nicaragua. ACCIONA Agua**

ACCIONA Agua, as consortium leader, is carrying out the construction work and commissioning of systems that are part of Phase I of the Comprehensive Water and Human Sanitation Sector Programme (PISASH) in Nicaragua. The goal of this programme is to contribute to the social well-being of Nicaraguans through charitable, sustainable access to urban and rural drinking water supply and sanitation services.

Among the projects implemented in 2016, the initiatives carried out near the construction site of the water treatment plant in the city of Malpaisillo, Nicaragua, are worth noting, having directly benefited some 7,500 people:

- Informative talks about the project and detailed information on sewage and drinking water supply systems and hygiene for health benefits.
- Training about the subjects of water and sanitation among community leaders.
- Training for students about the subjects of water and sanitation, promoting the spread of these subjects among educational associations and schools around the project's catchment area.
- Fostering local entrepreneurship.

### RISK MANAGEMENT IN SUSTAINABILITY

ACCIONA Infrastructure takes into account sustainability criteria in all of its business units. Its risk management model has defined six distinct phases: 1) Identification, 2) Analysis and assessment, 3) Planning, 4) Treatment and management, 5) Follow-up and control and 6) Improvement.

In the Identification phase, the possible features that could generate risks and opportunities within the construction process (design and execution) are defined. This list considers economic, social, environmental, ethical, cultural and, in general, all kinds of aspects related to the effect of the project on the community.

Once the risk events have been identified, they are assessed based on the likelihood of occurrence and the consequences thereof, and shown in a risk matrix. Thus, the risks are classified into four categories: low, moderate, significant and high.

In addition to this framework used in the identification phase of risk-generating aspects, the assessment also includes 6 categories of consequences to estimate the impact that each risk event could have:

- Economic (effect on cost and result of the project).
- Timing (effect on programming, milestones and deadlines).
- Environmental and community (effect on natural environment and third parties).
- Reputation (effect on image of the company or customer).
- Health and Safety (effect on people).
- Compliance and development of the infrastructure (effect on the functionality of the infrastructure, its design, execution process, location, internal organisation, performance, etc.).

In 2016, ACCIONA Infrastructure made the following progress in the risk management field:

- Enhancement of the IT tools used for risk analysis with proprietary internal development.
- Significant progress in the percentage of the volume of projects, in both the execution phase and the bidding phase, in which risks are analysed.
- Progress in expanding the scope of analysis in Water and in Industrial, as well as consolidation in Construction.
- Improvement and expansion of the country risk analyses performed.
- Consolidation of ACCIONA's rating for perceived risk for the businesses in a total of 80 countries.

**All the businesses identify and assess the possible effects at each phase of the projects in order to implement the necessary preventive and corrective measures**

## ENVIRONMENTAL MANAGEMENT

The division's environmental management is based on the principles of improving the business's environmental performance. All the businesses have environmental objectives that are reviewed annually in line with the SMP 2020.

As an example, we could point out some actions taken in 2016 in the Water, Construction and Services businesses.

Water managed to increase the performance of the distribution grid in the Osuna service by 2.5 % over 2015, and the sludge line at the wastewater treatment plant in the Central Gran Canaria Zone was enhanced. To achieve this, civil engineering was carried out and a thickened sludge storage tank was purchased and installed prior to the drying process.

At ACCIONA Construction, progress was made in the definition and implementation of an environmental Management Supervision System (MSS) through two activities:

- Development of a systematic reporting methodology for environmental incidents and accidents.
- Definition and implementation of an ongoing assessment tool for environmental management of projects/centres.

Finally, at ACCIONA Service, a 71 % reduction in the consumption of plant health products was achieved in the gardening services in Gandía (Spain), well above the target of 20 %.

### Protection and conservation of biodiversity

The division's activities may affect biodiversity as a result of the operations it performs. Therefore, all the businesses identify and assess the possible effects at each phase of the projects implemented, in order to put the necessary preventive and corrective measures in place.



### Recovery of wetlands in forest areas of Spain. ACCIONA Service

ACCIONA Service has done recovery work in relation to wetlands in La Matea hills, in the province of Valencia, considered public domain. This area primarily contains limestone formations into which water from the thaw or runoff surface water from higher elevations runs and collects.

The main tasks involved recovery of springs, ponds and natural pools. The ultimate purpose of this project was to deal with water supply needs at certain times of the year and to bolster the water network system in certain waterways and irrigated plains. In addition, this project promotes the conservation of species linked to these eco-systems. Furthermore, people were given better access to the area through the creation of paths, thus also bolstering the scenic, cultural and environmental values of these hills. In order to monitor and control the ecological recovery involved in these activities, camera traps have been installed in order to observe the presence of species such as wild boar and mountain goats in the recovered zones.

### Sustainable resource use and waste management

The Infrastructure division develops procedures and processes that aim to minimise, separate, reuse, recycle and recover waste. Some examples of best practices in waste management are as follows:

- Reuse of 14,740 m<sup>3</sup> of soil generated in the construction work of branches of the Llanura Manchega pipeline (Spain) as fill for trenches and adjacent lands.
- Reuse of 7,000 m<sup>3</sup> of rock in the construction of the Saint John DWTP (Canada).
- Fostering industrial symbiosis throughout the construction value chain through the FISSAC project, as part of the European 2020 Horizon programme, to define an innovative model that enables different industrial sectors to optimise their waste as secondary raw materials.

These activities also reduce the need to transport materials and waste foreseen in the project, thus reducing fuel consumption. Thanks to measures of this kind, ACCIONA Construction managed to recover more than 3,900,000 tonnes of soil.

In turn, ACCIONA Service fosters the reuse and recycling of waste through initiatives such as the purchase of a shredder, for example, for reuse of plant waste generated in forest work. With this measure, 14,000 tonnes of this type of waste were recovered in 2016.

Finally, the Water division recovered 12,800 tonnes of sludge in the drinking water purification process at ATLL, a water concession operator in Catalonia, and optimised the use of industrial waste at wastewater treatment plants to generate biogas using co-digestion processes.

### Efficient management of water resources

ACCIONA Agua is the line of business that makes the greatest contribution to the company's positive water footprint, mainly through treatment and purification activities. In 2016, the treatment plants managed by ACCIONA Agua desalinated, made drinkable and purified 772 hm<sup>3</sup> of water, a 22 % increase compared to 2015.

### ACCIONA Infrastructure managed water volume evolution

(hm<sup>3</sup>)

Type	2013	2014	2015	2016
Desalinated water	99	89	110	196
Treated drinking water	133	143	133	218
Treated sewage water	431	416	390	358
<b>TOTAL</b>	<b>663</b>	<b>648</b>	<b>633</b>	<b>772</b>

In 2016, water consumption at ACCIONA Infrastructure dropped by 22 % compared to 2015 and Construction was the business that consumed the most, with 56 % of the total amount for Infrastructure, followed by ACCIONA Agua, with 35 %.

Over the year, all the businesses performed specific actions to accomplish their goal of reducing water consumption.

In the Construction division, for example, at the Pedralba-Padornelo Tunnel construction site, water from the filter in one of the tunnels is reused in driving the piles for the viaducts. This action entailed savings of 11,000 m<sup>3</sup> of surface water.

In turn, Services managed to change the cooking acid treatment process at a food industry factory that has high water demands by applying foaming acid which prevents the need to fill the cookers with hot water before pouring the acid in. This enhancement has prompted savings of an estimated 752 m<sup>3</sup> of clean water per year.

**Water resource opportunities: Access**

In 2016, the company continued to contribute to environmental sustainability in regions with limited access to water and sanitation. ACCIONA Agua takes its solutions for purification, drinking water production and desalination to areas of the planet that suffer from major water deficiencies, guaranteeing access to drinking water in areas with water stress.

Thus, for example, in the Middle East, which is one of the areas with the greatest water stress on the planet, ACCIONA has begun to supply the population of Qatar with drinking water by commissioning the Ras Abus Fontas (RAF A3) desalination plant, construction of which began in 2015. The facility, which currently operates at 60 % of its nominal capacity, will begin to run at full capacity in a few months and will provide 164,000 m<sup>3</sup> of drinking water per day to a population of approximately one million inhabitants.

**FIGHTING CLIMATE CHANGE THROUGH ENERGY EFFICIENCY**

One of the division's priorities is to respond to global demand for sustainable infrastructures. In this regard, ACCIONA Infraestructure implements solutions in the energy efficiency field at its own centres and for its customers, optimising consumption and reducing the related CO<sub>2</sub> emissions.

In 2016, objectives defined in the area of energy efficiency were accomplished, such as the following:

- In the Water division, energy audits were conducted at four seawater desalination facilities and two wastewater treatment plants to identify efficiency measures that would achieve consumption savings of up to 47,000 MWh.
- In the Industrial business, an energy diagnostic study was conducted of the solar thermal plant in Olivenza (Spain) which proposes the implementation of solutions that would achieve savings of up to 5 % of the energy consumed in certain processes.
- In Services, transport routes have been assessed and optimised for several gardening and forestry services, managing to significantly reduce fuel consumption.

In relation to emissions generated by the division, there has been a 46 % increase in the volume of gases emitted in 2016 compared with 2015, despite the energy efficiency efforts made. This fact is due to the increase in activity by ACCIONA Agua, in which the use of energy is particularly intensive in desalination activities.



**Advanced control system in the aeration process at the La China WWTP. ACCIONA Agua**

With a nominal treatment capacity of 322,272 m<sup>3</sup>/day, the La China WWTP in Madrid (Spain) serves a population equivalent of almost 1,400,000 inhabitants.

In 2016, a new control system was implemented to optimise aeration in the biological treatment process of wastewater. With this new system, savings of over 2,500 MWh have been recorded, representing 10 % of the total electricity consumed at the plant.

In addition, all of the electricity consumed at the plant comes from certified renewable sources and therefore the WWTP saves more than 5,000 tonnes of CO<sub>2</sub> from being issued into the atmosphere each year.

## ACCIONA Infraestructure is at the **cutting edge in R&D&I**, applying specific technologically-advanced solutions

The following activities related to customers can be highlighted:

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### **Replacement of lighting at two industrial plants.** **ACCIONA Service**

In the industrial sector, energy consumption can account for a high percentage of operating costs, so the use of the most energy efficient equipment and technology enables a drastic reduction in operating costs.

In this regard, as part of its provision of its energy services, ACCIONA Service replaced nearly 20,000 mercury vapour lamps with more efficient lights based on LED technology at two industrial plants.

This action guarantees energy savings in excess of 60 % and also prevents over 15,000 tonnes of CO<sub>2</sub> from being released into the atmosphere each year.



### **Improvement in generation efficiency in turbines at the hydroelectric plant in San Rafael (Mexico).** **ACCIONA Industrial**

Hydraulic turbines are turbomachines subject to stress whose durability and efficiency can be significantly affected by issues such as the precision of the assembly or civil engineering flaws.

During the construction and commissioning of the San Rafael hydroelectric plant (Mexico), ACCIONA analysed the levels of stress to which the turbines would be subject, determining that the power limit curve could be less restrictive than initially considered in the project.

Thus, after receiving a technical permit from the manufacturer (without forfeiting any warranty conditions), ACCIONA made a proposal to the customer to change the limit curve in such a way as to guarantee an improvement in generation efficiency of up to 3.5 %.

The modification, once accepted, will assure greater financial returns in production, whilst also preventing the release of 2,450 tonnes of CO<sub>2</sub> into the atmosphere each year through the use of this renewable generation technology.

### INNOVATION AT THE SERVICE OF SUSTAINABILITY

ACCIONA Infraestructure is at the cutting edge in R&D&I, applying specific technologically-advanced solutions to solve every issue that arises in its activities.

In this regard, ACCIONA Infraestructure increased its innovation figure in comparison with 2015, to EUR 120 million, especially in Water, up 94 % from 2015.

#### R&D&I figure per business at ACCIONA Infraestructure

(million euros)

	2014	2015	2016
Infraestructure	107.4	114.7	119.9
Construction*	87.7	54.4	63.8
Water	19.1	18.3	35.6
Services	0.3	16.5	2.6
Industrial	0.3	25.5	18

\* Includes Engineering.

In addition, ongoing process improvement thanks to innovation enabled verified savings of EUR 22.3 million in 77 initiatives, which is 37 % more than in 2015.

Each business has a defined innovation strategy that revolves mainly around the ACCIONA technology centres (see Innovation chapter for more information). In 2016, the following progress was made per business:

#### ACCIONA Construction

In the area of Environmental Technologies, progress was made in the field of hydraulic binders as alternatives to cement for stabilised soil.

In terms of rail Infraestructure (line works), solutions have been developed related to ballast pick-up that significantly reduce track maintenance costs and the solution for a proprietary slab track design was also validated.



#### Follo Line (Norway). New solutions focused on the construction of underground infrastructure. ACCIONA Construction

This project proposes an application of technological innovation in the construction of a rail link between the cities of Oslo and Ski.

The main objective focuses on the design, development and validation of an innovative, high-performance, tunnel-boring machine for hard rock, the development and validation of an innovative construction procedure for optimal cavity excavation, bracing and simultaneous pre-grouting. These activities are intended to reduce execution time and simplify the cavity excavation process by simultaneously installing bracing and controlling filtrations with waterproofing.

Furthermore, new solutions are being proposed in relation to the manufacturing of construction elements for maritime works applications. These solutions are based on new foundation systems and the use of concrete with reduced corrosion issues thanks to the inclusion of nano-materials.

Finally, within ACCIONA Engineering, two projects should be highlighted in the field of innovation in construction procedures. On the one hand, NewSOL aims to develop a thermal storage system with molten salt in concrete tanks for newly built and existing solar thermal plants. And on the other, GBS is an internally developed project that has made it possible to design a LNG storage system in concrete casing, thus offering operational versatility and financial savings for ports that require these two facilities.

One of the innovations related to **new technologies** worth highlighting is the new Service line of business: **Reality Capture**

#### ACCIONA Agua

In the desalination field, work progressed in 2016 in activities relating to improvements in seawater pre-treatment, optimisation of desalination systems using the Internet of things technology and adapting industrial water treatment processes, specifically, adaptations of processes and technology for the Oil & Gas sector.



#### Ras Abus Fontas SWTP (Qatar). Innovative technological solution for desalination of complex water. ACCIONA Agua

The aim of this pilot project focuses on innovative integration of flocculation, flotation and ultra-filtration technology as pre-treatment for complex water desalination, in order to obtain high quality water. The project also aims to ensure that process performance is adequate and highly energy efficient when it comes to actual scale integration into a desalination plant.

In the area of treatment and reuse, the PROMETHANE project was launched with the intention of conducting a study about adding various substances to the anaerobic sludge digestion process to increase biogas production and, thus, the energy output of this process.

Progress was also made in 2016 regarding innovations in industrial water treatment. Specifically, the experience acquired in flotation was put into practice at a large-scale pilot plant to validate the technology with actual refinery and crude oil extraction water. With the new setup, at least 5 % more contaminants can be removed.

Finally, as regards drinking water, the LIFE BRAINYMEM project is ongoing at ACCIONA Agua, in which an advanced control system is being developed to reduce energy consumption. The innovative nature of the technology and its applicability have led to a patent and to implementation of the system in the business.



### Innovation pilot programme with ACCIONA Agua

As part of the Imaginne initiative, an Innovation pilot programme was conducted with ACCIONA Agua to solve a highly complex technical challenge using a process that combined several innovation methodologies: Synectics®, TRIZ, Design Thinking and Lean Startup. This initial project has satisfactorily confirmed that it is possible to apply a new way of working in the search for project solutions and key employees at ACCIONA Agua were trained in these methodologies so that they can be applied in operations in the company's activities.

During the course of this pilot programme, the Imaginne innovation platform was used to share innovative ideas, develop them, assess them and pool the talents and skills of each of the participants.

### ACCIONA Service

In 2016, various innovations were developed in relation to new technology and application development. One of these worth highlighting is the new Service line of business: Reality Capture.

Reality Capture technology lets the user take virtual strolls through actual settings by taking panoramic 360° photos. Furthermore, by using virtual reality devices an immersive experience is achieved. During the capture process, a 3D digital model of the space is automatically generated with its real dimensions, which can be used to create:

- A virtual tour virtual with 360° photographs and a 3D model of the captured shape.
- As-built plans of buildings, facilities or industrial plants.
- Three-dimensional BIM digital models using design software.
- Virtual reality models that can be viewed with virtual reality devices.

### ACCIONA Industrial

Commissioning took place and the warranty period was started for the 46.8 MW Baja California Sur V thermal plant in Mexico, in which innovative new techniques have been included to help achieve greater efficiency and reduce environmental impact.