

07

Environmental Services



Solid urban waste collection service in Madrid (Spain).



Environmental Services

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Analysis of the Environment Sector in Spain

During 2015 the budgetary restraint trend of recent years has been maintained from the authorities that issue invitations to tender. The still unresolved economic crisis and budget cuts are taking their toll on tenders, mainly because the cost of these services is one of the items that carries more weight in the budgets of the municipalities and other awarding bodies. In spite of this situation, the services portfolio is 0.2% more than in 2014.



Special cleaning services in San Fermín, Pamplona (Spain).

National Environment Division

FCC provides urban services in 3,583 municipalities in Spain, serving a population of over twenty-eight million. During 2015, FCC collected 5.4 million tonnes of waste and over seven million tonnes were treated.

Throughout 2015 FCC was awarded a total of 147 contracts for urban services. These activities include street cleaning, collection and transportation of solid waste, maintenance of green areas, maintenance of sewage systems, energy efficiency services and others, representing an increase in contracts awarded compared with the previous year. The volume of global contracts amounted to 1,386 million Euros compared to 1,220.1 million from the previous year.



FCC Medio Ambiente Main Contracts Awarded in 2015

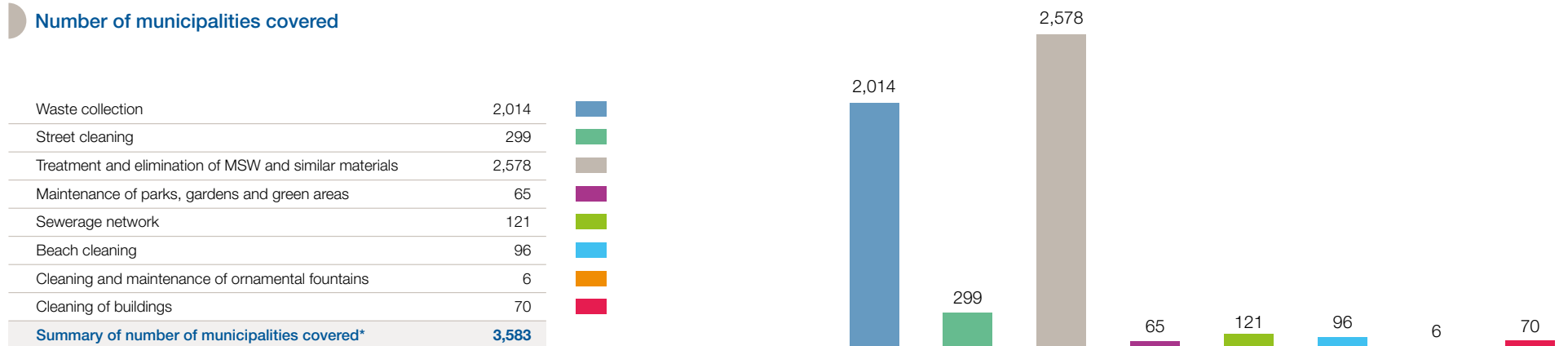
Province	Contract	Awarding body	Winning company	Total amount awarded	Duration (years)
Granada	Waste Treatment in the province of Granada	Granada Provincial Council	Fomento de Construcciones y Contratas S.A.	567,908,074.00 €	25
Álava	Municipal solid wastes (MSW) collection and street cleaning Vitoria	Vitoria City Council	Joint Venture MSW LV Vitoria Gasteiz	165,965,809.00 €	8
Barcelona	Sewage system Barcelona 15	Barcelona City Council	Fomento de Construcciones y Contratas, S.A.	94,101,837.53 €	8
Guipúzcoa	San Sebastián street cleaning	San Sebastián City Council	Joint venture Donostiako Garbiketa	48,553,243.80 €	4
Las Palmas	Lighting maintenance in Puerto del Rosario	Puerto del Rosario City Council	Joint Venture FCC-Imesapi	43,076,594.56 €	20
Madrid	Transfer and treatment station in the south municipal area	South Municipal Area	Fomento de Construcciones y Contratas, S.A.	33,982,497.12 €	4
Barcelona	MSW collection and street cleaning in Montcada i Reixac	Montcada i Reixac City Council	Fomento de Construcciones y Contratas, S.A.	28,432,825.28 €	8
Barcelona	MSW collection and street cleaning and sewage maintenance in Cornellà de Llobregat	Cornellà de Llobregat City Council	Fomento de Construcciones y Contratas, S.A.	26,868,622.80 €	4
Valencia	North Valencia Gardens 2015	Valencia City Council	Fomento de Construcciones y Contratas, S.A.	24,535,904.82 €	4
Las Palmas	Side loading of MSW for Las Palmas City Council	Las Palmas de Gran Canaria City Council	Fomento de Construcciones y Contratas, S.A.	19,922,315.76 €	8
Barcelona	Lighting maintenance in Sabadell	Sabadell City Council	Enllumenat Joint Venture Sabadell	16,885,927.13 €	7
Barcelona	MSW collection and street cleaning and recycling centre	Sant Quirze del Vallès City Council	Fomento de Construcciones y Contratas, S.A.	13,892,688.72 €	8
Guipúzcoa	Waste collection in the Sasieta Municipality	Sasieta Municipality	Urban Waste Collection Sasieta Joint Venture	13,567,661.12 €	4
Barcelona	Maintenance of the Infrastructures Mec-14L04 building. Plots 7, 11, 15, 16, 20, 21 and 22.	Gestió d'Infraestructures, S.A.	ICAT Joint Venture, Lots 11, 20 and 22 / Joint Venture Maintenance of the Infrastructures Building, CAT, Lots 7 and 15 / Fomento de Construcciones y Contratas, S.A. Lots 16 and 21.	12,010,003.57 €	3
Barcelona	Cleaning of municipal buildings in Mataró	Mataró City Council	SELSA - Servicios Especiales de Limpieza, S.A.	10,913,787.54 €	4
Balearic Islands	MSW collection - Lluçmajor	Lluçmajor City Council	Fomento de Construcciones y Contratas, S.A.	8,787,727.00 €	10
Malaga	Garden maintenance in Benalmádena	Benalmádena City Council	Fomento de Construcciones y Contratas, S.A.	8,422,054.92 €	4
Guipúzcoa	Cleaning of municipal buildings in San Sebastián	San Sebastián City Council	Fomento de Construcciones y Contratas, S.A.	8,335,689.47 €	2



Province	Contract	Awarding body	Winning company	Total amount awarded	Duration (years)
Asturias	MSW collection and street cleaning for Ribadesella City Council, Asturias	Ribadesella City Council	Fomento de Construcciones y Contratas, S.A.	8,125,995.00 €	12
Lérida	Urban Waste Collection and Landfills Garrigues	Garrigues County Council	Jaume Oro S.L.	7,320,057.00 €	10
Valencia	Street cleaning and MSW collection in Alboraya	Alboraya City Council	Fomento de Construcciones y Contratas, S.A.	6,739,546.08 €	8
Lérida	Recollida Mollerussa	Pla d'Urgell County Council	Fomento de Construcciones y Contratas, S.A.	6,170,615.16 €	12
Balearic Islands	Cleaning of schools (Palma). Lot 2 - SELSA 15	Palma de Mallorca City Council	SELSA - Servicios Especiales de Limpieza, S.A.	5,764,402.08 €	2
Álava	MSW landfill operation in Gardelegui	Vitoria City Council	Gardelegui III Landfill Joint Venture	5,500,950.00 €	6
Vizcaya	Beach cleaning in Vizcaya	Vizcaya Provincial Council	Playas Vizcaya Joint Venture	5,288,206.00 €	3
Balearic Islands	Cleaning of municipal offices. Lot 1- SELSA 15	Palma de Mallorca City Council	SELSA - Servicios Especiales de Limpieza, S.A.	4,450,794.89 €	2
Castellón	Cleaning of schools in Castellón	Castellón de la Plana City Council	Fomento de Construcciones y Contratas, S.A.	3,953,027.80 €	2
Álava	Sewage system in Vitoria-Gasteiz	Aguas Municipales de Vitoria S.A. AMVISA	Joint Venture, Vitoria Gasteiz Sanitation	3,692,859.15 €	4
Balearic Islands	MSW collection, street cleaning, garden maintenance in Alaior	Alaior City Council	Fomento de Construcciones y Contratas, S.A.	3,435,102.56 €	4
Zaragoza	Closing of General Motors landfill	General Motors España, S.L.	Fomento de Construcciones y Contratas, S.A.	2,626,993.98 €	31
Las Palmas	Cleaning and maintenance of side-loading containers. Las Palmas City Council	Las Palmas de Gran Canaria City Council	Joint Venture, Contenedores Palms	2,470,915.60 €	4
Barcelona	Maintenance of park and garden furniture 15. Lot 1.	Municipal Parks and Gardens Institute, Barcelona	Fomento de Construcciones y Contratas, S.A.	2,375,806.29 €	3
Tarragona	Cleaning buildings in El Vendrell	El Vendrell City Council	SELSA - Servicios Especiales de Limpieza, S.A.	2,248,942.46 €	4
Valencia	Cleaning buildings in Alboraya	Alboraya City Council	SELESA - Servicios de Levante, S.A.	1,811,738.72 €	4
Málaga	Sewage cleaning in West Malaga	EMASA-Empresa Municipal de Aguas de Málaga, S.A.	Fomento de Construcciones y Contratas, S.A.	1,721,316.64 €	2
Castellón	Cleaning buildings in Castellón	Castellón de la Plana City Council	SELESA - Servicios de Levante, S.A.	1,559,802.30 €	2
Málaga	MSW collection, street and general cleaning at the port of Málaga	Málaga Port Authority	Fomento de Construcciones y Contratas, S.A.	1,508,879.04 €	3
Balearic Islands	Beaches in Menorca - 15	Menorca Island Council	Fomento de Construcciones y Contratas, S.A.	1,434,402.15 €	2



Number of municipalities covered



* If several services are provided in the same municipality, the municipality is only counted once.

Population covered



* If several services are provided in the same municipality, the population covered will only be counted once.



Waste treatment

The public service management contract for the treatment of municipal waste in the province of Granada

Fomento de Construcciones y Contratas, S.A. has been awarded the public service management contract for the treatment of municipal waste in the province of Granada and the execution of a series of works related to said management for a period of twenty-five years. The volume of business associated with the contract will be approximately 568 million Euros.

The service includes the operation of the following facilities:

- Transfer plant in Alhama.
- Transfer plant in Almuñécar.
- Transfer plant in Baza.
- Transfer plant in Cádiar.
- Transfer plant in Guadix.
- Transfer plant in Huéscar.
- Transfer plant in Iznalloz.
- Transfer plant in Loja.
- Transfer plant in Montefrío.

- Treatment plant in Alhendín "Ecocentral Granada". This mechanical-biological treatment facility will treat approximately 370,000 tonnes per year of waste.

The service also includes the execution of the following works and activities:

 - Implementation of a new controlled landfill.
 - Installation of access scales to the controlled landfill.
 - Installation of a platform to repair the feeder grappler arms on the selection and classification lines.
 - Construction of a warehouse.
 - Construction of a warehouse for the closure of the reception pits.
 - Construction of a workshop-warehouse-storage area.
 - Construction of a workshop-warehouse.
 - Construction of a building for central offices.
 - Installation of equipment for automatic composting.
 - Sealing of the current controlled landfill.
 - Degasification of the current controlled landfill.

- Treatment Plant in Vélez de Benaudalla. This mechanical-biological treatment facility will treat approximately 60,000 tonnes per year of waste.

The service also includes the execution of the following works and activities:

 - Enlargement of the leachate basin.
 - Construction of a leachate treatment plant.
 - Acquisition of a primary crusher.
 - Construction of a new controlled landfill.
 - Sealing of the current controlled landfill.
 - Degasification of the current controlled landfill.
 - Enlargement of the existing offices.





The Gardélegui solid waste landfill in (Vitoria, Álava).

Public Service Management Contract for the operation of the Gardélegui solid waste landfill in (Vitoria, Álava)

The Joint Venture Gardélegui III Landfill founded by the companies Fomento de Construcciones y Contratas, S.A. and Yarritu, S.A. has been awarded the Public Service Management Contract for the operation of the Gardélegui solid waste landfill in Vitoria, for a period of six years, which will be renewable for a further two years. The volume of business associated with the contract will be approximately 5.5 million Euros.

Around 100,000 tonnes of waste are deposited in this landfill every year. It has a controlled landfill with two independent landfill basins for non-hazardous waste and another for inert waste.

Public Service Management Contract for the operation of the installations for the transfer and disposal of household waste in the Madrid Autonomous Region assigned to the group of Southern Municipality

Fomento de Construcciones y Contratas, S.A. has been awarded the Public Service Management Contract for the operation of the facilities for the transfer and disposal of household waste in the Madrid Autonomous Region assigned to the group of Southern Municipalities for a period of four years, renewable for a further two years. The volume of business associated with the contract will be around 36 million Euros.

The service includes the operation of the following facilities:

- Transfer Station in Leganés.
- Transfer station in Las Rozas.
- Transfer Station in Colmenar de Arroyo.
- Transfer Station in Colmenar de Oreja.
- Post-closure maintenance of controlled landfill in Colmenar de Oreja, already closed.
- Controlled landfill in Pinto.

This is a landfill for non-hazardous waste in which approximately 720,000 tonnes of waste are deposited every year from municipalities in the Southern part of the Madrid Autonomous Region.

- Waste collection point attached to the facilities of the controlled landfill in Pinto.



International Environment Division

Turnover:
1,319.3 million euros
 (an increase of 8.6% over 2014)

Turnover and Geographical Distribution

The International Environment division has permanent presence in eleven countries: United Kingdom, Austria, the Czech Republic, Slovakia, Hungary, Poland, Romania, Bulgaria, Serbia, Portugal and Egypt.

Furthermore, the division is analysing opportunities and developing projects in new countries in Europe, America and the Middle East.

In 2015 the turnover for the first time ever, has passed the threshold of 1,300 million euros. At the same time, the order book at the end of the year amounted to 4,346.8 million euros.

Contracts in 2015

During 2015, the International Environment division was awarded 47 tenders for municipal solid waste (MSW) collection services, selective collection, transport, treatment, disposal, street cleaning, recovery of contaminated soils and maintenance of parks and gardens, distributed geographically as follows:

● United Kingdom (FCC Environment UK)

New contracts and firm renewals of municipal contracts:

- Tender contracts awarded: **16**
- Contract portfolio: **166.9** million euros

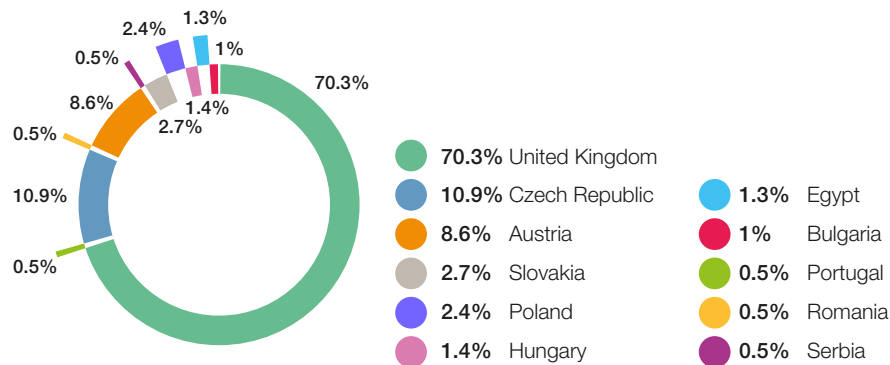
New contracts and contract renewals for commercial and industrial waste and short-term contracts:

- Contract portfolio: **261.2** million euros

Provisional awards of municipal contracts:

- Tender contracts awarded: **4**
- Contract portfolio: **696.9** million euros

International Environment Division - 2015 Turnover Geographic Location





● Central and Eastern Europe (FCC Environment CEE)

New contracts and firm renewals of municipal contracts:

- Tender contracts awarded: **39**
- Annual turnover: **24.1** million euros
- Contract portfolio: **62.4** million euros

New contracts and contract renewals for commercial and industrial waste and short-term contracts:

- Contract portfolio: **404.9** million euros

● Portugal (FCC Environment Portugal)

New contracts and firm renewals of municipal contracts:

- Tender contracts awarded: **6**
- Contract portfolio: **0.6** million euros

Provisional awards of municipal contracts:

- Tender contracts awarded: **2**
- Contract portfolio: **6.6** million euros

Most significant events in 2015

● Construction and development work at the incineration plant in Buckinghamshire (UK)

The Buckinghamshire incineration plant, under construction since September 2013, is scheduled to become operational on 1 April 2016. With a treatment capacity of 300,000 tonnes per year, it will serve a population of more than 478,000 people and will generate more than 187,000 megawatts/hour per year, equivalent to the consumption of 37,000 homes.

● Construction and development works for the incinerator in Herefordshire and Worcestershire (United Kingdom)

The Worcestershire and Herefordshire incineration plant, which began construction in June 2014, is scheduled to be operational in March 2017. With a treatment capacity of 200,000 tonnes per year, it will serve a population of more than 700,000 people and will generate more than 160,000 megawatts/hour per year, equivalent to the consumption of 31,000 homes.

● Change of brand name in Central and Eastern Europe and Portugal

.A.S.A. now adopts the global brand name FCC Environment CEE and will continue to be the development platform for the Environment division in Central and Eastern Europe. Focsa Serviços adopts the brand FCC Environment Portugal.



Incineration plant in Buckinghamshire (UK).

● PPP (public-private project) contract for the treatment and disposal of waste in Edinburgh and Midlothian (United Kingdom)

Contract in the negotiation phase after the provisional award in December 2014 for the construction and operation of a 150,000-tonnes-per-year waste incineration plant which will treat waste in Edinburgh and Midlothian and generate over 103,000 megawatts/hour year. This 25-year contract entails a construction project pipeline of more than 654 million euros that will serve more than 575,000 people.



Most significant contracts awarded in 2015

● United kingdom (FCC Environment UK)

- **Contract for collection and street cleaning with the Harborough Municipalities Association**

Contract awarded in 2008 for a period of seven years, with the possibility of extending it for another seven years. This condition will be effective from 1 April 2016, under the agreement reached by FCC Environment and the Harborough City Council. The contract covers a population of 88,000 inhabitants and the contract entails a pipeline of work amounting to more than 39 million euros.

- **Contract for treatment and disposal in Norfolk**

In November 2015, FCC Environment was awarded the contract for treatment and disposal of municipal waste in Norfolk covering the treatment of one to 100,000 tonnes per year, for a period of four years. To do this, the mechanical treatment and recycling plant will be expanded to 100,000 tonnes per year. The contract covers the provision of services to more than half of the county's population (870,000 inhabitants) and the contract entails a pipeline of work amounting to more than forty million euros.



- **Contract for collection with the South Ribble City Council**

Contract awarded for a period of seven years, with the possibility of extending it for another seven years. The population served totals 102,000 inhabitants and the contract entails a pipeline of work amounting to more than eleven million euros.

- **Contract for management of recycling centres with the Torfaen City Council**

Contract awarded for a period of seven years, with the possibility of extending it for another three years, for managing and meeting the Torfaen City Council's recycling objectives. The population served totals 100,000 inhabitants and it entails a pipeline of work amounting to seven million euros.

- **Contract for treatment and disposal with the Thurrock City Council**

Contract awarded to FCC Environment for a period of nine years for the removal of municipal solid waste in the Allington incinerator. The contract began in September 2015 and the contract entails a pipeline of work amounting to 34 million euros. The population served amounts to 160,000 inhabitants.



Incineration plant in Zisterstorf (Austria).

● Central and Eastern Europe (FCC Environment CEE)

● Contract for collection and street cleaning contract with the Sofia City Council (Bulgaria)

Contract awarded to FCC Environment CEE for collection and street cleaning in three districts of the city of Sofia for a period of five years. The contract, with a pipeline of work amounting to over twenty-three million euros, began in June 2015 and serves more than 85,000 inhabitants. This service has been provided by FCC Environment CEE (formerly .A.S.A.) since 2010.

● Contract for the recovery of contaminated soils (Kamenolom SRDCE project, Slovakia)

Award by Slovakia's Ministry of Environment of the contract for the recovery of soil contaminated by petroleum wastes from the former Apollo refinery for a period of one year. This contract entails a turnover of 0.8 million euros and is a continuation of the contract awarded in 2014.

● Contract for collection and transport with the Myszkow City Council (Poland)

Award of the contract for collection and transport with the Myszkow City Council which began in July 2015 for a period of four years. The population served totals 32,000 inhabitants and the contract entails a pipeline of work amounting to more than three million euros.

● Contract for collection with the AWS Schwechat Municipalities' Association (Austria)

Extension of the contract for collection with the Schwechat Municipalities' Association for a period of one and one-half years from July 2015. The population served totals 60,000 inhabitants and the contract entails a pipeline of work amounting to more than two million euros.

● Contract for the recovery of contaminated soils (Heliodromus project, the Czech Republic)

Contract for the recovery of soil contaminated by petroleum wastes for a period of one year. This contract entails a pipeline of work amounting to 2.5 million euros.

● Portugal (FCC Environment Portugal)

● Contract for collection and transport with the Douro Superior Municipalities' Association

Award of the contract for collection and transport with the Douro Superior Municipalities' Association for a period of five years. The population served totals 40,000 inhabitants and the contract entails a pipeline of work amounting to 3.6 million euros.

● Contract for street cleaning with the municipality of Oeiras

Award of the contract for street cleaning with the Oeiras City Council for a period of five years. The population served totals 40,000 inhabitants and the contract entails a pipeline of work amounting to three million euros.



Technological Innovations

Within the framework of the process to achieve the goal set by FCC in 2006, which was to develop a vehicle that is fully electrical in its operation for all uses, during 2015 FCC successfully completed the project entitled "study, analysis and development of new technologies in hybrid and electric engines for the MSW collection truck", launched in January 2014. It employs hybrid technology using ultra-capacitors instead of batteries, devices that are capable of sustaining a high energy density compared with normal capacitors, offering a capacitance one thousand times higher than regular capacitors.

These devices are one of the most important lines of research in the development of means of transportation due to their energy efficiency, allowing, compared with batteries, a better discharge during the acceleration of the vehicle, in addition to achieving a greater amount of regenerative energy recovery when braking.

In 2014 the technical specifications were defined, the adaptation of the body to the new chassis was developed, and the manufacturing of the vehicle began. As a follow up to the above activities, in 2015 the integration of the chassis of the electrical traction and energy storage systems (ultra-capacitors) was completed. These systems were installed successfully on a used chassis.



Ultra-capacitor vehicle for MSW.

Once the electrification of the chassis was finished, the necessary adaptations were made on the body, and finally the vehicle body was installed, its construction was complete and the vehicle was ready for validation and approval.

The works carried out have made it possible for FCC to have a new electric-hybrid vehicle for waste collection at the end 2015. This project will increase the competitiveness of the company, which will have a new environmentally friendly technology at a competitive price.



Electric sweeper.

100% electric sweeper with a two-cubic-metre capacity

After several years of collaboration in the development of the joint project between Bucher and FCC, a self-propelled, two-cubic-metre-capacity suction sweeper has been tested, which is one hundred percent electric. After three years of work and development, in 2015 the first tests were performed under real conditions of this electric sweeper in the Madrid street cleaning contract.

The inclusion of electrical machines for this type of sweeping service was mainly in urban areas, providing a series of very clear advantages compared to traditional fossil-fuel technologies. It will be the type of machine that will dominate in this type of applications, both in the immediate future and in the long term. Thanks to the joint collaboration project between Bucher and FCC, today the sweeper has become a reality.

The main advantages compared to the fossil-fuel sweeper are:

1. Zero emission of polluting gases since it is 100% electric. This aspect is fundamental, it is increasingly required by administrations due to increased awareness of gas emissions in societies and the growing perception of pollution as a threat to the health of citizens in large cities.
2. Minimum noise emissions, with a very large decrease of noise with respect to the fossil-fuel sweeper. Thanks to its electric drive, both the conventional combustion engine and the hydrostatic transmissions for the engine traction can be removed, greatly reducing noise emissions. This aspect is essential in view of the scope of the urban work of the machine.
3. Energy saving. Thanks to greater efficiency in the electrical systems huge energy savings have been achieved with a more sustainable use of the machine throughout its life, leading also to significant cost savings.

All the above characteristics are achieved while maintaining the features and performance of a conventional sweeper. Otherwise the project would not be viable.

The successful implementation of the tests carried out in Madrid were an important milestone for this project. After the final adjustments, the fine-tuning will be carried out and in 2016 the sweeper will be used in a service contract.



Fixed installations

As in previous years, FCC continued designing and introducing measures aimed at the improvement of energy efficiency and the development of renewable energy in its facilities. The transformation to electricity generation LED lighting is one example.

Vision Project

FCC continues with Vision Project ("Advanced Solution for the overall management of all the processes in the Environment contracts: Vision Project") within its commitment to technological innovation. Initiated in 2010, the progressive deployment of contracts for environmental activity is ongoing, progressively incorporating new technologies and providing services to new activities.

Maintaining a platform that is made up of a combination of *hardware* and *software* allows the Group to have a tool with centralised resources, secure access and data protection, offering a high availability of service.

As a global platform that is enriched with new features, development processes are reduced, as well as deployment and training, representing a huge advantage in both cost and efficiency.

In 2015 a further step was taken with the implementation of new aspects:

- Sewerage management: network inventory, sequential organization of cleaning, historical performances.



Vision Project.

- Attendance and work control: attendance management for staff with mobile devices, integration of external control systems, monitoring of hours worked, scheduled, invoiced, etc.
- Waste management: inventoried items (containers, bins, etc.), route design and testing, validation of inventories. Mobile application for fieldwork (inventory, maintenance, etc.).
- Support for efficient energy management: consumption data capture of all types of energy (meters, bills, cards), comparative analysis, historical tracking. This is a basic development in order to obtain the ISO 50001 certificate in every company activity.



vision

smart environmental services

- Publication of data integrated with geographical criteria. Data integration service (cleaning, collection, services) with the inventory data to facilitate analysis and comparisons. Widespread access from the web platform and mobile devices.
- Data integration with city council land registries for the deployment of the collection service in Orange County (Orlando, USA). All plots of land have been integrated (alphanumeric and graphic) into the land register. The integration of this section with other systems has enabled the development of the procedure for defining routes, system integration, tracking of lifting and billing processes in record time.
- Expansion of communication processes between systems. Given the widespread use of web and exchange services, configurable tools have been defined that allow the definition of communication gateways, for both data publication and the receipt of same, in real time and without the need for new programming versions.

The following milestones are planned for 2016:

- Management efficiency of the new electric vehicles designed by the Group. Sewerage trucks are put into operation that are one hundred percent electric, these must have sufficient energy for a full day's work. It is also essential to manage processes and battery charge times.
- Data management to analyse efficient driving associated with the various services we provide. Parameters can be customised for each service to define efficiency in driving with the aim of reducing energy costs and maintenance.
- Optimization of the information of the recruitment cycle: studies, presentations, portfolio of contracts, market analysis, etc.
- Automation of readings of energy consumption mainly through the deployment of smart meters.
- Integration of compliance control and legal and environmental aspects.
- Centralization of the documentation associated with workers regarding their education, training, prevention, etc.
- Control of cleaning and maintenance work of buildings. Incorporate the inventory systems, job control and deployment of mobile devices in this branch of activity.
- Optimization of the design of the platform to facilitate access from the new devices.



Sustainability: Progress and Results

The approval and launch of the seventeen Sustainable Development Goals (SDG) of the Global Compact and the signing, last December, of the COP 21 Paris Agreement, figured as the two key events in 2015 that will set the agenda for sustainable development at international level. Among the many objectives of both events is the role of public-private collaboration aspiring to have more sustainable, resilient, inclusive and secure cities.

In addition, in 2015 the tenth anniversary was celebrated of the launch of the first initiatives to encourage and promote, within FCC Medio Ambiente, the sustainable and responsible environmental character of the activities and services provided to customers.

Looking back in this way allows us to assess how, through the goals achieved and goals still to be realized, it is possible to tune in with the realities and challenges of mitigation and adaptation to the effects of climate change and to take part in these new challenges, implementing and promoting good practices whose benefits will be reflected at local level in the cities and with their citizens.

In the current context of change toward a model of sustainable urban development, opportunities emerge to progress and consolidate positions.

Thus, during the past year FCC Medio Ambiente requested for the second time the registration of the Carbon Footprint of the Company as well as the follow-up report of the GHG (Greenhouse Gases) Emissions Reduction Plan, as submitted in 2013, in which the objectives regarding the reduction of GHG emissions from municipal solid waste landfills were set out. This tool, associated with the life cycle of the organization (and more specifically to its energy metabolism), expresses in terms of GHG emissions reduction the result of the measures undertaken by the Organization to combat climate change.

In the recently awarded contracts it has committed to a range of services that support the green growth of the city, allowing the implementation of an environmental advice service. This service uses tools to calculate the intensity indicators and the carbon footprint that will be used to improve the various sustainability indexes agreed with customers, thus ensuring a quality environment for all sectors of the urban population.

The integrating dimension of sustainable development of an organization dedicated to the management of services with a strong environmental component, and almost exclusively committed to contributing to the welfare of citizens, must count on the dedication of each and every one of its collaborators. To this end, a training programme with actions to promote responsible environmental behaviour throughout the entire operational chain has been designed and implemented. This initiative is also a solidarity objective to be added to the project, "1 million commitments for the climate", launched by the Ministry of Agriculture and the Environment and the ECODES Foundation, with a view to celebrating the climate summit in Paris.

Sustainability, resilience, responsibility and social inclusion take up an increasingly greater role in the planning and management of cities. To address these new challenges, public institutions count on the collaboration of private enterprises for their response capacity in the form of design and development of urban social and environmentally responsible services. This step is being taken gradually from the Environment Division to accompany the responsible transition and to meet these new expectations and facets of public procurement.



Quality, Occupational Risk Prevention and Training

Quality and Environmental Management

● Management System Documentation

The provision of certain services of urban sanitation is one of the main activities of FCC. This is why the Company is always concerned about meeting the needs or requirements set out by customers, in addition to legal or regulatory obligations that affect the activities performed and in particular those related to the interaction with the environment and energy efficiency. To do this, the Environment Department has implemented a management system based on UNE-EN ISO 9001: 2008, UNE-EN ISO 14001: 2004, UNE-EN ISO 50001: 2011, UNE 187004: 2008 and Regulation 1221/2009 EMAS III, through which environmental performance, energy and the quality of the organization will be managed, in order to provide services in a way that is satisfactory for the clients and to create internal confidence that is developed in accordance with the regulations and internal documentation.

During 2015 there have been no substantial changes within the management system.

● Management System Certification

With regard to the annual certification process:

- AENOR has performed the external audit of the management system of the Environment Department based on UNE-EN ISO 9001: 2008 and UNE-EN ISO 14001: 2004, in the period from 16 April to 8 May 2015. During the course of the same period, five of the departments of central services and various contracts from ten branch offices have been audited. In the central services the management, quality and environmental control, purchases, machinery and design processes were audited, as well as training, legal requirements and assessment of their compliance. In branch offices contracts, the operational and service delivery processes were audited in addition to the operational control and monitoring and measurement of environmental aspects.

In this process new companies have been incorporated into the certification of both standards and others have been removed in the absence of activity and the following certificates remain in force for 2015:

- Fomento de Construcciones y Contratas, S.A.
- FCC Medio Ambiente, S.A.
- Alfonso Benítez, S.A.

- Servicios de Levante, S.A.
- Servicios Especiales de Limpieza, S.A.
- Vigo Recicla, Joint Venture.
- Melilla Joint Venture.
- ECOPARQUE Mancomunidad del Este, S.A.
- Empresa Comarcal de Servicios Medioambientales del Baix Penedés, S.L. (ECOBP).
- Serveis Municipals de Neteja de Girona, S.A.
- Societat Municipal Mediambiental D'Igualada, S.L.
- Palacio de Exposiciones y Congresos de Granada, S.A.

The external audit of the management system of the Environment Department based on UNE-EN ISO 50001: 2011 has been performed from 8 to 12 June 2015, expanding the scope of the certification of the contracts of the Catalunya II, Galicia and Murcia-Almería branch offices, in addition to the peninsular contracts of the Barcelona and the Balearic Islands branch offices that were already certified by the company:

Fomento de Construcciones y Contratas, S.A.

Likewise, the external audit for maintaining the certificate "Q Tourist" has been performed (according to the requirements of the UNE 187004) for the Palacio de Exposiciones y Congresos de Granada, S.A. on 4 and 5 May 2015.



The process of external validation of the environmental statements during May and June 2015 has meant that EMAS records generated (Community Regulation on Eco-Management and Eco-Audits) are maintained for the following branch offices:

- Barcelona (ES-CAT 000280) file 1994/0241/VM/02, on behalf of Fomento de Construcciones y Contratas S.A.
- Catalunya I (ES-CAT 000315) file 1994/0241/VM/03, on behalf of Fomento de Construcciones y Contratas S.A. for the contract for municipal waste collection, cleaning of the sewage system, and street cleaning, Urban Waste Collection, in L'Hospitalet de Llobregat.
- Levante I (ES-CV-000052) file 1994/0241/VM/04, on behalf of Fomento de Construcciones y Contratas S.A.
- Catalunya II (ES-CAT-000415), on behalf of Fomento de Construcciones y Contratas S.A. for the contract for Urban Waste Collection and street cleaning, Reus.

● Certification of other systems of quality and environment management

In April 2015 an external audit was performed on the management system of the company Sistemas y Vehículos de Alta Tecnología, S.A. (SVAT) based on UNE-EN ISO 9001: 2008 and UNE-EN ISO 14001: 2004 standards, maintaining the existing certificates ER-0782/1997 and ES034080, respectively.

Occupational health and safety management

The Community Prevention Service of FCC Medio Ambiente, established on the twenty-third of March 2011, has been consolidated. Currently it covers 65 companies and has 37 full-time technicians in addition to thirteen coordinators per branch office.

In 2015 the Occupational Health and Safety Management certificate was renewed for the 65 companies included in the SPM FCC Medio Ambiente (ES14/16003), in accordance with specification OHSAS 18001:2007.

- Regulatory audits have been conducted (of a legal nature) on the following companies:
 - Geneus Canarias, S.L.U. (C-M-151220)
 - Joint Venture Pájara (C-M-151221)
- The AENOR certificates have been maintained, according to the "Healthy Company Model", in the Aragón-La Rioja and Soria (NO. IS-2015/0001), and Catalunya II (NO. IS-2013/002) branch offices.
- With regard to initiatives carried out by the Department of Occupational Health and Safety, the following can be highlighted:
 - The adoption and implementation of FCC Medio Ambiente 2015-2018 Road Safety Plan has been carried out, with participation in presentations and specialist workshops.

- Advice, support and auditing has been provided for branch offices to promote the development of initiatives based on the "Healthy Company Model".
- The implementation of the tool used to calculate the costs of accidents has continued.
- A guide has been developed for the control of legionella, which establishes the tasks of maintenance, cleaning, disinfection, measurements and their frequency depending on the type of facility.
- An ergonomic study was carried out for manual sweeping in the context of street cleaning, with the aim of detecting poor postures that may cause muscular-skeletal disorders associated with the tasks performed, as well as to propose preventive and corrective measures.
- As a result of the previous point, ergo-records have been developed, in order to influence the training, information and awareness of workers through clear and concise messages on how to work safely in each task evaluated.
- Absenteeism management plan FCC Medio Ambiente-FREMAP: the objective is to reduce absenteeism derived from common sickness and occupational accidents. For this purpose, we have established work guidelines for the mutual improvement of monitoring the processes.



Street cleaning service in San Sebastián (Spain).

Training

The 2015 Training Plan of FCC Medio Ambiente consists of a total of 702 training initiatives grouped by areas of knowledge such as machinery, maintenance, mechanics, gardening, cleaning of buildings and premises, street cleaning, driving, quality, MSW, technical, etc.

Through this Plan the progress of the employees and the company itself is promoted in such a way that it generates, specialises and updates their knowledge and skills. Given the diversity of the business and the dynamism that exists in the market, each year the needs of the workers are adapted in order to be able to cope with new projects, as well as to innovate working methodologies.

The basic objectives of the training during the year have been:

- To increase the qualifications of the employees thereby promoting their professional development.
- To contribute to the improvement of the quality and efficiency of the services provided by the employees.
- To ensure the updating of the professional staffs' knowledge and the continuous improvement of their qualifications, as well as to encourage them in their daily work and increase their professional motivation.

The preparation of this document is subject to the provisions of art. 15 of Royal Decree 395/2007 of March 23, through which the company makes available, to the legal representation of its workers, all the information required under said Article and that which is detailed below:

- Denomination, objectives and description of the actions to be developed.
- Target groups and number of participants per action.
- Schedule for implementation.
- Teaching means.
- Criteria for the selection of participants.
- Place where training initiatives will be held.
- Results of the training initiatives developed in the previous year.

The target groups for the implementation of this Plan are:

- Directors.
- Middle management.
- Technical staff.
- Skilled workers.
- Low-skilled workers.



In the area of occupational risk prevention, the activities are performed in compliance with the law, Royal Decree or prevention regulation applicable, according to the activity to which the course is addressed (first aid, road safety, handling of pesticides, training in prevention on the basis of the specific position of the worker, high and low voltage risks, work at heights, handling of machinery, driving, etc.).

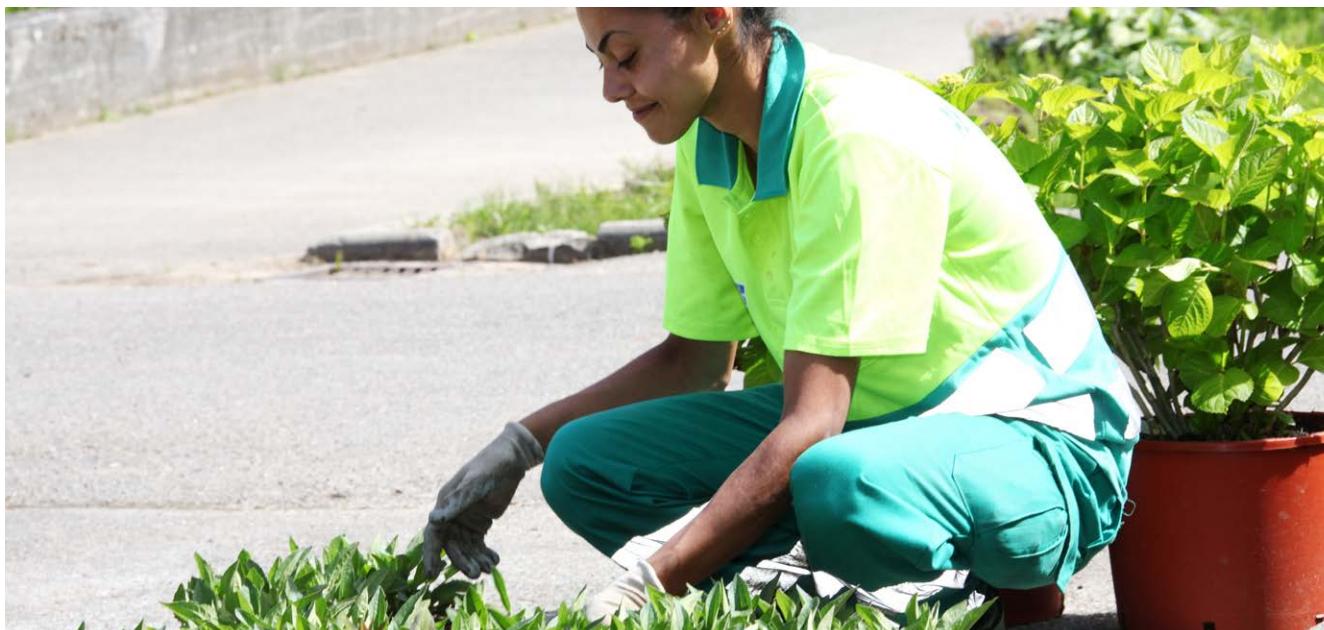
Within the grouping, a total of 77 business entities are managed that provide employment to an annual average of 30,100 people. It should be noted that out of all of these companies, nine of them have an average workforce of more than 250 people; the rest range between 227 and 3 for an average workforce.

With regard to the implementation of training initiatives within the subsidised training, the most relevant data are the following:

- Training initiatives: 130 initiatives carried out. Of each of these initiatives there are a total of 653 organized groups.
- Trained workers: 5,109.
- Total hours of training: 104,043.

During this year, the consumption of credit has been 28%. The reason for this decrease in all our indicators is due to the new strategy established in the field of training.

With a view to 2016, appropriate measures have been taken for the correct development of the 2016 Training Plan. The management model is taken up through a *partner*, so it is possible to cover the needs of each contract in any of the FCC Medio Ambiente companies quickly and effectively, providing a complete and effective service to its customers.



Another goal that has been set for training is a new configuration of the 2016 Training Plan based on standard jobs types for each of the activities performed at FCC Medioambiente.

Training programmes per job type will be developed, which will identify the knowledge required both at a specific level as well as a cross-cutting level, comprising basic and additional training.

During 2015 a contract has been signed for Dual Training on a national level, which enables employees to get the corresponding Professional Certificates endorsed by the equivalent official certificate. Dual Training refers to all the

training activities, whose goal is for employees to gain professional qualifications, combining teaching processes and learning at the Company and at the training centre. This type represents great advantages, for both workers and the Company.

In addition, the Group has collaboration agreements that promote professional practical training, providing students studying for official diplomas with the opportunity to do practical work placements in order to gain the necessary skills to enable them to join the labour market, in many cases within FCC.



FCC Ámbito

Sector analysis

FCC Ámbito operates in the industrial waste treatment and by-product recovery sector, and positions itself as a benchmark company for the circular economy. Its clientele is preferably private and linked to industrial activity.



Soil decontamination activity in Bailín, Huesca (Spain).

FCC Ámbito's domestic activity

In 2015, the previous year's trend was successfully maintained and the volume of waste and by-products received at FCC Ámbito's facilities located in Spain stabilised.

During 2015, the waste treatment plant in Getafe (Madrid), commissioned last year to adapt to the waste production situation in the area, operated at full capacity. Initially conceived as an industrial waste transfer/blending facility for energy recovery, the expansion incorporated equipment for treating other types of liquid waste. The treatment capacity for high organic load waste, the production of which is very significant in all its area of influence, was increased to 50,000 tonnes per year. This expansion has strengthened FCC Ámbito's offer of services in the city centre area, and is a further step in the strategic line of reducing transfer centres and concentrating on higher value-added facilities such as final treatment facilities.

During the year, Catalonia's Waste Agency renewed its contract with FCC Ámbito for the operation of the battery and lamp treatment and recovery facility in El Pont de Vilomara i Rocafort for the next five years, with the possibility of a two-year extension.

In addition, thanks to its extensive and complete network of facilities, FCC Ámbito remains the leading manager for companies with waste production facilities scattered throughout the country that want to simplify management and save costs by contracting a single manager.

As for waste disposal and management services, in 2015 the subsidiary TRISA successfully renewed the contract for the integrated management of hazardous and non-hazardous wastes for the next three years at the SEAT plants in Martorell, Zona Franca and El Prat de Llobregat in Catalonia. TRISA has been providing this service to the automobile manufacturers since the 1990s. In addition, the integrated waste management contract for all Saint Gobain Group plants in Catalonia and Aragón-La Rioja was also renewed. As part of these activities, it has also been awarded the contracts for collecting lamps in Catalonia, Valencia and Murcia for the Ambilamp Integrated Management System, and for the management of waste stored in public non-university educational facilities in the Autonomous Region of the Basque Country.

As for soil decontamination activity, 2015 saw the continuance of the previous year's positive trend, with the award of the contract for the emergency works involving additional activity after the transfer of the lindane landfill in Bailín, on-site decontamination work for Enresa at the Zorita nuclear power plant and the decontamination and removal of 44,000 tonnes of waste stored in the lagoon in Arganda (Madrid).



In Catalonia, FCC Ámbito was awarded the contract for the rehabilitation of the old Naftil chemical plant in the Zona Franca industrial estate (Barcelona) and the contract for cleaning a plot (BZ-2) also in the Zona Franca industrial estate (Barcelona) formerly occupied by SEAT. In the Basque Country, the cleaning of the River Zadorra riverbed where it passes through Trespuentes was finished, thus putting an end to the contract awarded for this purpose by the Basque Water Agency.

Also during 2015, FCC Ámbito SA was awarded contracts for two special projects consisting of managing the environmental liabilities that, in terms of waste and contaminated soils, were the responsibility of two industrial waste treatment plants abandoned by their former owners; one is located in Daimiel (Ciudad Real) and the other in Calasparra (Murcia). The scope of the contracted work includes the management of more than 15,000 tonnes of waste, mainly hazardous, and the study of the quality of the soil in the facilities responsible for them, in a combined area of 74,000 square metres.

FCC Ámbito's international activity

With regard to the United States, in early 2015 FCC Environmental Services began executing the biosolid waste management contract with the city of Houston (Texas).

In the same country, FCC was also awarded the contract for rubbish collection in Orange County, Florida for a period of ten years for an amount totalling around 90 million euros. The two zones awarded to this FCC subsidiary are home to a population of 350,000 that generate more than 100,000 tonnes of municipal solid waste per year.

Also in the United States, the Company was awarded a large contract for the construction and operation for a period of fifteen years, plus a possible ten-year extension, of a waste recycling plant with the city of Dallas, with a related business of 270 million euros. The plant will allow thousands of tonnes of different materials, such as paper, cardboard, plastics, metals, glass, etc., to be reintroduced into the production cycle with the consequent saving of raw materials. Both contracts are an important milestone in the development of business in the US, and open huge expectations for expansion in the world's leading market, in the field of both municipal waste collection as well as waste treatment.

As for Portugal, the operations of environmental liabilities allocated to the subsidiary Ecodeal have been an important input of waste which has made it possible to maintain the good results for another year. Because of this positive evolution of the activity, it has been necessary to bring forward the construction of a new landfill cell.



Orange County (US) trucks.

Innovation at FCC Ámbito

With regard to R+D+I activities, the work that was part of the RECO2VAL, designed to use waste with high calcium content to capture the CO₂ emissions from fertiliser manufacturing facilities, was finalised.

During 2015, FCC Ámbito has continued to follow up on all R+D+I opportunities related to the circular economy that have arisen and has maintained its research projects related to the recovery of by-products from recycling glass.



Water Management

Waste water treatment plant in Avila (Spain).



Water Management

- Sector Analysis
- Domestic Market
- International Market
- FCC Aqualia Business Activity
- Sustainable-Management-Based Initiative
- Innovation at FCC Aqualia
- Advances in the Management of Human Resources
- Health and Safety, Important Aspects
- Keys to Customer Service

Waste water treatment plant in Avila (Spain).



Sector Analysis

During 2015, the water management sector has continued to occupy a particularly important place on the agenda of governments and local authorities, which recognise the strategic importance of a resource that is as scarce as water. The exponential increase of the human population and its concentration in large cities, the expansion of industrial and agricultural activity and an increased awareness of the potential risks of climate change are pushing many countries to undertake modernisation plans, both for their hydraulic infrastructure as well as their systems for managing and operating this infrastructure, with the primary aim of increasing its efficiency and capacity. In this global framework in the international arena, there are going to be business opportunities for companies specialising in integral water cycle management, though it is likely that the participation models will be modifications of those we know today.

The contribution of private companies to achieving universal access to water, established as a Millennium Development Goal by the United Nations, will be important not only because of their technological and management capabilities, but also because of their ability to attract funds for financing the development of new infrastructure and the maintenance of existing ones. This objective, in accordance with the UN's definition itself, forces governments to seek solutions to facilitate access to water for all inhabitants and they should contribute to the economic maintenance of the service in accordance with the conditions set by each country. In recent years, public authorities responsible for water management have reduced their predilection for models based on a concession model for the integral water cycle management service in favour of relying on models based on public-private participation under the BOT (build, operate and transfer) system for the construction of new infrastructure.

In those countries with sufficient budgetary capacity, the construction of new infrastructure continues to be addressed through construction contracts in addition to through the generation of new forms of procurement of operation and maintenance services based on the specific characteristics of each public administration. There are not that many companies who compete at national and international levels, so public tenders for both operation and maintenance services, either as BOT or concessions systems, rarely have more than five bidders.



Waste water treatment plant in Almeria (Spain).

FCC Aqualia's highly integrated service offer allows it to adapt easily to the different types of contracts proposed by public administrations. Its position as number six among water utility companies worldwide and third in terms of private equity firms, according to the Global Water Intelligence (GWI) ranking, allows it to compete on equal terms in any international tender in a market still led by the two big French utility companies.

In addition to the public administration as a reference customer, private industrial companies, especially in the mining, oil and gas sectors, are shaping up as major prospects for water utility companies, especially for those with the technological capability to address the complicated treatments required by water used in production processes.



Domestic Market

In the domestic market, in 2015, for the first time since the onset of the economic crisis, there has been a slight increase in sales volumes of water, especially in coastal areas which in recent years had been declining steadily.

In June 2015, the new municipalities, town councils, county councils and regional governments were formed in fourteen autonomous regions. The election results have resulted in a significant change in the political orientation of many local governments, with the incorporation of new parties under various electoral lists that are sometimes ideologically positioned as opposed to outsourcing the management of public services. This, together with some European currents advocating the return of the management of public services to the public sector (the European Parliament's *Right2Water* initiative) has generated a significant presence in the media of initiatives requesting the return of public services to the local government, especially Alcázar de San Juan, El Puerto de Santa María, Girona, etc.

As is usual in municipal election years, bidding for new contracts during 2015 was very limited at the local level, because during the period beginning with the announcement of the elections until new local governments were formed, there was a significant reduction in competences.

The central and regional governments are not offering large projects investing in water infrastructure for tenders either, in this case mainly due to the process of fiscal consolidation and debt reduction that these governments continue to apply, which increases the deficit in the renovation and expansion of infrastructure. By way of example, in the field of sewerage treatment, the average percentage of water treated with tertiary treatments (which allow for later reuse) in Europe reached 67%, while in Spain, the country with the greatest water stress in Europe due to its climate and hydrological characteristics, it should have a much higher level, yet it only reaches 60%.

Worthy of mention, however, are actions by the central government aimed at establishing an agile and efficient regulatory framework for this sector. The Ministry of Agriculture, Food and Environment drew up the first draft of the Water Sector Bill, although this has been delayed by the general elections. Also, in March the De-indexation of the Spanish Economy Act was approved and the Draft Bill on Public Sector Contracts is in the public information stage. The adaptation of concession periods, the review of the causes for claiming concession-related economic imbalances and the regulation of the system of tariff reviews in contracts will have effects on the sector, particularly as regards the solvency requirements for bidders. It is expected that these regulatory measures will enhance the increasingly necessary investments in the renovation of distribution networks and treatment facilities, which will lead to an increase in private water management in Spain, an activity that increasingly presents a higher technological level, accompanied by excellent quality service, aimed at ensuring a supply of clean, healthy water for human consumption.

The possibilities for future growth focus on several vectors. It is expected that small domestic and, especially, regional utility companies initiate divestment processes as they are unable to provide the technological and financial means required for this activity, given their small size. On the other hand, it is likely in the next three years that there will be opportunities to participate in tenders for concessions currently managed by other operators. Moreover, the facilities operation and maintenance sector (waste water treatment plants and water treatment centres) will maintain a high level of tenders as they are not subject to the electoral cycle and, in general, are under regional, not local competence. Finally, given the improvement in the economic situation of municipalities and publically operated utilities, a slight upturn in tenders for lower value works, where the territorial presence of FCC Aqualia allows it to be very competitive, is expected. Lastly, the Company will continue to devote efforts to the development of *Smart Water* models (already under development in cities managed by FCC Aqualia, like Almería, Salamanca and Santander), which allows it to offer a competitive differentiation from other utility companies.

FCC Aqualia restructured its organisation in Spain in 2015, giving it a national management and three zones or regional structures within which are grouped, based on territorial criteria, all integrated water cycle activity (concessions, urban and industrial operations and maintenance, networks and technology). The outcome will be a concentration of efforts and an improvement in its market position.



International Market

Internationally, FCC Aqualia focuses its business activity on Europe, North Africa, the Middle East, India, North America and Latin America. At present, it has contracts underway in Portugal, Italy, the Czech Republic, Serbia, Bosnia, Montenegro, Kosovo, Poland, Algeria, Tunisia, Egypt, Saudi Arabia, Abu Dhabi, Qatar, India, Mexico, Uruguay and Chile.

In Italy, the establishment of the national regulator for determining tariffs based on the *full cost recovery* principle, is improving the perception of the business by investors in the market and will act as an incentive for new opportunities for public-private partnerships with local and regional authorities. In compliance with Community legislation on sewerage treatment, it will accelerate the use of EU funds to implement new infrastructure and rehabilitate or increase the capacity of existing infrastructure.

In Portugal, although the privatisation of the state water company announced in previous years seems to have been ruled out for the next few years, local governments are looking for solutions to improve their drinking water supply distribution and sewerage infrastructure. Among them, a government concession is presented as a suitable formula to be applied for this purpose within a highly experienced regulated legal framework. The presence in Portugal puts FCC Aqualia at the frontline for participating in the public tenders that are anticipated this year.

In North Africa, the desalination of seawater and sewerage treatment have emerged as business opportunities in the countries in which the company is already operating, such as Tunisia and Egypt. In particular, this year FCC Aqualia has been awarded the contract for the design, construction, operation and financing of the Abu Rawash wastewater treatment plant; with a capacity of 1,600,000 m³/ day, which means it will be the largest plant on the African continent. Water scarcity in Egypt has caused the Ministry of Defence to put out tenders for large desalination plants for supplying the population on the Mediterranean and the Red Sea. Similarly, the expansion of the Suez Canal and the creation of new industrial and mining areas suggests that the demand for water for implementing these projects will continue to increase.

In the Middle East, where population growth in some countries has reached up to 8% annually, and where standards of living and quality of services are increasing, major water infrastructure projects have been announced but will progress slowly; in addition, at least in the short term, no restrictions are expected due to the drop in oil prices. In Saudi Arabia, the SWCC (Saline Water Conversion Corporation), which is responsible for water production in the kingdom, will implement a new desalination plan and the NWC (National Water Company), responsible for the distribution of drinking water to major cities, will finish one of the concession projects it has been designing for some years. Oman will continue to develop its desalination plan through public-private initiatives and the UAE is expected to launch operation and maintenance services contracts that, with the experience acquired in Saudi Arabia and Abu Dhabi, will be good business opportunities.



Hollow fibre membranes.



In India, regional governments have made the improvement of water supply and sanitation a priority, providing a major impetus to contracts for infrastructure construction and operation contracts that ensure an uninterrupted supply. Together with an important local partner, FCC Aqualia has already won two contracts of this kind. This will enable the creation of a platform for better knowledge of the country and for undertaking larger projects.

In North America, FCC Aqualia proposes the consolidation of the Mexican market, where it already has significant activity. The country's government is going to initiate a programme of activities aimed at improving municipal water supplies that will enable the company to increase its turnover. New desalination projects will develop in Baja California. The industrial sector may also play an important role in the development of FCC Aqualia in Mexico, both with regard to mining companies and to the PEMEX itself. This is a sector in which the company has started to operate recently with two contracts. In addition, FCC Aqualia has opened a sales office in the US as a bridgehead for entry into a market in which some states, just like Spain, have the problem of obsolete infrastructure, periods of drought, and debt-ridden local governments without the capacity for financing and great environmental requirements. An agreement has been signed with a construction partner in Texas for the implementation of desalination projects.

Lastly, in Central and South America, growth prospects for FCC Aqualia have increased significantly after the departure of FCC from the capital of Proactiva, an investee company with the French utility Veolia. In the short term, Colombia, Peru and Chile are the countries where there will be more opportunities, with some infrastructure programmes in Paraguay and Panama also being followed with interest. In this market, together with the opportunities identified in Mexico for the PEMEX oil company, contracts for the construction and operation of water treatment plants for mining and oil & gas companies are especially interesting. In Brazil, the plans for covering the supply and sewerage networks for all users in municipalities will act as a catalyst for new projects, along with the water management market launch of one of the utility companies belonging to Brazil's large construction companies, and will allow FCC Aqualia to position itself in the country in the short term.

■ FCC Aqualia Business Activity

In the domestic market, public tender activity has been underactive due to the various electoral processes in 2015, and there have been few opportunities for contracts, with the most significant new contract awards being as follows:

- Cangas (Pontevedra), concession for the integral management of the water service for a period of twenty-five years, with a contract of 74 million euros, awarded to a joint venture of which FCC Aqualia owns 70%.



Quality control of water.



- Villaviciosa (Asturias), concession for integral water service management for a period of eight years with a contract totalling 7.8 million euros.
- Madrid (Madrid), operation and maintenance service for the outlying sewerage networks managed by Canal de Isabel II Gestión S.A. (Lot 3-Culebro) for a period of three years and a portfolio totalling 17.6 million euros.
- Madrid (Madrid), operation and maintenance of certain sewerage treatment plants in the Cuenca del Alberche managed by Canal de Isabel II Gestión S.A. for a period of two years and a portfolio totalling 5.5 million euros.
- Madrid (Madrid), refurbishment of city service galleries (Lot 3) totalling 8.1 million euros, to be executed in 1.5 years (through the Conservación y Sistemas subsidiary).
- Vigo (Pontevedra), works for the renovation of the water supply and sewerage networks in several city streets totalling eight million euros, to be executed in eight months.
- Albuñol (Granada), project design and execution of works for the sewerage pipes and wastewater treatment plant for Andalusia's Environment and Water Agency, totalling 3.6 million euros and with an execution period of two years (through a joint venture owned 50% by FCC Aqualia).



New Cairo Wastewater Treatment Plant (Egypt).

Renewals and extensions on a national level include:

- Association of Municipalities of Cabeza de Torcón (Toledo), management of the water service from the point of capture agreed for a period of fifteen years with a portfolio totalling six million euros.
- Mocejón (Toledo), concession of the water and sewerage system service for a period of twenty-five years with a portfolio totalling nine million euros.
- Reinosa (Cantabria), concession of the water service for a period of ten years with a portfolio totalling 9.5 million euros.



- Association of Municipalities of Guajaraz (Toledo), management of water supply service from the point of capture and to the consumer and the sewerage system for a period of three years totalling seven million euros.
- Ibiza (Balearic Islands), water supply and sewerage management service for the city for one year totalling 8.2 million euros.
- In the international market, FCC Aqualia conducted significant activity in international tenders in different areas, including the following: within the European market, it was awarded the contract for the management of the sewerage and treatment service for Velké Losiny, in the Czech Republic, for a period of ten years through its subsidiary SmVaK; it participated in a tender for the first time in France for a contract for water and sewerage management services in Arlés and took part in tenders for sewerage and water treatment infrastructure works in Macedonia and Montenegro.
- In North Africa, FCC Aqualia was awarded, in consortium, the contract to design, build, finance and operate the Abu Rawash wastewater treatment plant in Egypt. This is the second BOT (*build, operate and transfer*) contract obtained in Egypt after the New Cairo contract, which is already under operation. This important award has a portfolio of 2,421 million euros to be executed over a period of twenty-five years.
- Similarly, in the Middle East, the company's presence continues to be strengthened as a result of the award, in consortium with a local partner, of the contract for the operation of wastewater treatment plants in Arana and Hadda in the region of Mecca, Saudi Arabia, for a period of three years and a portfolio totalling 17.9 million euros. Also in the same country, a contract award was obtained for the execution of the water networks affected by the construction of Lines 4 and 5 of the Riyadh Metro, for a total amount of 19.2 million euros.
- In Latin America, FCC Aqualia has maintained significant activity in tenders for the construction, financing and operation of water treatment infrastructure in Colombia, Mexico, Chile, Uruguay, Peru, Panama, Ecuador and Paraguay. In its international development strategy, and in accordance with the initiative for expansion in this geographical area, a subsidiary was created that is 100% owned by FCC Aqualia (FCC Aqualia Gestao Integrada de Agua LTDA) for the purpose of facilitating entry into water management projects in Brazil.
- Lastly, although FCC Aqualia gives priority to organic development, a growth path through the acquisition of companies, especially on an international level, is not to be ruled out.



Sustainable-Management-Based Initiative

Continuing the commitment undertaken by FCC Aqualia in 2014, in 2015 the carbon footprint for the activity related to the design and construction of treatment plants, purification and desalination of water and its ancillary facilities, developed by its subsidiary Aqualia Infraestructuras was calculated and the result recorded in the Ministry of Agriculture, Food and Environment's Carbon Footprint Registry on 21 April 2015 with code 2015_00_a062.

The greenhouse gases report drafted was prepared in accordance with the requirements of UNE-EN ISO 14064-1: "Greenhouse Gases. Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals" and with the sector reference *European Network of Construction Companies for Research and Development* (hereinafter ENCORD), in its May 2012 issue: "Construction CO₂ Measurement Protocol". This reference has obtained the "Built on GHG Protocol" logo, which makes it the sector guide on GHG (Greenhouse Gas) for construction.

Also during 2015, the greenhouse gas emissions calculation phase ended with the calculation of the footprint for the entire "Integrated water cycle management" activity (raw water conveyance, distribution, client management, sewerage and water treatment), carried out by FCC Aqualia. This calculation has been verified by AENOR and noted in the registry maintained by the Ministry of Agriculture, Food and Environment (MAGRAMA) on the 9th July with code 2015_00_a149.

One of the fundamental objectives of FCC Aqualia is continuous improvement through an integrated management system that includes both the management of the quality of processes, products and services as well as that of the environment, and publishes this kind of report in order to facilitate the verification of the GHG Inventory (Greenhouse gases), reporting on this in a transparent manner to its stakeholders.

The main objective pursued with this initiative is to:

- Understand and evaluate the organisation's GHG emissions in order to identify opportunities to reduce and/or offset its carbon footprint.
- Participate in voluntary GHG programmes.
- Have corporate GHG information.
- Improve the position with stakeholders, maintaining a responsible commitment to continuous improvement.

In this regard, during 2015 and as a result of collaboration between FCC Aqualia, the Botín Foundation, the Complutense University of Madrid, the Polytechnic University of Madrid, the University of Cantabria and the regional government of Cantabria's Department of the Environment, Cantabria's water footprint has been determined, the first of its kind ever conducted in Spain.

The new paradigms for the planning and integrated management of resources and the possible exchanges between different uses and qualities are conducive to carrying out a conceptual, segregated analysis that is somewhat different to the conventional one. The approaches based on virtual water and the water footprint facilitate this analysis and the determination of the most efficient and sustainable options for supplying water to citizens. Virtual water includes free water and water linked to the processes for producing goods or services. The water footprint of a territory is the entire real and virtual water used in that territory.

In addition to developing and implementing a specific work methodology, the objective of this project was to conduct a study of Cantabria's water footprint and to establish the impact of the use of water resources at the catchment basin, municipal and autonomous region levels. The relevant distinctions between green and blue water were made in an effort to identify possible trends of interest. Thus, it was possible to determine the impact of the consumption of water used in the goods and services produced and exchanged by Cantabria in order to determine the water footprint generated in the region based on the calculation of the virtual water consumed for each product, service or activity.

The study addresses a comprehensive view of water and the territory in order to clarify the relationship between blue water and green water and that among internal water, virtual water and the water footprint, and determines the corresponding values for each kind of water in the region and their flows.



The work carried out show that the water is not only a major natural capital for the region, but also a significant economic and social asset. This is suggested by the leading role played by green water and its importance in maintaining ecosystems, as clearly the export nature of the virtual water in the autonomous region of Cantabria, whose main exponent is the sale abroad of products associated with agriculture, livestock and the food industry.

Similarly, and in response to the entry into force on 5 December 2015 of EU Directive 2012/27/EU on energy efficiency, during this year FCC Aqualia agreed with AENOR an ambitious three-year adaptation plan for compliance with the directive that will allow the entire organisation to be ISO-50001 certified. Accordingly, during 2015 fifteen contracts were

certified, with another thirty expected to be certified in both 2016 and 2017. The contracts chosen were contracts with a consumption of more than 1,300,000 kWh/year, which cover over 80% of the total consumption.

To meet the objectives established, a comprehensive control of energy monitoring is planned, supervising the installed capacity and the evolution of energy consumption in production facilities. To do so, FCC Aqualia's actions should be aimed at:

- Improving measurement.
- Calculating the energy performance of pumps.
- Optimising and improving production processes, facilities and equipment.
- Buying more energy-efficient equipment (RD 187/2011).
- Optimising the purchase of energy.
- Maintaining infrastructure.
- Improving the hydraulic performance of the network.

In 2015, FCC Aqualia published the ninth edition of its CSR Report, maintaining the 2014 editorial approach, but it also provided a brief "vision" at the beginning of each relevant chapter and emphasised the Company's new international territorial strategy, illustrating it with interviews with new *Area Managers* in which they shared forecasts for their respective areas.

In addition, the report highlighted the company's participation in all forums organised around human rights, as well as its participation in *Smart Cities*, innovation projects, Cantabria's water footprint, Aqualia Infraestructuras' carbon footprint and Lerida's energy efficiency.

Innovation at FCC Aqualia

In line with its strategic planning, innovation activity at FCC Aqualia was strengthened in 2015, with new European projects added to the three development areas: sustainability, quality and smart management.

This year five projects were completed. Called Idea Regenera (Andalusian regional government), Innacto Downstream (Ministry of Economy and Competitiveness), Innova Impactar (Autonomous Region of Cantabria), Life Remembrance (European Union) and Urban Water (EU FP), and they produced the following results:

1. **Regenera**, co-financed by the Andalusian agency IDEA has developed, together with the University of Almería, the Cajamar Foundation and the SME Biorizon, a new way to create value from the biomass of algae in the form of bio-fertilisers.
2. **Downstream**, co-financed by the Ministry of Economy and Competitiveness's Innacto programme, used the support of the University of Cadiz, ITC (Canary Islands Institute of Technology) and Tecnalia to improve the separation, processing and use of algae biomass as an energy source.
3. **Innpactar**, co-financed by government of Cantabria, and in conjunction with the University of Cantabria in Santander, has scaled a new, compact technology that enables the reuse of water in small urban centres.



4. The **Remembrance** project, 50% of which was subsidised by the EU's *Life* programme, has demonstrated a new way to recover reverse osmosis desalination membranes. Along with Leitat, Tecnoma, Ambicat and the Catalan Waste Agency, pilots were built in Denia and Talavera and the reuse of reconditioned modules from the Ibiza desalination water treatment plant in La Solana (Ciudad Real) was demonstrated. Other applications of the methodology developed and its commercial implementation are under development.
5. Within the ICT (Information and Communication Technology) cluster in the European FP 7 framework programme, FCC Aqualia was invited to coordinate the **UrbanWater** project. 55% of which was subsidised by the European Union. Together with twelve partners from eight countries, a platform of electronic applications for the control of water distribution networks was built and implemented in FCC Aqualia's operations in Almeria (Spain) and Janovice (the Czech Republic).

In 2015, six other multiannual research projects continued and will continue to be implemented during the following year.

In the area of sustainability, the implementation of two projects continues:

1. The European **All-gas** project (bioenergy production from sewerage treatment) enters its final phase of large-scale demonstration, allowing the processing of up to 5,000 m³ of municipal effluent a day into biomethane for 35 vehicles.



A drone at work over the tank at Picayón, Oviedo (Spain).



- The **Renovagas** (renewable natural gas generation process), financed by the Ministry of Economy and Competitiveness, also continues. Its aim is to develop a plant that produces synthetic natural gas from biogas via the methanation of hydrogen obtained from renewable sources.

In the area of quality, FCC continues with three European projects:

- The **Life Memory** project, that demonstrates at the industrial prototype scale the technical and economic viability of an innovative technology: an anaerobic membrane bioreactor (SANMBR), which allows the conversion of organic matter contained in wastewater into biogas. A reduction in energy consumption and CO₂ emissions of up to 80% is obtained, as well as space requirement of 25% less compared to conventional 'aerobic' wastewater treatment plants and a reduction of around 50% in the production of sludge.
- Life Biosol** (Biosolar water reuse and energy recovery), led by the French SME Heliopur, demonstrates a new biological and solar treatment of waste water in order to achieve water reuse and the recovery of gases and organic waste. The first prototype implanted in Centa (Seville) was completed.
- CIP Cleanwater** (Ecoproduction of HClO for safe water disinfection by innovative ion exchange membrane), led by the French SME Ceramhyd, implements a new water disinfection technology for three applications: drinking water, desalination and reuse. The first device has been

installed in the El Toyo wastewater treatment plant in Almería, and the delivery of other pilots to Denia and Valdepeñas is being prepared.

- In the area of smart management, the **Motrem** project was selected in the JPI European Water Initiative. Motrem, led by Rey Juan Carlos University in Madrid, along with three other universities in Finland, Italy and Germany, brings new technologies for the control and treatment of emerging contaminants (EC) into the current line of municipal wastewater treatment plants, with special emphasis on water reuse.

During 2015, FCC Aqualia initiated five new projects:

- CIEN Smart Green Gas.** In the programme of the CDTI (Centre for the Development of Industrial Technology) of the National Consortia of Business Research (CIEN) FCC Aqualia leads a consortium, which also includes Gas Natural, Naturgas/EDP, BiofuelCell, Ecobiogas and DimWater, to develop an efficient biomethane network production and management infrastructure. The first of the company's activities focused on controlling the quality of biomethane are at Jerez and Aranda del Duero. The total budget is EUR 8.3 million, with funding for 80% of the budget.

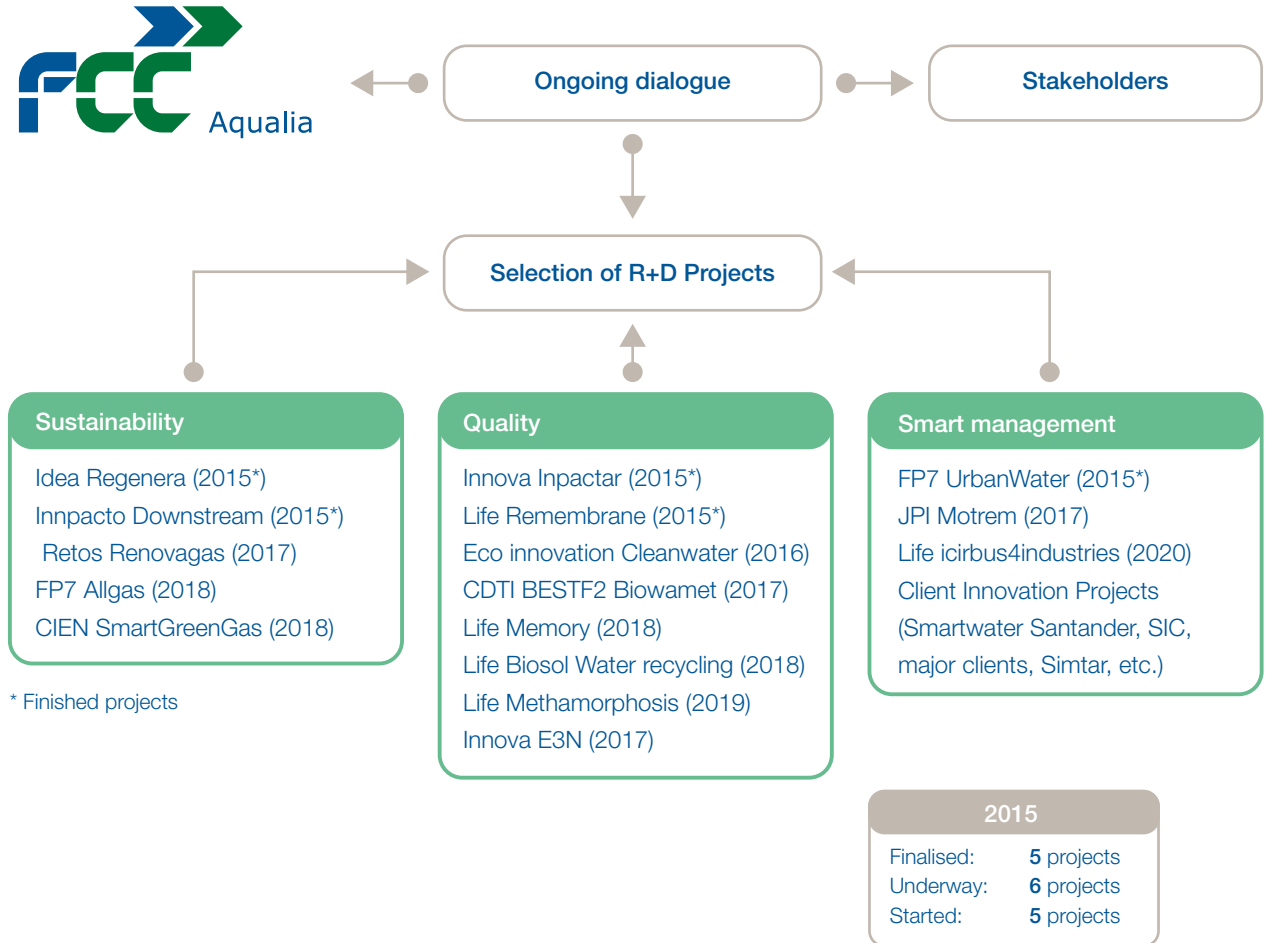
- Biowamet BESTF2.** In the European ERANET programme, the BWM project brings together Southampton and Delft Universities to create a synergy with the *Life Memory* project on anaerobic reactors with membranes that make it possible to obtain bioenergy from wastewater.
- Life Methamorphosis.** FCC Aqualia leads a consortium of six entities (Metropolitan Area of Barcelona, FCC S.A., Gas Natural, Icaen and Seat) to implement three newly developed technologies: AnMBR, the ELAN (autotrophic nitrogen removal) and a biogas washing system in the Besós Ecopark, managed by FCC. The final product would be biomethane that can be injected into the natural gas grid or used as car fuel. The total budget is 3.5 million euros, with 60% funded by the European Union.
- Innova E3N (energy efficient nitrogen removal).** As a continuation of the Innova Impactar project funded by the government of Cantabria, the pilot implanted in Santander's sewerage system for compact decentralised treatment plants will be optimised.



5. Life Icirbus. The *Innovative Circular Businesses (Icirbus)* project will demonstrate the reuse of waste from wastewater treatment plants as building materials and for the generation of bio-fertilizers in two FCC Aqualia plants in Extremadura. Led by the Intromac technology centre, it brings together eight companies with a total budget of 2.3 million euros, 60% of which is funded by the European Union.

Over the year, the FCC Aqualia team of researchers has been awarded three new patents on two key aspects related to the cultivation of algae: the configuration of the reactor (*LEAR: Low Energy Algae Reactor*) and the CO₂ enrichment system, to reduce the energy costs of operation (two European and one specifically Spanish):

- EP 13382470.6: *Open reactor for the cultivation of microalgae*
- EP 13178678.2: *Carbonation system for microalgae cultivation*
- P 201231485: *Carbonation system for the cultivation of microalgae.*





The company also presented the results of its research at some important scientific conferences and events:

- AEAS seminar held in Burgos from 28 to 30 April: presentation of the two most ground-breaking technologies from twenty proposals from all the water companies in Spain:
 - ELAN (autotrophic nitrogen removal) with the USC (University of Santiago de Compostela).
 - *Microbial Desalination Cell - Microbial desalination cells with the UAH (University of Alcalá de Henares) - Imdea.*
- IWA Leading Edge Technology 2015 held in Hong Kong from 30 May to 3 June 2015: the work of Friscos (ELAN online for industrial water) and Jerez as the location of the next XIII edition in mid-June 2016 (www.let2016.org) were presented.

- WEF (Water Environment Federation) has organized two events from 7 to 10 June 2015 in Washington DC (United States):

- With the IWA on waste and biosolids.
- With EWA and JSWA on water and energy.

Five FCC Aqualia presentations on the cultivation and digestion of algae and the AnMBR reactors were chosen. The company was also selected to organise a workshop on AnMBR, and to chair the session on Anammox.

- In the Smart rUrban convention held on July 14, 2015 in Badajoz (Expoconferencia Ibérica) a paper entitled "Intelligent water management for the development of cities" was presented along with companies and research centres such as Iberdrola, Cellnex, CIEMAT and the Badajoz city council.

- With the help of external funding, we attended the WATEC Conference in Tel Aviv (Israel), from 13 to 15 October with presentations at the Spain-Israel "*Building Water Innovation Partnerships*" seminar and at the "*Bringing Israel's Water Innovation to the EU*" Infoday
- During the IWA (<http://www.ad14chile.com/>) conference last November, the results of three European projects were presented (*Life Memory*, *Life Biosol* and *FP 7 All-gas*).



Advances in the Management of Human Resources

Recruitment, training, development and equality

This year, FCC Aqualia signed its second Equality Plan (for the 2015-2018 period), in which both the company and the main unions at the state level once again demonstrate their commitment to equal opportunities between men and women.

In addition, FCC Aqualia continues to apply egalitarian policies in matters related to gender. This year saw the successful conclusion of the first *mentoring* programme for women, which is aimed at boosting female talent in the organisation and at facilitating the professional career of women identified as having potential within the company. Also, for the second consecutive year, training on equal opportunities for employees has been provided as part of the training on specific risks for each job position.

Similarly, the selection processes at FCC Aqualia are carried out under the competency-based recruitment model, from which the interview questionnaire is drawn up based on an analysis of the job position, and all candidates are asked the same questions. This method makes it possible to compare, ensure equality and prevent discrimination.

FCC Aqualia maintains its "Equality in the Workplace" emblem extended in 2014 for a period of three years. This emblem is a recognition by the Ministry of Health, Policy and Equality of the Company's commitment to diversity and equal opportunities for men and women.

It should be noted that FCC Aqualia continues to show its commitment against gender violence through its participation in various campaigns.

Moreover, the second edition of the Otto Walter cycle, a programme designed for middle managers and aimed at continuing the transformation of the company's leadership style to a management model with more participatory people, a talent catalyst that strengthens team cohesion backed by a common language shared by all.

In 2015 FCC Aqualia signed its participation in the Alliance for Dual Vocational Training. The Alliance for Dual Vocational Training comprises a national network of institutions and companies committed to the development of quality dual vocational training in Spain. The creation of this network is designed to improve the employability of young Spaniards by joining efforts and synergies to promote a quality dual vocational training model adapted to the setting. The Alliance also aims to bring together the best initiatives and experiences being carried out for the benefit of all.





Within this alliance, FCC Aqualia has signed a collaboration agreement between FCC Aqualia and the Pere Martell Institute in Tarragona to promote, encourage and develop, in an alternation-based system and with dual vocational education, the Intermediate Level Training Course on Water Treatment Networks, Facilities and Plants.

As for training, FCC Aqualia remains committed to the professional training and development of its workers. Training objectives are linked to the company's strategic objectives, to improving the performance of the workers' duties and to ensuring occupational health and safety. In addition, work is being done on developing training plans for specific, critical groups in the organisation (department heads, laboratory and customer management staff).

In the area of awareness and as part of FCC Aqualia's CSR policy, work with the Vice-Chancellor for Cooperation and Volunteerism at Rey Juan Carlos University has continued on its new role related to raising awareness about and the dissemination of the importance of human rights in today's society. These are dialogues and talks whose participants are renowned experts aimed at the presentation and discussion

of the main problems in the field of human rights, as well as the obstacles that prevent their implementation and new challenges we are currently facing.

Among the events held was the presentation of the guidelines of the National Plan for Companies and Human Rights that, pending approval to date, were drafted by social, economic and state stakeholders and partners. The Ministry of Foreign Affairs and Cooperation was responsible for presenting the strategic lines of the document and representatives from leading NGOs presented the most relevant projects on training in human rights, especially those linked to academic institutions of higher education, such as the Rey Juan Carlos University.

The second event consisted of a discussion forum with the participation of CSR directors from different companies, including FCC Aqualia, who explained their actions related to human rights; there was an opportunity to reflect on the importance of these rights in the business world in general and in the organisation in particular.

Collective bargaining and personnel management

In 2015 we signed the Fifth Water Sector Collective Agreement, which consolidates a regulatory framework that gives stability to the sector and, with the agreement of the main trade unions UGT and CCOO, this facilitates during the time it is in force (2015-2017), a period of no conflict.

Within the scope of personnel management, during 2015 FCC Aqualia promoted the decentralisation of administrative processes (maintenance agreements, managing notification of incidents, etc.), bringing management closer to regional offices and production centres thereby providing the organisation with greater capacity for management and efficiency.



Health and Safety, Important Aspects

As a fundamental element, the absence of serious workplace accidents should be well noted. With regard to accident rates for 2015, there has been a rise in the rates, although they have remained within acceptable margins in relation to the objectives. Along the lines of improving absenteeism caused by on-the-job incidents, various actions were implemented, including:

- **A programme of visits to contractors with a high accident rate.** After a detailed study of the frequency indices, a programme for visits to contractors with high accidents rates was prepared that would make it possible to discover, in detail, the conditions that might be causing the accidents, and a set of measures was designed to be implemented based on these visits. A total of nineteen contractors were visited nationwide as part of the programme and a specific plan was launched in Italy.
- The second phase of the **preventive culture project** initiated in 2014 finished. It included, based on an overall diagnosis of the entire Company, the design of an Action Plan for Improvement to be implemented over the following three years that includes a total of eight specific actions.
- The **design of a Road Safety Campaign** was finished. It comprised a total of fifteen actions that will be implemented over the three-year 2016-2018 period.
- Furthermore, in addition to renewing the **Occupational Health and Safety Management System** certification nationwide, for the first time certification was obtained internationally, under the OHSAS 18001 guideline, of almost

all the Company's sites, such as Mexico, Uruguay, Chile, Montenegro, Portugal, Italy, the Czech Republic, Algeria and Saudi Arabia.

Likewise, during 2015 the computer application incorporated in 2014 to improve the Company's prevention-related management was made fully operational for the Department of Health and Safety, and a module was developed that, through a web application, will enable it to be used by the entire Company. With this application, a very high percentage of prevention-based management will be able to be computerised, which will result in more effective monitoring and control and in increased efficiency of the Department of Health and Safety.

As for external relations, the company has accumulated more awards for its work in favour of the health and safety of its workers. These include those granted by INVASSAT, a specialised agency of the Valencian regional government, those granted by the accident mutual Asepoyo in Almería and the Balearic Islands or the candidacy to the *Daman Health & Safety Awards* in the Middle East. In addition, members of the Safety Department have actively collaborated with the governments in organising seminars on health and safety, including one focused on the risks in the integrated water cycle sector, held in the CPRL (Centre for Occupational Health and Safety) in Malaga, or the training session on confined spaces given through the CPRL in Almería, both of which operate under the regional government of Andalusia.

In line with FCC Group's corporate policies, in 2015 a medium-term strategic plan was developed to showcase practices included in the concept of a "healthy company".



In addition, there has been progress in specific actions, such as awareness-raising campaigns about alcohol and drugs in the Balearic Islands, and a specific healthy company plan for Lerida.

Also during 2015, the work carried out on FCC Aqualia's Occupational Health Charter was continued. In this charter, representatives of the main unions and Company's management collaborate on improving safety conditions through dialogue and designing good practices on a global level.



Keys to Customer Service

During 2015, FCC Aqualia continued to make progress on an end customer-oriented strategy, paying particular attention to the quality of its communication channels with customers. The full interactivity of these channels (face-to-face, telephone, internet), allows the customer to decide at any time through which channel he wishes to communicate in order to have his needs met in real time.

The telephone helpline service, provided through the Customer Service Centre (aqualia contact) not only enables the latter to perform all the management procedures without having to travel to the offices, but it is also available 24 hours, 365 days a year and allows the response time for resolving faults in distribution networks to be reduced, with the consequent

saving of water. The reduced waiting time for the customer to communicate a fault makes it possible to implement a flexible and effective action protocol to resolve any type of incident in the network, which results in improved performance of the water distribution. This customer service has received 748,000 calls during the year, and attends callers in six languages (Castilian Spanish, Galician, Catalan, English, German and French).

The third communication channel is a corporate website available in five languages. It provides an overview of the company and various local websites of specific municipalities where FCC Aqualia provides service, and they offer a more local and personalised information about the presence of the company in the municipality. In addition, through the FCC Aqualia's websites, both corporate and local, access is provided to the aqualiaOnline virtual office, through which they can carry out the same actions related to the service that can be made in person or by phone.

Since 2011, the aqualia contact and aqualiaOnline channels have had UNE-ISO 27001, "information security management systems" certification, in compliance with the safety objectives set and ensuring commitment to the security of FCC Aqualia customers' data and the integrity, availability and confidentiality thereof.

The efficiency of these communication channels has allowed us, once again, to reduce the number of customer complaints, which totalled 11,335 in 2015.



09

Infrastructure

Lusail Pedestrian Bridges (Qatar).





Infrastructure

Lusail Pedestrian Bridges (Qatar).

2015 economic situation and prospects for 2016-2017

- Current international economic scenario
- The situation of the construction sector

FCC Construcción's business activity

- Railway infrastructure
- Motorways, dual carriageways, roads and urban roads
- Bridges
- Airport works
- Hydraulic works
- Maritime works
- Non-residential building
- Residential building
- Management systems
- Technological development department of innovation: R&D&I

FCC Industrial

- Megaplas, S.A.
- Prefabricados Delta, S.A.
- Matinsa, Mantenimiento de Infraestructuras, S.A.

Infrastructure concessions

- Concession Management Activity
- Globalvía

Machinery division activity

- Machinery
- Special Techniques (BBR PTE)



2015 Economic Situation and Prospects for 2016-2017



Panama Metro (Panama).

Current international economic scenario

The International Monetary Fund (IMF) quantifies the growth of the world economy as 3.4% and 3.6% respectively for 2016 and 2017.

These positive forecasts, however, have been revised down by some 0.2 percentage points, mainly because the rise of emerging economies is now expected to be weaker than

initially forecast. The decline in oil prices and other raw materials will slow down many emerging economies and part of world trade, as many producing countries will be forced to reduce their pace of foreign purchases. However, it may provide a boost greater than expected to demand in oil-importing countries.

On the whole, the IMF expects the upturn in global economic activity to be fairly gradual.

Despite still generating more than 70% of world growth, the economies of emerging and developing markets slowed down in 2015 for the fifth consecutive year. Advanced economies, however, continued to record a slight recovery.

According to the IMF, there are three factors that continue to affect the global outlook: the slowdown and gradual adjustment of economic activity in China; the gradual tightening of monetary policy in the United States, while the central banks of other advanced economies continue to apply a relaxed monetary policy; and finally, the marked decline since September 2015 of the prices of energy and other raw materials due to falling oil prices.

The projected growth of the Eurozone as a whole is 1.7% in 2016 and the same in 2017.

According to IMF experts, the US economy will grow 2.6% in 2016 and 2017.

As for the economies of Latin America and Caribbean, the aggregate GDP of the region as a whole will contract by 0.3% in 2016 and grow by 1.6% in 2017. Growth, however, will be positive in the majority of the region's countries. The contraction is mainly due to the situation in Brazil, where the recession is deeper and longer than expected as a result of political uncertainty amid the ongoing aftermath the Petrobras investigation. Growth projections for Mexico remain at a rate of 2.6% in 2016 and 2.9% in 2017.

In the Middle East, the prospects are overshadowed by falling oil prices.



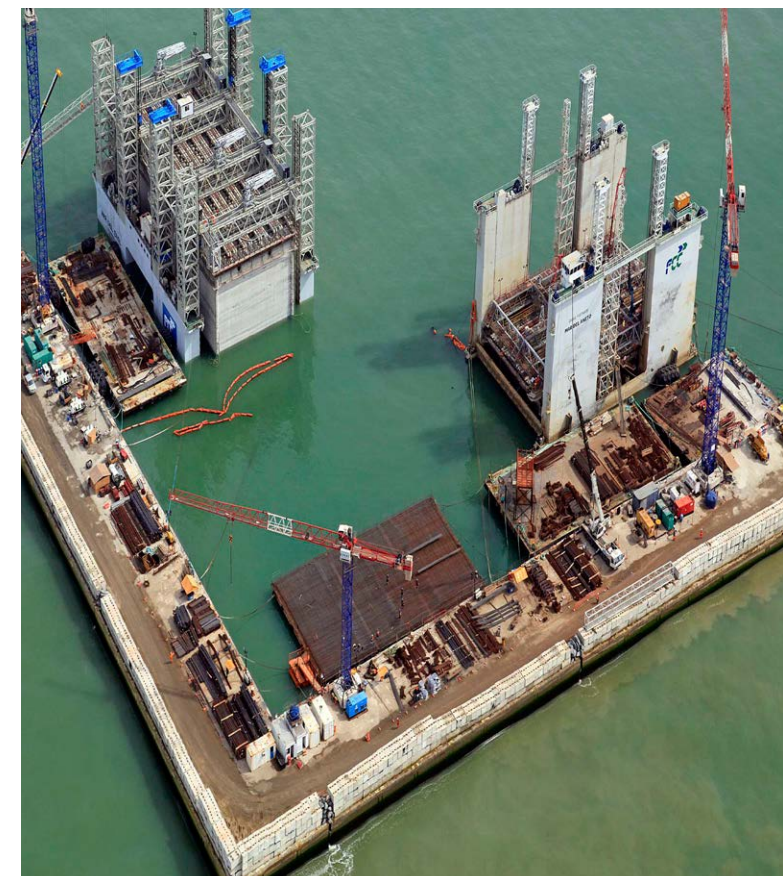
Latest forecasts from the IMF

The economy continues to grow, but at a slower pace.

(Percentage of change)

	2015	Forecasts		Difference with the forecasts in the WEO report of October 2015 ⁽¹⁾	
		2016	2017	2016	2017
World product	3.1	3.4	3.6	-0.2	-0.2
Advanced economies	1.9	2.1	2.1	-0.1	-0.1
United States	2.5	2.6	2.6	-0.2	-0.2
Euro zone	1.5	1.7	1.7	0.1	0.0
Germany	1.5	1.7	1.7	0.1	0.2
France	1.1	1.3	1.5	-0.2	-0.1
Italy	0.8	1.3	1.2	0.0	0.0
Spain	3.2	2.7	2.3	0.2	0.1
Japan	0.6	1.0	0.3	0.0	-0.1
United Kingdom	2.2	2.2	2.2	0.0	0.0
Canada	1.2	1.7	2.1	0.0	-0.3
Other emerging economies	2.1	2.4	2.8	-0.3	-0.1
Emerging and developing market economies	4.0	4.3	4.7	-0.2	-0.2
Community of Independent States	-2.8	0.0	1.7	-0.5	-0.3
Russia	-3.7	-1.0	1.0	-0.4	0.0
Excluding Russia	-0.7	2.3	3.2	-0.5	-0.8
Emerging and developing market economies in Asia	6.6	6.3	6.2	-0.1	-0.1
China	6.9	6.3	6.0	0.0	0.0
India	7.3	7.5	7.5	0.0	0.0
ASEAN-5 ⁽²⁾	4.7	4.8	5.1	-0.1	-0.2
Emerging and developing market economies in Europe	3.4	3.1	3.4	0.1	0.0
Latin America and the Caribbean	-0.3	-0.3	1.6	-1.1	-0.7
Brazil	-3.8	-3.5	0.0	-2.5	-2.3
Mexico	2.5	2.6	2.9	-0.2	-0.2
Middle East, North, Africa, Afghanistan and Pakistan	2.5	3.6	3.6	-0.3	-0.5
Saudi Arabia	3.4	1.2	1.9	-1.0	-1.0
Sub-Saharan Africa	3.5	4.0	4.7	-0.3	-0.2
Nigeria	3.0	4.1	4.2	-0.2	-0.3
South Africa	1.3	0.7	1.8	-0.6	-0.3
Low-income developing countries	4.6	5.6	5.9	-0.2	-0.2

Source: IMF, Update of "World Economic Outlook", January 2016.



Port of Açu (Brazil).

⁽¹⁾ The difference is due to the rounding of the figures for current forecasts, and from the October 2015 WEO Report.

⁽²⁾ Philippines, Indonesia, Malaysia, Thailand and Vietnam.



The situation of the construction sector

● Domestic market

In Spain, demand has changed. Investment in infrastructure has been drastically reduced as a result of the global economic crisis. Public investment in infrastructure will be similar to that in 2015. The forecast for the next three years is for an investment of 1.9% of GDP. This is 0.9% lower than the European average of 2.8% of GDP. The increase expected

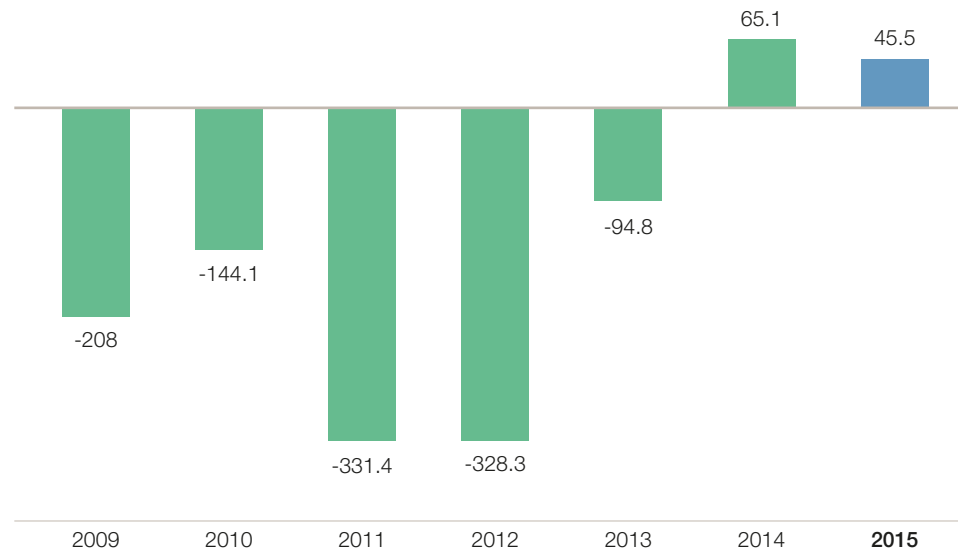
in Spain is as follows: 2.5% in 2015, 4% for 2016 and 5.5% for 2017. More specifically, there has been an increase in IT, transport and hydraulic infrastructure. Public investment in infrastructure in Spain will reach 23,766 million euros in 2016. This means that it will remain behind other European economic powers. In Italy this figure is 35,300 million euros, in Germany 65,000 million, in UK 65,700 million euros and 76,166 million euros in France.

According to SEOPAN, the tendered volume in 2015 was 21.3% lower than in 2014: 7% less in construction and 26.1% in civil engineering.

It should be noted that a better predisposition to new housing development is being seen in the residential building segment.

In the labour market, 2015 was a good year for employment with the creation of 525,100 new jobs, of which 28,100 were in the construction sector. This figure is more relevant if one considers that between 2008 and 2014 more than 1.75 million jobs were lost in this sector, which accounts for 55% of all existing jobs*.

Quarterly evolution of employment, in thousands
(variation of 4th quarter compared to 3rd quarter of the same year)



* Source: Labour Force Survey (LFS/Spanish acronym EPA).



● Foreign market

Latin America

Brazil

Construction activity has increased in the country as a result of the 2016 Rio de Janeiro Olympics. However, in the next five years, growth prospects remain limited; an unstable economic situation will negatively affect the country's construction sector, which in real terms is expected to fall from 214,900 million in 2014 to 204,100 million in 2019.

Mexico

The National Infrastructure Program for 2014-2018 describes an investment target of 7.75 billion Mexican pesos in a total of 743 projects in six strategic sectors: transport and communications, energy, water, healthcare, urban development and housing and tourism. 2016 is a crucial year for the infrastructure sector, as it is the halfway point in the timeframe defined in the programme.

Despite the announcement of several cuts in the federal budget, the Mexican Chamber of Construction Industry predicts that the sector will grow by about 3% in 2016. The growth is mainly due to the continued private sector investment in commercial and residential buildings contracts.

The changing landscape of the Mexican infrastructure sector is also affected by the adoption of the Law on Public Private Partnership Contracts, which is expected to increase momentum during President Enrique Peña Nieto's time in office.

Chile

As part of the updating of the Infrastructure Master Plan, 756 projects were analysed in a normal scenario (modelled and unmodelled) with an estimated total investment of US\$ 15,920 million between 2010 and 2025, and 803 projects in an optimistic scenario (modelled and unmodelled) with an estimated total investment of US\$ 17,250 million between 2010 and 2025.

Chile is currently experiencing a situation of economic contraction. The record levels of new home sales, advance purchases made before the application of VAT in 2016, are not sufficient to drive and maintain the construction sector, whose investment flow is 70% dependent on the areas of public or private infrastructure.

In this scenario, the construction sector ended the year with declines in activity. According to the Chilean Chamber of Construction this situation is expected to continue in 2016, and the organisation also points out that the only way to maintain activity is to do so through concessions.

Peru

The growth of the construction sector in Peru has consistently exceeded the actual increase in GDP. According to a report by the Peruvian Andina news agency, the construction sector was expected to grow by 8% in 2015, although growth in the first quarter of the year was disappointing. Last year, a significant boom in residential and commercial construction and other infrastructure projects was expected.

Colombia

The Colombian construction sector is one of the fastest growing in Latin America and the Nueva Colombia properties are very close to major infrastructure projects.

Now that the Work and Construction Works Plan has been presented, the company will start negotiating with local road contractors. In December 2015, the National Infrastructure Agency announced the approval of the 23 kilometres necessary to complete contract for the 1,000 kilometre Ruta del Sol, the longest in South America.

Panama

Panama experienced an unprecedented construction *boom* for such a small country and for Central America in general during the tenure of the former president. This rise took place parallel to a double-digit economic growth and, similarly, when the economy slowed down in 2014, so did the construction sector. However, all indicators are currently pointing up and the search in Panama for regional leadership in construction is headed in the right direction.

On paper, the number of constructions in Panama has not increased greatly. It is, in fact, growing at a somewhat slower pace than during its 2009-2010 peak. But the key factor when analysing the growth rebound in the construction sector is that it is sustained, which is a fantastic for the immediate future.

Large-scale construction projects, like Panama City's Metro Line 2, the Panama Canal expansion and high-rise construction developments for both residential and commercial use require thousands of workers, banks, raw materials and logistical support. In other words, the new construction work is not only creating jobs, but it is feeding other service sectors, resulting in a trickle-down effect in the overall economy.



Middle East

Saudi Arabia

Saudi Arabia has slashed investment by almost two thirds and is fighting against the collapse of oil prices. Transport and infrastructure spending will fall by 63% in 2016, since the kingdom is cutting capital spending in its effort to moderate the fiscal deficit next year. Funding for some mega-projects like the King Abdul Aziz International Airport in Jeddah will decrease to 23,000 million Saudi Riyals in 2016 from 63,000 million in 2015.

In January, the Saudi Finance Ministry announced a measure that seems destined to affect large construction and infrastructure projects in the country. The institution stated that it had modified the advance payment that is made to construction companies working on public sector projects. Companies that build projects promoted by the authorities will now receive 5% of the contract price in advance and not 20% as previously was done. The aim of this measure is to finance operations at the worksite, allow advance payments to subcontractors and enable the purchase of equipment and materials from suppliers. This amount is amortised and deducted from the contract price later.

Qatar

Qatar has a 9.3% share in the Cooperation Council for the Arab States in the Gulf of the hundred largest projects. Despite its relatively small share, the domestic construction sector is growing at an exponential rate. In 2014, its real growth rate stood at 18%, positioning it as the fastest-growing construction market in the region, according to BMI Research.

As for infrastructure projects, Qatar granted the second-highest number of awards, followed by Saudi Arabia. With these figures, it is expected that the annual growth rate of the Qatari construction sector will reach 11.4% between 2015 and 2022, and that this upward trend will continue with a growth rate of 10.2% for at least another decade.

The boom in the Qatari construction sector continued throughout 2015 with the announcement of some key projects and the inauguration of others.

With the 2014 edition of the Qatar Construction Standards (QCS) in force, all areas of the building and construction sector will have to review their policies and practices in 2016 to meet the new standard. In some contracts awarded by Qatari public entities, references to the term "legislation" includes amendments thereof. This means that a contractor or consultant involved in these contracts must therefore comply with the new requirements in the QCS 2014 when executing a project that is underway.

North America

United States

The *Dodge Construction Outlook* 2016 report predicts that new works started across the US will increase by 6% to \$712,000 million after increases of 9% in 2014 and the estimate of 13% in 2015. Much of the increase in 2015 was the result of non-residential construction work such as the commencement of several large liquefied natural gas terminals in the Gulf Coast region and renewed growth arising from the construction of new power plants.

By 2016, the economic environment should support further growth of the overall total for new construction. Although short-term interest rates will increase in 2016 due to expected increases by the Federal Reserve, the increase in long-term rates will remain gradual.

The number of public works will remain unchanged from 2015, since the modest reduction in dual carriageways and bridges will be offset by some improvement in environment-related public works. Congress is debating a new federal transport bill that covers several years. The advantages of this bill will be seen in construction in late 2016 and in 2017.



Canada

The Canadian Prime Minister Justin Trudeau promoted a plan for infrastructure spending during his 2015 election campaign. In it, he promised to increase spending on infrastructure by 60,000 million Canadian dollars over ten years, divided between public transport and ecological and social infrastructure. However, the question arises of how much money provinces and municipalities can spend on infrastructure, since many of them are already heavily indebted.

A recent report by BTY predicts that large investments in infrastructure will create stability in a country plagued by low oil and raw material prices. The Market Intelligence Report on construction costs in Canada forecasts that the national construction sector will successfully adapt to the worst economic expectations in other sectors.

Europe

United Kingdom

The construction sector in the UK rallied in December, according to figures from a survey of construction procurement managers. This recovery, led by commercial building, contrasted with a marginal decline in civil engineering activity that ended seven months of sustained growth in this subcategory.

The British government announced that Infrastructure UK (IUK) and the Major Projects Authority (MPA) would merge from 1 January 2016. The new organisation, which will be called Infrastructure and Projects Authority, will bring together government expertise in the financing, delivery and assurance of these projects, which range from large scale infrastructure projects like the Crossrail and the Thames Tideway Tunnel to major transformation programmes such as Universal Credit.

Romania

Although the potential of the Romanian economy is being recognised, it is still considered weak in infrastructure, according to the president of the European Bank for Reconstruction and Development (EBRD).

Romania's anti-corruption office is handling more than 10,000 cases and hundreds of public officials face criminal proceedings. Several major public works will remain suspended while the investigations last. Dietmar Dumlich, Romania's representative at the European Investment Bank, said the bank has approved loans amounting to 1,700 million euros for infrastructure projects, but there is no one to sign the documentation.

Construction work grew 13% during the first quarter of 2015. The most significant increase was in residential projects with an increase of 19.8%, while infrastructure projects fell 0.2%. In this context, a slow evolution of the construction market is expected.

In July 2015, the European Commission approved the Large Infrastructure Operational Programme for Romania, a major investment package totalling almost 9,500 million euros from the EU Regional Funds for investment in transport, environment and energy projects. This is almost half of the 23,000 million allocated to Romania under the EU's Cohesion Policy. Including national co-financing, there will be over than 11,800 million euros to stimulate growth and create jobs in the country.

Portugal

For 2016, the government has announced the revival of projects that were suspended over two years ago, plus new investments in public works. In its 100 Plan, the Ministry for Infrastructure envisages the possibility of increasing investment by leveraging additional European resources, such as the Juncker Plan and HORIZON 2020. Building projects remain in private hands and growth in investments by hotel chains, related to the increase in tourism, is perceived.

With regard to the current European situation that is constraining the budgetary policies of the Portuguese government, a strong proliferation of small-budget enterprises, or large ones split into small sections can be observed, that leads to greater competition between small and large companies that is unbalanced, because the service of big companies is not comparable to companies with small and unsystematic structures.



FCC Construcción's Business Activity

FCC Construcción, with its accumulated experience of more than a century of history, is the Citizen Services Group's infrastructure area. Its activities cover all areas of engineering, such as the construction of civil works and residential, non-residential and industrial building.

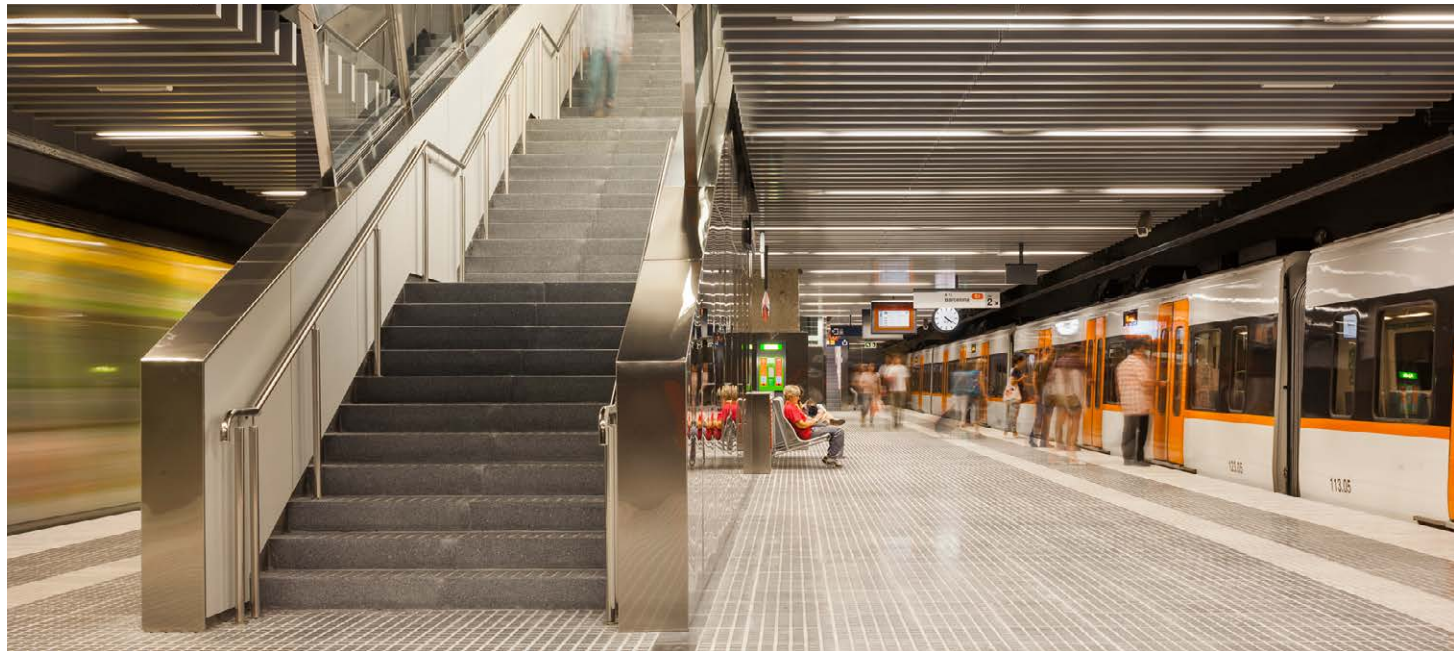
Railway Infrastructure

In 2015, the railway transport sector continued to be the most dynamic, thanks to the plans for expanding the high speed railway network and the construction of new metro lines in cities in the Middle East, North Africa and America.

● Metro

The most notable events during the course of 2015 include:

- **The opening of Terrassa Metro (Barcelona, Spain).** In July, FCC carried out the start-up of the Catalan regional government's railways. The Terrassa project involves a 4.5 kilometre extension of the line in a double tunnel executed with tunnel boring machines, with a six-metre interior diameter, three new stations, a train depot, a new traction substation in Vallparadís and three emergency exits.
- **Commissioning of the San Isidro Station of Panama City's Metro Line 1 (Panama).** In August, the San Isidro station, the last of the fourteen stops on Line 1 of the Panama Metro to open its doors to the public, began operations. This new section comprises an extension of 2.1 kilometres of the total length of 15.8 kilometres that



Terrassa Metro, Barcelona (Spain).

make up Metro Line 1. San Isidro, located in north-eastern Panama City, is the station where the route that begins at the Albrook terminal ends. The entire section comprises a semi-underground station, seven underground stations and six above-ground stations.

- **Riyadh Metro (Saudi Arabia).** In October, FCC finished drilling the first tunnel section, that is 1.2 kilometres, of Line 5 (Green Line) of the Riyadh Metro with the "San'ah" TBM. A job that was a milestone for the Company as it became the first to reach a station and the Company with the most kilometres of tunnel executed to date.



Most notable contract awards during 2015:

- **Bucharest Metro. Magistrala Line 5 (Romania).** In July, FCC signed the contract for the construction of the railway electrification and superstructure, architecture and facilities in both tunnels and stations to prepare for the coming into operation of the Magistrala Metro Line 5, totalling 223.37 million euros. It comprises a 6.1-kilometre-long main line that includes nine stations between Raúl Doamnei and Eroilor/Opera, and a 0.9 kilometre branch connecting with another station/depot where the line's depots are located.
- **Panamá City Metro. Line 2 (Panama).** In May, a consortium led by FCC won the contract for the design and construction of Panama City's Metro Line 2, totalling 1,650 million euros. The work will include sixteen stations and 21 kilometres of elevated track in the capital city's eastern area.

Most notable works in progress:

- **Panamá City Metro. Laying the first stone of Line 2 (Panama).** The foundation stone of Panama City's Metro Line 2 was laid in October 2015. In the first phase, the construction work, which will be ready in 44 months, will have 21 kilometres of elevated track and 16 stations. Five-carriage trains with the latest technology will run along this track, which will allow them to use less energy and ensure efficient operation. They will also have the capacity to transport an average of 16,000 passengers per hour and will be adapted for people with reduced mobility. The consortium for Panama City's Metro Line 2 will generate more than 4,000 direct and indirect jobs.
- **Lima Metro. Line 2 and Line 4 branch (Peru).** The project involves the design, construction, financing, operation and maintenance of Lima's Metro Line 2 and a Line 4 branch, that goes to the airport, totalling 3,900 million euros. Line 2 will be 35 kilometres long and cover Lima's east-west axes, from Ate to Callao. Once operational, its 35 passenger stations will serve more than 600,000 people a day who will save up to ninety minutes during their trip. Meanwhile, the Line 4 branch, which will link Peru's capital to the airport, will stretch along eight kilometres of tunnel from Faucett to Nestor Gambetta avenues. Eight stations will be built along this stretch.
- **Riyadh Metro construction. Lines 4, 5 and 6 (Saudi Arabia).** The project involves the design and construction of Lines 4 (Yellow), 5 (Green) and 6 (Purple), which will have 25 stations for which 64.6 kilometres of metro track, 29.8 kilometres of viaduct, 26.6 kilometres of underground track and 8.2 kilometres of over ground track will be required. For the construction of the three lines, two TBMs (tunnel boring machines) will be used that are 9.77 metres in diameter and will enable the excavation of full-section tunnels. Dhafrah was the first tunnel boring machine to start operation and Sanah was the first to reach a station. The Riyadh Metro is the largest suburban metro in the world under construction, which is 176 kilometres long and has 85 stations.



Riyadh Metro (Saudi Arabia).



Doha Metro (Qatar).

- Doha Metro. Red Line (Qatar).** The progress-to-finish is 45% with the three launching gantries working and all three stations under execution. The factory for keystones, beams and capitals is also fully operational. The project includes the construction of a section of Doha Metro's Red Line, totalling 550 million euros. The section will comprise three elevated stations and measure 6.97 kilometres long. The project also includes the burying of an existing section of urban dual carriageways at the entrance to the town of Al Wakra. The total budget for the construction of the entire project for Qatar's capital's metro will exceed 20,000 million euros. This is the first major work by the Citizen Services Group in this emirate.
- Bucharest Metro. Section 1 of Line 5. (Romania).** The work involves executing the civil works on a 6.1 kilometre-stretch with nine stations between Raul Domine and Hasdeu. The new line has two parallel tunnels of 3.8 and 4 kilometres with interior diameters of 5.7 metres, and a third tunnel of 260 metres which will serve to connect Lines 1 and 5 in the Troilo 2 station adjacent to the existing one. Once finalised, they will be lined with 30-centimetre-thick concrete rings. Drilling works are being carried out with EPB shield TBMs with 6.60 metre diameter excavations.
- Maintenance of lines in operation on Madrid's Metro System since 2015.**
- Toronto Metro. Highway 407 Station and Northern Tunnels (Canada).** This involves an underground intermodal station that is 165 metres long, 22 metres wide and 23 metres deep, with a central platform and three floors, two underground and one on the surface, formed by a Y-shaped building with a bus terminal and 600 outdoor parking spaces. The contract also includes the construction of four emergency exits, three connections between tunnels, various working and exit shafts for TBMs, traffic detours, services affected, auscultation, compensation injections and the structure for supporting and excavating the structure of the box for the future University of York station.



● Railway

High-Speed

Spain has one of the most advanced and longest railway networks in the world. The FCC Construcción's Transportes section, either through projects awarded directly or in joint venture consortia, has participated in the execution of a large part of the approximately 3,000 kilometres of the high-speed train network, in addition to having work on more than 400 kilometres of track carrying out renovations of the existing conventional network.

The most notable events during the course of 2015 include:

- **Completion of the installation of the track in the northern section of the tunnels in Pajares (Spain).** Last December saw the finalisation of the track installation for the Pajares bypass on the La Robla-Túneles de Pajares section along 27 kilometres. The entire track installation was done with Iberian gauge tracks on a multi-use sleeper so that the first 4.24 kilometres are double track and the remaining 22.76 single track, which is the left track. In addition, 8.6 kilometres were installed over ballast and the other 18.4 of the single track on a slab. The section is completed with the installation of two safety lanes and eight crossovers. The budget for execution by a contractor totals 7.8 million euros.
- **Start-up of the second TBM in Campobecerros (Orense, Spain).** In November, the TBM to excavate the second of the Bolaños tunnels, which runs between the towns of Campobecerros and Vilariño, began operating in November. The entire construction work comprises the execution of two parallel single-track tunnels for the

high speed line, each 6,700 metres long, excavated by a single-shield rock TBM with a diameter of 9.90 metres. It also includes the execution of eighteen emergency and connection galleries with an average length of 20 metres each between the tunnels. The budget for execution by the awarded contractor totalled 162.2 million euros.

- **Section: Vilariño-Campobecerros. Left track.** The work consists mainly of a tunnel measuring 6.7 kilometres long, of which 6.56 are executed with a TBM. This construction work includes the execution of the opening in Campobecerros.
- **Delivery of the new Vigo-Urzáiz station (Spain).** January saw the delivery of the Vigo-Urzaiz station, whose project is part of the section Nuevo Acceso Norte to Vigo, of the Atlantic route of the high-speed railway. The station is designed so as to be interoperable in accordance with the European Commission's high speed technical specifications. It has a total of six tracks with four platforms and an approximate length of 400 metres. The budget for execution by the awarded contractor totals 59 million euros.

The most noteworthy works in progress are:

- **Waterproofing of the Pajares tunnels. Northern contract (Spain).** The work takes place mainly inside the Pajares tunnels along 14.82 kilometres (for the western tunnel) and 14.84 kilometres (for the eastern tunnel), and there is also work in the access gallery from the opening in Buiza (of 5.5 kilometres).

- **Accesses to the La Sagrera station (Spain).** The works consist of the construction of the access section for the future La Sagrera station and for the two commuter lines (Villafranca-Maçanet and Vilanova-Mataró) that will be located between retaining walls on the station's lower level, along with the track bed where the high-speed Madrid-Barcelona-French-border high-speed line will be installed over the former ones.
- **Rail connection for the Mediterranean Corridor (Spain).** This belongs to the Madrid-Barcelona-French-border high-speed line. The section covered is 61.89 kilometres long of double track in order to be able to operate at 220 kilometres per hour.
- **High-speed Madrid-Extremadura track bed in the Alcántara reservoir-Garrovillas section (Spain).** The works consist of the construction of a new track bed for a double-track for high-speed trainings measuring 6.2 kilometres long using the international gauge for passenger and freight traffic. The viaduct over the River Almonte measuring 996 metres long and with a 384-metre-span central concrete arch under an upper platform stands out. In addition, three viaducts over the Santa Ana, Villaluengo and Cagancha streams, measuring 341, 431 and 431 metres respectively, have also been designed. All platforms are executed using movable scaffolding.
- **Maintenance of the track and high-speed crossovers in Mora and Calatrava (Spain).** Maintenance activities on lines in operation from January 2015 to December 2018.



Conventional

The most noteworthy works in progress are:

- **Sighisoara-Atel and Atel-Micasasa (Romania) railway sections.** In Romania, FCC is executing the rehabilitation and improvement of two railway sections of the Brasov-Simeria line measuring 94.75 kilometres long and comprising a double electrified track that is part of the Pan-European Corridor IV for train traffic with a maximum speed of 160 kilometres per hour: the Sighisoara-Atel section and the Atel-Micasasa section between the provinces of Mures and Sibiu, measuring 28.22 and 29.63 kilometres, respectively.
- **Maintenance of the track and crossovers on the conventional line in Burgos, Córdoba and Aranjuez (Spain).** Maintenance activities on lines in operation for five years from January 2012.



A-8 Dual Carriageway, Solares-La Encina section. Cantabria (Spain).

Motorways, dual carriageways, roads and urban roads

The most notable events during the course of 2015 include:

- **Sections of the A-8 dual carriageway (Spain):**
 - **Entry into service of the Solares-La Encina section (Cantabria).** Opened in November, this section begins at the Solares interchange, where it connects with the A-8 and S-10 dual carriageways east to Santander, ending in the vicinity of La Encina, where it connects with the La Encina-Torrelavega section. It has three interchanges:

Solares, San Vitores and Penagos. Four viaducts have been built: La Llama, El Encinal, Pámanes and Suscuaja along with six overpasses and ten underpasses.

- **Entry into service of the Unquera-La Franca section, the last on the A-8 dual carriageway.** In December 2014 FCC opened to the public this 4.15 kilometre stretch that runs through the municipality of Ribadedeva on the western side and connects to the Pendueles-La Franca subsection (open to traffic in August 2014). On the eastern side, it connects with the A-8 dual carriageway, also in service.



- **The EX-A1 from Navalmoral de la Mata to Portugal, between Coria and Moraleja Este (Spain) was opened to traffic.** In March, FCC opened the EX-A1 regional dual carriageway between Coria and Moraleja Este. The stretch, which runs parallel to the EX-108, consists of 10,600 metres of trunk road, almost eight kilometres of branch roads and more than 11 kilometres of service roads. Two interchanges have been built: one in the hamlet of Coria and the other east of this location.
- **Opening of the Carchuna-Castell de Ferro stretch in the Mediterranean basin (Spain).** With the opening to traffic of the 10 kilometre stretch which makes it possible to connect Almeria to Malaga by dual carriageway in early October, FCC fully completes the Mediterranean Corridor, measuring 1,440 kilometres long, stretching from Cádiz to the border with France. It comprises two 3.50 metre lanes in each direction, 2.50 metre external verges and 1.50 internal verges separated by a variable-width divider.
- **Opening to traffic of the Benicarló-Vinaròs bypass of the N340 road (Castellón, Spain).** Opened in October, this new section is 18.25 kilometres long and runs west of the towns of Peñíscola, Benicarló and Vinaròs, ending at the border with the province of Tarragona.
- **Finalisation of the second section of the A-27 between Morell and C-37 in Valls in Tarragona (Spain).** Opened in October, this 9.5-kilometre-long section with a cross section comprising two, eleven-metre carriageways (if we include the hard shoulders), is part of the section of the A-27 dual carriageway between Tarragona and Mont Blanc being built by FCC. The route begins in the municipality of El Morell and ends 500 meters past the C37, in the province of Tarragona.



San José del Cabo - Cabo San Lucas motorway (Mexico).

- **Opening of the San José del Cabo-Cabo San Lucas motorway (Mexico).** November saw the opening of this motorway that extends 38.7 kilometres along the southern coast of Baja California Sur, northwest of the Republic of Mexico and the southern tip of the Baja California peninsula. This 38.7-kilometre-long infrastructure project had an investment of 147 million euros (2,500 million pesos) and will benefit approximately 238,000 people, inhabitants of the municipalities of La Paz and Los Cabos.
- **Opening to traffic of the improvement in Cuesta de Las Chilcas (Chile).** This was opened to traffic in November 2014 and its reception took place in September 2015. The project was aimed at improving the cross-section in order to have three lanes going up and two coming down, separated by barriers or protective devices in the middle, decreasing slopes to 7% and extending the radii of the route. It also includes the construction of a new viaduct, which starts at kilometre 75.860 and ends at 76.355, covering a length of 495 metres. It comprises eleven sections, each measuring 45 metres with a maximum height of 12.5 metres.



The most noteworthy contracts awarded in 2015 were:

- **N-344 interchange to Jumilla-Interchange C-3223 to Yecla from the A-33, Cieza-Fuente, La Higuera (Murcia, Spain).** In March, FCC started work on a stretch of the A-33 in Murcia for 17.2 million euros. This section is located between the municipalities of Jumilla and Yecla and will be 7.5 kilometres long.
- **Toyo tunnel (Colombia).** In October, FCC obtained the contract for the design, construction, operation and maintenance of the Toyo tunnel in the port of Urabá (about 80 kilometres from Medellín) with a budget of 392 million euros. The project, located between the municipalities of Giraldo and Cañasgordas, involves the construction of a 18.32 kilometre section of a two-direction road with one lane in each direction, although there will be a stretch of two-lane dual carriageway. This section will cross the mountains of western Antioquia, in an area with difficult access. The entire project also includes the construction of 12.3 kilometres of tunnels, of which 9.8 are for the Toyo tunnel inserted into the new road to Uraba. When this infrastructure is finalised, it will be the longest of its kind in Colombia.
- **Route 5-North Access to Santiago (Chile).** This is a work that measures 15 kilometres long, has a cost of nearly 176 million euros and an official execution period of 28 months. The project, called "Conversion to the Urban Standard of the Access to Santiago via Road 5 North" is a work managed by the Ministry of Public Works and Globalvía, the concession franchise company for the Aconcagua Motorway "Carretera Panamericana Norte Ruta 5 Santiago-Los Vilos".

- **Águas Santas tunnel (Portugal).** In June, RRC commenced construction of the Águas Santas tunnel (near Porto) with a budget of 13.5 million euros. The project, located in the town of Maia, involves the construction of a new tunnel, with an area of 367 metres and a maximum overburden of 24 metres north of the two currently in existence, orientated down (Ermesinde / Porto), including elongation and upgrade for 2x4 tracks. The standard tunnel type measuring 16.65 x 5.25 metres holds four, 3.5 metre tracks.
- **The works of the third section of access south to Alto Hospicio/ access to Iquique (Chile).** In July, FCC commenced construction work on section three, which will link the localities of Iquique and Alto Hospicio, Chile. The project includes improvement, accessibility and connectivity in the city of Iquique in the Alto Hospicio-Alto Molle sector. The execution period will be 780 days and will enable the development of speeds of 70 to 80 kilometres per hour, reducing it in some places to 50 due to slopes up to 9% arising from the significant difference in altitude between Alto Hospicio and Iquique, nearly 450 metres. The track design will have a width of seven meters, with outer berms of one metre and inner berms of 0.6 meter with a two-metre central divider and a calculated service life of 20 years.

Most noteworthy construction works:

- **Vallirana bypass (Spain).** The works for the Vallirana bypass, which is 2.4 kilometres long, include a two-tube tunnel, one in each direction, each measuring 1.4 kilometres long.
- **Lo Marcoleta connection (Chile).** This project is aimed at connecting the Lo Marcoleta avenue with the 5 Norte route through an underpass, which will reduce the traffic congestion along this road between the Lo Echevers street and Ruta 5. It is to be completed in two stages that include the construction of a new road connecting Lo Marcoleta avenue to Ruta 5 Norte and a drain for storm water runoff plus landscaping and bicycle lanes.
- **Construction and upgrade of the T-775 (Chile) roadway.** The project covers 15 kilometres and involves remodelling the geometry of the roadbed. This requires the consideration of high-volume of earthworks, moving 250,000 cubic metres of embankment and the replacement of the 30-metre-long bridge named Quilín, along with the construction of the 170 metre Rio Bueno bridge. The latter is sited on the river of the same name which, due its flow volume, will require the use of sheet piling and the execution of peninsulas.



- Expansion of the Cañas-Liberia road (Costa Rica).** The work involves the rehabilitation of 50.3 kilometres of existing two-lane road and expanding it to four lanes (two in each direction). Among the main activities is the construction of embankments for the two new lanes, the realignment and expansion of the drainage system and the rehabilitation and construction of the pavement using hydraulic concrete. In addition, the construction of other facilities such as bus bays, walkways and pavements, bike lanes, animal crossings and road signs is also planned. The inclusion of Addendum 2 to the contract added the construction of three overpasses in urban population centres by replacing the initially designed level crossings. Currently the percentage of completion of the work is 97%. Work is being done on horizontal and vertical signage, the placement of safety fences and completion of pedestrian bridges.
- Constanza bypass (Romania).** This is part of Bucharest's ring road network and is aimed at improving traffic flow and connecting this ring road with the A2 motorway to Constanta. The route is 22 kilometres long and is located west of the city of Constanza. It includes five interchanges and 26 structures, including six viaducts, six bridges, eight overpasses and six underpasses. It has two, 3.75 lanes in each direction, a four-metre central divider and a three-metre emergency lane. The highway runs mostly on embankments on soils with a low bearing capacity; therefore, to make settlement consistent and due to the characteristics of the terrain, gravel columns measuring one metre in diameter and six meters deep will be required for embankments over five metres high.



Almonte viaduct (Spain).

Bridges

The most notable events during the course of 2015 include:

- Closure of the Almonte viaduct arch (Spain).**
 In August, FCC Construcción successfully completing the locking and closure of the arch of the Almonte with the keystone. This viaduct is located within the Alcántara-Garrovillas Reservoir subsection, which is 6.3 kilometres long and part of the Madrid-Extremadura-Portuguese-border high speed train line in the province of Cáceres. The viaduct, with a total length of 996 metres, runs 80.70 metres above the river bed. It has a single central arch span of 384 metres, making it the railway bridge with the largest reinforced concrete arch span in the world.

The most noteworthy works in progress are detailed below:

- Gerald Desmond Bridge in Los Angeles (United States).**
 FCC is progressing in the construction of the two monopole towers about 155 metres tall that will support the cable-stayed part of the bridge deck, which has a main span of 305 metres and which will enable the construction of approach viaducts executed span by span. The manufacture of the metal bridge deck which will finalise the structure of the main bridge will begin in February. Overall, the work currently presents a progress-to-completion of approximately 41%. The project includes the design, the replacement of the old bridge and the construction of the new one in the Port of Long Beach in Los Angeles. The new bridge is a cable stayed bridge with a main span that is 305 metres long located 61 metres over the Back Channel in the Port of Long Beach.



- Mersey Gateway Project (United Kingdom).** Design, construction, financing, maintenance and operation of the bridge over the River Mersey in Liverpool (UK), which will be 2.13 kilometres long and serve about 80,000 vehicles per day. The most unique element of the whole contract is the cable stayed bridge, which measures one-kilometre-long, 42 metres wide and has a maximum height of 125 metres. The project also includes the upgrade of seven kilometres of access roads, 2.5 kilometres of new motorways and the renovation of another 4.5 kilometres of motorway, as well as various road connections. The Mersey Gateway Project won two awards in 2015: the PFI "European Infrastructure 2014" award and the "European Road Deal of the year" from JGGlobal, in February and March respectively.
- Lusail pedestrian bridges (Qatar).** The project, which FCC is currently finalising in the vicinity of Doha, involves the construction of two pedestrian bridges as part of the development of the new city of Lusail with a 99% progress-to-completion. Work is being done on the final finishing stage prior to the reception of works by the Lusail Real Estate Development Company. The two structures are twins of identical type (cable stayed bridge deck with three spans of 30+60+30 metres). The only variation between the two bridges is the dimension of the approach ramps to the bridge deck, each of which has a symmetrical structure. The concept on which this architectural approach is based to create a one-of-a-kind recreational space over the water and its vicinity, with both structures provided with solutions like kiosks, located at the nodes (pylons) of the symmetrical shapes; ornamental fountains; landscaping; metal lattices with glass covers at ground level in the spaces made by the intertwined design and pergolas in the cable-stayed area of the bridge.



El Dorado International Airport Control Tower. Bogota (Colombia).

Airport works

The most notable events during the course of 2015 include:

- Inauguration of the new control tower and the management centre at El Dorado airport (Colombia).** In December, the president of Colombia, Juan Manuel Santos inaugurated the new Civil Aviation management building and control tower at El Dorado International Airport in Bogotá. After a period of forty months, an investment totalling some 50 million euros and a total area of 16,000 square metres, FCC is finalising infrastructure that will have a decisive influence on the growth of air traffic volume at the airport. The new building, which measures about 90 metres tall, has become the tallest and best-equipped control tower in Latin America and equipped with air traffic control systems that will ensure the best air navigation services in the region.

Most noteworthy works in progress:

- Coopesa hangar at Juan Santamaria International Airport in Alajuela (Costa Rica).** The work includes the design and construction of a hangar for aircraft maintenance and its associated approach; taxiways, facilities and related services, and the provision of auxiliary equipment for the Costa Rica CETAC/DGAC.
 - Phase I. Civil works: design approved. The start order is for the 18 March 2015 and launches the earthworks and foundation work.
 - Phase II. Other activities: pending approval of permits.



Filling tests of the PAC 4 in the Panama Canal expansion programme (Panama).

Hydraulic works

The most noteworthy events this year include:

- **Inauguration of the Alcollarín Dam (Caceres, Spain).** Report and first filling of the dam. This infrastructure, inaugurated in January, has a reservoir capacity of more than 51 cubic hectometres and will enable the regulation of the River Alcollarín, the improvement of the water supply for the surrounding municipalities and the management of the Orellana Canal and the central area of Extremadura. The dam is of the conventional type and is composed of more

than forty vibrated concrete blocks, but it has a peculiarity, since a canal that connects the García Sola Reservoir with the Búrdalo Dam runs over the structure. It is 31 metres high and 625 metres long. In total, 25.5 kilometres of coastline, divided among the towns of Alcollarín, Zorita, Conquista de la Sierra and Abertura, were obtained.

- **Completion of the filling tests of the PAC 4 (Panama).** In September, the ICA-FCC-MECO consortium began filling the new access channel linking Corte Culebra with the third set of locks in the Pacific sector as part of the project of the fourth phase of the dry excavation of the Pacific Access Channel in the Panama Canal expansion programme. The new channel measures 6.1 kilometres long and 218 metres wide. The bottom of the excavation is 9.14 metres above sea level.
- **Commissioning of the metropolitan sewer pipeline (Costa Rica).** The work began operations in October 2015 and consists of a wastewater pipeline from pipelines from the Maria Aguilar, Rivera, Tiribí and Torres basins from the end of the transfer tunnel (the subject of a previous tender) to the Los Tajos wastewater treatment plant currently under construction. It is 3.11 kilometres long and will have a capacity of 7,821 litres per second. It is designed to be built on the right bank of the River Torres. It will be executed in two sections: one glass fibre with reinforced plastic pipe (GFRP) with diameters of 1.6 and 1.8 metres, and another, ductile iron, pipe with the same diameters which is supported on reinforced concrete pedestals. Fifty shafts must be executed. The contract comprises two stages; the first, from shaft E-18 to kilometre point 1.250 to the junction box in the Wastewater Treatment Plant (WWTP), not included in the project, which must be implemented in the first six months so that it will be operational; and the second, from the beginning to shaft E-18, must be completed in the remaining four months, though it can be started simultaneously with the first stage.



Alcollarín Dam. Cáceres (Spain).

The most noteworthy works in progress in 2015 were:

- **Enciso Dam on the River Cidacos (La Rioja, Spain).**

Construction continues on the dam, on which there have been a series of updated studies carried out on the thermal and tensional behaviour of the structures. It has a height on its foundation of 103.12 metres and is 375.60 metres long at its crest, forming a reservoir of 46.50 cubic hectometres. This is a straight gravity dam executed with roller-compacted concrete, with an approximate volume of the dam body of 711,000 cubic metres. Extensive studies and tests have made it possible to execute this dam with a batching that covered the entire section because it was possible to compact by mixture along the wall faces by a vibration system. The work will help improve the water supply for domestic, agricultural (up 8,000 hectares) and industrial use.

- **Castrovido Dam (Burgos, Spain).** The conventional concreting of the main dam continues. This infrastructure, with a progress-to-finish of about 80%, is located in the municipality of Salas de los Infantes. It has a capacity of 44 cubic hectometres, occupies an area of some 214 hectares and the dam's normal maximum reservoir level is 1,032 metres above sea level. The dam will facilitate the supply of water to more than 30,000 people and improve the availability of irrigation for 6,000 hectares, with the consequent social and economic benefit, aspects that Isabel García Tejerina, the Minister of Agriculture, Food and Environment, considered appropriate to highlight during her visit to the site.

- **Heightening of the Yesa Dam (Navarra, Spain).** The execution of the body of the dam continues. There have been numerous specific tests on dam body deformation for varying heights. An updated calculation of the deformations of the dam has been made. This work almost triples (2.4 times) the capacity of the Yesa Dam's current reservoir to 1,080 cubic hectometres. The new gravel dam with concrete screen has a height of 98 metres and a crest length of 430 metres. The body of the dam will have a volume of 3.3 million cubic metres. Several works were executed previously, like the extension of the bottom outlets, a new connection to the Bardenas Canal and other works of geotechnical nature. The work will result in a multiyear reservoir that will expand the areas of irrigated land in zones around Bardenas and in Zaragoza's Cinco Villas region.
- **Decontamination of the Flix Reservoir (Tarragona, Spain).** The execution of this project, located in the Ribera de Ebro region, is the eradication of more than a century of toxic waste in the River Ebro from the industrial activities carried out in the area. Altogether, the works include complementary actions like installing an emergency supply for cities located downstream of Flix and, thereby preventing the risk of pollution and providing protection of the Sebes Natural Reserve, located on the bank opposite the factory.
- **Ribeiradio Dam (Portugal).** Completion and delivery of the concrete gravity dam with a circular directrix, with 262 metres of crest and a maximum height of 74 metres. Its spillway consists of three spans 13x13 metres long with segment-type flood gates (Taintor) and a bottom outlet with a diameter of 2.5 metres.



- **Ermida Dam (Portugal).** Completion and delivery of the concrete gravity dam with a straight directrix (175.1 metres at the crest) and maximum height of 35 metres. It has a free overfall spillway, a bottom outlet of 1,2x1,5 metres and a 30 metre stilling pool.
- **Dredging of the River Bogotá (Colombia).** The works involve the relocation and reinforcement of existing side groynes, as well as the deepening and widening of the river channel, including dredging material with a certain degree of contamination to be pre-treated prior to their transfer to authorised waste disposal sites. The project also includes the implementation of a landscaping project to recover areas of ecological interest (wetlands and meanders), the construction of a pumping station and hydraulic protection of four bridges. It will involve the demolition of several buildings and engineering structures and will affect sewerage and drainage elements that will have to be replaced.
- **Bajo Frio Hydroelectric Project (Panama).** The project involves the construction of a gravity dam that is 56 metres tall and 405 metres long constructed with blocks of conventional and roller-compacted concretes and closed on the left bank with a loose material embankment dam. It has a free overfall spillway that is 90 metres long and has a capacity to drain 2,100 cubic metres per second, and another double conduit measuring 6x5 metres with the capacity to drain 700 cubic metres per second. The project includes two powerhouses and finalises with the upgrading of the roads accessing the dam, a bridge over the River Chiriquí, a 2.1-kilometre-long raceway, the forebay and the headworks for the Salsipuedes powerhouse located at the end of the headrace canal, and a tailrace of about 110 metres in length through which the water is returned to the River Chiriquí Viejo.



Port of El Callao (Peru).

- **Execution of the final phases of the PAC 4 construction works (Panama).** This project involves the excavation of a new channel in the Panama Canal that will link the new locks with the so-called Corte Culebra, the narrowest stretch of the waterway, near the entrance to the Canal on the Pacific Ocean side. The work involves the construction of 3.7 kilometres of 200-metre-wide canal to reach the Pacific locks. The project includes a loose material embankment dam that is 2.4 kilometres long, the excavation, transport and disposal of about 27 million cubic metres of material (mostly rock), the construction of access roads and water drainage diversion canals, the construction and deposits and the cleaning of approximately 80 hectares of shooting range.

Maritime works

The most noteworthy works in progress are:

- **The expansion of the Port of El Callao (Peru).** The project involved the expansion of Piers 5 (560 metres long) and 11 (280 metres long) in order to increase berthing capacity and the construction of new facilities (an administrative building, a car park and a leisure centre). The first (Number 5) is intended for container management and loading minerals. Pier 11, meanwhile, is equipped with silos with a total capacity of 25,000 tonnes for cater for the import of agricultural products. During the expansion work, FCC has had to dredge in order to reach a depth of 16 metres and create a superstructure on steel piles and concrete beams.



- **Port of Açú (Brazil).** The project consists of the construction of the TX-1 terminal in Brazil's Port of Açú, located in the municipality of São João de Barra (north-eastern Brazil), an area where 85% of the country's oil and gas is produced.

The project includes the construction of a 2.4 kilometre caisson pier built by manufacturing and anchoring 47 reinforced concrete caissons, and a 600 metre rubble mound breakwater. The customer is the company comprising Prumo Logística and Angloamerican which make up the company called FERROPORT. Currently, the progress-to-finish is approximately 98% and completion is expected during the first half of 2016. Worthy of note in this project is the construction and transport of 11 caissons built in Spain and then transported to Brazil on semi-submersible vessels.

- **New Port of Granadilla, Tenerife (Spain).** The project involves the construction of an outer breakwater that is 2.51 kilometres long. It starts out as a rubble-mound-type breakwater about 600 metres long, and continues along the same alignment, but as vertical breakwater for a total of about 730 metres in a direction perpendicular to the coast. The second alignment is about 680 metres and the remaining 880 metres reach the third alignment, at the end of which there will be a perpendicular jog 150 metres long. The vertical breakwater consists of caissons resting on a bank that generally surpasses 10 metres in height.

- **Rezoning of several islands, Faro and Olhão (Portugal).** The goal is to return nature to several islets (Height, Côco, Cobra, Ramalhetes and Ratas) and Deserta Island on the southern Algarve coast. The selective demolition of all illegal structures built and the removal of infectious species, in addition to the manual cleaning of debris, reprofiling the land and planting native species are all included. Access is by sea.
- **Dredging of the Ria Formosa, Tavira (Portugal).** In the midst of the Ria Formosa Natural Park, this work consists of dredging the Cabanas, Santa Luzia and Quatro Águas canals and the Tavira Delta for the subsequent deposit as reinforcement for the beach dunes in Tavira. This work ensures the supply to Tavira Beach, in addition to restoring the navigability of the surrounding canals. The dredging will be performed with a 245 cubic metre capacity suction dredger; a fixed pipe next to the beach will push back the dredged sediments. After levelling the sand into the shape planned, dune regenerators will be placed on strips of eucalyptus.

Non-residential building

The most noteworthy events during the course of 2015 include:

- **Grangegorman University (Ireland).** With a budget of 230 million euros, this project is an integral part of the development of educational, commercial, residential and healthcare facilities to be developed at this site. It consists of the design, construction, financing and maintenance of two buildings: Central Quad and East Quad whose floor areas are 35,280 and 16,964 square metres respectively. Central Quad, which has a U-shaped layout, consists of a ground floor and five upper floors, plus an additional floor for installations, which isn't covered by a roof in the east and west wings. East Quad varies in height and has a ground floor and three floors on the west end, and a ground floor and five other floors on the east end. Besides the buildings, the project also includes development works and landscaping.
- **Haren Prison (Belgium).** This project is currently in the preferred bidder phase. It consists of the design, construction, financing, maintenance and operation of Haren Prison, near Brussels (Belgium). The prison, with a capacity for 1,190 inmates, will consist of eighteen buildings and a floor space of 108,000 square metres. The contract signing and commencement of construction work are expected to take place the fourth quarter of 2016, after the licences have been obtained. The estimated duration of the work will be 32 months.



The most noteworthy contract awarded during 2015 were:

- **Valladolid Military Hospital (Spain).** In February, Castilla y León Sociedad Patrimonial, S.A.U. awarded FCC the contract for the refurbishment of the arcaded ground floor located in Building Four of the Valladolid Military totalling 1.8 million euros, excluding taxes, which currently houses the Regional Government offices of Castilla y León. The project's goal is to locate a data processing centre inside, with all the necessary facilities; two floors are to undergo refurbishment.

Most noteworthy works in progre:

- **Salamanca Hospital (Spain).** This work involves the drafting and implementation of the design project for the University of Salamanca's Healthcare Complex which will take place in three phases. The existing Hospital Clínico will have to be demolished before the final phase can be executed. With a floor area of 183,433 square metres, the new building is planned to house 957 beds, 25 operating theatres, 315 outpatient consulting rooms, nuclear medicine, teaching and research. The approximate budget is 206.5 million euros. The progress-to-finish is currently approximately 25% it is estimated that the works will be completed in the spring of 2020.



Luis "Chicho" Fábrega Hospital. Veraguas (Panama).

- **Linea de la Concepción Hospital (Cádiz, Spain).** Execution of a new hospital building comprising six blocks joined by connecting walkways. Two of the blocks, each of which has two floors, will be destined to patient consulting rooms, examination rooms and radiology. Two others, each of which has five floors, will be destined to hospitalisation and the emergency department. A fifth will be used for industrial purposes and will house a large part of the machinery for the required installations. The remaining block will house the cafeteria, nursery and shopping area. The basement will be used for parking. Altogether, there are 36,226 square metres of functional areas to be built and an additional 8,222 square metres in available areas. The project design also includes a helipad on the sixth floor with a circular diameter of 37.80 metres set on pillars, a new set of access roads and the required installations. The current progress-to-finish is 83%.
- **Ciudad de la Salud (Panama).** This project involves the design, urban development, environmental impact, construction, financing and equipment of Panama's Ciudad de la Salud facilities. The healthcare facilities will have an area of 220,000 square metres and be equipped with 49 operating theatres, more than 200 outpatient consulting rooms and 1,709 beds, thus becoming the benchmark hospital in the Central American region due to its equipment and functionality. This medical complex comprises seventeen buildings that will house the specialties of paediatrics, cardiology, internal medicine, maternal and child consulting rooms, surgical facilities, outpatient facilities and a day hospital, several specialised rehabilitation institutes and a hospital residence. The current progress-to-finish of the work is 44%.



Colegio Alemán. Madrid (Spain).

Completed works:

- **Luis "Chicho" Fabrega Hospital, Veraguas (Panama).** The new hospital, built in the province of Veraguas and in service since June 2015, has an area of 46,460 square metres. It has capacity for 330 beds on the ground floor. The basement houses the central services and the hospitalisation and on-call doctors are located in the five-storey building. The building has shallow foundations, concrete and glass façades and an inverted roof. It has three traffic routes that will serve as the building's backbone system: an outer traffic route for doctors' visits and outpatient; a first restricted inner traffic route leading to the diagnosis and treatment areas located in the main building; and a second interior route that will be exclusively for internal and service staff.

- **Colegio Alemán (Madrid, Spain).** This project included the construction of three teaching buildings (nursery, primary and secondary) and three service buildings (cafeteria, auditorium and sport centre). It also has two outdoor covered areas. All parts of the building located below ground level were built with waterproof concrete. The buildings have slab-on-grade foundations. Installed over them is a thermal maze of concrete walls, which helps to control the building temperature by taking advantage of the change in temperature of the air that is circulated through this maze.

- **Rehabilitation of Forte da Graça, Elvas (Portugal).** Listed as a National Monument and World Heritage Site by UNESCO, the rehabilitation work was completed in October. In addition to the rehabilitation of the buildings housed inside the fort, which has an area of 12 hectares, and the work also included the restoration of historical paintings and engravings.

The inauguration of the work in late November was presided over by Aníbal Cavaco Silva, President of Portugal. The importance of FCC's work this time not only lies in the restoration of a monument of great historical and artistic value, but also in the boost to the local economy from the work given to more than two hundred people in the area, and in the preservation of the surrounding environment to protect the species of bats living there.

Residential building

- **Housing in Arroyofresno, Montearroyo (Madrid, Spain).** The work involves the construction of 210 houses with two car park basements, a semi-basement and business premises. The foundation and structure will be constructed using reinforced concrete with a pile wall and the floor framework will be made of single-direction beams and slabs.
- **Torre Madrid Housing (Madrid, Spain).** In February, Metrovacesa awarded FCC Construcción the contract for the demolition work, associated structure and exterior carpentry for the Torre de Madrid in the Plaza de España for 2.1 million euros. The works will be carried out from the basement floor to the ninth floor with the aim of adapting them in the future for use as a luxury hotel.



Management systems

FCC Construcción has been successfully implementing its Management and Sustainability System wherever the company does business. To do this, it constantly adapts procedures, computer applications, forms and records so that they meet any needs that may arise because of this activity in the areas where it operates. The priority continues to be on satisfying customers beyond their expectations with a commitment to complying with the quality assurance requirements that characterises FCC.

In addition, with the aim of adding greater credibility to its quality management, the infrastructure area of the Citizen Services Group completed the system certification for 100% of its activity, including the twenty-four countries where FCC Construcción operates. In addition, as a new feature, this year the scope of the certificate was expanded to concession activity.

Part of the commitment to customers is framed within Information Security. Through indicators, FCC Construcción, the only Spanish construction company that has ISO 27001 certification for its information security management system, measures the appropriateness of the countermeasures established from the perspective of security in order to maintain oversight in the event of potential threats to its information assets and to protect its customers. In 2015, certification by the new, recently published, ISO 27001 standard was obtained.

Certified Management Systems

Management Area	Standard	Scope (% of activity certified)	
		Total (international included)	Spain
Quality	ISO 9001	100%	100%
Environment	ISO 14001	100%	100%
Occupational Health and Safety	OHSAS 18001	91.1%	99.4%
GHG emissions	ISO 14064	36.1%	70.3%
Information Security	ISO 27001	36.1%	70.3%
R&D&I Management	UNE 166002	NA	70.3%

● Occupational Health and Safety

International activity related to the occupational health and safety has increased to the same extent as that of FCC Construcción's business outside Spain.

In Spain, the Occupational Health and Safety Management System is completely implemented under OHSAS 18001 certification in the construction area. It should be noted that external maintenance audits for OHSAS 18001 certification have been conducted of all the business areas with optimal results.

In addition, the system has an optimal occupational health and safety management tool that incorporates a scorecard that measures performance which facilitates control and substantially optimises the monitoring of the objectives in this area.

Reducing the accident rate remains a priority. Given that the profiles of accidents in the business sector are changing as the business, staff and overall circumstances change, the information obtained daily from the Accident and Incident Reports received by FCC Construcción is especially valuable and constitutes a basic working tool for achieving "0 accidents". Limiting, just like the Infrastructure Area, the values achieved for frequency, severity, incidence and absenteeism rates, reinforces even more the control over accident trends at the organisation's local and global levels.

The management of training as an essential resource for achieving the company's objectives is a fundamental indicator in planning its organisations' occupational health and safety activities. The training set out in the General Construction Labour Agreement continued to be provided during 2015.



Related to the implementation of occupational health and safety programme and actions, the company's focus from the perspective of occupational health and safety is broader and takes into account not only the absence of injury or illness but also its workers' state of wellbeing.

In the area of Research, Development and Innovation (R&D&I), FCC Construcción takes parts in large projects sponsored by the Public Administration.

There has also been close collaboration with several universities on the issue of occupational health and safety for students in the last year of their studies, like at the University of Cantabria's School of Civil Engineering.

In addition, FCC Construcción actively participates and collaborates with agencies and leading platforms in the area of occupational health and safety both nationally and internationally, such as the National Commission on Occupational Health and Safety, the National Institute, the Regional Institute, the European Agency, the ENCORD Platform, culminating in decision-making at European level via the presidency of the European Construction Industry Federation (FIEC), the "social partner" officially recognised by the European Commission.

● Environment

To achieve a balance between maintaining profitability and reducing environmental impacts, this year the Environmental Management System certification in accordance with ISO 14001 was increased to cover all the activities carried out in the twenty-four countries where FCC does business, e.g., 100% of its turnover.

While performing its responsibility, FCC Construcción believes that the achievements and the processes developed should set a standard for behaviour and be part of the culture of the construction industry worldwide, and should contribute the knowledge and criteria acquired to the community. This is why it takes part in and leads many national technical committees (AEN/CTN 198/SC2 "Sustainability in infrastructure" of which it holds the presidency), and international committees (CEN-TC 165 Wastewater Engineering CEN/TC 350 "Sustainability of construction works", where it chairs the WG6, the ISO/TC 59/SC 17 "Building construction/sustainability in building construction", where it heads the Committee on Sustainability in Civil Works (WG5), and ISO/TC 207 "Environmental Management", among others). It also has an active presence in the technical associations that are most relevant to its area of activity, such as the Scientific and Technical Structural Concrete Association, the Technical Association of Ports and Coasts-PIANC and committees on large dams. It chairs the Technical Committee on "Engineering Planning Activities" of SPANCOLD and is the Spanish representative for water planning at ICOLD on an international level, etc.

FCC Construcción has been certified under ISO 50001, Energy Management Systems with regard to its corporate headquarters in Las Tablas, in Madrid. This management system provides third-party assurance of the systematic control and monitoring of energy-related aspects and continuous improvement in energy performance. This contributes to a more efficient and more sustainable use of energy and bestows confidence to the management system. The company has also calculated and verified via a thirty party its greenhouse gas emissions in Spain since 2011.

FCC Construcción's policy has incorporated new environmental and social criteria that reflect its commitment to society. As a reflection of this commitment, new activities have been carried out, like the publication of new procedures and guidelines related to the conservation and management of biodiversity, interaction with local communities, management of cultural heritage and the definition and implementation of metrics to evaluate the social and environmental sustainability in new tenders. These are fundamental issues that demonstrate its commitment and aligns it with IFC Performance Standards.

● Corporate Social Responsibility

This year, FCC Construcción has updated its 2013-2014 Sustainability Report, in line with its practice of publishing every second year and updating information in alternate years. It has also published the 2014 Annual Progress Report which, for the fourth consecutive year, has won the "Advanced Level", the highest rating awarded by the United Nations Global Compact.



It has also published the 2015 Environmental Communication, which reports on its activity in the field of care and respect for the environment and also provides quantitative information on results in this area worldwide.

It has incorporated social criteria into the Management System's policy, procedures, guidelines and computer applications to demonstrate compliance with the IFC Performance Standards and the Equator Principles.

It has also undertaken the modification of the assessment of suppliers, including social and human rights criteria, and defined and implemented a metric to assess the social and environmental sustainability of projects in the bidding stage which has already allowed to categorise offers this year with a view to establishing greater precautionary measures wherever there was greater risk. It has recorded its greenhouse gas emissions inventory in the Carbon Footprint, Compensation and Absorption Projects Register; it was the first construction company to do so and the ninth company in all sectors.

Finally, it is worthy of noting that FCC is part of the newly created Committee on Transparency and Social Responsibility within the Civil Engineers Professional Organisation, which promotes behaviours and activities that involve companies and engineers in a culture of transparency and responsibility.



LNG regasification plant. Quintero (Chile).

Technological development. Department of innovation: R&D&I

FCC Construcción promotes an active policy of technological development, applying innovation to their works, with a strong commitment to research and development, sustainability and contribution to the quality of life of society as factors of competitiveness.

The development and use of innovative technologies for executing works is an important added value and a differentiating factor in today's highly competitive and internationalised market.

In this regard, it is important to note the company's active participation in European R&D&I organisations like the European Construction Technology Platform (ECTP), the E2BA Association (Energy Efficient Buildings Association) the reFINE initiative (Research for Future Infrastructure Networks in Europe), all linked to the European Horizon 2020 programme, or the ENCORD network (European Network of Construction Companies for Research and Development). 2015 saw a boost to the process, now finalised, of integrating the E2BA Association into the European Construction Technology Platform and the participation in the first Steering Committee of the ECTP INNOVATIVE BUILT ENVIRONMENT.



Nationally, FCC participates in the Plataforma Tecnológica Española de Construcción (Spanish Construction Technology Platform) and is actively present in the Platform's Foundation, its Standing Committee and its working groups. It also has a strong presence on the Seopan R&D&I Commissions, whose presidency was held by FCC Construcción from 2012 until June 2015 and it participates, as part of the R&D&I Commission of the Spanish Confederation of Employers' Organisation in the Internationalisation and Smart-Cities commissions. It also participates in the AENOR Standards for the Connected Industry 4.0 forum.

All these organisations aim to define the role of the company as a driving force for R&D&I in the construction sector in accordance with the proposals of the European H2020 programme and the 2013-2020 Spanish Strategy for Science and Technology and Innovation. It is also active in the ADIF (Spain's railway infrastructure administration) Railway Technology Centre in Malaga.

FCC Construcción and its subsidiaries implement a large number of R&D&I projects, some of which are carried out in partnership with government bodies, like the one with ADIF in the European LIFE "Zero Impact" project or the "BOVETRANS" project with the Murcia Roads Department, subject to special monitoring by the National Roads Agency.

Projects initiated in previous years have been finalised, like APANTALLA, which was researching the new nanostructured materials with improved shielding against electromagnetic radiation properties; SEIRCO, a smart expert system for assessing risks in different environments in the construction sector; BOVETRANS, the development of a system of lighted transition vaults in road tunnels that make the most of sunlight, and other elements.

During 2015, work was done on national projects originating in tenders from earlier years, like DOVICAIM, which investigates floating reinforced concrete caissons, led by FCC and directly focused on current challenges in international coastal works; MERLIN, aimed at developing better local infrastructure rehabilitation; SORT-i (optical systems for transient risk management) and SETH (integral structural monitoring system based on holistic building technologies) both projects concerning security.

During 2015 work on the DANA E project has commenced, aimed at smart regulation in tunnel lighting, led by MATINSA.

At the European level, within the H2020 programme, approval was given to the IN2RAIL (Innovative Intelligent Rail) project, aimed at establishing the foundations for a flexible, homogeneous, cost-effective, high capacity and digitised European rail network, and the NANOFASE (Nanomaterial Fate and Speciation in the Environment) project, aimed at determining the fate of nanomaterials in the environment.

Work has continued on the European Eco-innovation REWASTEE project, aimed at industrial validation, market implementation and production of a technology developed for both recycling steel waste and for the manufacture of multifunctional construction products.

Work also continued on the BUILDSMART (Energy Efficient Solutions Ready for the Market) project, SMARTBLIND, (Development of an active film for smart windows with inkjet method) and the LIFE IMPACTO CERO project, whose objective is the development of a bird impact protection screen based on freestanding tubes. The CETIEB (Cost Effective Tools for Better Indoor Environment in Retrofitted Energy Efficient Buildings) project was finalised. Work was also done on two Servia Cantó projects: ASPHALTGEN, a new paving asphalt with self-regenerating features based on the technology of ionic liquids encapsulated in inorganic materials; and GUIDENANO, based on innovative methodologies for assessing and managing risks to human health and the environment related to nanoparticle products, considering the entire life-cycle of the product.

Through the company's implemented and certified management system, a structure has been created to detect the innovation that takes place in the context of the Company's normal activity and bringing value to them through the relevant certification process.



FCC Industrial

FCC Industrial is the Citizen Services Group company that specialises in the design and execution of projects and construction of industrial works that operates in the following business lines:

- Turnkey projects (EPC).
- Industrial construction.
- Electromechanical installations.
- Energy maintenance and efficiency.
- Systems.

The company's operations are grouped into four divisions:

- LNG Projects and Industrial Construction Division.
- Logistics and Oil & Gas Storage Division.
- Electrical Distribution Networks Division.
- Electromechanical Installations, Maintenance and Systems (IMS) Division.

In turn, Industrial FCC has staff divisions that support production activities with an operating division in America that has permanent branches established in Mexico, Panama and Colombia, as well as another division in Saudi Arabia.

Each of the operating divisions has the capacity to provide services within the Company's various lines of business. For example, in 2015 power grid projects were executed, both under the turnkey (EPC) model as well as in the installation and assembly or maintenance for electrical utilities model.

2015 saw the consolidation of the Company's international presence, with projects commenced in Mexico, Panama, Peru, Chile, Colombia, Saudi Arabia, Ireland, Finland and the United Kingdom.



Campeche Electrical Substation (Mexico).

FCC Industrial's 2015 turnover totalled 189 million euros: 10% higher than the previous year. Of the total turnover, 30% comes from international business.

During 2015, FCC Industrial secured contracts totalling 223 million euros, with an execution backlog of 209 million euros. 39% of the backlog is in foreign contracts.

Projects in which FCC Industrial participated during 2015 include:

● Turnkey projects (EPC)

- Double containment LNG cryogenic tank with a capacity of 30,000 cubic metres in Pori (Finland) for Skangas.
- Enlargement of the regasification plant to expand the production capacity of the plant by 50% in Quintero (Chile) for GNL Quintero.
- Engineering works to increase storage capacity for LPG in Callao Terminal (Peru) for Vopak Perú. They consist of installing three LPG storage spheres holding 30,000 barrels each, ancillary and tank loading facilities, and an LPG pipeline for connection to port loading facilities.



- 115-kilovolt double-circuit high-voltage underground lines, 14 MT (medium voltage) lines and a five-bay GIS substation in Campeche (Mexico) for CFE.
- Modernization of two 115 kilovolt substations in Colombia for ESSA (subsidiary of EPM)).
- Remodelling of the airport installations and fire hydrant system at Dublin Airport (Ireland). The works involve the construction of three storage tanks, each with a 5,000 cubic-metre capacity and its associated facilities, a tank loader, the underground pipes and hydrant installations for refuelling on the runway for airplanes, and fire protection facilities. The ancillary facilities and buildings will also be built and the existing facilities will be disassembled and demolished.

● Industrial construction

- Eden Residence, Granada, for a private developer.
- Mariña-Lucense gas pipeline in Lugo, Galicia, for Gas Natural Fenosa.
- Samalayuca-Sásabe gas pipeline (Mexico). Construction of a 610 km long gas pipeline with a pipe diameter of 36 inches. It will pass through the states of Chihuahua and Sonora.

- Urban development of the theatre and cultural centre in Coslada, Madrid for Hipercor.
- Data Processing Centre in Murcia for Kio Networks.
- Remodelling of the Castellana 278 and 280 buildings in Madrid for Metrovacesa.

● Electromechanical, control and communications installations

- Rehabilitation of the old Albaida Palace for use as the headquarters of Omega Capital, S.A. on Fortuny Street in Madrid.
- Salamanca Hospital.
- Reform and extension of the building for the National High Court on Génova Street in Madrid.
- New theatre in Coslada (Madrid).
- New library in Coslada (Madrid).
- Extension of the runway lighting at Santiago de Compostela Airport for Aena.
- Comprehensive reform and upgrade to current standards of the cold production equipment in Torre Picasso in Madrid.
- New Chicho Fabregá Hospital in Panama.
- New hospital healthcare complex in Panama City.
- Comprehensive reform of gallery management systems and installations for the Madrid City Council.



National High Court in Madrid (Spain).



- Electrical and control installations in the tunnels of La Minilla (Granada).
- Secondary school in Montilla (Córdoba).
- Orange buildings and sub-exchanges (Madrid).
- Línea de la Concepción Hospital (Cádiz, Spain).
- Ronda Hospital (Málaga).
- Installations in the basement of the Peineta Stadium (Madrid).
- Tarrasa station.
- Remodelling of the headquarters of the OHIM (Office for Domestic Market Harmonisation) in Alicante.
- Nuevo Necaxa tunnels in Mexico.
- New Spanish headquarters for the shipping company MSC, built in Valencia.
- Reform of the flight control centre in the Canary Islands for Enaire.
- Mercat Central in Castellón.

● Railway installations

- Catenary for the Atlantic Axis for ADIF. The works include installing 400 kilometres of catenary power lines; of these, 160 are already in service, leaving another 240 pending execution.
- Drafting of construction project designs, execution of works, conservation and maintenance of security installations, train protection systems, centralised traffic control, auxiliary detection systems, fixed telecommunications, GSM-R and protection and security installations for the Madrid-Levante high-speed rail line along the Monforte del Cid-Murcia section.
- Execution of works, conservation and maintenance of safety and security installations, train protection systems, centralised traffic control, auxiliary detection systems, fixed telecommunications, GSM-R and protection and security installations for the connection of the Mediterranean corridor to the Madrid-Barcelona-French border high-speed rail line along the Vandellos-Camp de Tarragona section.
- Security and civil protection installations in the Vigo Das Maceiras tunnel on the Vigo-A Coruña high-speed rail line.
- Design and construction of civil protection installations in the Figueras-Barcelona tunnels.



Catenary for the Atlantic Axis for ADIF (Spain).



● Energy maintenance and efficiency

Renewable energy

- Operation and maintenance of the 50 megawatt solar-thermal power generation plant in Palma del Río (Córdoba) for Guzmán Energía.
- Operation and maintenance of the 50 megawatt solar-thermal power generation plant in Villena (Alicante) for Enerstar Villena.
- Operation and maintenance of the 20 megawatt photovoltaic power generation plant in Espejo (Córdoba).

Electrical networks

- Maintenance and execution of new works on medium-voltage/low-voltage (MV/LV) distribution networks in the Barcelona area in districts 5, 6, 7, 8, 9 and 10—Sant Adrià—Santa Coloma—Badalona (Catalonia Centro Division), to be performed for Endesa Distribución Eléctrica during the period June 2013-May 2016.
- Maintenance and execution of new works on MV/LV distribution networks in the areas of Pozuelo/Villalba, Albacete, Leon, Zamora, Levante and Toledo for Iberdrola. Awarded framework contract for the next three years.
- Maintenance and execution of new works on MV/LV distribution networks in the city of Madrid for Gas Natural Fenosa.
- Maintenance of sub-stations for Gas Natural Fenosa in Ciudad Real and Toledo.

Comprehensive maintenance of buildings and their heating and cooling systems

- Maintenance of Malaga airport facilities.
- Maintenance and efficiency of the new hospital in Granada.
- Maintenance of La Candelaria Hospital in Tenerife.
- Maintenance of Son Dureta Hospital in Mallorca.
- Maintenance of Torre Castellana in Madrid.
- Instituto Cervantes headquarters on Alcalá Street in Madrid.
- Laboratorios Abbot and Laboratorios Amo (Famar).
- Air Navigation Control Centre for the southern region for Aena.
- Terminal 2 at Barcelona Airport for Aena.
- Palma de Mallorca Airport for Aena.
- Silken Hotels throughout Spain.
- Data processing centre in Murcia for KIO Networks.
- Social Security Treasury in Cordoba.
- National Social Security Institute in Seville.
- Torre Castellana for El Corte Ingles.
- Corporate headquarters. Grupo Prisa.
- Sogecable production centre in Tres Cantos.
- Storage and distribution warehouse for Editorial Santillana.
- Headquarters of the El País newspaper and the headquarters of the Cadena Ser radio station on Gran Via.

- Realia. Maintenance of facilities in several buildings:
 - Eisenhower Business Centre in Madrid.
 - East tower of the Torres KIO in Madrid.
 - Méndez Alvaro Business Centre in Madrid.
 - Ferial Plaza Shopping Centre in Guadalajara and Plaza Norte in Leganés (Madrid).
- Miscellaneous
 - Systems and energy in galleries and tunnels at Barajas Airport for Aena.
 - Systems on various motorways in Catalonia.
 - Barcelona Metro Line 9.
 - Facilities and systems for Málaga Metro Line 1.

Energy Efficiency

- Contract for energy management and efficiency for private developers in Nuevo Tres Cantos (Madrid).
- Contract for energy management and efficiency at Canary Island airports for Aena.
- Global, comprehensive actions for the maintenance and operation of public lighting in town councils, including investments aimed at improving the energy efficiency of the installations via actions aimed at the saving, measurement and control of energy consumption.
 - Cadiz town council.
 - Los Palacios (Seville) town council.
 - Madrid (Contract 3 Eastern Zone) town council.
 - Totana (Murcia) town council.
 - City of Isla Mayor (Seville).



Systems

- Shadow toll systems on C-25, Catalonia. CEDINSA.
- Integration of road tunnel control systems in the Huesca national roads, Montrepós for the Ministry of Public Works.
- Smart traffic management systems in road tunnels in Nuevo Necaxa, Mexico.
- Traffic management and control system for thirty tunnels on the ER-1 dual carriageway in Madeira, Portugal, for Vialitoral.
- Integrated management system for lighting, access and safety in Madrid tunnels for the City of Madrid City.
- Upgrade of the central control post (Spanish acronym PCC) in Medellín Metro (Colombia).
- Signalling system for the Medellín Metro (Colombia).
- Replicas for the simulation of the shooter's controls in the Army's Centauro, Pizarro and RG-31 armoured vehicles.
- Port operations simulation system for the Algeciras Bay Port Authority.
- TOPFAS, suite of tools for planning operations, for NATO's Communications and Information Agency.
- System for the Monitoring and Reconstruction of Air Operations for the TLP-Tactical Leadership Programme. The Air Force's logistics support command.



Integration of Road Tunnel Control Systems. Monrepós, Huesca (Spain).

R&D&I projects

- **Intelligence and Decision Strategies in Rail Tunnel Safety (ADIF) project.** Work on this project began in December 2013 and ended in March 2015.

The scope of study is ventilation strategies and smart decision algorithms in situations involving serious incidents in rail tunnels.

Two laboratories from the Politécnica University of Madrid: CEMIM (Centre for Modelling in Mechanical Engineering) and DIA (Department of Artificial Intelligence) participated in this R&D project as well as FCC Industrial's Systems Division.

The first phase of the project was implemented in the AVE tunnel accessing the city of Vigo. This is a twin-tube tunnel measuring 8.5 kilometres long with seventeen emergency galleries.

- **Collaborations with FCC Construcción on the BUILDSMART project,** collaboration on energy efficiency (EU: Sweden, Ireland and Spain).

Consumption of less than 60 kilowatt hours per square metre per year in newly constructed buildings.



Megaplas, S.A.

Megaplas and Megaplas Italia are the FCC Group companies that provide corporate image services at European level with implementation taking place through its two production, management and logistics centres, in Madrid and Turin (Italy).

Megaplas Group had a turnover of 19.6 million euros in 2015, an increase 19% compared to the previous year's turnover.

In the automotive sector, in 2015 Megaplas was named as one of two corporate image suppliers for Fiat Group at European level for the implementation (manufacture and installation) of the new image of the Alfa-Jeep concept on the continent and it continues to be corporate image provider for the other Group brands: Fiat, Lancia, Abarth and Fiat Professional, in addition to entrust it with the production of the new logo for the Alfa brand and the provision of furnishings inside the Fiat showroom.

This programme will extend over the next three years, and Megaplas will implement it in Spain, Portugal, France, Belgium, Italy, Holland, Hungary, Greece, Poland, Slovakia, the Czech Republic, Switzerland and Morocco.



KIA car dealer showroom in Valencia (Spain)..

Also in the automotive sector, Megaplas continues to implement the "Red Cube" image at the Kia dealers network in Spain with special installations like the one in Mercamoto in Valencia, where they have installed the first five metre logos.

This year, twelve of these installations were finalised. Along with those of previous years, there have been 20 dealerships in this category, totalling 50% of the installations of this type implemented throughout Europe.

Other noteworthy projects include the image of the Renault dealerships that Megaplas provides and installs in Spain and Italy, and the unique DISA service stations in the Canary Islands. As part of the organisation's continuous improvement activities, Megaplas began implementing LEAN techniques at its factory in Madrid.



Prefabricados Delta, S.A.

Prefabricados Delta has two permanent factories, located in Humanes (Madrid) and Puente Genil (Córdoba), dedicated to the execution of precast concrete products for civil works, like reinforced or prestressed concrete pipes with steel casings and monoblock and bi-block sleepers for railways, and the manufacture of fibre-reinforced polyester (GFRP) pipes.

The company's 2015 turnover totalled 23.97 million euros: 6.5% higher than the previous year.

In terms of contract volume, in 2015 Prefabricados Delta won contract totalling 22.8 million euros. Worth mentioning is the contract for the Riyadh Metro for the manufacture of 340 post-tensioned beams with 32-metre spans and their corresponding floor plates, for which a local factory has been set up and commissioned.



As already mentioned, Prefabricados Delta's 2015 production experienced a slight increase over the previous year. Thus, 2015's global production for products was as follows:

- More than 37 kilometres of glass-fibre reinforced plastic pipe (GFRP).
- 11 kilometres of steel-encased concrete pipe.
- 140,000 prestressed monoblock sleepers of different types.

● Supplies for hydraulic pipelines

During 2015, more than 48 kilometres of pipeline were manufactured and supplied: 37.3 were glass-fibre reinforced polyester pipe; 7.01 were reinforced concrete pipes with metal sleeves with flexible joint; and almost four were post-stressed concrete pipes with metal sleeves.

The most noteworthy works included the following:

- Supply of steel-sleeved reinforced concrete pipe for the works for modernising the irrigation of the irrigation zone operating under the Canal del Páramo Bajo (León), Sector IV: supply pipes, irrigation and remote control network, a work carried out under SEIASA. This work includes two contracts: the first is the manufacture and supply of just over 5 kilometres of steel-encased reinforced pipes with a double flexible joint with an inner diameter of 2,000 mm and a maximum design pressure of four atmospheres and the second, for just under two kilometres of pipes of identical characteristics.

These supplies have the special feature of including, in the project carried out by the government, the double flexible joint, which was developed by Prefabricados Delta in 2014 and has been widely accepted by the Administration.

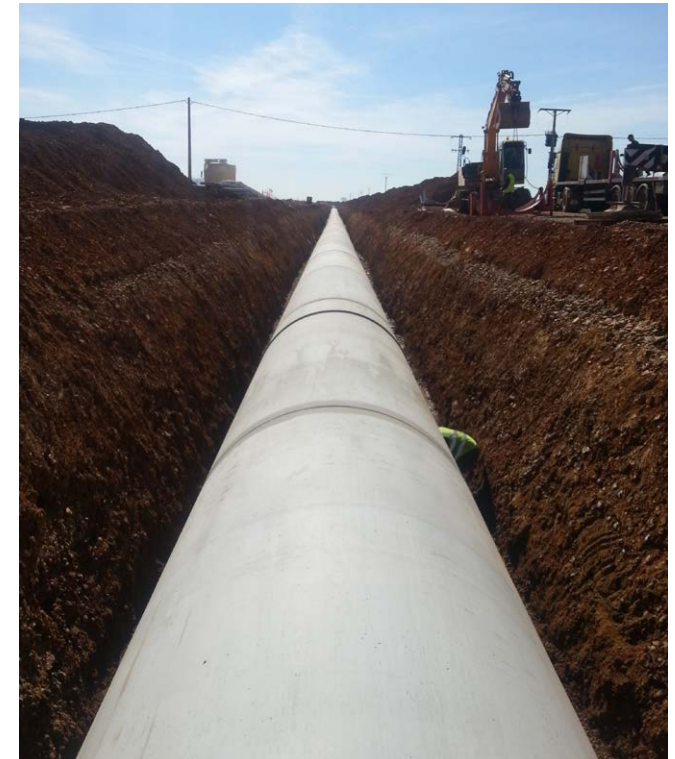
- Supply of pipes and special parts made of glass-fibre-reinforced polyester with flexible joint for the work involving the replacement of the GFRP pipe for the 2014-2015 inter-campaign of the work: Project for the improvement and modernisation of the irrigation for the irrigators' community of the Canal del Páramo Bajo, Sector I, with nominal diameters ranging from 700 to 1,600 millimetres and a nominal pressure of 6 and 10 bar. For this work, 8,600 metres of pipe plus 91 special pieces of GFRP were manufactured.
- For the work upgrading the interceptor on the right bank of the Ferrol estuary, in the A Malata-A Gandara section (A Coruña) of the State North-Acuanorte Basin Water Society, 1,993 metres of GFRP pipes with nominal diameters between 500 and 2,000 mm and a rigidity of 5,000 newtons/square metre and 25 special parts made of the same material.

● Supply of railway sleepers

During 2015, 140,493 prestressed monoblock sleepers of both the AI-04 (international gauge sleepers) and the PR-01 (Spanish and international gauge sleepers) types were supplied.

The most significant works were:

- Supply and transport of sleepers for the Antequera-Granada high-speed line, Phase I, with a total of 90,000 international gauge monoblock sleepers .



Pipes for hydraulic pipelines.

- Supply and transport of sleepers for the Antequera-Granada high-speed line, Phase III, with a total of 60,000 international gauge monoblock sleepers, of which 40,500 units have been supplied.
- For the upgrade of the railway in the Port of Seville, the supply of 4,580 multi-purpose sleepers for UIC-54 rails.



Matinsa, Mantenimiento de Infraestructuras, S.A.

FCC Group operates in the sector through Mantenimiento de Infraestructuras, S.A. (MATINSA) in the following areas of activity:

● Motorways and roads

Maintenance of 4,870 kilometres of roads and 87 kilometres of Spain's metropolitan network belonging to several public administrations (Ministry of Public Works, autonomous regions, provincial councils and local regional councils), as well as 1,700 kilometres of roads in Portugal.

Worth of mention is the conservation of the streets of Barcelona, the Dalt ring road and Litoral ring road, that carry over 270,000 vehicles a day.

For the year 2015, the following should be mentioned:

- The award of a new conservation contract in the province of Burgos which involves the execution of various conservation and operation activities on the N-623 from Burgos to Santander; the N-627 from Burgos to Santander via Aguilar de Campoo and the A-73 dual carriageway from Burgos to Aguilar de Campoo under construction in the province of Burgos.

- The renewal of the following contracts:
 - **Norba (Cáceres)**, execution of various conservation and operation activities on the A-58 dual carriageway from Trujillo to Cáceres between kilometres 0 and 45.527, and the N-521 conventional road from Trujillo to Portugal via Valencia de Alcantara between kilometres 0 and 152.170 and its residual sections.
 - **Soria**, execution of various conservation and operation activities on the following roads: A-11 from kilometre 209.4 to 219.7; N-110 from kilometre 66.8 to 90.2; N-122 from kilometre 158.6 to 247.1; N-234 from kilometre 352.9 to 408.4.
 - **Ávila**, execution of various road maintenance and operation works: A-50 from kilometre 0.840 to 54.450; A-51 from kilometre 104.000 to 114.660; N-110 from kilometre 226.750 to 249.050 and from kilometre 259.300 to 262.600; N-110a from kilometre 257.120 to 258.200; N-403 from kilometre 70.900 to 135.120 and from kilometre 140.600 to 177.400; N-403a from kilometre 78.600 to 80.400 and from kilometre 127.450 to 132.000; N-501 from kilometre 1.660 to 48.710.

● Maintenance of transport systems

Matinsa manages the maintenance of urban trams in the cities of Zaragoza and Murcia, as well as the Málaga Metro.

● Maintenance of hydraulic infrastructures

Matinsa continues its activity in maintaining water infrastructure with the conservation of the irrigation channels of the Árrago river basin, which includes 178 kilometres of canals and 9,300 hectares of irrigated area.



Forest fire emergency services.

● Management of forest fire and emergency services

Matinsa currently provides the following services:

- Reserve service crews for the prevention and extinguishing of forest fires in the eastern zone of the autonomous region of Madrid, with a total of 234 professionals, eight heavy fire engines, fifteen light fire engines, two high-mobility vehicles (VAMTAC) and a twin-turbine helicopter, as well as fourteen forest engineers.
- The fire and rescue services in the fire stations of Bueu, Porriño, Ribadumia and Vilagarcía de Arousa in the province of Pontevedra for a period of eight years, with a total of 74 firefighters.
- Forest fire prevention and extinguishing service with heavy machinery as part of the INFOMA plan for the autonomous region of Madrid.



● Environmental restoration

The company carries out work related to environmental restoration and the recovery of deteriorated areas, including the restoration of dune systems and the related conservation and maintenance work.

Worthy of mention this year was the award of the contract for stabilising the slopes on Riveira Beach in the municipality of Miño.

It also continues to manage the conservation and maintenance service for the coastline in the province of Pontevedra and the conservation, maintenance and improvement activities for northern Galicia's public domain water basins in the territorial scope of central Galicia.



Conservation and maintenance work.

● Environmental services

Contracts awarded this year include:

- Environmental conservation of the Herrería Forest in the municipality of El Escorial (Madrid) for the National Heritage Department.
- Management of waste collection site in the National Heritage Department's historical gardens.
- Renewal of the framework agreement related to the control of vegetation at the edges of the Iberian and metric gauge facilities of the conventional network in the north-eastern area and work related to the control of vegetation on the track-bed of the Iberian and metric gauge conventional network in the northern area for ADIF.

- Renewal of the conservation service for the River Manzanares where it passes through Madrid's municipal district for the Madrid City Council.

In addition, the following services continue to be managed:

- Silviculture and cultural treatments for the prevention of forest fires in various regional offices of the National Heritage Department.
- Felling and pruning along the low- and medium-voltage lines in the province of Huesca for ENDESA.
- Pruning, clearing, conservation and maintenance of parks, gardens, roads and pavements in the municipality of Torreldones (Madrid) for a period of three years.

● R&D&I projects

Matinsa is working on the Danae R&D&I project, an intelligent lighting system for tunnels, as part of a project funded by the Spanish Centre for Industrial Technological Development (CDTI), a public enterprise under the Ministry of Economy and Competitiveness that promotes innovation and technological development in Spanish companies.

The Company is also continuing to work on the SIDEINFO project against forest fires, designed to protect the forest-urban interface.



Infrastructure Concessions

Concessions Management is an independent department within FCC Construcción responsible for developing and operating both transport and social infrastructure concessions for FCC Group.

Currently, the Concessions Management Department participates in eighteen concession companies, of which fourteen are in the operations stage, and it is responsible for exploring new concessions.

During 2015, the Concessions Management Department continued to maximise its return on investment and conducted activities with the following main objectives:

- Maximise the value of existing assets by managing contracts with the aim of improving the recurring cash flows from the projects.
- Compete for new projects selected as growth opportunities in markets that are solvent, secure and with prospects for medium-term growth, in line with the strategy set by FCC Group. In particular, Spain, Latin America, United Kingdom and the United States.
- Explore collaboration arrangements with other investors in both brownfield and greenfield projects.
- Generate cash through selective divestment of projects considered non-strategic.

The most relevant events in relation to projects during 2015 are:

- **Line 2 of the Lima Metro (Peru).** According to the concession contract, the financial closing was to be completed before 28 October 2015, and this was completed through a bond issue in the North American market for US\$ 1,148 million and an export credit worth US\$ 800 million.
- **Immersed tunnel in Coatzacoalcos (Mexico).** At the end of 2015, this work reached a milestone with the alignment of the tunnel, leaving it open for the first time on both sides of the river. The progress-to-finish of the work is about 92%.
- **Dual-carriageway concessions in Spain.** In general, there is a recovery in the growth of road traffic on dual carriageways managed by the Concessions Management Department.
- **Globalvía.** As a result of FCC's sale of Globalvía, the Concessions Management Department is now FCC Group's sole vehicle for the management and development of transport and social infrastructure concessions.

Concession Management Activity

Following is a list of the concession companies in which FCC has holdings along with the most important events in 2015.

● National

• Cedinsa Eix Llobregat (34%)

In November 2003, Cedinsa was awarded the concession for the construction and shadow toll operation of the road between Puig-Reig and Berga, as well as for the conservation and maintenance of the Sant Fruitós de Bages–Puig-Reig section, all of them on the C-16 road (Llobregat corridor). 2015 was the eighth year of full operation, reaching an average daily traffic volume of 19,589 vehicles in these sections, which is an increase of 6.3% over the previous year.

• Cedinsa d'Aro (34%)

In December 2005, Cedinsa was awarded the 33-year concession, also as a shadow toll for 27.7 kilometres of the Maçanet-Platja d'Aro dual carriageway, which consists of the design, construction and operation of the section of the C-35 between Vidreres and Alou, and the operation of the C-35 Maçanet-Vidreres, C-65 Alou-Santa Cristina d'Aro and C-31 Santa Cristina d'Aro-Platja d'Aro sections. 2015 was the seventh year of full operation, reaching an average daily traffic volume of 26,151 vehicles, which is an increase of 4.7% over the previous year.



Conquense dual carriageway (Spain).

- **Cedinsa Ter (34%)**

In 2006, Cedinsa was awarded the concession of 48.6 kilometres of the Centelles-Vic-Ripoll shadow toll dual carriageway, of which 25.2 kilometres were a new section. The concession period is 33 years with a construction period of three years and thirty years of operation. 2015 was the fourth year of full operation, reaching an average daily traffic intensity of 24,321 vehicles, which is an increase of 4.7% over the previous year. In 2015, an agreement was reached with the Regional Government of Catalonia to rebalance Ter Cedinsa and provide it with forward financing.

- **Cedinsa Eix Transversal (34%)**

In June 2007, the 33-year concession, also as a shadow toll, was awarded for the 150 kilometres of the Eje Transversal dual carriageway for an 838-million-euro investment. The contract consists of the definition of the project design and the construction and operation of the Cervera-Caldes de Malavella (C-25) section, with most of the work involving widening the current C-25 to a dual carriageway. 2015 can be considered the second year of full operation of the dual carriageway, with an average daily volume of 13,056 vehicles, which is an increase of 8.6% over the previous year.

- **Conquense dual carriageway (100%)**

In 2007 the Ministry of public works awarded FCC Construcción the contract of concession of public works for the conservation and operation of the stretch of the A-3 and A-31 which runs through the province of Cuenca under a shadow toll regime for a period of nineteen years. Maintenance work has been carried out since the contract was signed. The execution of upgrading, reform and modernisation works for the dual carriageway finished in 2015. The concession company will continue to carry out the dual carriageway operation and maintenance work without any setbacks. The traffic remains on an upward trajectory, with growth in equivalent vehicle terms, exceeding 5%.

- **Ibiza - San Antonio dual carriageway (50%)**

Construction and operation of the widening of the Ibiza-San Antonio road to a dual carriageway under the shadow toll system. A unique point worthy of mention is the burying of 1.3 kilometres of the dual carriageway in the San Rafael area. The length of the route is 14 kilometres and the concession is for 25 years. The average daily traffic in 2015 was 35,100 vehicles, showing an increase of 4% over the previous year.



- **Murcia tram (50%)**

In April 2009, the Murcia City Council awarded the construction, maintenance and operation of Line 1 of the tram in Murcia (17.76 km and 28 stops) for 40 years. The contract was signed on 7 May 2009 and the investment totals €185 million.

On 28 May 2011, the operation began as the works were finalised and the integration of the rolling stock and operation, electrification, fare collection and communication systems was carried out. Since then, there have been more than six million travellers, with monthly demands exceeding 400,000 travellers and a current ramp up of close to 30%.

During 2015, operations have been normal with the demand reaching up to 4.4 million validations.

- **Line 9 of the Barcelona Metro (49%)**

In late 2008, IFERCAT (Infraestructuras Ferroviarias of Catalonia) awarded the contract for the construction, maintenance and conservation of thirteen stations and their corresponding ventilation shafts for Section 1 of Line 9 of the Barcelona Metro for 32 years. The total investment amounts to 1,000 million euros, of which 876 million euros are for the works. The concession company's remuneration is set at an annual fee.

The works finished in 2012 and operation began in all of the public works concession stations. These stations began operating in February 2016, coinciding with the celebration of the *Mobile World Congress* in the city of Barcelona.

- **Zaragoza tram (16.60%)**

The Zaragoza City Council awarded the tender to select the partner for a joint venture responsible for building, commissioning, maintaining and operating the 12.8-kilometre Line 1 of the Zaragoza tram for a period of 35 years to the TRAZA consortium, in which FCC participates.

In the partially government owned company, the Zaragoza City Council has 20% and TRAZA 80%. The investments total 342.2 million euros. Because of its technology, the new service is considered the most modern in Spain.

In 2015, demand was consolidated, registering a total of 27.6 million validations, i.e., 2.6% more than the previous year. The number of weekday users exceeded 100,000 travellers on multiple occasions, producing peaks of up to 130,000 passengers a day on certain dates.

- **Málaga Metro (10.01%)**

Concession company responsible for the administrative concession for the project design development, construction and operation of Lines 1 and 2 of the Málaga Metro.

The complete infrastructure is 14.5 kilometres long, 71% of which is underground, and has twenty stations along its route. It is important to note that the concession company is responsible for the complete operation of the line, but is only responsible for the construction of the first phase (approximately 78% of the total route), and the Andalusian regional government is responsible for the remaining sections to be incorporated into the concession perimeter as they are gradually finished.

For this reason, an amendment to the concession contract with the Andalusian Regional Government was made in 2014 to regulate the contractual relationship of the parties until the infrastructure is completely finished, estimated for 2017. Demand in 2015 has exceeded five million passengers, demonstrating the successful implementation of this transport system.

- **Mallorca Healthcare Centres (33%)**

In late 2009, the Healthcare Services of the Autonomous Region of the Balearic Islands awarded the public works concession contract for the construction, maintenance and operation of five healthcare centres and other basic healthcare units to the consortium in which FCC has holdings. The compensation system is based on an availability payment.

Since operation commenced, the required service levels have been met successfully, which shows that the management of the work in the contract and the resolution of the issues raised have been successful.

- **Urbicsa (29%)**

This company was awarded the public works concession contract for construction, maintenance and operation of buildings and facilities in the Ciudad de la Justicia (new law court complex) project in Barcelona and L'Hospitalet de Llobregat. The project consists of buildings reserved for Regional Government use (159,878 square metres) and for complementary uses, offices and retail space (26,628 square metres) and a 45,628 square metre car park with a capacity for 1,750 parking spaces.



During 2015, the main actions related to managing the maintenance of the "Ciudad de la Justicia" of Barcelona and L'Hospitalet de Llobregat were focused on the development of information tools for service support, as well as actions aimed at saving energy, improving comfort and reorganising maintenance services.

- **Torrejón de Ardoz Hospital, Madrid (5%)**

In August 2009, the Autonomous Region of Madrid awarded the contract for the full management of Torrejón Hospital for thirty years. It is the second hospital in the region in which healthcare services are covered by the contract along with the management of non-healthcare services. It has an area of 62,000 square metres, 240 beds and will serve 133,144 people. The investment totals 101 million euros, with 63.5 million euros of this for construction work. The Citizen Services Group holds 66.67% of the construction company. FCC holds a 5% stake. Torrejón Hospital provides healthcare to the towns of Torrejón De Ardoz, Ajalvir, Daganzo de Arriba, Ribatejada and Fresno Torote. The construction works were completed in June 2011 and operation began in October, so 2015 was the fourth year of full operation.

- **World Trade Centre Barcelona, S.A. (16.52%)**

This is a fifty-year concession for the management of the World Trade Centre in the Port of Barcelona, which has an area of 31,000 square metres of office and retail space, 9,000 square metres of conference and meeting rooms and a 280 bed hotel.



Immersed tunnel in Coatzacoalcos (Mexico).

- **International**

- **Immersed tunnel in Coatzacoalcos, Mexico (85.59%)**

In 2004, the concession contract was signed for the construction, financing, maintenance and operation under a toll system of the immersed tunnel in Coatzacoalcos, in the state of Veracruz (Mexico), which links the city of Coatzacoalcos with Allende. The tunnel is 2,280 metres long, approximately 1,200 metres of which are submerged. The concession is for 37 years. The works started in 2007. The Coatzacoalcos Bridge I, whose toll revenues are used as a source of funding, is linked to this infrastructure.

The design and execution of the immersed tunnel project is the first work of its kind in Mexico and also the first in Latin America. The tunnel is a technological innovation in the field of construction that was built using the Immersed-tunnel method technique, which allows sections of reinforced concrete tunnel to be prefabricated in dry docks, prepared to be floated, towed and placed on the bottom of the seabed. Scheduling construction work is essential because its progress is largely dependent on the weather windows that depend on the flow of the River Coatzacoalcos, the navigability of the area and other factors. It is, therefore, a "living" work that requires attention at all times, given the conditions of continuous change in the natural environment where it is located. This infrastructure is designed for a service life of one hundred years.



At the end of 2015, the tunnel reached a milestone with the alignment of the tunnel, leaving it open for the first time on both sides of the river. The progress-to-finish of the work is about 92%.

- **Mersey Bridge in Liverpool, United Kingdom (25%)**

Contract for the design, construction, financing, maintenance and operation of the bridge over the River Mersey in Liverpool (UK). The compensation system is based on an availability payment. The most unique element in the whole contract is a cable-stayed bridge with a total length of 2.13 kilometres (one kilometre for the main bridge and 1.13 kilometres for the approach viaducts) and will serve some 80,000 vehicles per day. The project also includes the upgrade of seven kilometres of access roads, 2.5 kilometres of new motorways and the renovation of another 4.5 kilometres of motorway, as well as various road connections. The duration of the works is estimated to be three and a half years, so the traffic opening date is scheduled for the second half of 2017.

The financial closure and contract signing took place in April 2014. At the same time, the agreement was signed with the 3i infrastructure fund for FCC to manage its 25% stake in the concession company, with the aforementioned fund retaining the financial rights deriving from that percentage.

- **Lima Metro Line 2, Peru (18.25%)**

In March 2014, the PROINVERSION Committee on Road Infrastructure, Railway Infrastructure and Airport Infrastructure (Agency for the Promotion of Private Investment--Peru) awarded to the Consorcio Nuevo Metro de Lima, in which FCC has holdings, the concession contract for the "Line 2 and Faucett Ave.-Gambetta Ave. branch of the Basic Network of the Lima and Callao Metro" for the design, financing, construction, provision of electromechanical equipment, systems equipment and rolling stock, and operation and maintenance for a period of 35 years, five of which are planned for the construction phase. The first stone was laid in late 2014. The compensation system is based on a direct payment (70%) and a deferred payment (30%) for the construction phase and an availability payment for the operations phase.

With a total of 35 underground kilometres of track and 35 stations distributed in thirteen districts of the Peruvian capital, it is estimated that Line 2 of the Lima Metro will receive 665,000 passengers a day. Total travel time is 45 minutes, which means about 90 minutes saved in daily traffic. It is currently the largest work in Peru and the region.

According to the concession contract, the financial closing was to be completed before 28 October 2015, and this was completed through a bond issue in the North American market for US\$ 1,148 million and an export credit worth US\$ 800 million.

- **Haren Prison, Belgium (15%)**

This contract covers the design, construction and maintenance for twenty-five years of a new prison complex in Haren, near Brussels. The construction of Haren Prison covers 120,000 square metres in an area of 18.5 hectares for 1,200 inmates and 1,000 administrative employees. The compensation system is based on an availability payment. The prison will comprise eight units: three prisons for men, two for women, one for youths, one for psychiatric facilities and one for semi-detention. The site is located adjacent to residential areas in the Brussels region. The construction of a building of these characteristics in a suburban area is a reflection of a rehabilitation philosophy that the government wishes to adopt. The urban nature of this isolated prison presents an interesting design challenge.

FCC was named Preferred Bidder in 2013 and has been working on environmental permits since then. Financial closure is expected in 2016. Haren is the first concession project won by FCC in Belgium.

Globalvía

The process of selling the Globalvía concession company initiated in 2014 by its two shareholders, FCC and Bankia, finished in June 2015. This operation will generate 220 million euros for the Citizen Services Group. The sales agreement is structured in a first attributable payment of 83 million euros, which is expected to become effective during the first half of 2016, and a second, deferred payment, that could reach 137 million euros, to be paid in February 2017.



Machinery Division Activity

Machinery

● Bridges

- **Doha Metro (Qatar).** In early September, work began on the decks of the “Red Line South Elevated and at Grade” for the Doha Metro in Qatar. The elevated area of the route has about seven kilometres of viaduct, most of which will be built using precast deck segments. To meet the deadlines set in the contract, three segment launchers, two of them new and one refurbished and adapted to the characteristics of this project, are being used simultaneously. Since the work started to the end of 2015, 54 spans of the total of 133 to be built with precast segments have been executed. Standard performance is being attained in the construction of the deck at three days per span, with a maximum of two days per span with the support of a night shift.
- **Mersey Gateway (United Kingdom).** In relation to the Mersey Gateway construction work, in December the lower self-launching in situ concreting formwork (Movable Scaffolding System) was assembled and is ready for the works for executing the first span corresponding to the north abutment in Widnes. With a length of 157 metres, a width of 22 metres and a weight of 1,700 tonnes, the MSS will build nineteen spans with openings of up to 70 metres. The work is expected to finish in 2017.

● Underground works

- **Riyadh Metro (Saudi Arabia).** Excavation of the two tunnel sections of Line 5 of the Riyadh Metro began in May and July respectively. To do this, two EPB-type tunnelling machines with 9.77 metre excavation diameters are being used for the more than 12 kilometres that must be completed for this line. By the end of 2015, the first TBM had excavated 5.3 kilometres of tunnel, and the second 2.6, with the latter having passed the first station. In just eight months, both TBMs have completed 65% of the total length of the tunnel. Maximum production has been reached using a TBM, with 45 metres excavated in one day and 1,005 metres excavated in thirty days.
- **Madrid-Galicia high-speed line. Vilariño-Campobeceros section (Spain).** The change of location and the assembly of the single-shield rock TBM was done in 2015 after having executed the first of the 6,780 metre tunnels. During this process, the TBM was repaired and overhauled so that it can cope with the second tunnel, identical to the first. In addition, the conveyor belt has been adapted. It has a total length of 6,800 metres, a capacity of 1,200 tonnes per hour, an installed capacity of 1,070 kilowatts and will extract the rubble excavated by the TBM via the tunnel. In November, the excavation of the second tunnel began, and 900 metres were excavated by the end of the year.



Riyadh Metro (Saudi Arabia).



- **Lima Metro (Peru).** Two TBMs, which will be responsible for the excavation of the underground section of Line 2 and Line 4 of the Lima Metro, were manufactured in 2015. They measure 10.27 metres in diameter and will have to excavate a distance of 17.5 kilometres on Line 2 and 7.3 kilometres on Line 4. One EPB TBM will handle the excavation of the section over the water table and the second one will excavate the tunnel presenting the most adverse conditions, with the water table over the tunnel crown and in areas with a low-fines granulometry. The latter machine has been equipped with multi-mode technology (EPB-hydroshields) excavation.

● Marine works

- **Port of Açú (Brazil).** After the caissons were manufacture and placed in the Port of Açú in January 2015, the transfer back of the Mar del Aneto and Mar del Enol floating docks and the Acanto hopper aboard the semi-submersible Falcon vessel was prepared in June. Worthy of mention is the complexity of the manoeuvre for loading and unloading equipment, as the transport was done on a single ship.



Enciso Dam. La Rioja (Spain).

● Hydraulic works

- **Enciso Dam (La Rioja, Spain).** Prior to the start of the campaign for concreting the Enciso Dam, the concrete production facility was completed, increasing the capacity for storing cement by 25% and for storing fly ash by 100% and thus providing sufficient capacity to avoid stops on weekends and long weekends, periods with limited traffic. Thus, it was possible to finalise the campaign with the execution of 80% of the dam body and achieving an on-site concrete placement of up to 95,000 cubic metres per month.

● Road surfaces

- **Container Terminal at the El Prat Pier (Phase II) (Spain).** 35,000 square metres of concrete pavement for the expansion of the manoeuvring area of the container terminal at the El Prat Pier were executed for this project. The streets were executed using the company's own means for spreading concrete. The design width of the spreading lanes ranged from 4.08 metres to 5.25 metres, with a thickness of 35 centimetres and a metal-fibre-reinforced concrete was used.



Mersey Viaduct (UK).

Post-tensioning. Post-tensioning works being executed with the BBR system include the LNG tank in Pori, Finland, seven kilometres of viaducts for the Doha Metro in Qatar, the nearly two hundred post-tensioned beams for the Riyadh Metro in Saudi Arabia and the Mersey Viaduct in the United Kingdom.

Almonte arch bridge. In the Almonte viaduct, there is a temporary cable-stayed arch system comprising a total of 208 non-simultaneous temporary stay cables, with a variable number of strands, divided into two branches (north and south), each of which comprises two for pulling and two for retaining operations. The lower ends of the stays are anchored to the arch (in the case of the pulling stays) and to the footings of the two piles closest to the base of the arch (in the case of the retaining stays). For its part, the upper ends are anchored to the top of the arch's pile for the first eight families and the rest are anchored to a temporary metal tower.

The process of setting up and installing the remaining temporary stays that anchored the arch to the metal pylons continued. Once the arch was finished, the temporary stays and pylons were removed. In addition, the removal of the travelling cantilever cranes was done by lowering them from the centre of the arch using synchronised heavy lifting jacks.

Special Techniques (BBR PTE)

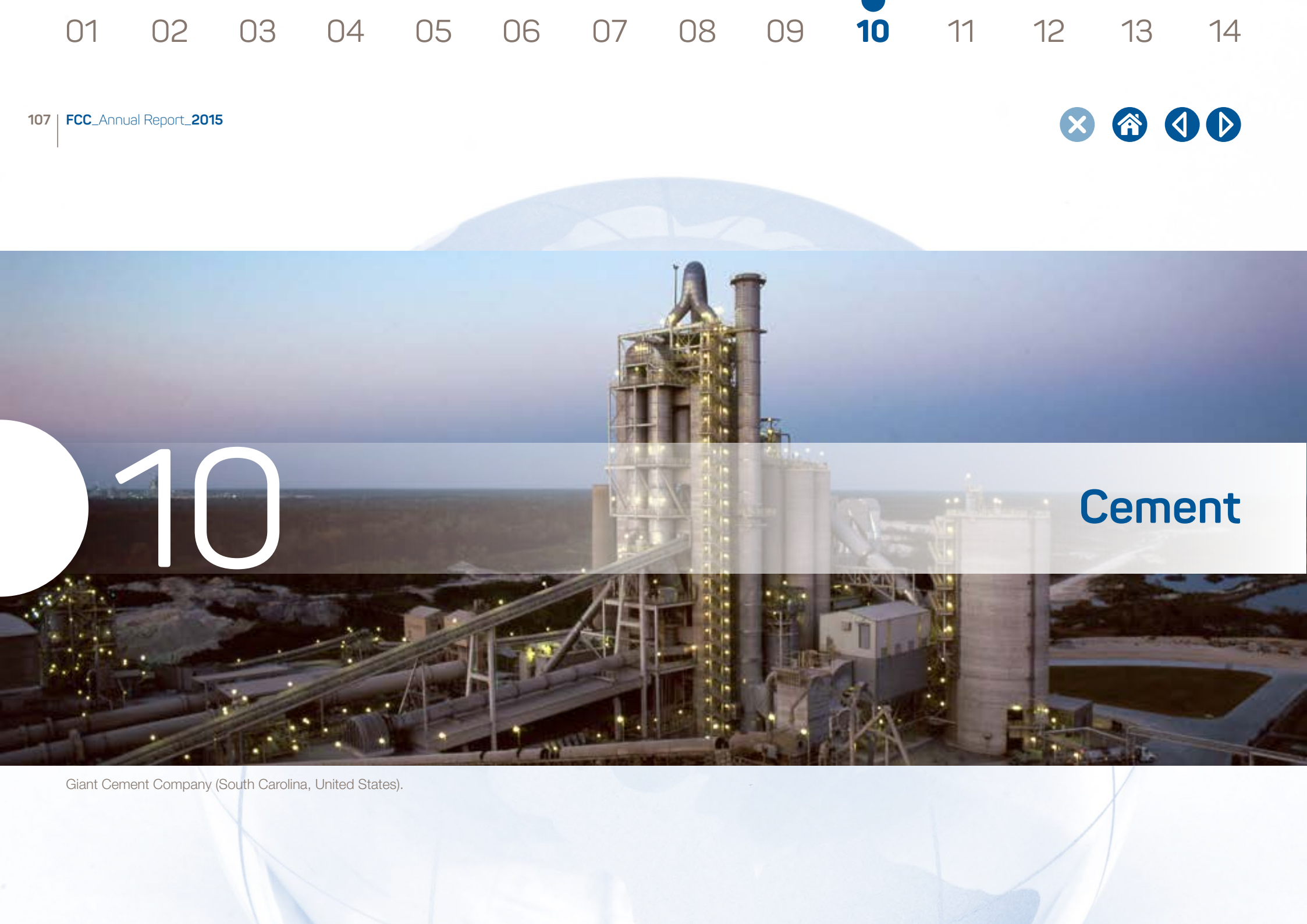
The Prestressed and Special Techniques Team, which is part of Machinery Management Department, is responsible for the execution of post-tensioning and cable stays with the BBR system as well as some of the special construction techniques: bridge launching, heavy lifting, sliding of concrete structures, etc.



10

Cement

Giant Cement Company (South Carolina, United States).





Cement

Economic Environment and Evolution of the Construction and Cement Sector

Group Evolution

Energy Recovery and Sustainability

Human Resources, Occupational Health and Safety

Economic and Financial Figures and Evolution of the Share Price

Giant Cement Company (South Carolina, United States).



GRUPO
CEMENTOS
PORTLAND
VALDERRIVAS

FCC's controlling portfolio of outstanding shares in **Cementos Portland Valderrivas, S.A.** at year-end 2015 amounted to

77.9%

Economic Environment and Evolution of the Construction and Cement Sector

Spain

During the year 2015, in Spain there was a consolidation of the growth in cement consumption that began in mid-2014, after six years of strong contraction of demand, which slumped from 56 million tonnes in 2007 to 10.7 million tonnes in 2013. Thus cement consumption in 2015 totalled 11.4 million tonnes, a 5.3% increase over the previous year.

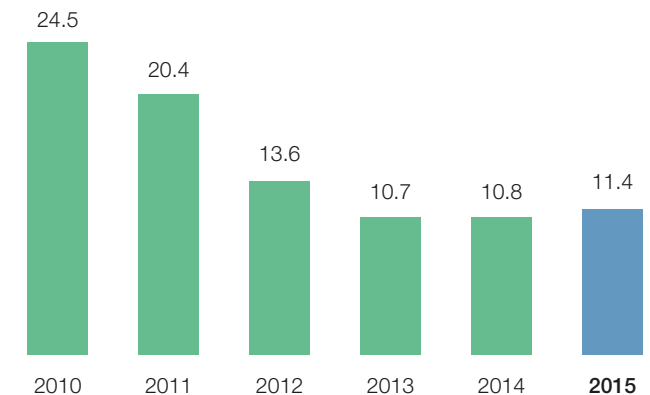
The increase in consumption was more significant in regions such as Andalusia, the Centre and Catalonia, respectively with annual growth rates of 9.9%, 9.9% and 7.9%.

The recovery of cement consumption is evident in Spain, signalling the start of a new cycle, but uncertainty remains as to the intensity of that growth in the short term. While in the first half of 2015 consumption rose by 8.6%, in the second half of the year that increase was limited to a mere 3.1%.

On the other hand, exports of clinker and cement declined by 4.4% compared to the highs in 2014, reaching a volume of 9.23 million tonnes. Imports of cement and clinker also rose by 2.3%, reaching 0.46 million tonnes. The resulting balance was an increase of domestic production of clinker by 3% to a total of 16.9 million tonnes.

Cement consumption in Spain

Millions of tonnes



Source: *Oficemen*



USA

In the United States, according to the US Geological Survey, a government body, the cement market increased by 3.6% during the year 2015.

For the coming years, the estimates published by the International Monetary Fund in January 2016 indicate a growth in the US economy of 2.6% in 2016 and 2017. In the cement sector, forecasts by the PCA (Portland Cement Association) suggest cement consumption could grow by 5.5% in 2016 and subsequent years.

Tunisia

In the Tunisian market, domestic cement consumption in 2015 amounted to 7.5 million tonnes, a 0.4% decline from the previous year.

The slight drop in the domestic market was offset by the increase in the export volume, which rose by 43% over the year 2014 reaching a total of 1.8 million tonnes.

UK

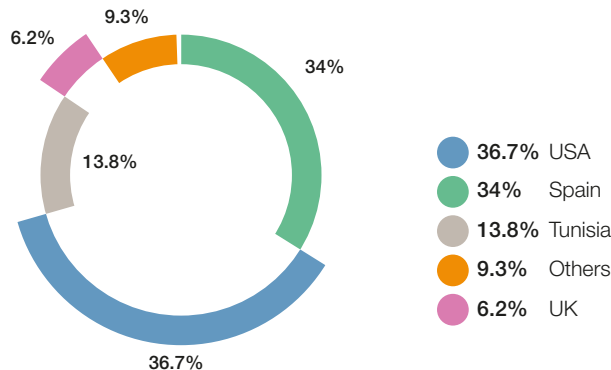
According to Company estimates, 2015 was a good year in the United Kingdom, with a 4% increase in cement consumption, reaching 12.9 million tonnes.

Group Evolution

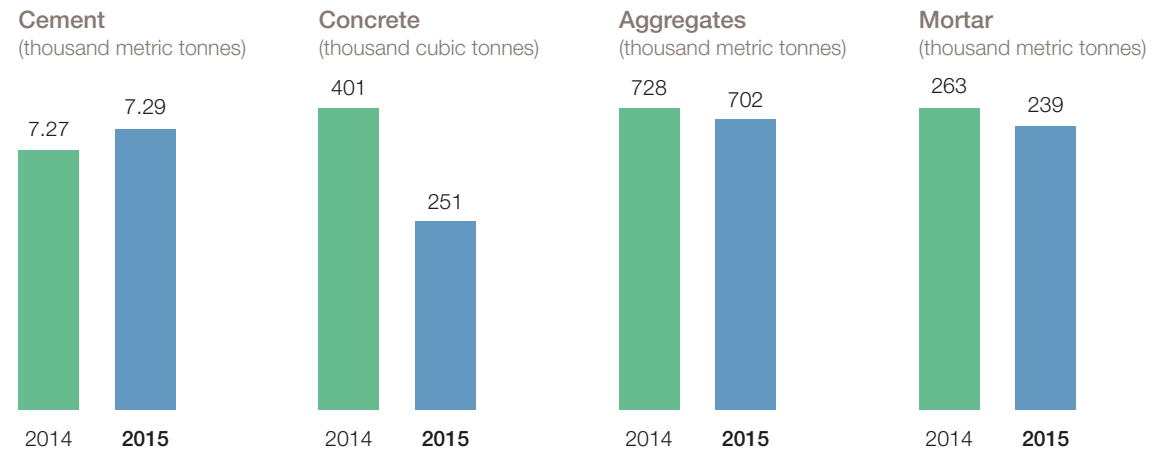
The Group's total sales of cement and clinker in 2015 reached 7.29 million tonnes compared to 7.27 million tonnes the year before, a 0.2% increase. Exports amounted to 1.5 million tonnes, similar to the volume recorded in 2014.

The Group sold 0.3 million cubic metres of ready-mixed concrete, while sales of aggregates reached 0.7 million tonnes and sales of dry mortar amounted to 0.2 million tonnes, respectively 38%, 4% and 9% less than in 2014. These figures are in keeping with the strategy of resizing the concrete, mortar and aggregates business that was carried out two years ago, which entailing the transfer or closing of non-profitable plants dedicated to these activities in the Spanish market.

Sales by geographical region (%)



Business volumen





Energy Recovery and Sustainability

Mitigating climate change has become one of the Group's major environmental challenges. The growing use of alternative fuels and the consumption of non-carbon based commodities have enabled a reduction of CO₂ emissions at the cement factories, always under the strict control and monitoring of the Company's Certified Environmental Management System.

In 2015 the Group consolidated the thermal replacement of Clinker in its furnaces, reaching an average value of 13% for all its plants.

As a novelty in 2015, the three factories in USA, located on the East Coast, joined in on energy recovery of alternative fuels, following the investments made at the plant in Thomaston.

In 2015 the Group consumed over half a million tonnes of waste for the production of clinker (8%), equivalent to filling over five football pitches (100x60x10 metres). Thus the plants offer the opportunity to recycle materials preventing them being sent to the landfill as their sole destination.

Additionally, and on an annual basis, the Group prepares its Corporate Social Responsibility Report. This document includes information on the management of the economic, environmental and social performance entailed by the Company's activities, particularly considering the contributions and proposals of the stakeholders consulted and contemplating social and market trends in the field of sustainability.

Research, development and innovation

Among other activities, in 2015 work was developed within the scope of the R&D projects approved in the various innovation initiatives such as INNPACTO (NANOMICROCEMENT, CEMESMER, HD_BALLAST), called by MINECO (the Ministry of Economy and Competitiveness), and ININTERCONECTA (MAVIT) and INNPRONTA (IISIS) called by CDTI (Centre for Technological and Business Development).

It should be noted that the afore-mentioned projects were completed with excellent results:

- NANOMICROCEMENT: a novel technology for manufacturing nanomicrocements.
- CEMESMER: cement with a high stabilising power for mercury and other heavy metals.
- IISIS: new high-performance concretes to be used in the fast construction of artificial islands in the sea.
- MAVIT: new additions for low CO₂ intensive cements obtained with better process efficiency.
- BALLAST_HD: development of new artificial heavy ballast for use on high-speed railway lines to minimise the effect of movement.



Alcalá de Guadaíra Plant, Seville (Spain).

In parallel, development of the MERLIN project continued, which is meant to improve the use in concrete pavement work and in the rehabilitation of asphalt roads, with lower energy use throughout the life cycle.

In 2015 the Cementos Portland Valderrivas Group embarked on new challenges with the commencement of other lines of research at its R&D laboratories, mainly in relation to the quality of its cements or the improvement of their application, via studies of durability performance in reinforced concrete structures, without overlooking the increase of the special products portfolio.

It should be noted that a new patent was submitted at the OEPM (Spanish Patents and Trademarks Office) to protect the intellectual property of the MAVIT project. The patent specifically covers the manufacturing of cement additives from industrial waste materials.



Zubillaga Bridge, Basque Country (Spain).

USA

Staff numbers in the United States dropped by 37 employees (95 left, 58 joined), reaching a total of 548 workers at year-end. During 2015 staff costs contention initiatives remained in place.

In 2015 contacts began with workers' representatives to negotiate the collective bargaining agreements of the cement plants that expire in 2016.

Tunisia

The total number of employees fell by 16 (28 left, 12 joined) to a total number of 319 workers at year-end.

Also, the succession plans due to retirements remain in place.

Always with the aim of keeping down costs, certain positions were eliminated and cost adjustments were made with the purpose of offsetting the wage increases agreed to for 2016.

UK and the Netherlands

Two employees left the Company in the UK and the Netherlands, taking the total to 14 employees at year-end 2015.

Human Resources, Occupational Health and Safety

During the year 2015, the Group continued adapting its staff and organisational structure to the market situation. Accordingly, headcount went down by 59 employees. As a consequence, the total number of employees as of 31 December was 1,680.

Spain

In 2015, the Group reduced its headcount in Spain by four employees (16 left, 12 joined), settling at 799 workers.

Moreover, negotiations began on the collective bargaining agreements for each of the cement plants where the agreements in place expired on 31 December 2014. Said negotiations are centred on achievement greater flexibility, mobility and versatility, as well as to gain competitiveness.



Organisation and development

Throughout 2015, 20,452 hours of training were given in the Group, 56% of which were related to occupation health and safety actions. Thus the average training time per Group employee was 12 hours compared to 13 hours the year before and 10 hours two years ago.

It is worth mentioning that the percentage of employees who received training during 2015 was 79% compared to 60% the previous year.

The succession plan prepared at the end of 2014 has proven to be a reliable selection tool and will therefore be updated during 2016.

Occupational health and safety

The Group's accident ratios during the year 2015 show a positive pattern and represent the best historical figures registered.

During the year 2015 there were no severe or fatal accidents involving the Group's personnel.

The accident frequency rate⁽¹⁾ was 27% lower than the previous year, settling at 3.68.

There was also a 41% reduction in the number of lost workdays due to accident, with a severity rate⁽¹⁾ of 0.39.



Société des Ciments d'Enfidha Plant (Tunisia).

The North African market with an accident frequency rate of 1.43, the best figure across all markets, which represents a 78% reduction compared to the previous year. And the number of lost workdays due to accidents went down by 60% compared to 2014.

In the Spanish and US markets the accident frequency rate remains below five, confirming the consolidation of operations in an environment of respect and knowledge of safety standards and where on a daily basis this reveals that health and safety is now integrated into the overall management.

Regarding lost workdays due to accidents, there was a 75% reduction in the US market in 2015.

(1) N.B.: Accident frequency rate (number of accidents with sick leave x 1,000,000 / total number of hours worked).
Severity rate (number of workdays lost due to sick leave or disability x 1,000 / total number of hours worked).



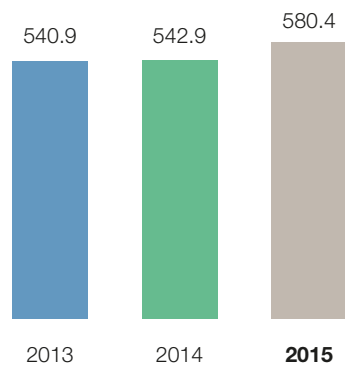
Economic and Financial Figures and Evolution of the Share Price

Turnover

Turnover increased by 7% compared to 2014 thanks to the positive evolution of cement activity in Spain, USA and the UK, three areas where sales volumes rose, although prices did not rise in the same proportion.

The total turnover of 580.4 million euros is broken down into 197.2 million euros in Spain and 383.2 million euros in the international division, currently representing 66% of the total.

Turnover
Millions of euros



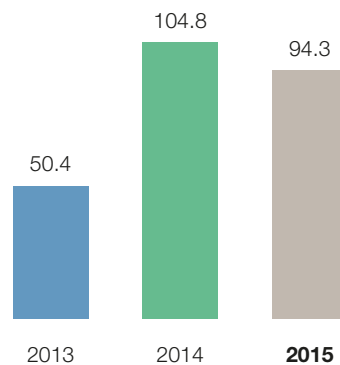
Gross operating profit (Ebitda)

The gross operating profit totalled 94.3 million euros, 10% less than the same period the year before. The main reason for this decline is the impact of the sale of CO₂ emission rights.

In 2013 there was a delay in the implementation of the third stage of the emission rights market, as a result of which the excess allocation from the year 2013 was sold as an exception together with the allocation for 2014.

Because of this, the Group received 20.8 million euros in 2014 from the sale of CO₂ emission rights compared to 3.9 million euros in 2015.

Gross operating profit
Millions of euros



Excluding the non-typical impact of the CO₂ emission rights, the gross operating profit in 2015 would have been 8% higher than the previous year.

The improvement was due to the performance of cement sales in Spain, USA and the UK, to the focus on exports and to the consolidation of the measures incorporated over past years, which have been developed in all the countries.

The net operating profit amounted to 28.6 million euros compared to the previous year's profit of 35.9 million euros.

Pre-tax profit or loss

The pre-tax profit or loss was -73.2 million euros, 13% less than in 2014.

Excluding the impact of the sale of CO₂ emission rights for the two years, the pre-tax profit or loss would have increased by 9%.

Net profit or loss attributed to the parent company

Taking all the foregoing into consideration, the Group had an attributed net loss of 62 million euros compared to a net loss of 52.3 million euros in 2014.



Debt redemption

As notified in the Notes to the Financial Statements for 2014, which were published after the event, on 5 February 2015 the Company redeemed 100 million euros of the outstanding debt in the syndicated financing agreement signed on 31 July 2012.

Said amount was applied to the early payment of 75 million euros corresponding to the instalment due on 30 June 2015 and 25 million euros to the following instalment, due on 31 July 2016. These funds came from the contribution of the parent company, FCC, via a junior loan, reducing in the same amount the payment commitments of FCC in connection with its contingent support obligations for Cementos Portland Valderrivas, which originally amounted to 200 million euros.

Evolution of the share price

During 2015 the share price was subject to strong volatility and low trading volume, averaging 40,700 shares traded per day. The trading volume reached 200,000 on days with strong price hikes and even highs of 400,000 when the price was at its highest.

The difference between the highest and lowest price in the year 2015 was 4.55 euros, and they were respectively 8.35 and 3.80 euros.

The share price revalued by 36.6% from the opening on 1 January 2015 to the close on 31 December 2015.

Share price performance
€/share

