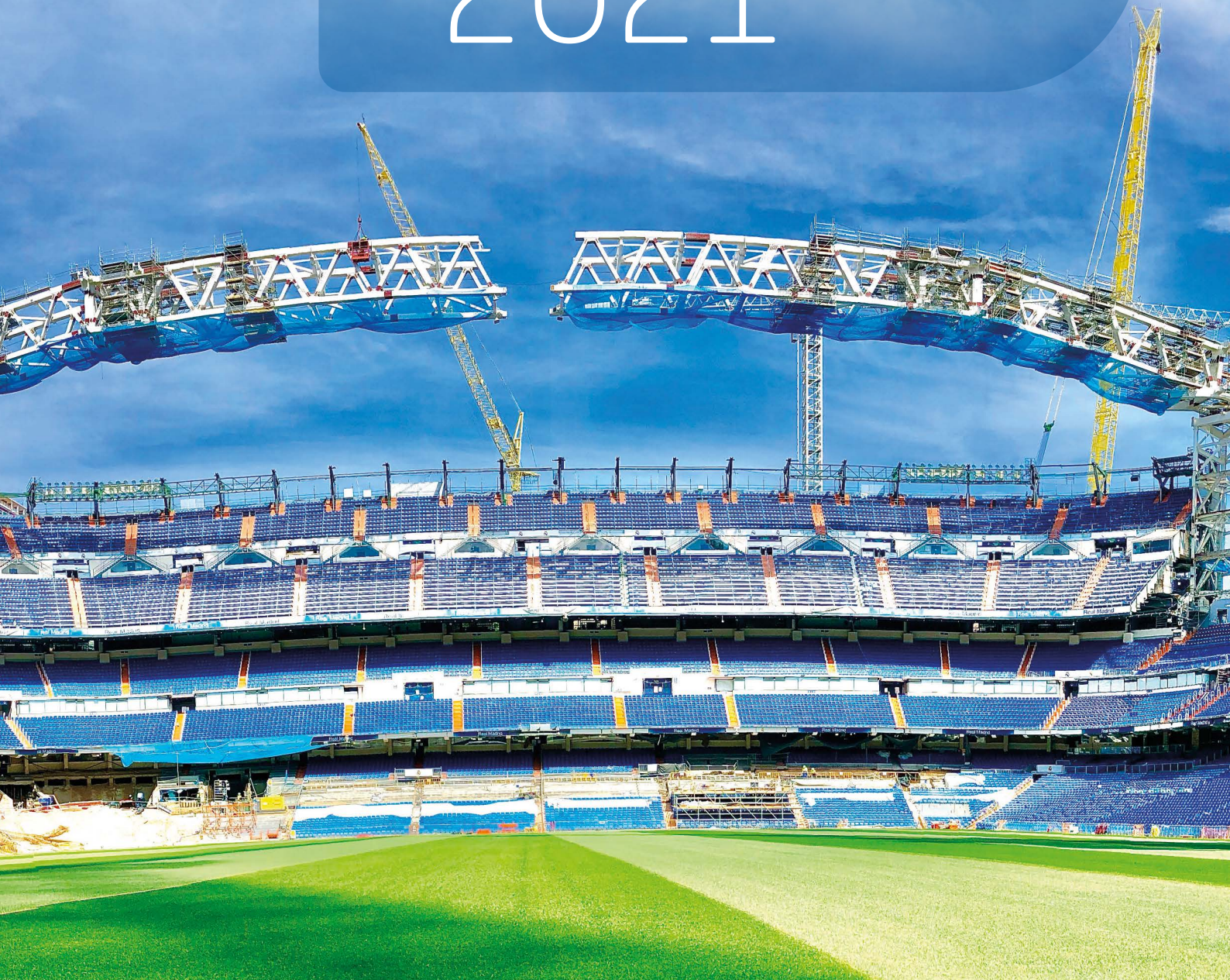
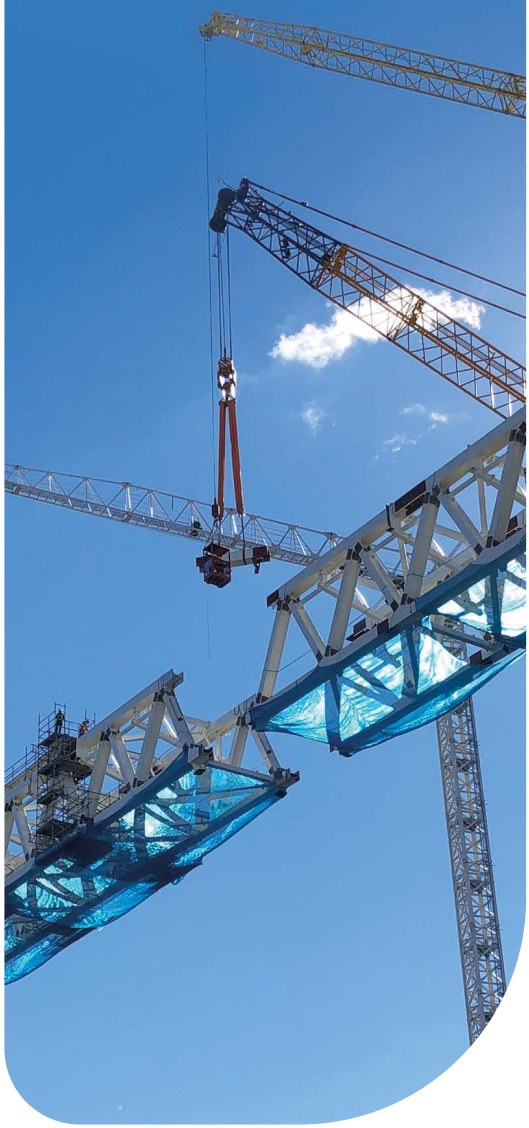
FCC Construcción

Environmental Report

2021



Contents



1 Letter from the Managing Director

The role of Environmental, Social and Governance (ESG) criteria has become more prominent and relevant than ever before in our history, as society as a whole recovers from COVID and strives to find ways to resilience in the future.

The present corporate climate increasingly integrates the fulfilment of social and environmental objectives as part of the course of its economic activity. Sustainability indicators have been gaining relevance with increasing stakeholder attention on corporate reputation and the social and environmental performance of companies.

Aware of the importance of sustainability in the current global framework of demographic growth, global warming and scarcity of resources, from the political, economic and social spheres, companies are urged to link their economic profitability to environmental protection and the achievement of responsible and sustainable objectives that ensure the viability of their activities in medium and long terms.

FCC Construcción is thus poised to spearhead the transition towards a responsible and sustainable economy as we engage in international benchmark infrastructure projects to ensure the responsible use of resources, adaptation to climate change, energy efficiency, reduced and correct disposal of discharges, waste and the integration of new economic paradigms such as the principles of the circular economy. And all this is possible because we are constantly innovating our activities, developing new working methods and applying new technologies.

Our commitment and corporate strategy were not dampened by the contingencies that arose in 2020. Instead, they served to bolster our corporate conviction to pursue technological development in tandem with a sustainable transition. The pandemic triggered a health and social crisis that called for public-private partnerships to combat and curb its impact, but also to reduce the economic and social uncertainty associated with the implementation of contingency measures to reduce the health impact. Here at FCC Construcción, we are part of the solution so we are committed to contributing to and assuming our part in the post-pandemic social reconstruction. With the collaboration of all our business areas and employees, we carried out several solidarity actions in 2020 to support the local communities where we operate; maintaining essential activities, performing essential interventions and works, and helping groups hit hard by the health crisis. We believe that post-pandemic economic and social recovery is possible, and we are working for it in each and every one of the 23 countries where we operate.

The construction sector, with its impact on the environment, makes an indispensable contribution to the social and economic development of communities, cities and countries. And while the industry consumes natural resources, occupies large areas of land and produces various types of waste, FCC Construcción, as one of the main players in the construction sector, is aware that adopting good practices and constantly improving sustainable performance has a very significant impact on the preservation of the environment and the fight against climate change. We are a pioneer in implementing good practices, covering cases of projects in which high sustainability and environmental standards were applied to different environmental aspects (including public relations). These good practices serve as a paradigm for the sector.

We will continue implementing and improving our Environmental Management System in the coming years, striving for excellence in environmental performance and enabling us to make better decisions throughout the life cycle of our projects. Our Management System identifies the risks and effects associated with our works and fixed locations so we can take steps and measures that include greater energy efficiency, reduced waste generation, correct disposal of spillages and less emissions. This reduces our environmental footprint wherever we work during the entire project implementation.

This Environmental Report contains data on our environmental management to account for our performance in 2020. The report incorporates the Sustainable Development Goals (SDGs), an international reference framework that allows us to direct our actions towards the objectives included in the UN's 2030 Agenda. Working towards these goals allows us to target our actions and create a comprehensive plan for the social and environmental areas impacted by the agreed measures. We have been a trailblazer in incorporating the SDGs into our corporate structure. We integrated the Sustainable Development Goals into our sustainability reporting in 2015.

The circular economy is an essential strategy at FCC Construcción to minimise the impact of our activities on the environment. Our company's circular economy strategy is structured around the six areas of action defined by the ReSOLVE framework, created in 2012 by the Ellen MacArthur Foundation, the world's leading benchmark in this field.

We also pioneered the implementation of a Greenhouse Gas (GHG) measurement protocol in the construction sector in 2010 as part of our fight against climate change, aimed at quantifying these emissions and working to reduce them. FCC Construcción was also the first Spanish construction company to have its GHG emissions report verified by an accredited external company, holding the "Environment CO2 verified" carbon footprint certificate since 2012.

In this context, measures are proposed at European level to assist in the transition to a green economy. Agenda 2030 paves the way for the more ambitious Agenda 2050, which aims to make the EU climate neutral by 2050. This will involve a range of support for industry and investment in technology together with a renewal of Europe's infrastructure unprecedented in recent years. The construction industry is one of the essential industries in the transition, so FCC Construcción's role in achieving this plan is critical and vital, and demands that we continue with our measurement and reduction of greenhouse gases.

In 2019 the EU presented the EU taxonomy, a new classification system that will classify different activities based on technical criteria according to their contribution to achieving sustainable development. The European Commission will also create the Sustainable Finance Platform to encourage investment in companies with high sustainability ratings.

Our industry and society are increasingly moving towards an economic model that incorporates social and environmental goals, putting them on equal footing with economic goals. We are proud to continue with the process that FCC Construcción launched over 20 years ago and which reinforces our commitment and work to create resilient infrastructures, built with the highest social and environmental considerations, creating a better present and ensuring the future for generations to come.

Pablo Colio Abril

CEO of the FCC Group and Managing Director
of FCC Construcción

2

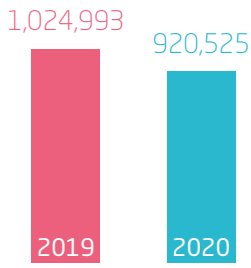
At a glance

Santiago Bernabeu Stadium (Spain)

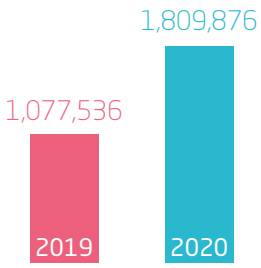
2.1 Environmental Indicators

Natural Resources

Energy consumption (GJ)

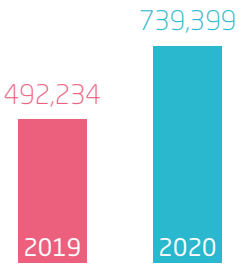


Water consumption (m³)

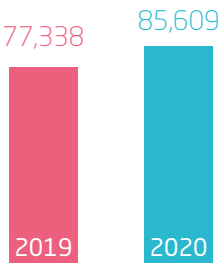


Discharge

Water discharged (m³)

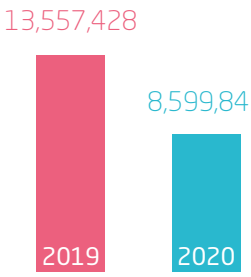


Recycled water (m³)

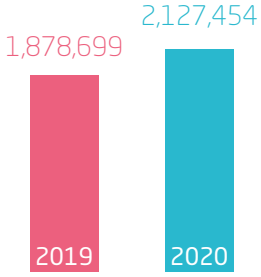


Use of materials

Use of materials (t)

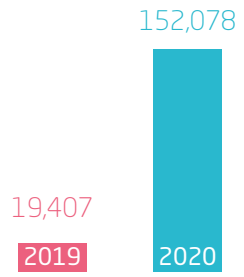


Reused soil and debris (m³)

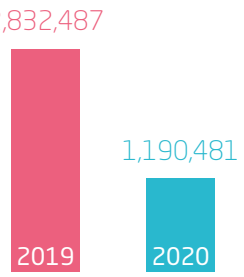


Waste

Hazardous waste (t)

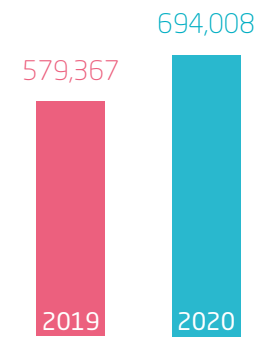


Non-hazardous waste (t)

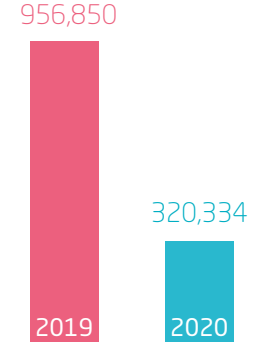


Atmospheric emissions

Greenhouse Gases (t CO_2e)

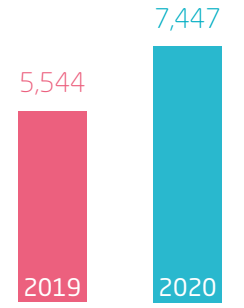


Dust particles (kg)

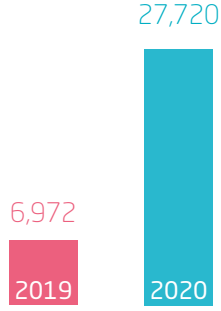


Avoided emissions

Avoided GHG emissions (t CO_2e)

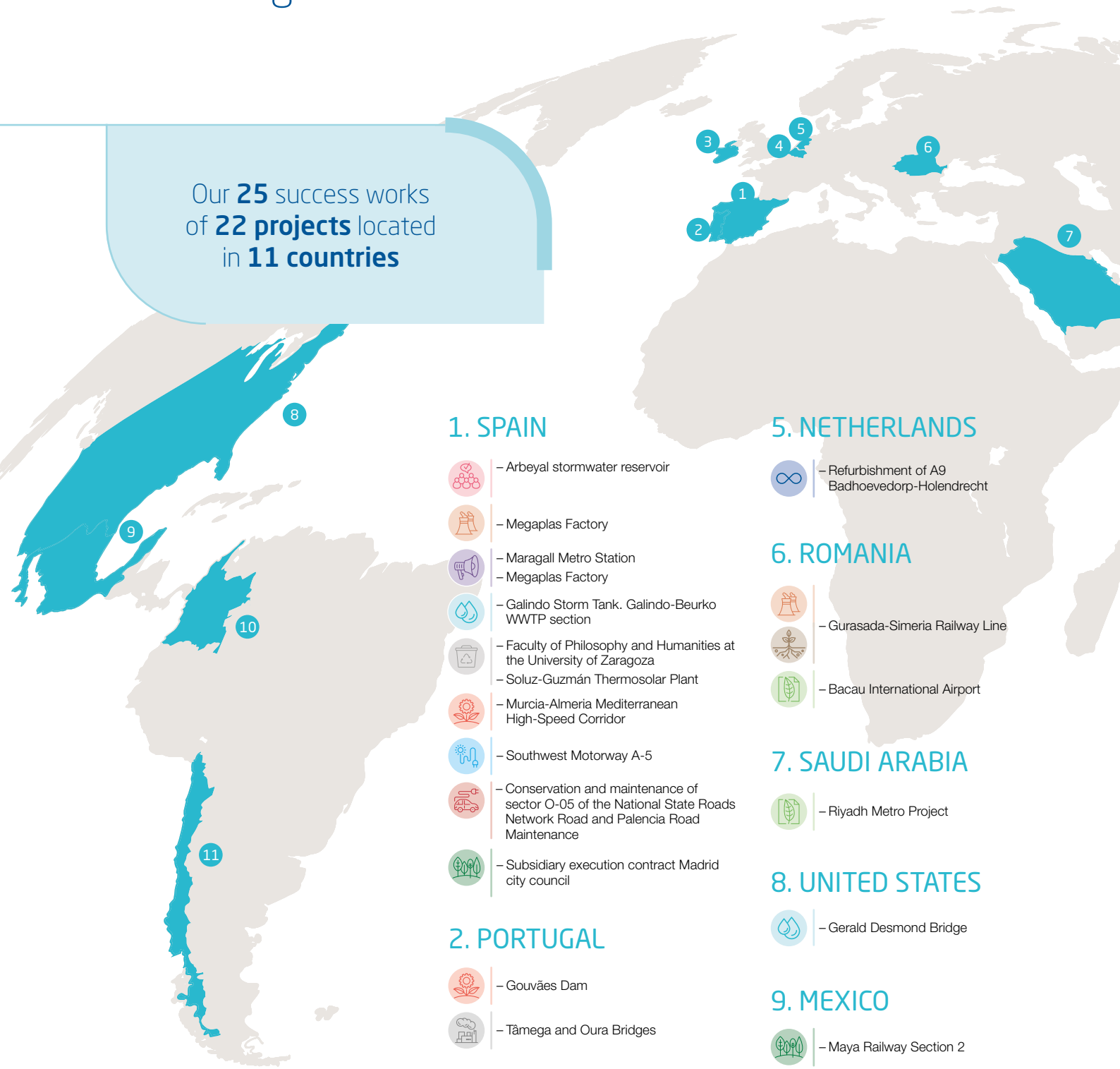


Dust particles (kg)



2.2 Alignment with the SDGs

Our **25** success works of **22 projects** located in **11 countries**



1. SPAIN

- Arbeyal stormwater reservoir
- Megaplas Factory
- Maragall Metro Station
- Megaplas Factory
- Galindo Storm Tank. Galindo-Beurko WWTP section
- Faculty of Philosophy and Humanities at the University of Zaragoza
- Soluz-Guzmán Thermosolar Plant
- Murcia-Almeria Mediterranean High-Speed Corridor
- Southwest Motorway A-5
- Conservation and maintenance of sector O-05 of the National State Roads Network Road and Palencia Road Maintenance
- Subsidiary execution contract Madrid city council

2. PORTUGAL

- Gouvães Dam
- Tâmega and Oura Bridges

3. IRELAND

- New runway at Dublin Airport

4. BELGIUM

- Haren prison

5. NETHERLANDS

- Refurbishment of A9 Badhoevedorp-Holendrecht

6. ROMANIA

- Gurasada-Simeria Railway Line
- Bacau International Airport

7. SAUDI ARABIA

- Riyadh Metro Project

8. UNITED STATES

- Gerald Desmond Bridge

9. MEXICO

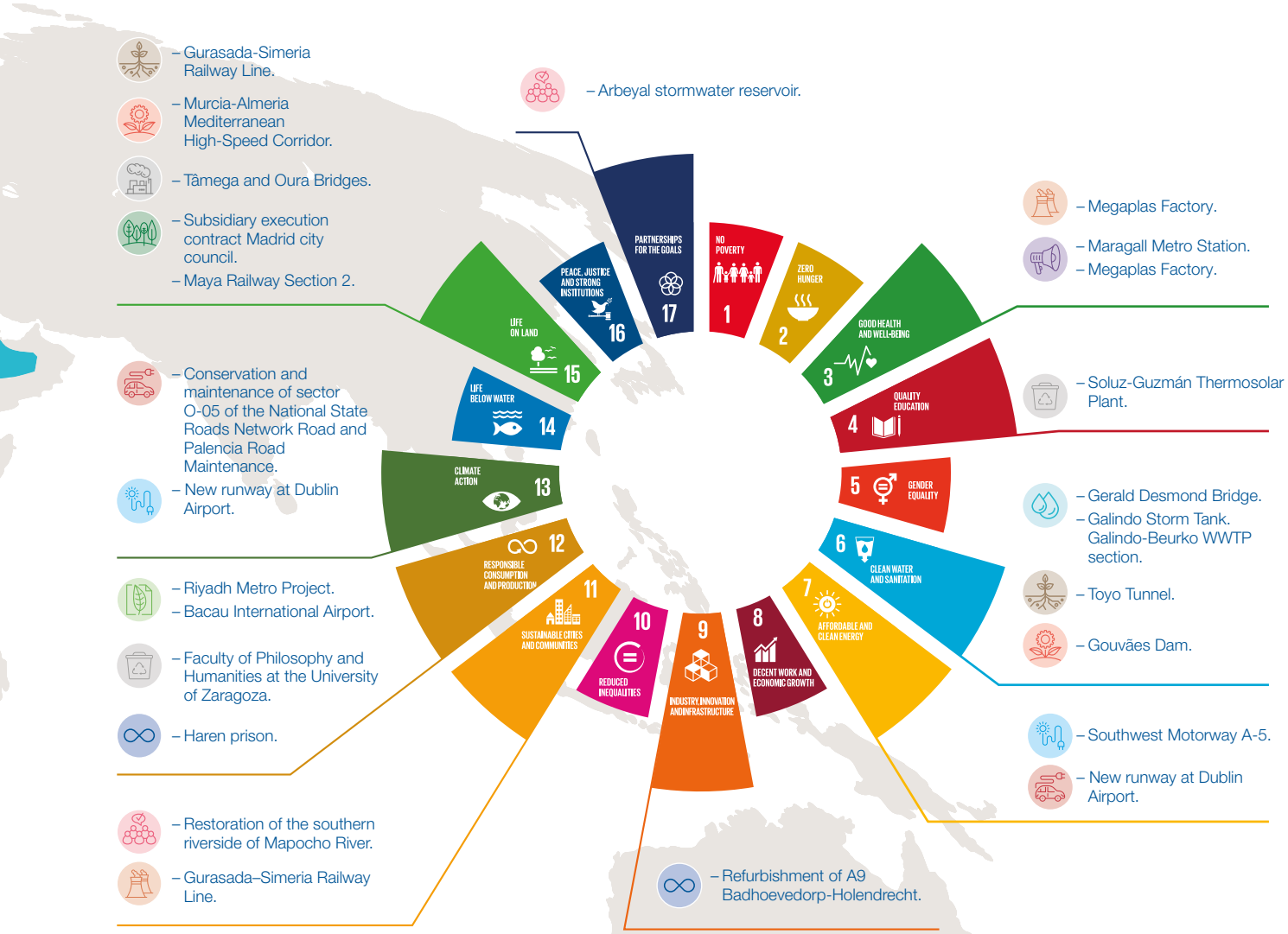
- Maya Railway Section 2

10. COLOMBIA

- Toyo Tunnel

11. CHILE

- Restoration of the southern riverside of Mapocho River



Good Practices

- Atmospheric emissions
- Noise and vibrations
- Effluent discharges
- Occupation, pollution or loss of soils
- Use of natural resources
- Waste generation
- Land use planning
- Relationship with society

Actions speak for themselves

- Circular economy
- Sustainable mobility
- Pollution
- Biodiversity
- Clean energy

2.3 Good Practices in line with the European Green Deal

The following graph shows some examples of Good Practices developed in 2020, which are aligned with the European Green Deal:

Pollution

- Tâmega and Oura Bridges, Portugal.

Clean energy

- New runway at Dublin Airport, Ireland.
- Southwest Motorway A-5, Spain.

Circular economy

- Haren prison, Belgium.
- Refurbishment of A9 Badhoevedorp-Holendrecht, Netherlands.

Towards climate neutrality

Biodiversity

- Maya Train Section 2, Mexico.
- Subsidiary execution contract Madrid city council, Spain.

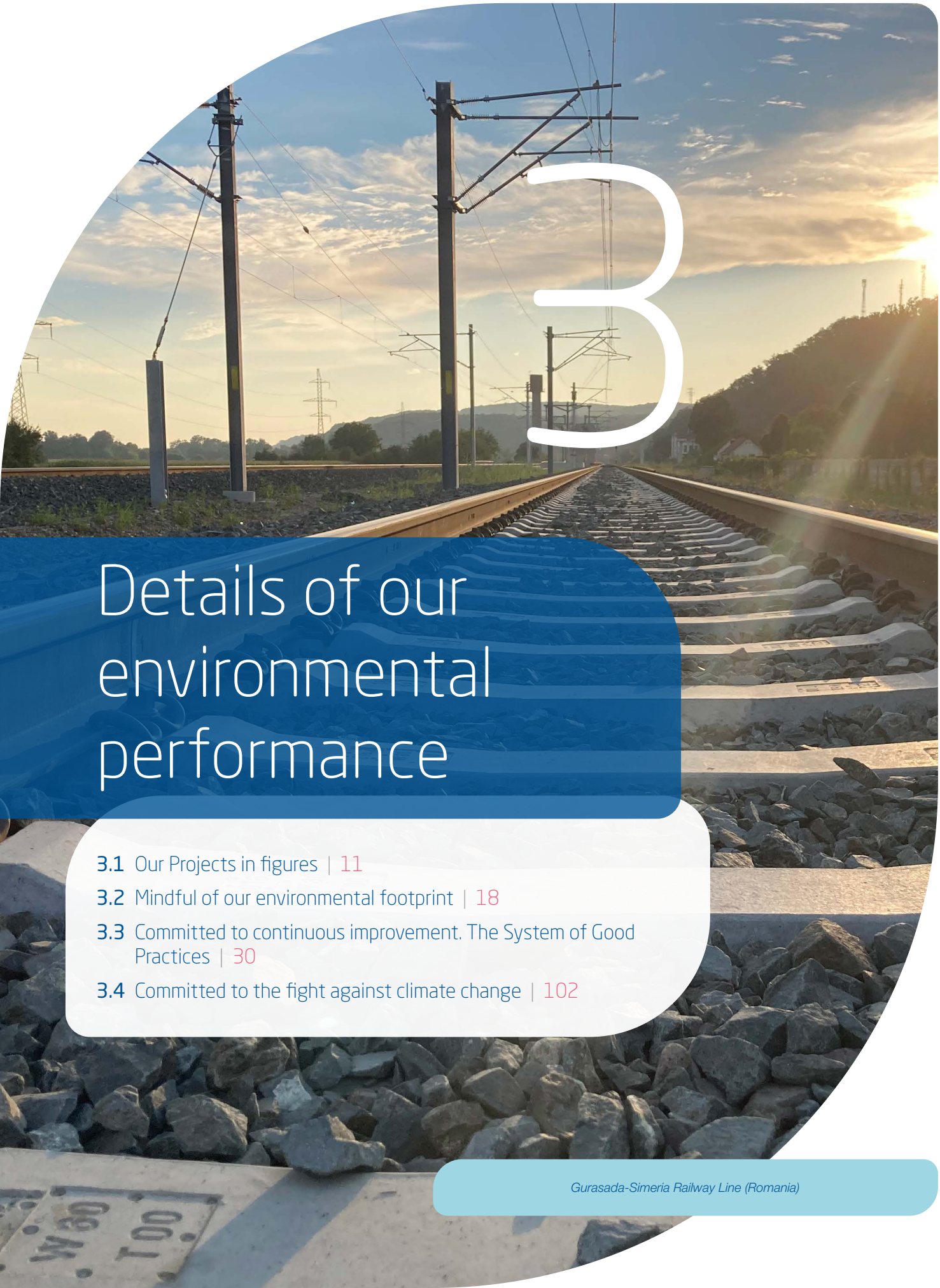
Sustainable mobility

- Conservation and maintenance of sector O-05, Spain.
- Palencia road maintenance, Spain.
- New runway at Dublin Airport, Ireland.

Sustainable construction

- 5 BREEAM certificated projects.
- 3 LEED certificated projects.
- 1 CEEQUAL certificated project.
- 2 projects certificated with other sustainability schemes.

New runway at Dublin Airport (Ireland)



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Details of our environmental performance

Gurasada-Simeria Railway Line (Romania)

3.1 Our Projects in figures

The construction sector plays a major role in the global economic, social and environmental development of communities and their surroundings. It is therefore essential to analyse the positive and negative impacts derived from the construction activity and to implement the necessary actions and measures in each project to avoid, reduce or channel the negative impact that could be derived from its execution.

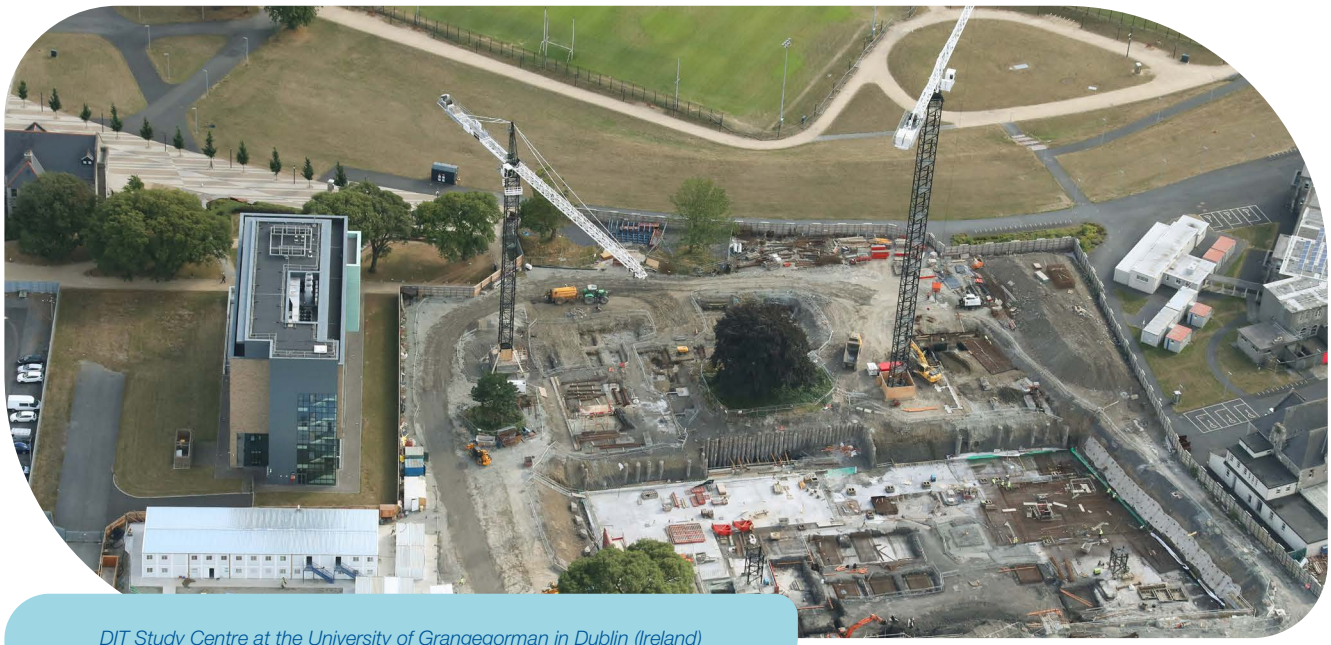
FCC Construcción has extensive experience and knowledge gained from implementing a Management and Sustainability System in all its projects, which is especially adapted to the construction sector. Through the information that the works generate as a result of the application of the Management System, the organisation is able to generate for each project, and therefore for each country or area of the organisation, a series of key performance indicators (KPIs), which are goals, verifiable and comparable, that allow the economic, social and environmental characterisation of the works to be carried out.

Measuring these indicators during the course of a project lets the company track its environmental performance, study trends, apply continuous improvement in project management, check the effectiveness of the corrective measures applied and take advantage of the synergies and opportunities generated in the company. This system is further enhanced by computer applications (FCC Construcción's own) that enable data to be obtained from its works and fixed locations in real time. The commitment made by the works and centres to update their registers at least every four months ensures that the information is up to date at all times.

The integration of the data collected from all the works and fixed locations that apply the FCC Construcción Management System is done at corporate level, where it is collected, grouped and analysed to obtain a photograph of the company's status and behaviour. The indicators, usually quantitative, present the interaction of the works and centres with their environment, their technical characteristics, the materials produced and the volumes managed. They also allow information to be communicated at different scales, both geographically and temporally, according to the needs of the stakeholders.

The average values of the indicators and the percentage of works where these indicators have been assessed are shown below. Average values are grouped according to whether they relate to building or civil engineering projects:

> As part of their Management and Sustainability System, the works report data that allow them to achieve continuous improvement of the System itself. The indicators, usually quantitative, present the interaction of the works and sites with their environment, their technical characteristics, the materials produced and the volumes managed.



DIT Study Centre at the University of Grangegorman in Dublin (Ireland)

Environmental engagement

In order to understand and reduce the potential impact of construction sites on the local population, nearby houses and the environment in general, it is essential to analyse parameters such as the distance of the construction site from neighbouring houses, nearby bodies of water, suppliers of construction materials or final destinations for the waste generated on site. Trips optimisation, which clearly contributes to reducing the nuisance in the immediate surroundings of the worksite, also has a positive economic impact for FCC Construcción.

A major impact of the works on the environment is the emission of noise during the works. Data are therefore collected on the distance to nearby dwellings to minimise disturbance and noise pollution.

DAT project in the El Arbeyal area, Gijón (Spain)

Indicators		Average values	% assessed
1	Distance from closest town/city (m)	417.2 691.0 580.9	100% 100% 100%
2	Distance from essential services to the community, such as fire station, hospitals, official centres, airports, power stations, telephones (m)	362.9 4,756.9 3,768.3	24.3% 56.4% 43.5%
3	Distance to residential houses or industrial activities (m)	25.8 1,016.5 601.5	83.8% 78.2% 80.4%
4	Distance to final destination of waste (authorised landfills for inert or non-hazardous waste or other worksites) (km)	22.0 20.9 21.4	97.3% 98.2% 97.8%
5	Distance to water body (m)	2,802.9 9,947.1 6,897.7	94.6% 85.5% 89.1%
6	Length of watercourse affected by diversions (m)	N/A 389.6 389.6	N/A 16.4% 9.8%
7	Depth of water table (m)	17.9 15.2 16.3	94.6% 89.1% 91.3%
8	Simultaneous presence of hazardous substances on site (litres)	2,039.5 16,030.7 10,247.7	83.8% 80% 81.5%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building | Civil engineering works | Total

Characteristics of the works

The analysis and tracking of the characteristic parameters of the works allows for better identification of the potential environmental risks associated with projects and better decision-making with regard to the protection and preservation of the natural environment. For FCC Construcción, data such as the surface area occupied by the project, the number of facilities, people or vehicles, etc. allow us to better understand the magnitude of the risk and thus establish the most appropriate measures for its prevention and minimisation.

FCC Construcción collects data on the characteristics of the site with the aim of minimising its impact, reducing both the surface area occupied and its effect on the mobility of people and vehicles. In some cases, the lack of free space near the construction site means that the sidewalks and roads next to the construction site have to be temporarily occupied. In these cases, signposting is very important, as well as the management of access and alternative passages to those in occupied areas.

Victoria Adrados Centre (Spain)

Indicators		Average values	% assessed
1	Surface area occupied by the works (m^2)	12,299.6 747,147.1 456,438.2	97.3% 100% 98.9%
2	Built surface area (buildings) (m^2)	25,338.1 12,472.2 18,337.6	83.8% 67.3% 73.9%
3	Surface area of offices (m^2)	222.7 2,291.6 1,454.2	91.9% 90.9% 91.3%
4	Surface area of workshops (m^2)	N/A 202,787.7 202,787.7	N/A 5.5% 3.3%
5	Surface area of the work in which hazardous wastes or hazardous substances are moved or present (m^2)	1,879.3 290,615.3 176,116.6	62.2% 63.6% 63.0%
6	Pavement or road surface area occupied by the works (m^2)	678.7 58,740.9 32,556.0	62.2% 50.9% 55.4%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building | Civil engineering works | Total

Indicators		Average values	% assessed
7	Public hydraulic or maritime/land surface area affected by the works (m^2)	12,981.0 54,821.1 52,828.7	2.7% 36.4% 22.8%
8	Number of persons at the works (unit)	84.3 162.9 130.7	97.3% 94.6% 95.7%
9	Number of persons at the office (unit)	10.4 29.5 21.5	97.3% 90.9% 93.5%
10	Number of auxiliary premises, aside from the site office (plants, workshops, prefabs, quarries, landfills, machine depots, etc.) (unit)	1.3 2.5 2.0	91.9% 74.6% 81.5%
11	Number of vehicles or machines with combustion engines at works (minus gensets) (unit)	5.3 26.9 18.0	91.9% 87.3% 89.1%
12	Number of gensets on site for over 5 days (unit)	2.3 4.9 4.0	62.2% 80.0% 72.8%
13	Number of road diversions (unit)	1.8 14.5 10.5	35.1% 50.9% 44.6%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

● Building ● Civil engineering works ● Total

Other parameters that are quantified are the number of workers on site and in the construction office, since this data helps in integrated planning to manage the space and facilities needs for workers, as well as to optimize circulation routes.

Lima Metro (Peru)

Production of materials

FCC Construcción's goal is to optimise the production of building materials in order to reduce energy use, waste generation and the overall environmental impact of its buildings and civil engineering works. A proper measurement of the amount of materials the project will need and those actually used helps the continuous process of optimisation and impact reduction.

The volumes of building materials used are measured and recorded on a four-monthly basis, which is the starting point for making decisions regarding the reduction of impacts such as greenhouse gas emissions or the correct management of waste

JV Galindo (Spain)

Indicators		Average values	% assessed
1	Production at the concrete plant (m^3)	N/A 46,442.4 46,442.4	N/A 20% 12%
2	Production at the asphalt concrete plant (t)	N/A 74,313.1 74,313.1	N/A 7.3% 4.4%
3	Production at the aggregates plant (t)	N/A 57,255.5 57,255.5	N/A 16.4% 9.8%
4	Spreading bituminous mix at the site (t)	231.7 10,136.4 8,335.6	21.6% 65.5% 47.8%
5	Spreading concrete at the site (m^3)	4,998.3 20,477.0 14,320.7	94.6% 96.4% 95.7%
6	Amount of steel used on site (t)	875.1 1,904.6 1,480.7	94.6% 90.9% 92.4%
7	Percentage of electricity consumption at night	5.5 9.7 7.9	94.6% 89.1% 91.3%
8	Amount of non-ferrous metal used on site (t)	11.1 128.9 55.6	75.7% 30.9% 48.9%
9	Surface area of the brick factory (m^2)	13,472.1 7,079.7 11,341.3	86.5% 29.1% 52.2%
10	Surface area of glass (m^2)	3,166.9 7,793.7 4,458.1	83.8% 21.8% 46.7%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building · Civil engineering works · Total

Volumes managed

Infrastructure construction requires the use of large volumes of water and land. Measuring and planning the volumes used improves the management of their use, optimises quantities and encourages the reuse of these resources in projects.

These parameters also help FCC Construcción to plan in advance the best management of future waste, which helps to minimise contamination of nearby land and water bodies.

Measuring the volumes of soil used, contaminated and decontaminated allows FCC Construcción to improve the management of its use, optimise quantities and encourage the reuse of these resources in projects.

Treatment of contaminated soils in the rehabilitation project of section 3 of the railway between Gurasada and SImeria (Romania)

	Indicators	Average values	% assessed
1	Volume of flammable/combustible substances store (wood, paper, etc.) (m^3)	1.9 8.3 5.7	78.4% 80.0% 79.4%
2	Volume of harmful or hazardous substances stored that could break accidentally (m^3)	1.8 104.6 75.0	51.4% 85.5% 71.7%
3	Volume of aggregates and other material collected that lead to water turbidity (m^3)	2,302.2 23,333.1 21,830.9	2.7% 23.6% 15.2%
4	Volume of river water extracted (m^3/year)	N/A 44,182.3 44,182.3	N/A 20.0% 12.0%
5	Volume of well water extracted (m^3/year)	N/A 5,590.8 5,590.8	N/A 18.2% 10.9%
6	Volume of water consumed in different concrete production activities and the irrigation of levelled areas and road surfaces (m^3/year)	1,361.1 13,576.2 8,764.2	70.3% 72.7% 71.7%

Indicators		Average values	% assessed
7	Volume of topsoil needed on site (m^3)	525.1 4,598.7 3,475.0	21.6% 38.2% 31.5%
8	Volume of demolitions (m^3)	2,249.7 6,548.7 5,452.8	35.1% 69.1% 55.4%
9	Volume of blasting (m^3)	N/A 74,127.7 74,127.7	N/A 20.0% 12.0%
10	Volume of bulk material employed on site (soil, graded aggregates, aggregates and concrete) (m^3)	11,812.6 190,019.0 119,141.4	94.6% 96.4% 95.7%
11	Volume of earthworks (excavations and filler, clearings and embankments) (m^3)	30,060.1 297,663.8 192,426.4	94.6% 98.2% 96.7%
12	Volume of loans and quarries operated (m^3)	N/A 46,910.7 46,910.7	N/A 12.7% 7.6%
13	Volume of land and debris sent to landfills (m^3)	10,032.4 70,490.1 42,852.3	86.5% 69.1% 76.1%
14	Expected volume of rubble (rubble that is reused on site and rubble destined for landfill / recovery)? (m^3)	2,704.1 4,415.1 3,616.6	37.8% 29.1% 32.6%
15	Expected volume of landfill (m^3)	5,685.9 71,114.3 61,300.0	8.1% 30.9% 21.7%
16	Volume of soil contaminated by factors outside the work's control (m^3)	0 7,194.1 5,533.9	8.1% 18.2% 14.1%
17	Volume of dredged inert sludge or non-hazardous waste forecast (m^3)	N/A 139,603.6 139,603.6	N/A 1.8% 1.1%
18	Volume of containment sludges used (bentonite) (m^3)	370.0 8,279.7 6,019.8	10.8% 18.2% 15.2%
19	Volume of paints, solvents, release agents, concrete curing liquids, accelerators, concrete liquefiers, antifreeze and epoxy resins employed (m^3)	13.8 79.7 52.6	94.6% 90.9% 92.4%
20	Volume of land dedicated to filling tasks extracted from the site itself (m^3)	2,261.4 90,619.1 68,529.7	35.1% 70.9% 56.5%
21	Volume of soil dedicated to filling tasks extracted loans or other works (m^3)	6,660.1 71,478.4 56,520.4	32.4% 72.7% 56.5%
22	Volume of graded aggregate used on-site (m^3)	1,674.9 21,061.1 14,958.1	46.0% 67.3% 58.7%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building · Civil engineering works · Total

3.2 Mindful of our environmental footprint

FCC Construcción's projects are carried out in a multitude of different environments, which are inevitably affected to a certain extent. The way to prevent and reduce the negative impacts that the activity may have is to identify those possible aspects that could cause damage to society or the natural environment. By identifying and assessing these parameters, it is possible to design tailor-made strategies to act on the magnitudes of greatest importance and to protect the environment and affected communities accordingly.

In all the projects developed by FCC Construcción, the social and environmental aspects that generate an impact on the environment are identified in the works and fixed locations, and are classified according to their magnitude, importance, representativeness and transcendence within the environment, with the aim of focusing the effort on the study and application of the best prevention and mitigation techniques and actions of the most important. This process makes it possible to more effectively address environmental risks and opportunities and minimize the environmental footprint of all the Group's projects.

The environmental and social aspects can be classified into large groups such as atmospheric emissions, the generation of vibrations and noise, contamination, occupation and loss of land, water discharges, consumption of natural resources, waste generation and management, effects on the territory or urban environment, radiation emissions and environmental accidents.

FCC Construcción's measures to **mitigate its impact** are derived from the analysis of its environmental footprint. It is essential to identify and classify environmental and social aspects in order to improve **environmental protection**.

Having identified the significant environmental aspects, the necessary actions and Good Practices are implemented to minimise them, such as correctly delimiting the area occupied by the project, defining and signposting specific areas within the works, such as green points for waste storage or the materials collection area, always with the aim of minimising the impact of the project on the environment.

Works of the DIT Study Centre at the University of Grangegorman (Ireland)

Identification of the main construction environmental impacts

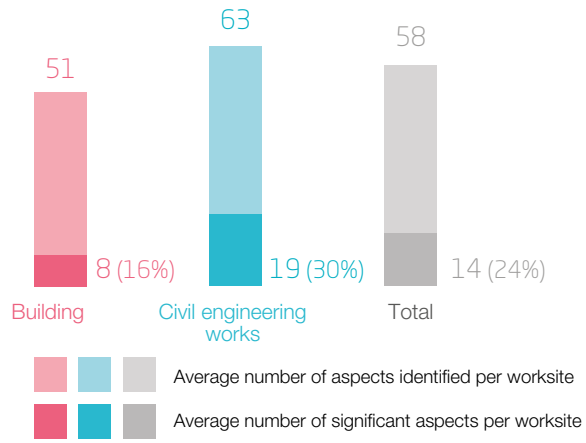
Throughout the year, FCC Construcción compiles data on the environmental and social aspects identified in its projects. In 2020, an average of 58 issues were identified per project.

The collection of data also makes it possible to observe which are the most recurrent groups of environmental and social aspects that occur on construction sites, as well as their significance, which enables the company to anticipate and be more effective in implementing the necessary measures to minimise the impacts. The following table shows that 100% of the 92 projects that were being executed in 2020 identified some environmental aspect related to atmospheric emissions and 99% of them recognised that some environmental aspect related to the use of natural resources and waste generation took place in their projects. Analysing the significance of the aspects, most of them fall into the groups of aspects of air emissions, use of natural resources or waste generation.

FCC Construcción's projects, when establishing their environmental and social aspects, select all those that are likely to appear regardless, a priori, of their amount or importance.

When establishing the environmental and social aspects that affect them, the legal requirements applicable in each country, region or locality in which a project is implemented are also taken into account.

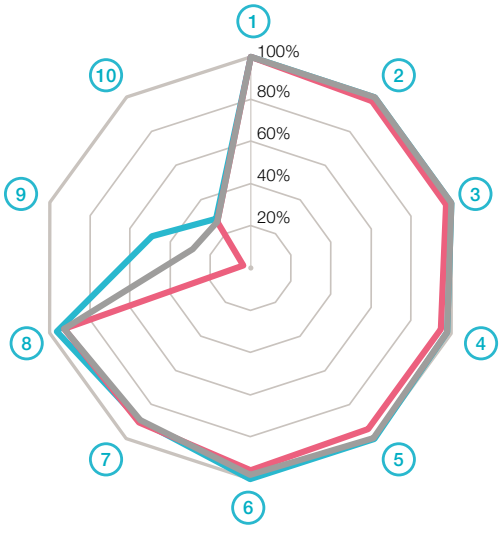
General information*



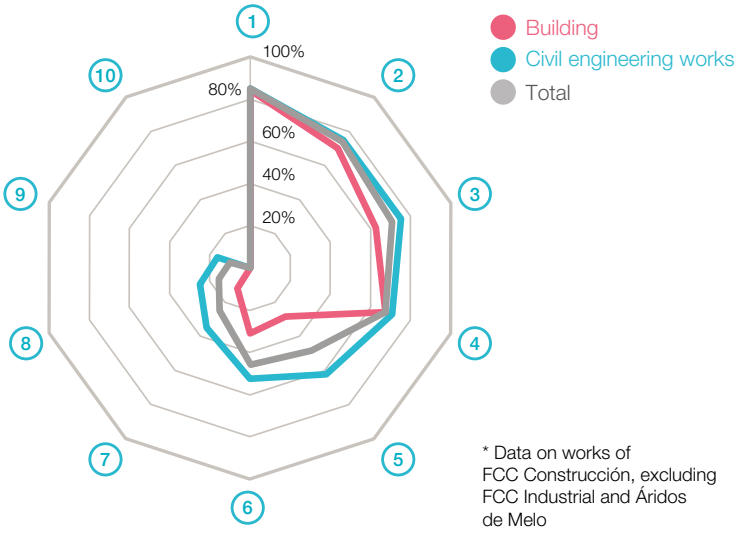
Groups of environmental and social aspects

1_ Atmospheric emissions
2_ Use of natural resources
3_ Waste generation
4_ Land use planning/urban environment
5_ Environmental accidents
6_ Noise and vibration generation
7_ Effluent discharge
8_ Occupation, pollution or loss of soils
9_ Occupation of watercourses and seabeds and water collectors
10_ Emission of radiation: use of radioactive sources

% Works in which aspects are present*



% Works with significant aspects*



* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo

Identification of significant environmental aspects

While FCC Construcción is making progress every day in reducing its environmental footprint, it is aware of its own limitations and strives to overcome them. To do so, one way in which it is working is to improve the identification of the environmental and social aspects that pose the greatest risk to the environment and communities, and on which priority action should be taken. These aspects make up its significant environmental and social aspects.

The company identifies these significant environmental and social aspects by studying the answers to questions such as what happens, how much happens, how serious it is, etc. to determine the importance and magnitude of the impacts and/or disturbances associated with this group of aspects. While magnitude concerns the impact capacity of the action or process to be developed in terms of, for instance, volume, surface area, impact on the population, etc., significance, by contrast, refers to the potential impact, i.e. the impact's incidence. For example, a project whose environmental and social aspect is dust emissions in the transport of materials may be of great magnitude due to the length of the route and the volume of material to be transported, but of little importance because it takes place in an area with no population or where there are no unique or endangered species susceptible to being affected.

The company aims to ensure that all projects identify and report their significant environmental and social aspects, as their compilation makes it possible to study the patterns in which they appear and establish guidelines to improve their identification more efficiently. Reporting also encourages information sharing across projects to more effectively address the risks to the environment and people that may arise from them.

The following table shows the significant environmental and social aspects identified in the works executed in 2020, and the percentage of works that report this environmental and/or social aspect as significant, once their magnitude and importance have been assessed:

Significant environmental and social aspects

Description of the environmental and/or social aspect	% of works in which the environmental aspect is significant
Impact on land/urban environment of operations that generate waste at the site entrance and exit points. Mud and loose materials.	65% (26/40) 52% (27/52) 58% (53/92)
Impact on land/urban environment of granular materials dropped during transport.	55% (22/40) 46% (24/52) 50% (46/92)
Dust released by external enclosure and internal partitions and finishing.	75% (30/40) 17% (9/52) 42% (39/92)
Dust released by warthworks: excavations and fillers, stripping and embankments.	13% (5/40) 58% (30/52) 38% (35/92)
Dust released by circulation of machinery.	3% (1/40) 63% (33/52) 37% (34/92)
Release of dust by the transport of soil and debris.	10% (4/40) 58% (30/52) 37% (34/92)
Dust released by demolitions.	20% (8/40) 42% (22/52) 33% (30/92)
Release of dust by the supply and storage of powdery materials.	5% (2/40) 54% (28/52) 33% (30/92)

Description of the environmental and/or social aspect	% of works in which the environmental aspect is significant
Environmental accident due to fire in areas used to store flammable/ combustible substances (wood, paper, etc.).	28% (11/40) 37% (19/52) 33% (30/92)
Consumption of steel (structural and reinforcement steel).	20% (8/40) 42% (22/52) 33% (30/92)
Generation of inert or non-hazardous waste: excess excavation soil.	18% (7/40) 40% (21/52) 30% (28/92)
Water consumption for irrigation of levelled areas and road surfaces.	13% (3/40) 42% (22/52) 29% (27/92)
Consumption of graded aggregates.	18% (7/40) 38% (20/52) 29% (27/92)
Consumption of bricks.	58% (23/40) 6% (6/52) 28% (26/92)
Consumption of electric energy.	18% (7/40) 35% (18/52) 27% (25/92)
Generation of hazardous waste: empty contaminated containers (paint, solvents, oil, adhesives, stripping agent, de-coffering liquids, silicone, aerosols, explosives, etc.).	28% (11/40) 27% (14/52) 27% (25/92)
Generation of noise by demolitions.	20% (8/40) 31% (16/52) 26% (24/92)
Generation of inert or non-hazardous waste: Formwork and moulds.	23% (9/40) 27% (14/52) 25% (23/92)
Generation of inert or non-hazardous waste: non-hazardous material containers, packaging.	38% (15/40) 13% (7/52) 24% (22/92)
Noise generated by earthworks: excavations and filling, stripping and embankments.	8% (3/40) 37% (19/52) 24% (22/92)
Cooling and air-conditioning equipment.	20% (8/40) 25% (13/52) 23% (21/92)
Generation of municipal wastes from offices, changing rooms and site canteens at worksites.	5% (2/40) 37% (19/52) 23% (21/92)
Generation of municipal wastes from the recovery and cleaning of facilities/works.	5% (2/40) 37% (19/52) 23% (21/92)
Vibrations generated by earthworks: excavations, filling and compacting embankments.	13% (5/40) 31% (16/52) 23% (21/92)
Environmental accidents: Fires caused by handling explosives, welding equipment, gensets and motors or electrical and blasting equipment.	5% (2/40) 33% (17/52) 21% (19/92)

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building · Civil engineering works · Total

FCC Construcción's most significant environmental aspects in 2020, as shown in the table, were related to the impact on the territory near the work site. The two most significant recurring issues were dirt from construction works and material falling during transport. These aspects are identified in both building and civil engineering projects. Dirt and falling granular material, although they represent a punctual and localised impact, can entail, in addition to a visual impact on the environment, a risk to the health of exposed people and animals, as the particles can cause discomfort or irritate the respiratory tract, and even the recurrent deposition of particles on vegetation can affect its development by hindering the photosynthesis process. However, by identifying these impacts prior to their implementation, corrective measures can be taken to avoid them, such as the establishment of wheel washing areas at the exit of the works, the use of trucks or other means of transport properly covered or the use of containers with airtight closures.

Another relevant and recurrent environmental aspect in all construction sites is the emission of dust particles during the different phases of construction (demolition, earth transport, stockpiling of materials, etc.). This is especially true for civil engineering work projects, as they occupy a larger surface area and require the handling of large quantities of dust-emitting materials such as soil and debris, as well as the increased movement of construction machinery. The particulates are emitted into the atmosphere, but they usually disappear within a short time, so the risk and damage to the site turns out to be short-term.

Additional significant environmental aspects identified in the works include environmental accidents and damage due to the use of hazardous substances, the consumption of resources and the generation of hazardous and non-hazardous waste.

The following is a summary of the most significant environmental and social aspects reported in 2020, accompanied by examples of some of the actions carried out on site to prevent, minimise or reduce them:

Dust emissions and impact on the site environment

Most significant environmental aspects and incidence rates at projects

Impact on land/urban environment of operations that generate waste at the site entrance and exit points. Mud and loose materials.	58%
Impact on land/urban environment of granular materials dropped during transport	50%
Dust released by enclosures and finishes	42%
Dust released by earthworks: excavations and filling, stripping and embankments.	38%
Dust released by circulation of machinery.	37%
Release of dust by the transport of soil and debris.	37%
Dust released by demolitions.	33%

The watering of surfaces and stockpiles is one of the most common actions applied on construction sites to minimise dust emissions into the atmosphere. On the Gurasada-Simeria train construction site (Romania), water tankers were used to humidify the work paths where the materials were transported, preventing dust particles from rising into the atmosphere and thus reducing the risks to the natural environment and people.

Possible actions to address these issues

1_ Setting up of wheel-washing areas.
2_ Adequate vehicle speed control.
3_ Use of screens against dust dispersion.
4_ Use of tubes for dumping debris from heights.
5_ Proper maintenance of site machinery.
6_ Appropriate site selection of dust-emitting activities.
7_ Other preventive measures.

Waste

Most significant environmental aspects and incidence rates at projects

Generation of inert or non-hazardous waste: excess excavation soil.	30%
Generation of hazardous waste: empty contaminated containers (paint, solvents, oil, adhesives, stripping agent, de-coffering liquids, silicone, aerosols, explosives, etc.).	27%
Generation of inert or non-hazardous waste: Formwork and moulds.	25%
Generation of inert or non-hazardous waste: non-hazardous material containers, packaging.	24%
Generation of municipal wastes from offices, changing rooms and site canteens at worksites	23%
Generation of municipal wastes from the recovery and cleaning of facilities/works.	23%

The correct identification and segregation of waste on site contributes to the recovery of valuable materials and elements that can be used as secondary materials in other works or processes, helping to reduce the extraction of new raw materials, which means savings in costs and time and less pressure on the environment. In the remodelling work of the Soria Hospital (Spain), specific containers were set up for the removal of plasterboards, contributing to their treatment and reuse for the production of new boards that could be used in other works.

Possible actions to address these issues

1_ Installation of on-site green points for correct waste segregation.
2_ Raising awareness among employees and subcontractors on proper waste segregation.
3_ Signposting of containers according to the waste they contain.
4_ Propose changes to the project design in relation to the use of Hazardous Waste.
5_ Use means to reduce the volume of waste on site.
6_ Procurement of materials in returnable, reusable, or bulk packaging.

Consumption

Most significant environmental aspects and incidence rates at projects

Consumption of steel (structural and reinforcement steel).	33%
Water consumption for irrigation of levelled areas and road surfaces.	29%
Consumption of graded aggregates .	29%
Consumption of bricks.	28%
Consumption of electric energy.	27%
Consumption of diesel, petrol, fuel-oil	20%

Adequate control and recording of consumption contributes significantly to more efficient use and reduces the impact of the work on the environment. In the Toyo Tunnel project (Colombia), the surface and groundwater flows of the bodies of water from which the resource was extracted were monitored, making it possible to know the situation of the resource at all times and even to generate early warnings in the event of a significant reduction in flow and thus avoid irreversible impacts on the ecosystem.

Possible actions to address these issues

1_ Promote the use of renewable energies.
2_ Use of aggregates instead of borrowed material.
3_ Use of modern and more resource-efficient machinery.
4_ Reuse of effluents and wastewater in the process or in irrigation.
5_ Use of materials and elements recovered from other works.
6_ Use of more environmentally friendly materials.

Noise pollution

Most significant environmental aspects and incidence rates at projects

Generation of noise by demolitions.	26%
Noise generated by earthworks: excavations and filling, stripping and embankments.	24%
Vibrations generated by earthworks: excavations, filling and compacting embankments.	23%
Circulation of machinery.	11%
Foundations.	10%
Pile driving.	9%

Through the implementation of appropriate measures, a significant reduction of the noise impact in the construction site environment can be achieved. Acoustic panels were installed on the perimeter enclosure of the Maragall Station construction site (Spain), which contributed significantly to the reduction of sound levels.

Possible actions to address these issues

1_ Use of modern machinery.
2_ Rubber lining in hoppers, screens, mills, bins and/or buckets.
3_ Proper consideration of environmental conditions in the work programme.
4_ Correct maintenance of machines.
5_ Planning of projects to carry out works outside the breeding periods of unique species in the environment.
6_ Installation of acoustic screens and panels.

Environmental safety

Most significant environmental aspects and incidence rates at projects

Environmental accident due to fire in areas used to store flammable/combustible substances (wood, paper, etc.)	33%
Environmental fire accident resulting from the handling of explosives, welding apparatus, generators and electrical or explosive engines or equipment.	21%
Environmental accident due to breakage of buried pipes (electrical, telephone, water, liquid or gaseous hydrocarbons).	15%
Soils contaminated by the spillage of chemical products generated at the site, gas oil and lubricating oil	14%
Environmental accident due to rupture of containers with harmful substances or storage tanks for hazardous products	4%

To avoid environmental accidents resulting from the storage of flammable, noxious or toxic substances on construction sites, there are areas duly delimited and identified for this purpose, with external and internal infrastructures to avoid, for example, direct exposure to the sun or direct contact with the ground of these wastes and fuels.

Possible actions to address these issues

1_ Preparation of personnel for the correct handling and disposal of hazardous waste.
2_ Implementation of Fire Emergency Plans in storage areas for flammable substances.
3_ Separate flammable materials from sources of ignition.
4_ Avoid accumulation of hazardous waste for prolonged periods of time on construction sites.

The environmental aspects identified in FCC Construcción's works and centres during 2020 are part of a wide variety of projects, so that very diverse environmental impacts were identified throughout the year.

In 2020, 92 works were implemented and all identified at least one significant aspect. The average number of different aspects identified was 51 for building works and 63 for civil engineering work. Of these, building works had 8 significant environmental aspects and the civil engineering works increased to 19. This is due to the fact that civil engineering works tend to be larger and more complex projects with a greater impact on the environment.

FCC Construcción ensures that both the teams that operate and the companies that are subcontracted are aware of the impacts identified and of the importance of taking measures to mitigate their consequences.

In 2020, the **building works** had **8 significant environmental aspects** and the **civil engineering work 19.**

Risks and opportunities

Since 2017, FCC Construcción has had a procedure for identifying risks and opportunities arising from the significant environmental aspects present in the development of its projects.

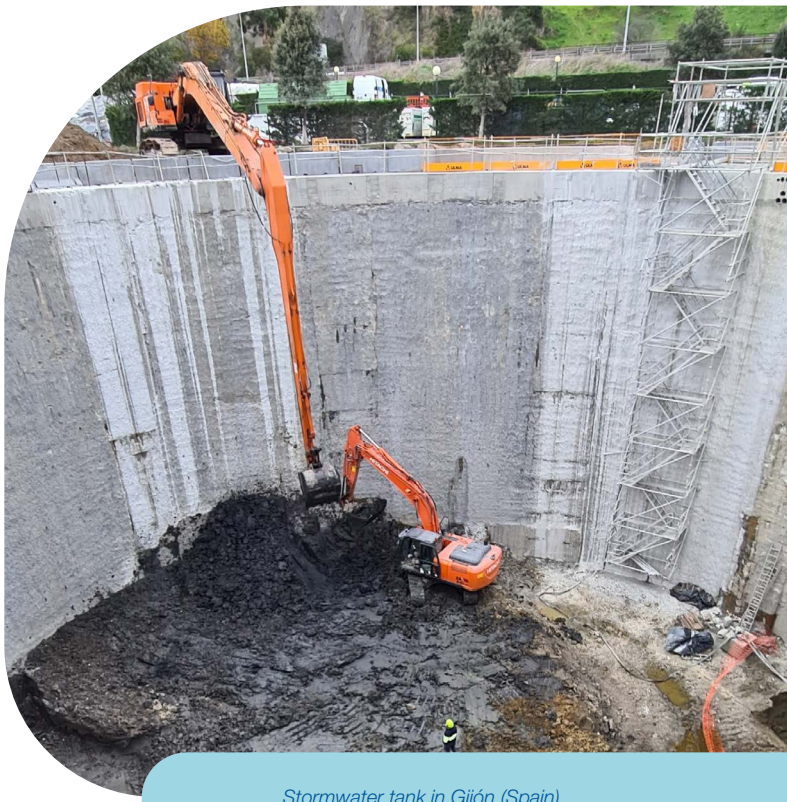
Ongoing projects are monitored and the data collected is analysed for risks and opportunities relevant to each project. The detection of these impacts allows the creation of a strategic plan for action during project implementation and optimises the management of environmental impacts. The expected goals:

- Minimise the occurrence of risks and prevent them as much as possible.
- Reduce the impact of environmental risks, damage and potential effects on construction sites.
- Identify and seize opportunities for action.

In 2020, environmental risks and opportunities were identified in 130 FCC Construcción projects.

A plan was drawn up on these risks to prevent potential impacts and to act in case they materialise, as well as to take advantage of the opportunities that arise in their development. FCC Construcción identified a total of 4,802 risks among its civil engineering work, building work and premises. This number has doubled in the last two years and this is due to increased awareness, environmental awareness and effort on the part of the works and fixed locations, and the great diversity of projects that were implemented in 2020.

Greater than one third of the risks and opportunities were identified in civil engineering work, as is normal, given the characteristics of these works. If the average number of risks and opportunities identified per work is taken as a reference, it can be seen that in civil engineering work the average value is double that of building works, as shown in the following table. The same applies to actions taken to minimise risks.



Stormwater tank in Gijón (Spain)

Additionally, this year it should be noted that the company reported actions defined for these risks and opportunities in 100% of the projects executed, in addition to the fact that the average number of actions applied per work and premises has increased compared to previous years, which corroborates that the performance and the importance attributed to the conservation and protection of the natural environment where the projects are developed has increased.

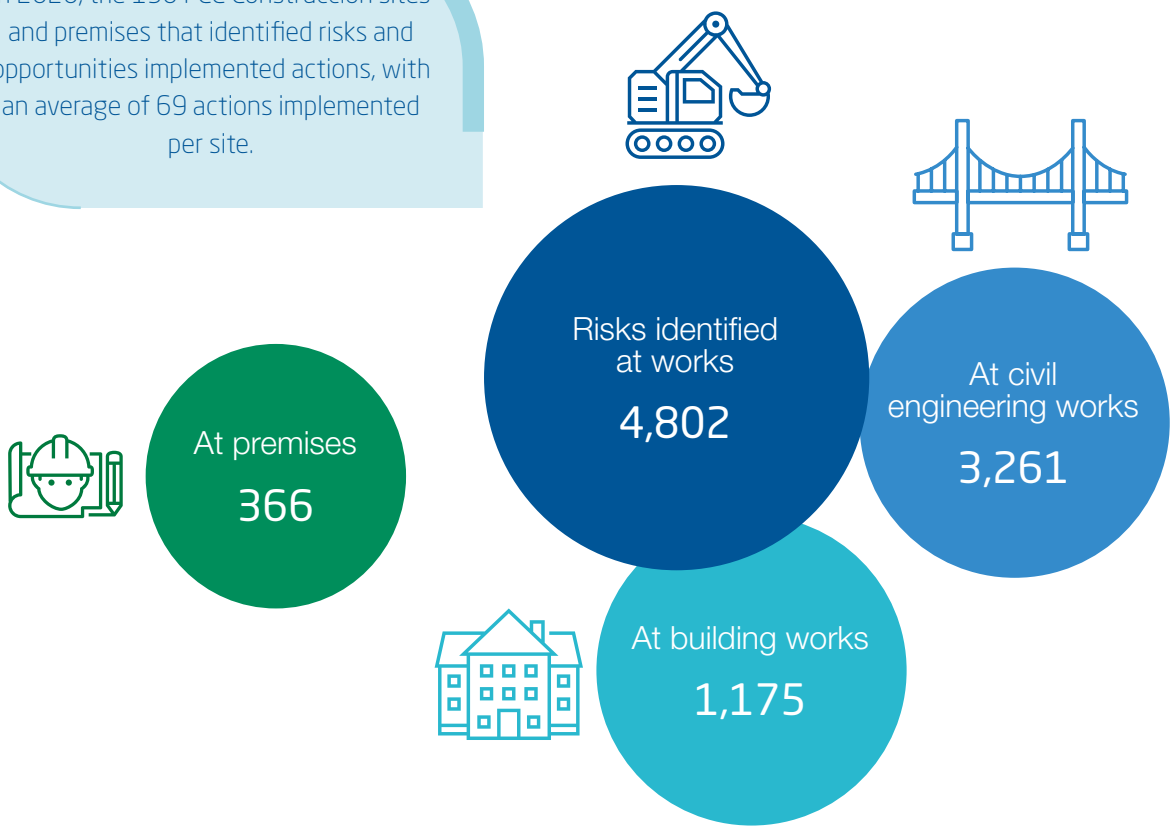
Environmental risks and opportunities of projects under construction

Risks and opportunities	Construction work		Premises	Total FCC Construcción
	Building	Civil engineering works		
Number of projects with environmental risk data	39/40 (97.5%)	52/52 (100%)	39/39 (100%)	130 (99.2%)
Total number of identified risks/opportunities	1,175	3,261	366	4,802
Average identified risks/opportunities by centre	30	63	9	37
Total number of actions identified to address risks	2,100	6,049	766	8,915
Average actions identified by centre	54	116	20	69
Percentage of risks/opportunities without defined actions	0%	0%	0%	0%

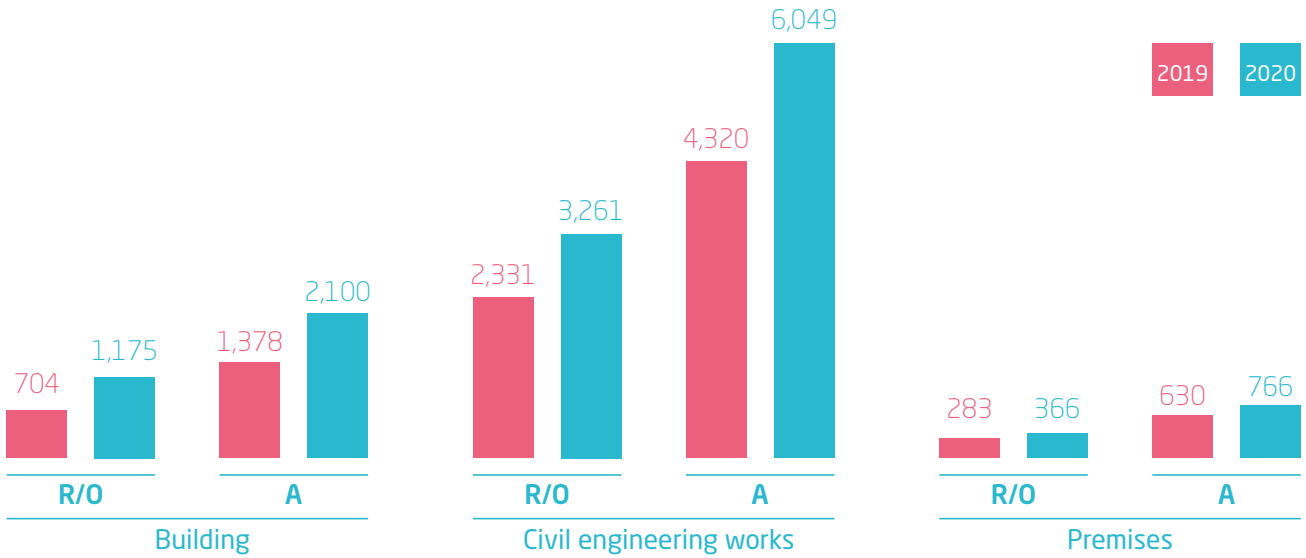
* Data for FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Number of risks identified in 2020

In 2020, the 130 FCC Construcción sites and premises that identified risks and opportunities implemented actions, with an average of 69 actions implemented per site.



Risks and opportunities (2019-2020)



R/O_ Total number of identified risks/opportunities

A_ Total number of actions identified to address risks

Likewise, through the FCC Construcción reporting system, it is possible to analyse the type of environmental aspect to which the identified risk is associated, which allows for greater detail when studying environmental performance. In this way it is possible to differentiate between those risks related to the emission of substances into the atmosphere and those related to the generation of noise or the generation of waste, including many additional aspects, and to ascertain where the greatest impact is being made on construction sites and fixed locations.

The following table compiles the main risks and opportunities according to the environmental aspects in which they are framed and on which FCC Construcción prepares its risk mitigation plans and promotes its opportunities. Many of the following environmental risks are easily preventable, so early identification can contribute to significant time and cost savings, and early addressing of the resulting impacts.

Since 2017, FCC Construcción has had a procedure for identifying risks and opportunities arising from the significant environmental aspects present in the development of its projects.

Plaza de España refurbishment in Madrid (Spain)

Main environmental risks and opportunities

Environmental aspect		Risk/Opportunity detected	Centres at which they were detected
Atmospheric emissions	• Circulation of machinery.	**Risk:** Complaints from residents on account of the high level of particulate matter.	59% (55/93)
	• Supply and storage of powdery materials.	**Risk:** Complaints from residents on account of the high level of particulate matter.	58% (40/69)
	• Enclosures and finishes.	**Opportunity:** Awareness raising in the subcontracting chain.	58% (30/52)
	• Soil transport.	**Risk:** Complaints from residents on account of the high level of particulate matter.	47% (39/83)
	• Cooling and air-conditioning equipment.	**Risk:** Emissions in excess of authorised or nominal emissions due to obsolescence or lack of maintenance of equipment or facilities.	40% (40/99)
Noise and vibration	• Earthworks: excavations and filling, stripping and embankments.	**Risk:** Complaints about excessive, unpleasant levels of noise.	43% (35/82)
	• Formwork and mould removal.	**Risk:** Complaints about excessive, unpleasant levels of noise.	35% (23/65)
Effluent discharge	• On-site concrete laying.	**Risk:** Water pollution.	29% (22/77)
Occupation of watercourses and seabeds and water collectors	• Recovery and cleaning of installations/site sections.	**Risk:** Reduced visual quality of the landscape around the site.	28% (17/61)
Use of natural resources	• Consumption of electricity.	**Opportunity:** Reduction of energy consumption.	53% (63/120)
	• Consumption of graded aggregates.	**Opportunity:** Economic and environmental optimisation of the subcontracting chain.	37% (20/54)
Waste generation	• Recovery and cleaning of installations/site sections.	**Opportunity:** Minimising waste generation.	37% (25/67)
	• Excess excavation soil.	**Opportunity:** Waste management optimisation.	37% (26/70)
Land use planning/ urban environment	• Operations that generate waste at the site entrance and exit points. Mud and loose materials.	**Risk:** Fines due to dirt at site entrance and exit points.	70% (58/83)
	• Granular materials dropped during transport.	**Risk:** Fines due to dirt at site entrance and exit points.	57% (40/70)
		Risk: Complaints from residents on account of the high level of particulate matter.	54% (38/70)
Environmental accidents	• Fire in areas used to store flammable/combustible substances (wood, paper, etc.).	**Risk:** Impact on workers through inhalation of toxic fumes, burns, etc.	52% (47/91)
	• Fires caused by handling explosives, welding equipment, gensets and motors or electrical and blasting equipment.	**Risk:** Impact on workers through inhalation of toxic fumes, burns, etc.	41% (27/66)
	• Broken containers with harmful substances. Hazardous product storage tanks.	**Risk:** Soil or water pollution.	35% (19/55)

*Data for FCC Construcción, excluding FCC Industrial and Áridos de Melo.

A risk can always turn into an opportunity, as in the case of the railway line between Gurasada and Simeria (Romania), where it was decided to use natural bioremediation techniques to decontaminate the contaminated soil near the track.

Main actions implemented to address environmental risks

Actions to address environmental risks/opportunities	% centres identifying the action			
	Building	Civil engine works	Premises	Total
• Control movements and limit the speed of machinery on site and at entrance ways	54%	75%	10%	49%
• Periodic cleaning of the vehicle entrance and exit at the worksite.	82%	59%	0%	48%
• Cover the materials transported that generate dust.	77%	59%	0%	47%
• Prioritise the contracting of subcontractors who apply environmental management systems.	49%	61%	0%	39%
• Have different containers in place for different types of waste generated on site.	46%	47%	21%	39%
• Save the documentation demonstrating the correct management of waste.	31%	51%	28%	38%
• Reduce the speed of vehicles.	36%	55%	5%	34%
• Be aware of firefighting protocols.	33%	39%	28%	34%
• Appropriate maintenance programme.	28%	35%	33%	33%
• Use certified machines (CE mark, UL mark, ETL mark, CSA mark, etc.) to guarantee that noise emissions are within the specified limits.	0.46%	45%	3%	33%
• Inform employees and subcontractors of the waste to be deposited in each container.	38%	45%	10%	33%
• Shut down all equipment that is not in use.	21%	31%	44%	32%
• Be aware of evacuation routes.	26%	27%	44%	32%
• Irrigation, where and when needed.	31%	55%	0%	31%
• Signpost containers accordingly, based on the type of waste they contain.	33%	49%	5%	31%
• Periodically control whether waste is being classified as stipulated in the instructions.	28%	43%	15%	30%
• Provide absorbent granular material on site to collect any spillages.	15%	47%	18%	29%

*Data for FCC Construcción, excluding FCC Industrial and Áridos de Melo.

3.3 Committed to continuous improvement. The System of Good Practices

After identifying the significant environmental and social aspects at each site or centre, studying the potential risks and applying possible actions to prevent and mitigate them, the objectives and targets of what will constitute the Environmental and Social Management Programme are established, which must be aligned with the company's global goal. To achieve these goals and targets, the company has established that a set of voluntary environmental Good Practices should be implemented.

In 2000, in order to promote greater social and environmental performance at its sites, FCC Construcción set up its **Environmental Good Practices System®**, a pioneer in the construction sector.

In 2000, in order to promote greater social and environmental performance at its sites, FCC Construcción set up its **Environmental Good Practices System®**[1], a pioneer in the construction sector. This system facilitates the implementation of voluntary actions with a wider scope than the requirements established by law, contract or any other binding requirement, and aims to promote a more proactive attitude when establishing measures to avoid or minimise environmental and social risks or impacts on the environment.

The Good Practice System comprises a wide-ranging proposal of actions or standard procedures that can be implemented in common situations that involve an environmental or social impact and in which these actions are known to have a proven effectiveness. For example, the use of pH neutralisers in the water before discharge, such as acid (HCl or H_2SO_4) or CO_2 to prevent risks to the aquatic ecosystem where the water is discharged, the use of more modern machinery, both our own and that of subcontractors, to reduce the consumption of resources, emissions or even noise, or the watering of roads to minimise dust emissions, etc.

FCC Construcción's **Environmental Good Practices System®** makes the difference between being a simply reactive company, which limits itself to complying with the requirements of legislation, contracts and other imposed obligations, and being a proactive company in the protection of the environment. Actions such as the installation of containers to separate urban waste generated at construction sites contribute to the protection of the environment and do not require large investments, as Good Practices do not always have to be associated with a large investment.

[1] ® FCC Construcción 2009. "Environmental performance evaluation system through Good Practices".

Likewise, this Good Practices system has the added value that it is a system that allows for the exchange of information, i.e., it allows us to know how effective the actions are and to learn from mistakes in order to improve their effectiveness. This is achieved thanks to the systematisation and unification of the criteria for the application and measurement of results in all the works and fixed locations where they are carried out, which translates into a great opportunity for continuous environmental and social improvement for the company.

The Good Practice System comprises a list of practices that can be chosen for application by the works or fixed locations, depending on their suitability and applicability. Each Good Practice has been rated according to the degree of implementation from 1 to 3, assigning a higher value (3) when the development is more complete, and a lower value (1) when the degree of implementation is less, in accordance with the needs of the project. This degree of implementation is known as **Magnitude (M)**.

Likewise, these Good Practices are assessed in terms of **Importance (I)**. When the Best Practice has a greater final scope or involves a greater economic, technical or logistical effort, it is attributed a high Importance value (3) and when it is lower, it is attributed a minimum value (1).

The final Good Practice score is the product of the Magnitude and the Importance, which is the true indicator of the environmental and social performance of the project. The sum of these outputs defined for all the Good Practices carried out makes it possible to obtain a final value that represents the total environmental and social performance of the project. The organisation can also monitor the environmental performance of the project throughout its implementation and compare it with the performance of other projects.

The **Good Practice System** comprises a wide-ranging proposal of actions or standard procedures that can be implemented in common situations that involve an environmental or social impact.

Overall, the Good Practices System is conceived as a tool to encourage awareness-raising and sensitisation in construction sites and premises, and also to provide information and serve as a guide for site managers when deciding which actions can contribute to the environmental and social improvement of the project.

FCC Construcción also has set a goal based on a minimum score to be achieved by the works with the application of Good Practices. The objective is not only achieved by applying the Good Practices, but also by requiring evidence of their application, tracking and measurement of results.

For example, a site that has decided to implement a social Good Practice, such as stakeholder consultation on aspects that may give rise to impacts, must prove that meetings have taken place by means of attendance sheets, minutes, recordings of the sessions, materials provided, etc. It should also prove how these sessions turned out, whether complaints and grievances were reduced and even if any recognition was obtained.

IMPORTANCE

It refers to the final scope or effort applied

Rated from 1 to 3

The greater the final scope or effort (whether financial, technical or logistical), the more Importance value is attributed to the Good Practice. When the range or effort is small, the value is 1.

×

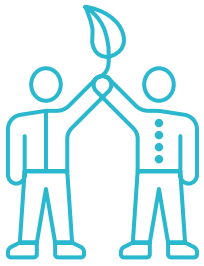
TARGET

Referring to the degree of implementation

Rated from 1 to 3

A greater degree of involvement increases the value attributed to Good Practice (3). When the range or effort is small, the value is 1.

=



ENVIRONMENTAL AND SOCIAL PERFORMANCE

General Environmental Good Practices data

	Total FCC Construcción		
	Building: 40 works	Civil Engine. Works: 54 works	Total: 94 works
Construction works contributing data on Good Practices	40 (100%)	52 (96%)	92 (98%)
Average number of Good Practices applied per worksite	22	25	24

*Data of works executed by FCC Construcción in 2020. Does not include data of FCC Industrial

98% of the total number of works with a Management System, which were executed in 2020, provided data on **environmental and social Good Practices**. FCC Construcción's Good Practices System is divided into **eight categories** according to the main groups of environmental aspects and risks identified in the works.

- Relationship with society
- Atmospheric emissions
- Noise and vibrations
- Effluent discharges
- Occupation, pollution or loss of soils
- Use of natural resources
- Waste generation
- Land use planning

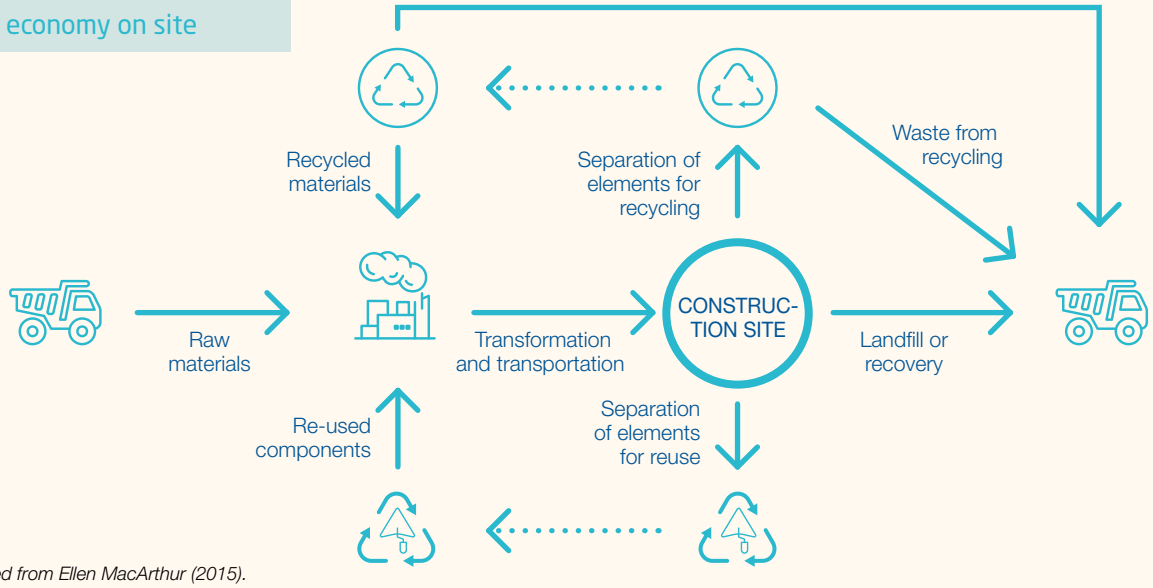
From the analysis of the Good Practices reported in 2020, it can be highlighted that FCC Construcción makes great efforts in terms of awareness and sensitisation to transmit its environmental and social values and commitments at all hierarchical levels of the organisation and also throughout its entire value chain:

- Throughout 2020, 99% of the sites reported that at least 30% of their subcontractors had received an environmental awareness and training talk from FCC Construcción in relation to the subcontracted activities.
- In 74% of the sites, environmental training of at least four hours' duration was provided to production personnel, from foremen to operators, ensuring that 100% of foremen received it.
- In 91% of the projects, the owners were informed of the application of FCC Construcción's Environmental Management System.
- Environmental signposting was adopted on 99% of the sites to help inform and raise awareness among site personnel.

Owing to its characteristics, the construction sector has the highest consumption of resources and the highest production of waste, but it is also one of the sectors with the greatest opportunities for the transition to a circular economy. FCC Construcción's Good Practices System promotes the implementation of numerous actions that can be framed within the framework of the circular economy in different parts of the process: actions relating to the input of resources on the site, their use and exploitation, the output of the site in the form of waste, etc.:

- With regard to the input of resources, FCC Construcción is committed to the use of reusable secondary elements and materials from other works and processes that contribute to reducing the extraction of new raw materials. During 2020, 75% of the works reused inert materials from other works and 78% of the works were committed to the reuse of re-

Circular economy on site



SOURCE: modified from Ellen MacArthur (2015).

coverable elements in works processes (traditionally demolition concrete), in aggregate crushing facilities, etc., among other actions carried out within the framework of the Good Practices.

- With regard to the use and exploitation of resources, the company's Good Practices System encourages efficient consumption and the non-acquisition of unnecessary items, among other actions. The data reported in 2020 show that 95% of the sites used modern machinery, 77% of the sites carried out preventive maintenance of machinery beyond that required by legislation, and 82% of the sites reused elements recovered from other sites, such as portable scrubbers, buckets, etc.
- With regard to waste production and its impact on the environment, in 2020, 85% of the sites achieved a reduction of inert waste to landfill compared to the volume foreseen in the project; 89% of the sites classified/separated construction and demolition waste for individualised management in at least one more category than required by legislation; and 80% of the sites used means to reduce the volume of waste (paper, cardboard, metals, etc.) in at least one type of waste.

The overall typology of actions included in the FCC Construcción Good Practices System is very broad and covers many environmental and social aspects. The following pages provide more information on these Good Practices, according to the categories identified above, and show specific examples developed in the works.

Providing the necessary environmental knowledge for the correct execution of tasks contributes significantly to the prevention of environmental risks. A simple action such as placing signs on site to remind people how to proceed can make a significant contribution to improving waste management, making better use of resources or reducing emissions into the atmosphere.

Signposting adopted at the Gurasada - Simeria train construction site (Romania)

1. Relationship with society

11 SUSTAINABLE CITIES AND COMMUNITIES

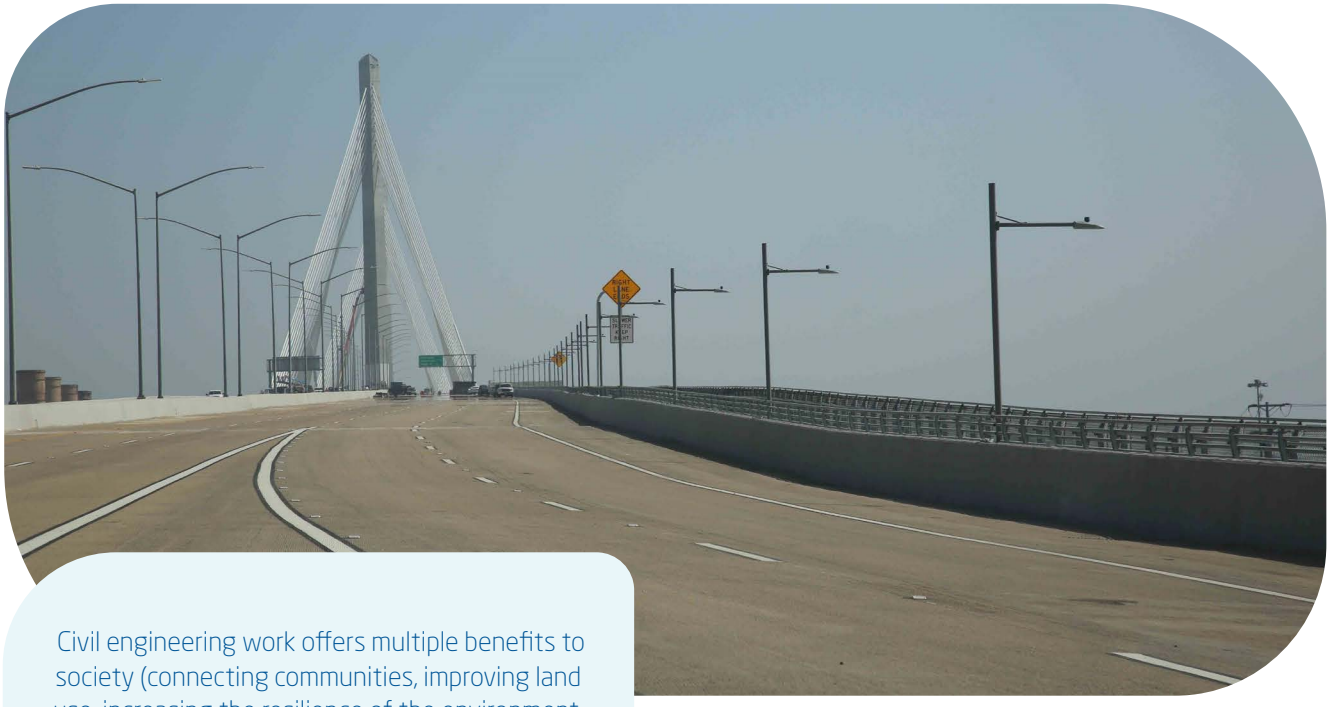
The works contribute to making the built environment more sustainable. For this reason, FCC Construcción seeks to involve all participants to achieve greater sustainability in its projects and increase efforts to protect and safeguard the cultural and natural heritage of the territory.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Transparency is one of the essential pillars at FCC Construcción. Transmitting information transparently to all its stakeholders and encouraging their participation so that their interests are taken into account in decision-making processes is essential for the activity to respond effectively to the needs of the community.

17 PARTNERSHIPS FOR THE GOALS

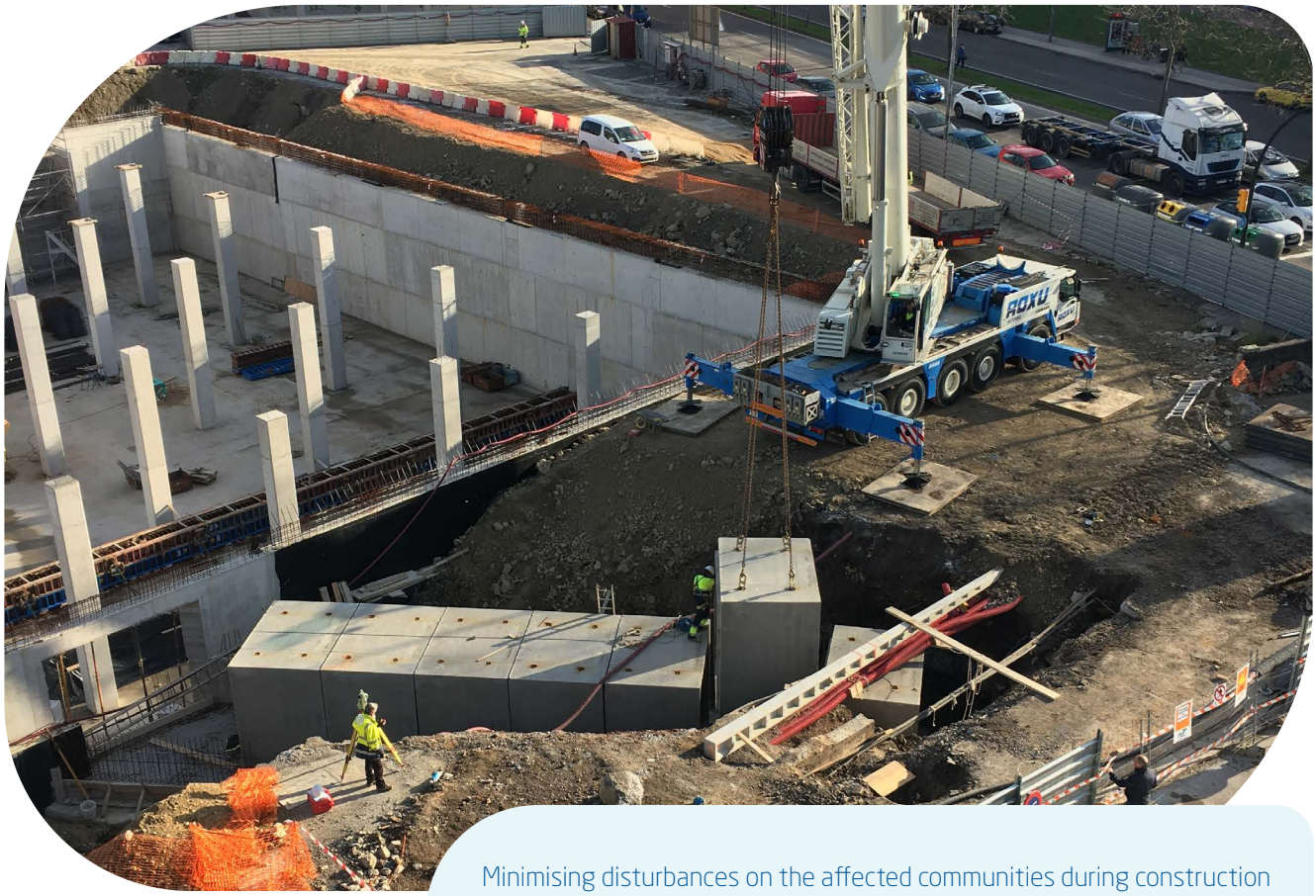
FCC Construcción strives to establish solid relations with its interest groups, promoting actions of involvement and communication that allow the two-way exchange of information, knowledge and experiences. For the company, establishing this type of alliance is a strategic opportunity for further improvement.



Civil engineering work offers multiple benefits to society (connecting communities, improving land use, increasing the resilience of the environment, improving people's quality of life, etc.). However, they can also be a source of conflict and impact. FCC Construcción considers it essential to encourage active listening to all its interested parties, and also to increase environmental and social awareness throughout its value chain, with the ultimate aim of representing the interests of the community and avoiding or reducing negative impacts on the natural environment

Gerald Desmond Bridge construction site (United States)

The construction sector is inextricably linked to the communities around it and, in particular, to the local communities in which it operates, as it is one of the driving forces behind their development and the improvement of their quality of life. We cannot ignore, however, that given the extension of the land occupied by the works and the characteristics of the operations and processes (noise production, dust emissions, consumption of huge amounts of resources, occupation of large areas, etc.), construction projects can be a source of conflicts with various interest groups, which can result in significant reputational damage for companies in this sector.



Minimising disturbances on the affected communities during construction works is paramount for proper project implementation. The supply of some services (gas, water and telephone) and the high- and low-voltage lines were affected during the construction of the Gijón Stormwater Reservoir (Spain). Information and collaboration with the service companies was one of the measures key to reduce the nuisance that could be caused to the nearby community.

Construction activities involve numerous stakeholders with very diverse interests, given the complexity and breadth of its value chain. This is why companies in this sector must facilitate and promote active listening to all their stakeholders as another strategic tool to avoid damage to the company's image and, above all, to make construction an activity that promotes sustainable development free of impacts.

FCC Construcción works actively with its stakeholders, both internal and external, to integrate and satisfy their interests in the company's way of proceeding. The company strives to establish the necessary dialogue mechanisms to encourage the exchange of information in both directions, as this is an opportunity to generate value for both the company and society. FCC Construcción demonstrates this by participating in numerous working groups, not only belonging to the construction sector, with the aim of promoting and applying good practices and actions in the field of sustainability and involving a greater number of development agents, among other external actions.

Additionally, the company not only has mechanisms for receiving and resolving complaints, but also, within its Good Practices System, fosters actions to encourage the exchange of information with the populations affected by the project, either by informing them about the social, economic, environmental and cultural impacts, the duration of the activities, the municipalities affected and the benefits and compensations of the project, or by promoting the establishment of collaboration with institutional bodies and Ministries. A further measure contemplated in the System entails establishing a Communication Plan to disseminate the project in environmental, social or cultural heritage matters, involving the affected communities and/or institutional bodies and even Ministries.

At an internal level, as Good Practices, the company seeks to promote awareness and sensitisation, and to increase the sustainability knowledge of all those involved in the construction activity and at all hierarchical levels.

Conveying the importance of environmental conservation and protection to all company personnel at all hierarchical levels is one of the key commitments assumed by FCC Construcción.

Toyo Tunnel construction site (Colombia)

Here is a list of some of the risks that may occur in terms of relations with society that can be either averted or minimised through the application of the Good Practices:

Risk prevention actions - opportunities

Risks

1_ Vulnerability of human rights
2_ Improper waste management
3_ Bad reputation of the company
4_ Disruption to neighbouring communities
5_ Lack of awareness and sensitisation
6_ Inefficient resource use
7_ Environmental and social malpractice by subcontractors
8_ Disregard for stakeholder opinions
9_ Poorly informed project-affected communities

Risk prevention actions - opportunities

- Company Good Practices communications
- Personnel training on environmental and social issues
- Requirement for ethical behaviour of personnel and subcontractors
- Attention to claims, complaints and suggestions
- Hiring of environmentally and socially committed subcontractors
- Environmental improvements implemented in the project
- Building relationships with stakeholders
- Ownership involvement in environmental management
- Adoption of environmental signposting on site

Good Practices

The following table illustrates the percentage of application of the Good Practices implemented in FCC Construcción's projects throughout 2020 in the area of the Relationship with society, distinguishing between building and civil engineering work. The percentage of involvement of these Good Practices in the works is also shown:

	Significance	Goal (degree of implementation)		
Good Practice	% of application	1	2	3
Production staff (up to foremen) of FCC Construcción who have participated in the environmental training programme organised by the company.	3 97% 98% 97%	> 30% works staff. 6% 19% 13%	> 60% of the staff. 46% 31% 38%	100% of the staff. 48% 50% 49%
Subcontractors participating in the environmental training and awareness-raising seminars given by FCC Construcción, with a duration of at least one hour, in relation to the subcontracted activities.	3 100% 98% 99%	> 30% of all subcontractors. 25% 30% 28%	> 60% of all subcontractors. 25% 28% 27%	> 90% of all subcontractors. 50% 42% 45%
Subcontractors who have implemented an environmental management system.	2 96% 96% 96%	At least one subcontractor has an ISO 14001 or EMAS certified. 57% 42% 47%	Idem > 10%. 30% 40% 37%	Idem > 25%. 13% 18% 16%
Environmental performance of subcontractors.	3 84% 90% 88%	> 30 % of subcontractors conduct actions related to waste optimisation, provide relevant permits and licences, and have contractual environmental requirements, which they fulfil. 69% 76% 74%	> 75% of subcontractors conduct actions related to waste optimisation, provide relevant permits and licences, and have contractual environmental requirements, which they fulfil. or > 30% of subcontractors perform actions to optimise waste, provide evidence of the corresponding permits and licences and are contractually subject to environmental requirements, which they comply with, and, in addition, any non-conformities as a result of their actions either are non-existent or are identified and reported by them. 19% 8% 11%	> 75% of subcontractors perform actions to optimise waste, provide evidence of the corresponding permits and licences and are contractually subject to environmental requirements, which they comply with, and, in addition, any non-conformities as a result of their actions either are non-existent or are identified and reported by them. 12% 16% 15%

Good Practice	Significance % of application	Goal (degree of implementation) 1	2	3
Relationship with stakeholders.	3 96% 100% 98%	All aspects that may give rise to significant relevant impacts have been addressed with the client and the solution to be adopted agreed upon. 37% 40% 39%	Those with the greatest impact on society have been addressed with the authorities or the potentially affected associations and individuals. 13% 33% 25%	Those with the greatest impact on society have been addressed with the authorities and the potentially affected associations and individuals. 50% 27% 36%
Claims and complaints.	3 96% 93% 94%	All claims and complaints received have been addressed with the affected individuals. 28% 33% 31%	The solutions to be adopted have been agreed with them. 44% 51% 49%	These actions have been carried out and there is written acceptance from at least 50% of the cases. 28% 16% 20%
Achievement of social recognition.	3 77% 77% 77%	Congratulations have been received from the client or local authority in relation to our environmental performance. 100% 70% 85%	An external publication has praised our environmental performance. 0% 30% 15%	We have received a prize with express mention of our environmental performance. 0% 0% 0%
Clients involvement in environmental management.	3 90% 92% 91%	The Client is aware of the fact that the Environmental management system has been implemented at the site. 42% 51% 47%	The Client has actively participated in developing certain aspects of the Environmental Management Programme. 46% 40% 43%	A formal presentation has been made on the Environmental Management System at a special session, with overhead slides or other audiovisual means. 12% 9% 10%
Environmental training with a duration of at least four hours for production staff, from operators to foremen.	3 79% 71% 74%	100% of all foremen. 40% 29% 34%	100% of foremen and > 20% of operators/ foremen. 53% 47% 50%	100% of supervisors and > 50% of operators/ foremen. 7% 24% 16%
Improvements introduced in the original project in order to minimise the impacts to the environment or society.	3 85% 57% 70%	An environmental/social improvement has been made to the original project, although ultimately it was not accepted. 73% 13% 47%	An environmental/social improvement to the original project has been accepted. 9% 62% 32%	More than one environmental/social improvement to the original project has been accepted. 18% 25% 21%
Use of environmental signs at the site to inform and raise the awareness of staff working at the site.	2 100% 98% 99%	Standard waste signposting is used at the site. 20% 20% 20%	Complete standard waste signposting is used at the site. 20% 30% 26%	Complete standard waste signposting is used at the site and awareness raising posters are also displayed. 60% 50% 54%

Good Practice	Significance % of application	Goal (degree of implementation) 1	2	3
Dissemination of environmental knowledge acquired.	2 33% 79% 65%	At least one experience to be transmitted or an example of a Good Practice (in relation to environmental management or social initiatives) is prepared and published on the Intranet of the Local Office, Area or Technical Services Corporative net, for consultation at other works. 100% 36% 46%	Idem, with 2 experiences to be transmitted or examples of a Good Practice (in relation to environmental management or social initiatives). 0% 55% 46%	Idem, with 3 or more experiences to be transmitted or examples of a Good Practice (in relation to environmental management or social initiatives). 0% 9% 8%
Relationship with residents affected by the works.	3 100% 86% 90%	The affected communities receive information on the social, economic, environmental and cultural impact of works, the duration of activities, the towns and cities affected and the benefits and rewards of the project. 0% 33% 22%	Furthermore, consultation and participation mechanisms are established with residents likely to be affected by the works. 67% 34% 45%	Furthermore, following the participation process, free prior informed consent has been obtained with full knowledge of the cause amongst the affected residents. 33% 33% 33%
Training on social matters imparted for FCC Construcción production staff and subcontractors.	3 0% 40% 25%	> 30% of works staff and > 30% of subcontractors. 0% 50% 50%	> 60% of works staff and > 60% of subcontractors. 0% 0% 0%	100% of works staff and > 90% of subcontractors. 0% 50% 50%
Ethical performance of subcontractors.	3 100% 85% 88%	> 25% of subcontractors have their own code of conduct and adhere to FCC's Code of Ethics. 17% 12% 13%	> 50% of subcontractors have their own code of conduct and adhere to FCC's Code of Ethics. 17% 41% 35%	> 75% of subcontractors have their own code of conduct and adhere to FCC's Code of Ethics. 66% 47% 52%
Environmental, social and cultural communication plan.	2 0% 50% 33%	A communication plan has been developed and implemented to provide environmental, social and cultural information on the project; the affected communities are involved in this process. 0% 0% 0%	Furthermore, institutional organisations are involved in this process. 0% 100% 100%	Furthermore, the corresponding Ministries (Culture, Environment, etc.) are involved in this process. 0% 0% 0%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building · Civil engineering works · Total

In terms of relations with society, FCC Construcción's Good Practices System revolves around three lines of action: Environmental training, stakeholder engagement and communications.

FCC Construcción has **environmental courses** designed for its own workers and subcontractors

Data and indicators

Environmental training

Personnel must be trained in the correct execution of their activities in order to reduce the environmental impact on the surroundings. FCC Construcción has environmental courses designed for its own workers and subcontractors so they can acquire knowledge in this area and promote environmental awareness and awareness of the consequences for the environment of their activity if it is not carried out in accordance with these values.

These courses are designed to ensure that the company's environmental commitment is integrated at all hierarchical levels and for as many people as possible along the entire value chain. The company cannot conceive a proper integration of the Environmental Management System without an environmental commitment by its stakeholders.

This training is also aimed at promoting environmental performance on construction sites. FCC Construcción seeks to convey the importance of the implementation of Good Practices in its projects and to encourage the number of these practices to continue to increase, committing itself to continuous improvement.

Training and environmental awareness-raising Good Practices were among the most widely adopted by construction sites in terms of their relationship with society in 2020:

- 97% of the sites reported that at least 30% of their production personnel had completed the company's environmental course.
- At least 30% of subcontractors received environmental awareness and training talks of at least one hour on subcontracted activities by FCC in 99% of the works executed in 2020.
- Finally, in 74% of the sites, at least all site managers received environmental training of at least four hours' duration.

Stakeholder engagement

In order to achieve a more environmentally friendly activity, all stakeholders must be involved in environmental management. FCC Construcción believes it is important to involve society in what is happening in the environment and to work with it. Stakeholder involvement is essential to achieve the proposed sustainability targets and objectives.

Establishing relations with stakeholders gives FCC Construcción the opportunity to acquire new knowledge in the management of the natural environment where the works are located. For example, collaboration with local stakeholders can contribute significantly to identifying risks and opportunities in the territory and, in addition, by fostering this two-way dialogue, subsequent conflicts that could result in a bad image for the company can be avoided.

These relationships can also bring benefits in the other direction, from the company to the stakeholders. Raising awareness and sensitising society to respect for the natural environment and transmitting the knowledge acquired by the company throughout its experience in this area can bring great improvements to the community. For example, encouraging proper waste management can contribute to improving the quality of life of the local community by reducing litter and the risk of pests.

Engaging society in the importance of conserving and protecting the environment is a cornerstone for FCC Construcción. On the construction site of the Murcia-Almeria high-speed Mediterranean Corridor platform, CONVENSA, as part of its commitment to sustainability, wanted to give a second life to the olive trees that were to be cut down and thus different organisations were contacted. Several of these olive trees were relocated to the CEIP Mar Mediterráneo school, which has an environmental integration project in its courtyard called "Sueño Mediterráneo" (Mediterranean Dream).

A further example of this is to inform the client about the work and actions carried out by the works in environmental matters, which contributes to the latter's involvement in the development of the Environmental Management programme and the transmission of the company's environmental values, thereby reducing the impact on the natural environment.

It is also important to highlight the company's role as an agent transmitting environmental commitment throughout the value chain, for example, by contracting subcontractors or suppliers who are required to have environmental management system certificates or who present environmental behaviour in line with the company's values, thus reducing possible risks to the environment.

The following highlights some of the data obtained in 2020 as a result of the works' engagement with its stakeholders:

- At least one subcontractor had an Environmental Management System (ISO 14001 or EMAS) in place in 96% of the works executed in 2020.
- Subcontractors were used for 88% of the works, with good environmental performance, carrying out actions related to the optimisation of resources, providing the relevant permits and licences, and complying with the contractual environmental requirements.
- The involvement of the owners in environmental management was achieved in 91% of the projects through the presentation of FCC Construcción's Environmental Management System.
- At least 25% of subcontractors had their own code of conduct or contractually agreed to comply with FCC's Code of Ethics on 88% of the sites.
- At least one environmental/social improvement has been proposed in the original project in 70% of the works, and accepted in 34%.

FCC Construcción believes it is important to involve society in what is happening in the environment and to work with it. Stakeholder involvement is essential to achieve the proposed sustainability targets and objectives.

FCC Construcción fitted its site facilities with mailboxes for the new construction project of a multi-family building with 77 homes, parking and storage rooms, in Badalona, to involve the community and integrate their comments and suggestions into the building project.

Communication

Transparent communication is a key factor in building strong relationships with stakeholders. FCC Construcción has two-way communication channels, both internal and external, to transparently transmit information on its environmental and social performance, and in which it invites its interest groups to participate in order to obtain their feedback.

Through these communications, the company communicates its environmental concerns, improvement actions, future targets and objectives, established partnerships, as well as other environmental guidelines that provide information on the company's performance.

The company also makes channels available to all its stakeholders to gather their comments, expectations and interests, which provides the company with strategic information that enables it to continue to improve its performance. It is also worth mentioning the promotion of citizen participation in the projects through dissemination days, meetings, etc., which serve to provide information to the community on certain aspects of the project, such as its possible impacts or benefits, but also to find out and compile possible suggestions or comments from the population regarding the project.

In general, corporate communications can be divided into two main groups according to the stakeholders they are aimed at (internal and external stakeholders). With internal stakeholders, professionals working within the company, FCC Construcción promotes an internal flow of information that reaches all levels of the company, both downwards and upwards, from the works at a corporate level.

The company works with external stakeholders along two lines: firstly, by establishing relationships that allow it to exchange information and keep its external stakeholders correctly informed and, secondly, by carrying out the task of disseminating information about the company to society in general.

Internal	External	
Internal flow of information	Interaction	Dissemination
		

Informing the community about aspects such as the social, economic, environmental and cultural impacts of the project, the duration of the activities, the affected municipalities and the benefits and compensations of the project, generates a two-way exchange of information that increases trust in the company, produces greater acceptance by the local communities and offers the organization the opportunity to continue improving.

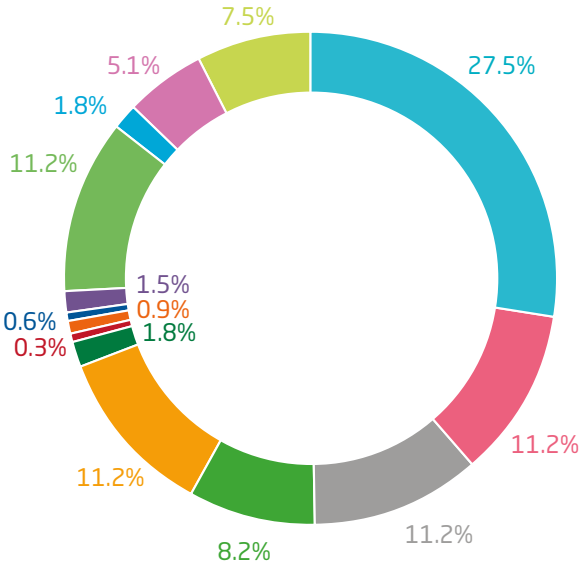
The following highlights some of the data obtained in 2020 as a result of the application of communication actions by FCC Construcción:

- Relations were established with the populations involved in 90% of the works carried out in 2020. They were provided with information on the impacts of the projects, the municipalities affected and the duration, as well as the benefits and compensation that the project would bring them, establishing, in some cases, consultation and participation mechanisms.
- FCC Construcción achieved social recognition in 77% of its projects, either in the form of a congratulatory note, an award or a mention in relation to its environmental performance.
- The complaints and claims received from the affected parties have also been managed in 94% of the works, so that the solutions to be adopted were finally agreed in 43% of the projects.
- Environmental knowledge was shared in 65% of the works, through the development of at least one experience to be passed on or a Good Practice, in relation to environmental management or social initiatives, and was published so that it would be available for use in other works of the company.
- A Communication Plan on environmental, social or cultural heritage issues was established in 50% of the civil engineering works.

The following charts illustrate the main subjects of communications between FCC Construcción and its stakeholders throughout 2020, together with a breakdown of who these stakeholders were.

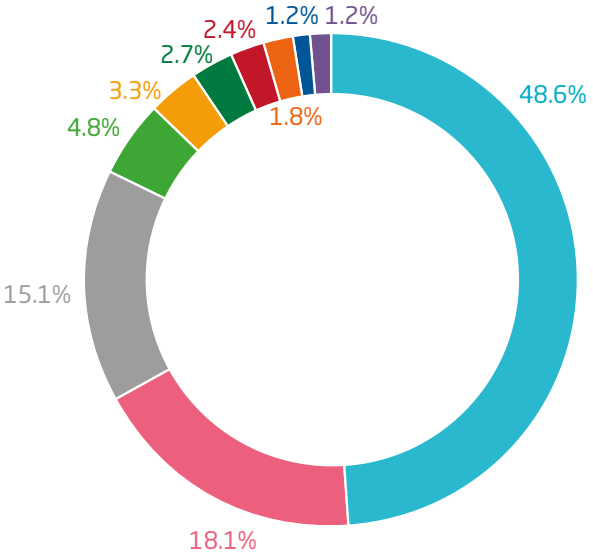
Plaza de España refurbishment in Madrid (Spain)

Subject matter of the communications



- 27.5% Sending information or documentation to interested parties in response to prior request
- 11.2% Collaboration request
- 11.2% Communication of actions generating potential environmental risks
- 8.2% Resolution of complaints and claims from interested parties
- 11.2% Reception of guidelines or instructions
- 1.8% Proposal for improvements and suggestions
- 0.3% Delivery and reception of awards and tributes
- 0.9% Dissemination of announcements
- 0.6% Obtaining and disseminating declarations, seals or certificates (environmental, quality, management, etc.)
- 1.5% Communication of emergency situations or environmental accidents
- 11.2% Sending periodic reports to the administration
- 1.8% Communication of actions that generate potential execution risks
- 5.1% Customer requests
- 7.5% Others

Communication with stakeholders



- 48.6% Supranational, national, regional or local administration different from the environmental one
- 18.1% Supranational, national, regional or local environmental administration
- 15.1% Public companies. Autonomous agencies and official institutions
- 4.8% Customers (client representatives, technical assistances on site)
- 3.3% Individuals
- 2.7% River basin institutions
- 2.4% Private businesses
- 1.8% Local Community (trade unions, NGOs, religious congregations, native communities, etc.)
- 1.2% Academic community, sectoral and professional associations, foundations
- 1.2% Employees (construction staff, quality and environmental technicians, local or central technical services or Senior Management)

CASE STUDY

Conditioning of the southern shore of the Mapocho River (Chile)

Client: Serviu Metropolitano

Completion period: 20 months

Problem detected

The Mapocho River crosses the city of Santiago de Chile (Republic of Chile) from East to West, with two major avenues running parallel to it, namely Costanera Norte Avenue and Costanera Sur Avenue. The wealthiest communities in Santiago are located upstream of the Mapocho River, and the purchasing power of these communities falls downstream, leaving a strong inequality between upstream and downstream communities.

Located downstream of the Mapocho River, around the Costanera Sur avenue, Cerro Navia is a poorly resourced commune where the community as a whole has extremely depressed socio-economic and cultural levels. There is a lack of basic facilities and services (education, health, leisure, green areas, public lighting, transport infrastructure, etc.), and the area's infrastructure is in a very poor state of repair, which is a serious problem for the development of the community.

The lack of containers and waste bins means that rubbish accumulates in the streets of the Commune and is dumped directly or indirectly into the Mapocho River, disrupting the ecological and biochemical balance of its waters.

FCC Construcción is working in this area on the development of the south bank of the Mapocho River to consolidate the river as an authentic ecological corridor and provide the western sector with a recreational area with recreational and sports facilities. The project includes, yet is not limited to, planting trees and herbaceous cover, paving pedestrian paths, installing urban furniture, lighting, playground elements, etc., incorporating sports programmes and carrying out water works.

Proposed solution

The sustainability area of the Santiago City Council is implementing, as part of its programme of measures to improve the housing environment, the recovery of spaces through the cleaning of sectors and the facility of clean points that encourage the community to live in a clean environment.

FCC Construcción partnered with the municipality to set up green points in this municipality and, in order to raise awareness and sensitise the population to the importance of keeping the area clean and recycling waste, it launched a campaign to publicise recycling sites and their importance:

"Take care of your environment, let's take care of our environment, the Mapocho River Park is for everyone's benefit, let's take care of our environment"

Results

By donating the material and facility for the green point and distributing the leaflets, FCC Construcción has helped to encourage greater respect for the environment and to improve the quality of life in this area, as maintaining high levels of dirt is a source of disease and pests. The company has also contributed to reducing pollution sources in the Mapocho River.

Cerro Navia commune green point.

Leaflets distributed during the campaign to raise awareness of the importance of disposing waste properly.

CASE STUDY

Arbeyal stormwater reservoir (Spain)

Client: Empresa Municipal de Aguas de Gijón, S.A.U.

Completion period: 29 months

Problem detected

The supply of some services (gas, water and telephone) and the high- and low-voltage lines were affected during the execution of the construction works on the Gijón Stormwater Reservoir (Spain). These interruptions could lead to major inconveniences for residents in the area.

Proposed solution

FCC Construcción began a process of dialogue with the supply companies and collaborated with them to establish actions, among them, in order to avoid causing major inconvenience to the surrounding communities:

- The water line was rerouted.
- In accordance with the gas, high- and low-voltage and telephone lines companies, the services were temporarily reinforced with the consent and supervision of the supply companies.

An emergency plan was put in place to ensure security of supply in addition to the above measures.

Results

After the implementation of the actions, the prefabricated frames for the connection of the Brazil A1 collector box with the stormwater reservoir were successfully installed, maintaining the service to third parties at all times.

Detail of the temporary shoring of these services for their protection.

2. Atmospheric emissions

3 GOOD HEALTH AND WELL-BEING

FCC Construcción endeavours to prevent adverse effects arising from its activity on the health of ecosystems and society as a whole. Particulate emissions into the atmosphere are one of the most important impacts on communities. To counteract them, the company implements various measures adapted to each project with the objective of protecting people's health.

15 LIFE ON LAND

FCC Construcción implements actions to protect ecosystems and the biodiversity that inhabits them. In terms of light pollution, the company implements measures such as installing lighting devices that have been designed to work in harmony with the life cycles of the different species, or tries to avoid greenhouse gas emissions into the atmosphere by using less polluting fuels, the use of electric machinery or the application of sensors that adjust electricity consumption to the needs of use.

Air pollution from emissions is one of the most serious problems facing the planet today. While there are various types of such emissions, the most widely known are greenhouse gases (GHG). GHG comprise gases such as carbon dioxide, methane or fluorinated compounds, which contribute to accelerating the greenhouse effect and are therefore responsible for the climate changes affecting the planet.

In addition to these emissions, there is a range of other substances that do not contribute to climate change, but which also generate pollution in the atmosphere and, therefore, in the environment. This concerns, for example, dust and particulate emissions, a very significant environmental aspect in the construction sector.

Such emissions are frequently generated during the execution of works (movement of aggregates, excavations, road traffic, etc.), with a local and specific effects both on nearby populations and on living beings, also having a negative influence on air quality.

An additional type of air pollution is light pollution caused by artificial light projected onto the areas adjacent to the project at night, whether they are urban areas or natural spaces.

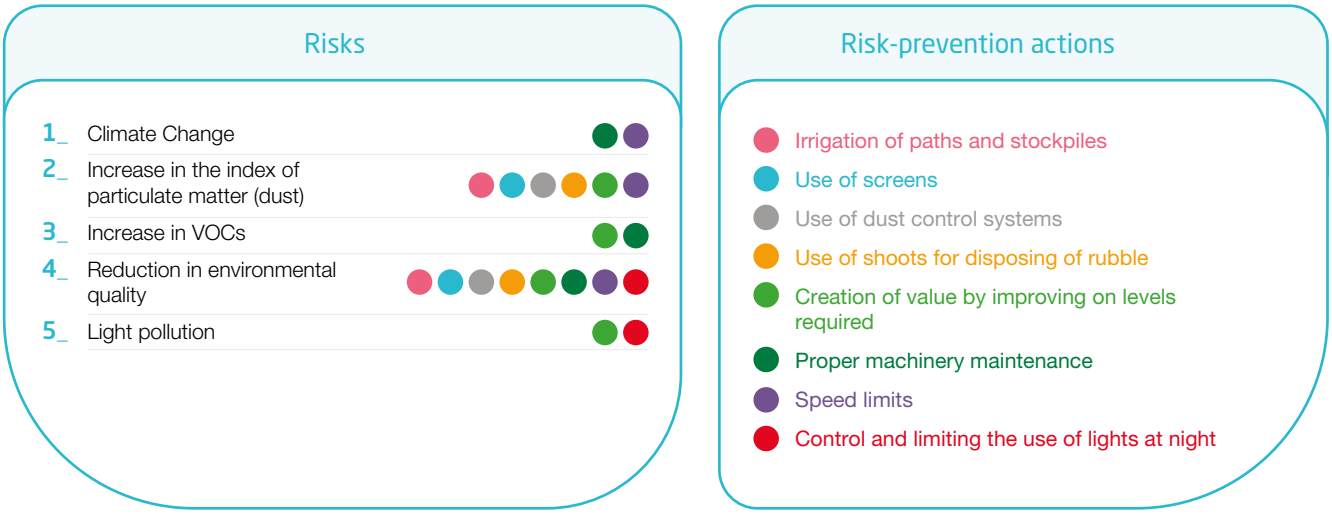
Pollution from dust and particulate matter emissions into the atmosphere can cause health problems such as, but not limited to, lung and cardiovascular diseases. It also harms living beings and materials, such as the deterioration of cultural heritage. Light pollution can also cause sleep disorders in humans and animals, and even lead to changes in animal reproduction cycles.

FCC Construcción is highly conscientious about minimising this type of emissions and also about eradicating the impact they may have on living beings as much as possible. Accordingly, the company employs a number of measures adapted to each process and site with the objective of avoiding or reducing the impact of this pollution as much as possible. A number of simple but effective actions that can be applied by construction sites to combat these impacts are included in its Good Practices System.

One of the most significant environmental aspects identified in practically all the works is dust emissions into the atmosphere. These emissions result from most construction processes, including earthworks (excavation and backfilling, cuttings and embankments), machinery movements, transport of materials, earth and debris, enclosures and finishes, and demolition. FCC Construcción has the Good Practices necessary to deal with them.

Some of the potential risks related to atmospheric pollution are listed below along with the Good Practices that could be applied when executing the works in order to avoid or minimise them:

Risk-prevention actions



Good Practices

The FCC Construcción Good Practices System includes numerous atmospheric-emissions reducing measures, which have been devised according to the importance we attach to each one. The following table shows its application in the works executed throughout the 2020 financial year, broken down according to the goal that is defined for each of them:

	Significance	Goal (degree of implementation)		
Good Practice	% of application	1	2	3
Reduction of dust by irrigating paths and stockpiles with water.	2 97% 98% 98%	Sporadic application. 11% 16% 14%	Frequent application. 71% 52% 59%	Systematic application. 18% 32% 27%
Use of additives in irrigation water to create a surface crust, paving paths or other long-lasting dust control practices.	1 100% 20% 33%	Sporadic application. 100% 100% 100%	Frequent application. 0% 0% 0%	Systematic application. 0% 0% 0%
Use of screens to prevent the dispersion of dust in specific activities.	1 100% 63% 75%	In more than 30% of the perimeter of the site where the dust is generated. 25% 40% 33%	Idem > 60%. 50% 60% 56%	Idem > 90%. 25% 0% 11%

Good Practice	Significance % of application	Goal (degree of implementation) 1	2	3
Use of molecular crushers at facilities that generate dust, such as aggregate treatment plants, etc.	2 0% 60% 60%	Crushers in more than 30% of dust generation points. 0% 67% 67%	Idem > 60%. 0% 33% 33%	Idem > 90%. 0% 0% 0%
Use of drilling machinery equipped with dust damping systems, establishment of wet curtains at ventilation duct outlets or other dust collection systems.	3 100% 83% 88%	Implementation in one activity. 50% 60% 57%	Implementation in at least two activities. 50% 30% 36%	Implementation in at least five activities. 0% 10% 7%
Improvement on the levels required by the legislation in terms of the parameters subject to control (discharge opacity, particulate matter, etc.).	3 0% 40% 33%	Systematic achievement of levels of pollution that are better than those required for over 5% of all checked parameters. 0% 100% 100%	Idem for over 15% or over 30% of half of the checked parameters. 0% 0% 0%	Idem for over 30% of all the checked parameters 0% 0% 0%
Adequate maintenance of machines used at the site.	2 67% 82% 77%	Preventive maintenance -additional to that required by law- in at least 30% of the machines used on site. 75% 50% 56%	Preventive maintenance -additional to that required by law- in at least 60% of the machines used on site. 8% 19% 17%	Preventive maintenance -additional to that required by law- in at least 90% of the machines used on site. 17% 31% 27%
Environmentally friendly night lighting.	1 90% 84% 87%	Directional lighting instead of environmental lighting over at least 30% of the surface area, or automated activation and deactivation. 61% 62% 62%	Directional lighting instead of environmental lighting over at least 60% of the surface area and automated activation and deactivation. 33% 24% 28%	Directional lighting instead of environmental lighting over at least 90% of the surface area and automated activation and deactivation. 6% 14% 10%
Use of shoots for disposing of debris from a height and covering of containers with tarpaulins.	1 89% 33% 61%	For over 30% of containers. 25% 0% 18%	Idem > 60%. 50% 33% 46%	Idem > 90%. 25% 67% 36%
Correct vehicle speed control at the site.	1 84% 96% 93%	Over 30% of the site paths with speed limit signs. 38% 29% 31%	Idem > 60%. 18% 30% 27%	Idem > 90%. 44% 41% 42%
Reduction of dust emissions at auxiliary premises.	2 67% 56% 58%	Shielding over some elements at the premises. 100% 20% 43%	Individual enclosure on some device at the premises. 0% 80% 57%	Enclosure of the premises as a whole. 0% 0% 0%

Good Practice	Significance % of application	Goal (degree of implementation) 1	2	3
Adequate selection of the location of machinery and activities that release dust.	1	There is written/graphical planning of the areas where the machines and activities that can generate dust will be located.	In addition, the planning considers the surrounding environment to locate these areas as far away as possible from potential receptors.	In addition, the planning is dynamic and considers the relocation of these areas in accordance with the determining factors of the project and the environment.
		92% / 18% / 55% / 27%		
		88% / 36% / 50% / 14%		
		89% / 28% / 52% / 20%		
Paving of pathways on site to reduce dust generation.	2	Entrances and exits are paved.	Entrances and exits are paved, in addition to over 10% of the site paths.	Entrances and exits are paved, in addition to over 20% of the site paths.
		50% / 0% / 0% / 100%		
		90% / 33% / 0% / 67%		
		83% / 30% / 0% / 70%		
Reduction of fuel gas emissions from vehicles and machinery.	2	Vehicle engines shut off when they are not in use.	Furthermore, reduction of construction traffic around the worksite.	Furthermore, use of fuel with a low sulphur content.
		92% / 83% / 17% / 0%		
		82% / 72% / 22% / 6%		
		86% / 77% / 20% / 3%		

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

● Building ● Civil engineering works ● Total

FCC Construcción's Good Practices include the provision of a Maintenance Plan for all the machinery used on site. The proper maintenance of this equipment reduces possible emissions and electricity consumption, and detects possible faults that could lead to increased energy consumption of this machinery. As many as 77% of the construction sites that were executed in 2020 reported having done at least preventive maintenance, in addition to that required by legislation, on at least 30% of the machines operating on the site.

Speed limits imposed on vehicles both on and around construction sites reduce pollutant gas emissions from fuel consumption and reduce dust and particulate emissions from driving on unpaved surfaces. This Good Practice was implemented in 93% of the works executed in 2020.

Debris disposal tubes do not prevent dust and particulate contamination but also reduce the nuisance caused to workers and the environment. This Good Practice has been implemented in 61% of the works. Dust control systems are also used to maintain air quality. Controlled irrigation is carried out for roads and stockpiles, thus reducing the emission of pollutants of this sort. This final Good Practice was implemented in 98% of the works executed in 2020. Additionally, additives were also used in the irrigation water in 33% of the works to create surface crust, paving of the tracks, or other practices that allow for greater dust control.

A Good Practice implemented at the 88% of the sites in 2020 consisted of the use of drilling machinery with associated dust humidifier systems or other dust collection systems.

Additional measures to combat dust dispersion on construction sites include the use of anti-dust dispersion screens and molecular sprayers in dust generating facilities, such as aggregate treatment plants, etc. The projects also aim to improve the levels required by legislation in terms of the checked parameters (discharge opacity, suspended particulates, etc.).

We, at FCC Construcción, are also working to combat light pollution. We conduct extensive controls and limitations of lighting on construction sites where work is carried out at night, especially in areas close to dwellings, areas of special urban protection such as hospitals, or areas of special protection for flora and fauna.

Environmentally friendly night-time lighting devices were used in 87% of the 2020 sites, e.g. by installing directional rather than ambient lighting on at least 30% of the surface, or by including automatic on/off devices.

Great care must be taken on construction sites in urban areas to avoid adverse health effects due to the emission of dust particulates into the atmosphere. We opted for water nebulisers to reduce this type of pollution in projects such as the Plaça de les Glòries Catalanes, devices that generate very fine water droplets, which carry the dust generated to the ground, preventing large clouds of dust from being produced in the vicinity of the works.

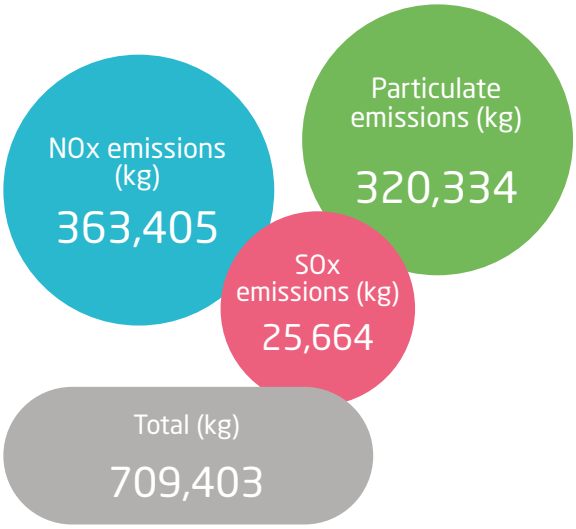
Plaça de les Glòries Catalanes Project in Barcelona (Spain)

Data and indicators

The FCC Construcción commitment to reducing emissions means that we are aware of the importance of knowing the emissions we produce into the atmosphere, both directly (through fuel consumption) and indirectly (through electricity consumption). These emissions can be divided into two large groups: emissions associated with the greenhouse effect and emissions not associated with the greenhouse effect.

In section 3.4 of this document you can consult the Greenhouse Gas emissions produced by the company in 2020.

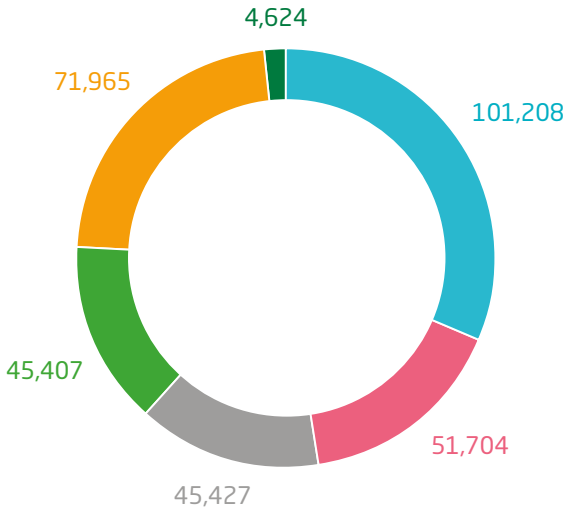
Emissions of pollutants not associated with the greenhouse effect were as follows for FCC Construcción in 2020:



FCC Construcción also controls emissions of other compounds such as particulates or dust, sulphur compounds or nitrogen compounds. As shown above, the highest emissions are particulate and NOx, being emissions of sulphur-containing compounds low significant in relation to the total.

FCC Construcción studies the production of dust emissions in each process. As shown below, the highest particulate emissions occur in the transport of materials. However, the transport of waste soil and rubble is where the lowest emissions were identified in 2020. It is also worth highlighting the dust emissions generated in the manufacture of asphalt agglomerate, mainly due to the crushing of aggregates.

Dust emissions (kg)



- 101,208 By manufacture of asphalt agglomerate
- 51,704 By concrete manufacture
- 45,427 By crushing aggregates
- 45,407 By storage of materials
- 71,965 By earthworks
- 4,624 By transport of consumed materials and waste of earth and debris

The data in the graph refer to FCC Construcción, FCC Industrial and Áridos de Melo, excluding Matinsa, Prefabricados Delta and Megaplas.

Minimising dust emissions associated with the transport of materials can be achieved through the application of simple actions, such as watering roads and stockpiles, or covering lorries.

CASE STUDY

Megaplas factory (Spain)

Problem detected

Some of the work carried out at the Megaplas facilities consists of applying paints to different surfaces.

The surfaces must be previously prepared in order to obtain a proper quality and finish of the final product. Therefore, prior to painting, the surface of the parts is sanded and subsequently cleaned using sanding machines and brushes.

The preparation is even more thorough in the specific case of Renault work. Surface sanding is enhanced to achieve improved adhesion of adhesives, so the level of dust emissions in the factory is higher than in the rest of the work.

Proposed solution

A shot blasting booth has been designed and installed in the central area of the factory to reduce these emissions. After closing the booth, the parts are placed on the metallised table and shot blasted, a measure to clean the surfaces without damaging them. The worker wears Personal Protective Equipment at all times and is therefore isolated from dust, noise and the physical projection of particulates.

In environmental terms, no large quantities of waste are generated and the dust generated by this work is collected directly in its bag by means of suction. The installation of the shot blasting booths also reduces the dust in the factory, generated by the sanding activity.

Results

The dust level in the different areas of the factory proved to be considerably reduced. That is because the sanding process has been eliminated and the dust generated in the booth is trapped in the suction bag.

The actions taken have improved air quality, which has a positive impact on the health of employees. These new measures also prevent the adoption of inappropriate postures, which has also improved the ergonomics of the work performed.

Megaplas. Installed projection booth.

Megaplas. View of the painting and sanding of surfaces.

Megaplas. Shot blasting by a worker with the corresponding PPE.

CASE STUDY

Railway track Gurasada – Simeria (Romania)

Client: CFR (Railway National Company)

Completion period: 64 months

Problem detected

During the rehabilitation of the Border- Curtici -Simeria railway line, specifically between km 614 and 470 of Section 3 between Gurasada-Simeria, we identified a potential problem associated with emissions that could be generated during the execution of the work and that could have an impact on the populations and the surrounding natural environment.

We identified that the works could lead to emissions of dust particulates and other gases such as nitrogen oxides (NOx), carbon monoxide (CO), non-methane volatile organic compounds (NMVOCs) and other particulates resulting from the combustion of fuels:

- Dust emissions were caused by works such as earthmoving, transport and handling of construction materials, as well as levelling works. These emissions were concentrated in the execution phase of the works, and were local and occasional in nature.
- Emissions of NOx, CO, NMVOC, or particulate matter resulting from combustion were produced as a consequence of the combustion of fuels in the machinery used. These emissions, in addition to being associated with the movement of earth or fill, also occur in the transport of materials and personnel, both on and around construction sites, and in the preparation of concrete.

Proposed solution

The decision was made to transport materials and people by rail wherever possible in order to reduce emissions. Whenever this was not possible, transport was carried out in other types of vehicles, as long as they met the minimum technical conditions required by the Technical Vehicle Inspections.

Signposting installed on site to prevent the generation of dust particulate emissions into the atmosphere.

In addition, all vehicles and machinery were subjected to a Maintenance Plan where possible deficiencies in terms of atmospheric emissions were detected and corrected.

Additionally, the roads around the construction site were regularly sprinkled with water to reduce dust and speed limits were put in place. Roads were also identified in the vicinity of the backfill areas so that they would be compacted by road traffic and dust emissions would be restricted to these areas.

Additionally, to prevent emissions in the areas closest to the population, the fuel supply points on site were located at the central station. If the equipment was scattered around the construction site, a tanker truck was used to deliver the fuel to dust-free areas.

Results

Dust emissions produced during the construction work were considerably reduced. Actions such as road maintenance and spraying, control of engine ignition timing and speed control were effective in reducing these emissions.

Tracking the Good Practices has also led to a reduction in atmospheric pollutants such as sulphur dioxide (SO_2), nitrogen dioxide (NO_2) and suspended dust (PM10), complying at all times with the environmental regulations in force.

Cleaning of trucks at the site exit to reduce dust emissions in the project environment.

Watering of roads to reduce dust emissions caused by vehicle traffic during the transport of materials or people.

3. Generation of noise and vibrations

3 GOOD HEALTH AND WELL-BEING

FCC Construcción implements measures to prevent and reduce noise and vibrations wherever it operates to prevent nuisance and protect the health of neighbouring communities, its workers and subcontractors.

15 LIFE ON LAND

The company considers how noise and vibrations impact the life cycles of the species that inhabit the environment in which it operates and implements actions to minimise them in each phase of the project.

Noise and vibration generation is one of the main significant environmental aspects in the construction sector. Sustained exposure to it not only causes nuisance to the workers on the construction site, but also to the population of nearby villages and to the surrounding fauna. These emissions are usually caused by many factors, including road traffic on construction sites, and also heavy tools and machinery drills, pneumatic hammers and compactors, etc.

Prolonged exposure to noise pollution emissions can adversely affect humans and wildlife living in the environment. Long-term and intense exposure of humans to this type of pollution can lead to minor hearing impairment or even acute deafness, the latter occurring mainly in workers. It is also the cause of numerous disorders such as stress, anxiety and insomnia.

The surrounding fauna is also greatly affected by noise and vibrations. Noise interferes with the ability of many species to communicate, reproduce, orient themselves or detect danger, which has a direct effect on their survival.

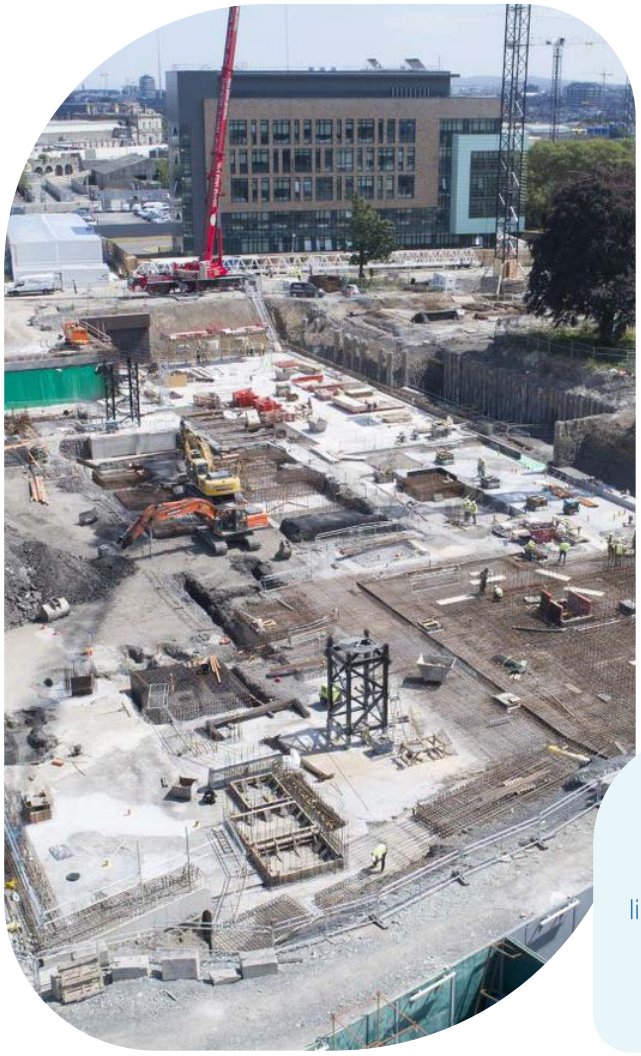
FCC Construcción places great importance on this environmental aspect, which is why it implements numerous Good Practices to minimise noise and vibration emissions in all phases of the life cycle of its projects.

The company implements some actions that are routinely adopted to reduce the severity and intensity of the noise and vibrations generated, thus avoiding risks such as noise pollution, disturbance to the nearby population and the effect on the reproductive cycle of fauna.

FCC Construcción includes the impact of noise and vibrations generated by its projects on the nearby population and fauna, in its efforts to reduce or minimise it by applying the necessary measures.

Noise and air quality monitoring station installed at the Toyo Tunnel construction site (Colombia)

From the project planning process, the activities that can generate noise and vibrations are identified with the objective of limiting them to times when they cause the least nuisance to the environment.



Some Good Practices adopted to reduce noise are based on taking into account the environment in which the projects are located in the planning phase of the works, thus managing to reduce risks as much as possible. These include the use of modern machinery, which must comply with legislation on noise emissions, or its use in a rational manner, i.e. limiting its use to necessary activities and at times of least impact on the environment.

Additional Good Practices include the use of vibration and noise reduction devices, and even the reduction of the effects of blasting or the limitation of the speed of vehicles used on construction sites. In addition, as part of FCC Construcción's commitment to improving environmental and social performance, in some projects the limits required for noise emissions by current regulations are extended, voluntarily adopting more demanding limits in terms of the intensity and duration of the noise levels produced.

In some projects, such as in the case of Dublin Institute of Technology Higher Education Centre at Grangegorman Campus (Ireland), actions such as enveloping the building, limiting activity to daylight hours or monitoring vibrations are carried out with the objective of minimising disturbance to nearby dwellings.

The following are some of the risks that may occur in terms of noise and vibration generation that can be avoided or minimised by applying the Good Practices:

Actions for risk-opportunities prevention

Risks

1_ Noise pollution

2_ Inconvenience caused to local residents

3_ Impact on the reproduction cycle of wildlife

Risk prevention actions

- Use of noise and vibration reduction devices
- Consideration of environmental conditions in planning
- Reduction of blasting damage
- Performance beyond the requirements of the regulations
- Use of modern machinery
- Vehicle speed limitation
- Rational use of machinery

Good Practices

Vibration and noise emissions are addressed from the design stage of projects to their implementation with a view to reducing or mitigating their possible impacts.

FCC Construcción adopted the following Good Practices in 2020 in relation to the generation of noise and vibrations on construction sites:

	Significance	Goal (degree of implementation)		
Good Practice	% of application	1	2	3
Incorporation of noise/vibration dampening devices to installations or machinery used at the site, such as silencers, anti-noise barriers, buffers, etc.	3 86% 70% 74%	Presence of these devices on equipment considered critical. 50% 79% 70%	Idem for 50% of the equipment considered critical and 50% of that used for night work. 50% 21% 30%	Idem for 100% of both critical equipment and equipment used during night work. 0% 0% 0%
Rubber covers on hoppers, mills, sieves, containers, buckets, etc.	2 100% 33% 43%	Presence of rubber-covered elements. 100% 50% 67%	More than 30% of these elements are protected against noise. 0% 0% 0%	Idem > 60%. 0% 50% 33%
Considering the conditions of the environment in the work programme.	2 100% 94% 96%	Limiting noisy activities to times at which least inconvenience is caused. 95% 78% 86%	Limiting noisy activities to times of the year when least inconvenience is caused. 5% 11% 8%	Frequent temporary stoppage of work in response to external conditions. 0% 11% 6%

Good Practice	Significance	Goal (degree of implementation)		
	% of application	1	2	3
Reduction of blasting damage.	2 0% 71% 71%	Protection of the affected area by using rubber blankets, placement of interim barriers between the affected zone and the blasting site, or protection using tarpaulins, meshes or another device for any of the sensitive elements. 0% 20% 20%	In addition, low-density explosives are used. 0% 20% 20%	Furthermore, decrease in the explosive charge by millisecond delay in blasting, or preparation of de-coupling or spacing of the charge. 0% 60% 60%
Improvement on the levels required by the legislation in terms of noise levels subject to control.	3 50% 63% 60%	Systematic achievement of noise levels that are better than those required for more than 5%. 100% 100% 100%	Idem > 15%. 0% 0% 0%	Idem > 30%. 0% 0% 0%
Use of modern machinery.	2 97% 94% 95%	Percentage of machinery with CE mark (company and subcontractor machinery) more than 50%. 13% 15% 15%	Idem > 70%. 7% 31% 21%	Idem > 90%. 80% 54% 64%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

● Building ● Civil engineering works ● Total

Plaza de España refurbishment in Madrid (Spain)

The most widely applied Good Practice in the area of noise and vibration throughout 2020 was the consideration of environmental conditions in the work programme, primarily focusing on limiting the noisiest activities to the times that cause the least disturbance to the environment. 100% of building works and 93% of civil engineering work carried out this Good Practice.

In addition, 95% of the works used modern, CE-certified or equivalent machinery with a lower noise level during operation.

Another highly effective Good Practice, which is very widespread on construction sites to reduce noise and vibrations, is the incorporation of noise and vibration reduction devices, such as silencers, noise barriers or dampers, in facilities or machinery on the construction site.

CASE STUDY

Maragall Metro Station (Spain)

Client: Infraestructures de la Generalitat de Catalunya

Completion period: 26 months

Problem detected

FCC Construcción is doing work at the Maragall Metro Junction on Barcelona Metro lines 4 and 5, including the construction of a new vestibule at Ronda Guinardó and the remodelling of the platform transfer corridor.

During the removal of the staircases and the creation of the lift shafts (construction of diaphragm walls, micropile foundations and demolition of old structures), significant noise and vibration values were recorded outside, in particular affecting the adjacent residential buildings and a special education centre.

Proposed solution

FCC Construcción carried out a study of noise pollution in the affected area to eliminate or mitigate as much as possible the noise pollution generated, by characterising the environment in which it operates and using specialised modelling software. The study's results provided unequivocal knowledge of the environmental impact generated, as well as the possibility of adopting the most effective preventive and corrective measures.

Project management took a number of measures, including the following:

- The replacement of the generator set with another soundproof generator set.
- Continuous noise immission level monitoring through the installation of two sensors. The monitoring enabled continuous web-based data tracking.
- An inspection point programme, including 4 points for monitoring the noise levels generated.
- Soundproofing panels were installed on the entire perimeter of the work carried out.
- Mobile screens created with insulating panels and fencing were set up in the areas where emissions were categorised as critical.

Results

The applied noise barriers reduced outdoor noise levels by 5 to 10 dB. Continuous noise meter recordings were also obtained by the project management, which were checked frequently to ensure compliance with noise pollution regulations.

There were no complaints from neighbours or property owners during the execution of the work, which is evidence of the effectiveness of the measures adopted.

Overview of the soundproofing panels on site. Maragall Metro Station (Barcelona).

CASE STUDY

Megaplas Factory (Spain)

Problem detected

FCC Construcción uses a milling machine as part of the work carried out in the machining and milling section at the Megaplas factory (Arganda del Rey, Spain), which generates elevated noise levels due to the nature of the work.

This milling machine has a chip extraction system which, during cutting, uses vacuum pumps that produce a significant increase in noise in the facilities. Workers using this machinery, and even co-workers in other sections of this facility, are highly exposed to elevated noise levels, which can adversely affect their health.

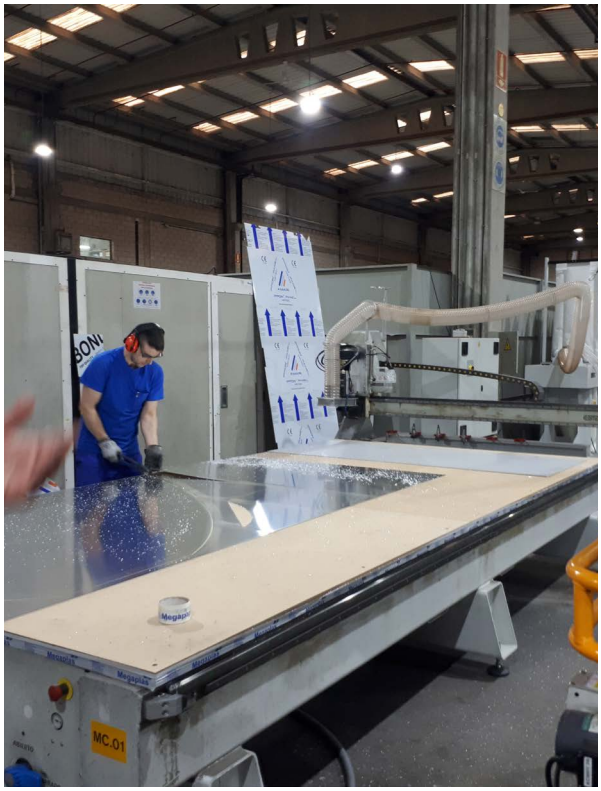
Proposed solution

A panelling system was used in the storage and extraction area to reduce noise emissions from the machinery as much as possible, thus limiting noise to the working area only. The panelling shields the work area acoustically, so that the noise in the rest of the factory is attenuated and the impact is considerably reduced.

In addition, as part of the measures adopted, it was decided to rotate personnel in certain areas of the factory, exposing them only to noise on an *ad hoc* basis and not for a prolonged period of time.

Results

The physical measures applied achieved an effective reduction of the noise pollution produced, as could be seen from the measurements taken. It was also clear that employees in the vicinity of the machinery were exposed to lower noise levels during their working day.



Milling machine used at Megaplas.

Sound-absorbing panels installed to attenuate noise emissions in the areas surrounding the milling machine.

4. Water discharges

6 CLEAN WATER AND SANITATION

The treatment and purification of water effluents generated during the production process prior to discharge is essential to ensure that construction activities do not endanger aquatic ecosystems. The FCC Construcción Good Practices System provides actions to improve the quality of their discharges and reduce any impact on ecosystems.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

The company incorporates technologies that allows them to control and monitor water quality parameters more efficiently to ensure safe discharge and maximise the reusable quantities of water, achieving greater optimisation in the use of the resource.

14 LIFE BELOW WATER

With the objective of minimising the impact of its activities on marine biodiversity, FCC Construcción processes discharged water to eliminate suspended solids, which apparently may not be harmful as they are particles that are not pollutants in themselves, but have an impact on aquatic ecosystems and their biodiversity, among other reasons, due to the increase in water turbidity.

Water is a vital resource for the construction sector, as it is required in virtually all construction processes. Water used in civil engineering work normally comes from groundwater or surface water bodies close to the project. While its use is not intensive, the extraction of the resource affects the ecosystems linked to it for, among other reasons, the alteration of its availability, the lowering of the water table or the alteration of the water/sediment balance, resulting in the alteration of the hydro-morphological processes of the water bodies and the quality of the resource. Mindful of this, the projects of FCC Construcción ensures rigorous environmental planning with the objective of applying the appropriate actions and measures to protect water resources and minimise the impact of the activity.

FCC Construcción also considers the proper management of the water used in its environmental planning, as this is another of the significant environmental aspects identified by FCC Construcción. The company manages discharge to prevent it from affecting the natural environment and applies Good Practices to reduce its impact.

The Good Practices System sets out actions that include the treatment of water before it is safely returned to the natural environment, avoiding any type of contamination of the ecosystem. FCC Construcción's Good Practices include measures for the treatment of the water used by purification, decantation and neutralisation of the pH, as one of the most significant impacts identified on site is the increase in the pH of the water as a result of coming into contact with the concrete, as well as the dragging of suspended solids and grease.

When the water used on site has a high pH due to its contact with the concrete and therefore could not be discharged without being treated, recirculation and decantation systems are used to control the pH of the water prior to its discharge, as well as the concentration of suspended solids in the water.

TJV Estació Maragall (Spain)

The purification and settling of solids is important because, although suspended particles are not a pollutant per se, they affect the aquatic environment by increasing the turbidity of its waters, reducing the entry of light and, in general, altering the biodiversity of the ecosystem. By installing containment elements in working areas close to watercourses, solids are prevented from entering the water.

The eutrophication of water bodies as a result of the contribution of nutrients, mainly phosphorous and nitrogen, is another of the impacts identified as a result of the discharge of water. In these cases, the runoff water generated by the construction processes carries or favours the infiltration of detergents, as well as other substances deposited on the ground with a high nutrient content. The final destination of these nutrients is aquatic systems where significant growth of phytoplanktonic organisms occurs.

FCC Construcción, aware of the importance of water for maintaining the health of ecosystems, has authorisation for discharge from the competent authorities in its projects, so that these are carried out in a controlled manner and supervised by environmental bodies. In addition, in a large part of the projects, an initial analysis of the wastewater generated is carried out to determine whether the required quality parameters are met and whether or not the effluent needs to be treated before discharge.

The table below shows some of the risks related to spills that are avoided or minimized with the application of Good Practices:

Risks

1_ High pH levels due to contact and carry-over of concrete
2_ Water pollution from solids discharge
3_ Pollution of public sewers
4_ Change in habitats and hydrobiological populations
5_ Discharge of substances into soil and groundwater
6_ Eutrophication
7_ Water conservation

Risk prevention actions

- Water recirculation and decantation
- Containment to prevent materials from falling into water
- Training on "conservation" for personnel
- Installation of water monitoring instrumentation
- Protective coating on perforated areas
- Reuse of process water
- Building relationships with stakeholders

Good Practices

The table below describes the measures applied in the projects carried out in 2020. FCC Construcción implemented actions aimed at anticipating and mitigating the risks associated with water spillage in works, mainly focused on avoiding the contamination of water resources with water excessively enriched in nutrients or solids in suspension and / or pH different from that of the receiving medium.

	Significance	Goal (degree of implementation)		
Good Practice	% of application	1	2	3
Use of portable water treatment plants or recoverable precast sealed pits to treat sewerage water.	3 100% 92% 93%	Installed on at least the effluent carrying most water. 100% 73% 77%	Installed on at least 50% of points generating discharges. 0% 18% 15%	Idem for elements recovered from other sites. 0% 9% 8%

Good Practice	Significance % of application	Goal (degree of implementation) 1	2	3
Settling ponds for effluents with or without the use of additives in effluent discharges and process water.	2 0% 83% 79%	Control of grease and suspended solids. 0% 60% 60%	In addition, the pH. 0% 33% 33%	Furthermore, the effluent has no colour. 0% 7% 7%
Acid neutralisation of the pH of basic effluents.	2 0% 67% 57%	Neutralisation using HCl or H_2SO_4 in at least one discharge point. 0% 25% 25%	Idem for 50% or at least two different discharges. 0% 0% 0%	Idem for 100% or at least three discharge points. 0% 75% 75%
Improvement of the levels required by legislation or by the discharge permit in controlled parameters.	3 0% 75% 75%	Systematic achievement of levels of pollution that are better than those required for more than 5% of all parameters. 0% 100% 100%	Idem for over 15% or over 30% for half of the controlled parameters. 0% 0% 0%	Idem for over 30% of all the controlled parameters. 0% 0% 0%
Reuse of concrete mixer wash water.	3 80% 71% 74%	Reuse on site to irrigate pathways. 25% 60% 50%	Reuse on site to wash other mixers. 0% 10% 7%	Reuse at the concrete plant. 75% 30% 43%
CO_2 neutralisation of the pH of basic effluents.	3 0% 60% 60%	Neutralisation using CO_2 in at least one discharge point. 0% 33% 33%	Idem for 50% or at least two different discharges. 0% 0% 0%	Idem for 100% or at least three discharge points. 0% 67% 67%
Chute washing area.	1 100% 93% 96%	Definition of points (distant from water bodies and groundwater, to wash pipes. 42% 20% 29%	Furthermore, they are waterproofed. 46% 31% 37%	Furthermore, they are covered and landscape restoration tasks are performed once the work complete. 12% 49% 34%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

● Building ● Civil engineering works ● Total

Flushing areas were installed to drain and decontaminate the water used, avoiding the discharge of concrete-contaminated water into the river, which would have meant an increase in the pH of the aquatic environment.

Gerald Desmond Bridge Construction Project (United States)

Through the water purification system, installed next to the excavation well, the amount of suspended solids is reduced and the pH of the water is corrected so that it meets the necessary quality requirements to be discharged into the municipal sewage system.

Construction of the Galindo stormwater tank (Spain)

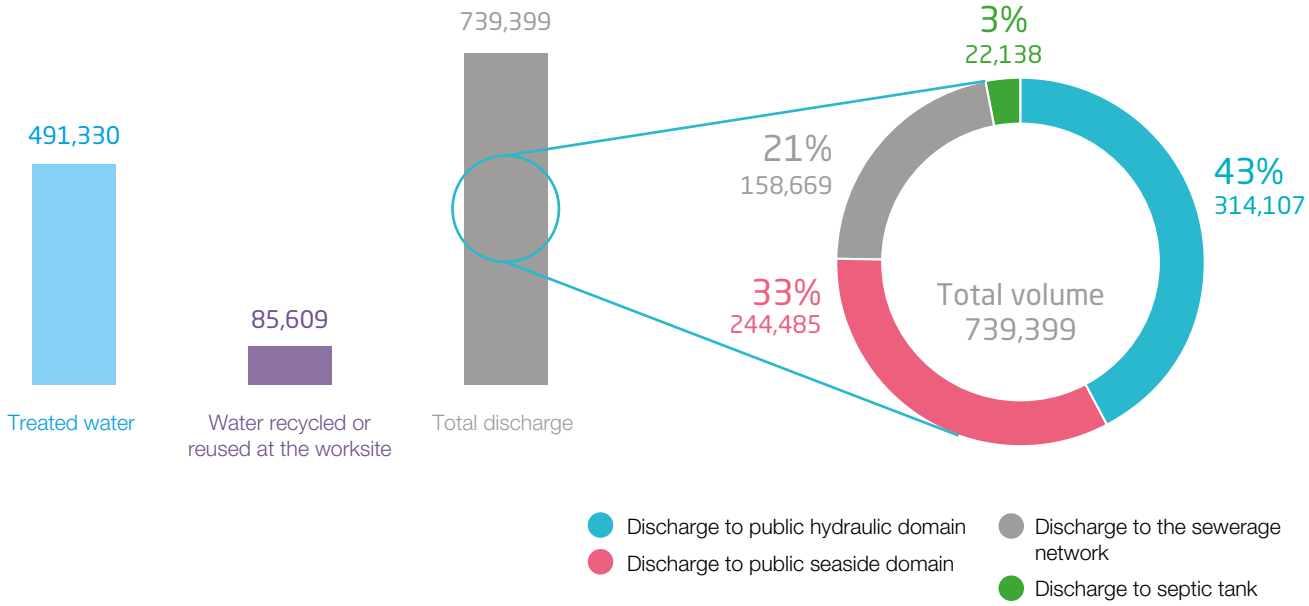
In 2020, FCC Construcción used sewage treatment plants and sealed pits for treating sanitary water on 93% of its projects and on 100% of its building projects. However, the most common practice related to discharges to water was the creation of gully washing areas. This practice was carried out on 96% of the construction sites and 100% of the building sites, reducing the risk of discharging dirty water into watercourses and waterways. Effluent settling basins were also installed at 79% of the facilities, with the objective of eliminating the discharge of solids into the water and eliminating excess pH.

The most widely applied Good Practices with regard to discharges in 2020 were the use of portable treatment plants for the treatment of sanitary water, the improvement of the levels required by legislation for discharges, the reuse of water from washing concrete tanks and the neutralisation of the pH of effluents with CO_2. These measures helped to prevent the discharge of polluting water, and encouraged the reuse of water and the optimisation of water consumption.

Data and indicators

To check the effectiveness of the company's Good Practices with regard to water discharges, FCC Construcción compiles data on water consumption, discharge and reuse. In addition, discharges are classified according to their destination, as shown below.

Wastewater discharges (m^3)



The graph shows that the main destination of effluent water discharges from construction projects was the Public Water Domain (43% of the discharges). The second main destination was the Public Seaside Domain (33%). Approximately 21% of the water used was discharged into the sewerage system and 3% into septic tanks. In 2020, the company reused a total of more than 85,000 m^3 of water at its construction sites.

By type of activity, the vast majority of discharges were made during the execution of FCC Construcción projects. FCC Industrial contributed 2.5% of the total discharges.

It is significant to note that 86% of the discharges made by the Construction area of the FCC Group in 2020 were made in areas with water stress, that is, in areas where the capacity to satisfy the human and ecological demand for water is low or moderate, either due to the availability, quality or accessibility of the water. Regarding the quality of the discharged water, 99.99% of the effluents had a total concentration of dissolved solids less than or equal to 1,000 mg/l.

Using the computer tool on which FCC Construcción relies to implement its Management System, it identifies the areas in which significant discharges occur. This information is highly relevant for precautions to be taken before discharging into environmentally sensitive areas.

Impact type	No. of Construction Works*
Significant discharges in protected natural areas	3
Significant discharges in areas of high value for biodiversity	3
Significant discharges into watercourses with a relevant value for local communities and indigenous populations	6
Significant discharges along natural coastline	3
Total works with significant impacts**	**10**

* Data for all construction work executed by FCC Construcción in 2020, excluding data from FCC Industrial and Áridos de Melo.

** The total number of works does not correspond to the sum of the number of works, since the same project may have spills with different impact types; for example, it may affect a riverbed that is relevant to a local community and that, in addition, is part of an area with high value for biodiversity.

The Mures River in Romania was one of the landfill areas identified as an area of high biodiversity value in 2020. FCC Construcción implemented the necessary measures to prevent any pollution from landfill in this area.

Construction of railway line section 3 Gurasada-Simeria (Romania)

During the execution of the works near the Tâmega River and the Oura riverbank, both areas with relevant value for the local communities, FCC Construcción implemented the necessary measures to ensure the quality of the water discharged back into the ecosystem, including the rigorous control of pH levels and the concentration of suspended solids in the water through the use of hydrophobic barriers, settling basins and the deposition of alkaline water in tanks for pH control.

Gouvães dam construction project (Portugal)

CASE STUDY

Gerald Desmond Bridge (California, United States)

Client: Port of Long Beach and California Department of Transportation

Completion period: 96 months

Problem detected

Groundwater contamination was a major environmental concern during the construction of the Gerald Desmond Bridge in California (United States). Major risks related to extraction and discharge of contaminated water into the surrounding water bodies were identified from the outset of the project during the planning phase.

The existence of underground stores of benzene, a natural component of crude oil, recorded during prospective work prior to the execution of the project meant that there was a significant risk of mobilisation of this compound during the construction of the foundations of the approach viaducts and the bridge itself, as it was necessary to carry out drilling in the area where there were water tables at different depths.

Local and port authorities were concerned that during any groundwater abstraction activity for use on the site, benzene plumes could rupture and migrate into groundwater zones, contaminating the groundwater resource. The installation of the drainage system also presented another challenge which required groundwater extraction for safe placement of piping in such a way that the water resulting from the extraction would not cause a loss in the quality of the groundwater bodies adjacent to the project.

Proposed solution

Two groundwater tables were identified at different depths. The lower area was both under pressure (confined) and partially contaminated with benzene due to previous mining. FCC Construcción carried out the drilling of a well, temporarily cased, to reach the lower area for the construction of the foundations. This solution successfully prevented contaminated water from the deeper zone from migrating to the upper zone through subsurface breaches.

In addition, in order to monitor any problems that might affect groundwater quality, a comprehensive electronic device was installed to monitor groundwater level, contamination and pressure.

Monthly water tests were also conducted to confirm that contamination was not being spread by the project. Regular evaluation of the data gave the company the ability to act when construction activities appeared to have a negative impact.

Results

The measures implemented succeeded in protecting groundwater quality. Continuous water monitoring provided technical information to demonstrate that the project's objectives were being met and identified patterns of rising and falling water levels due to tides, seasonal variations and groundwater abstraction.

Data collection enabled the work to proceed, providing a mechanism for assessing possible cross-contamination in the subsoil. Laboratory analysis confirmed that the construction was causing no cross-contamination between subsurface layers.

Groundwater contamination was a major environmental concern during the construction of the Gerald Desmond Bridge in California (USA). Risks related to discharges of pollutants into surface and groundwater bodies were identified from the outset in the planning phase.

Drill used to bore the well. A temporary liner was applied to the well to prevent the diffusion of benzene-contaminated water from the deeper layers into the shallower subsurface layers.

CASE STUDY

Galindo Stormwater Tank, Galindo-Beurko WWTP Section (Spain)

Client: Bilbao Bizkaia Water Consortium (CABB)

Completion period: 55 months

Problem detected

The tendered project comprised two main actions. The first involved the installation of a circular pumping well with an internal diameter of 33.4 m and a service depth of 41.13 m. A building was planned at the top of the well to house the electrical and odour treatment equipment.

Moreover, the development of actions at the Galindo WWTP, including the execution of the impulsions for the incorporation of the discharges for treatment, the electrical and water pipes for cleaning the tunnel, the replacement of the supply pipe to the ACB, the replacement of the supply pipe to the WWTP and the construction of the new structure for incorporation into the ring.

It became apparent that the problem was that the water from the excavation of the pumping well and the digging of the ram was to be discharged into the municipal sewage system within the limits imposed. These pre-set limits were:

- pH value between 6 and 8.5.
- Concentration of Total Suspended Solids (TSS) equal or lower than 300 mg/l.

Proposed solution

FCC Construcción installed a water treatment plant capable of controlling and correcting the pH by adding hydrochloric acid in order to meet the water quality standards required by the authorities. The TSS concentration was corrected by the application of flocculants and coagulants, together with settling and clarification techniques.

The treatment of the contaminated water arriving at the treatment plant was as follows:

- First, the suspended solids in the water were coagulated and flocculated. Small particulates present in water and the possible existence of negative charges distributed on its surface mean that solids have a high capacity to remain in suspension and not separate from the aqueous phase. Coagulants and flocculants destabilise these suspensions causing an increase in the precipitation rate.
- Secondly, clots and flocs were removed by settling and clarification techniques, based on a sludge bed settler. The technique consists of passing water through a cloud of sludge that remains in a concentrated suspension state and thus achieving accelerated flocculation. Water filtered through the sludge bed is collected completely free of solids.
- And finally, the pH was corrected. Purified water from clarification still has a pH too high for discharge, so it is necessary to neutralise it by dosing hydrochloric acid into the pH correction tank.

Results

The measures implemented made it possible to comply with the established limits for the quality of the water discharged, both in terms of pH and suspended solids.

The discharges were carried out in volumes of 50 m^3, after passing chemical analyses. After the technical support service had given its approval, it was registered administratively and the CABB consortium (Consorcio de Aguas Bilbao Bizkaia) was notified in order to proceed with the discharge.

View of the decanter, filter press and treated water tank. The coagulation and flocculation processes, as well as the settling and clarification processes, allow the removal of suspended solids dissolved in the water. Subsequently, pH adjustment is carried out prior to discharge.

Inside the press filter. The sludge cloud remaining in a concentrated suspension state achieves accelerated flocculation. Water filtered through the sludge bed is collected completely free of solids.

5. Occupation, contamination or loss of soils

FCC Construcción strives to incorporate sustainability measures in all its projects. We do so by promoting innovation in the industry, reducing environmental damage and protecting the soil in the project and surrounding areas.

The construction sector has a particularly significant impact on the territory in terms of occupation, pollution and soil loss. FCC Construcción is aware of this and applies the necessary measures to make appropriate use of the land, seeking to reduce its occupation as much as possible and prevent damage to it in all its activities.

With the objective of reducing and avoiding risks such as desertification, the destruction and contamination of soils and the loss of biodiversity, FCC Construcción carries out various actions in its projects that include land use planning, the restoration of site soils and respect for all natural ecosystems.

Construction projects often have an impact on the soil on which they are located, and it is therefore necessary to put in place the necessary measures and actions to protect it. FCC Construcción has identified this environmental aspect as significant and places great effort into establishing the necessary actions to prevent or minimise the risks and impacts on the territory, as it is aware that the soil constitutes the support on which natural ecosystems are formed and on which human activity takes place.

The execution of construction projects is generally associated with the occupation of large areas, both for the facilities where the construction activity is carried out and for the parking and handling of machinery, storage areas and access roads to the site. In addition, the development of the activity inevitably alters the structure and composition of the soil, through compaction, excavation or, in some cases, contamination by accidental spillage and dumping.

These activities must be rigorously managed to avoid, among other consequences, the alteration of natural soil dynamics, increased erosion or desertification of the land. These risks have associated impacts on natural ecosystems and also on water infrastructures (reservoirs, drainage systems, canalisations, etc.) which can suffer problems such as clogging, due to the arrival of particulates of soil dragged along as a result of erosion.

Bearing in mind the importance of its management, FCC Construcción implements a large number of Good Practices to mitigate and avoid the risks and impacts generated by its activity on the land. The company's main actions in terms of land occupation, according to potential risks, are shown in the following table:

Risks

1_ Desertification
2_ Erosion
3_ Soil contamination
4_ Destruction of existing vegetation
5_ Damage to urban areas
6_ Traffic disruption and nuisance to residential properties

Risk prevention actions

- Soil use planning and control
- Restoring occupied zones
- Respect for sensitive or environmentally valuable areas
- Discharge prevention
- Respect for nearby housing and urban traffic
- Reuse of soil to avoid excavation and increased wear and tear
- Maintenance and renewal of construction machinery

Rail infrastructure ballast is a receptor for various pollutants, such as oils and other chemicals. The decontamination of ballast and soil allows this material to be reused in new works, reducing the need to extract these resources.

Gurasada-Simeria railway section 3 construction project (Romania)

Good Practices

Due to the importance of this resource, FCC Construcción applies Good Practices related to land use in a large part of its projects. The main Good Practices and the percentages of application in civil engineering work and building executed in 2020 are shown in the following table:

	Significance	Goal (degree of implementation)		
Good Practice	% of application	1	2	3
Restoration of areas affected by site facilities.	2 83% 96% 91%	Cleaning and removal of foreign elements of the environment or with no later use, with a written and/or graphical schedule of the actions. 73% 39% 52%	Furthermore, soil is de-compacted and morphologically adapted to the surrounding area. 20% 37% 31%	Same, but adding plants and decorative elements integrated into the resulting or pre-existing environment. 7% 24% 17%
Limiting access areas.	2 100% 100% 100%	Written and graphic planning is in place for access roads, and all works are compliant in this regard. 34% 27% 30%	Same, but including physical signposting defining them on site. 38% 39% 38%	Including limits on existing road access points. 28% 34% 32%
Limiting occupied areas.	1 100% 98% 99%	Written and graphic documentation of the areas that machinery and employees may occupy. 19% 23% 22%	There is also a physical method used to tag out or signpost these areas. 37% 32% 34%	Furthermore, these areas are limited to the area occupied by the works. 44% 45% 44%

Good Practice	Significance	Goal (degree of implementation)		
	% of application	1	2	3
Prevention of accidental discharges.	2 100% 95% 97%	Physical protection barriers and/or dissuasive posters are in place along the perimeter of tanks storing hazardous substances or hazardous waste to prevent unwanted access and prevent collisions. 27% 35% 32%	There is an additional protection in the dangerous substance or hazardous waste storage tank supply area. 41% 35% 37%	Platforms or protected areas are also in place for handling or maintenance tasks that must be performed at the worksite or centre. 32% 30% 31%
Appropriate planning of access roads.	2 80% 91% 89%	Use of existing roads. 50% 57% 56%	Search for a permanent use for temporary access roads. 25% 19% 20%	Both of the above. 25% 24% 24%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building · Civil engineering works · Total

Throughout 2020, 91% of FCC Construcción's projects have been restored in areas affected by construction. Restoration consisted, in most cases, of cleaning and removing elements foreign to the environment, in order to minimise the impact of the construction on the environment and to maintain the landscape and the soil integrated into the territory. The land was also reconditioned to restore its morphology and areas were revegetated with suitable native species.

The restoration of the area affected by the project helps to mitigate problems such as soil erosion and desertification, as these can be serious for the ecosystem and affect the fauna and flora living there.

In addition, planning contributes significantly to advancing and tailoring specific actions to prevent or mitigate impacts. These include limiting the area occupied by the works and their zones of influence, or optimising the design of the roads to be executed. All FCC Construcción projects in 2020 were designed with delimitation of construction and access areas. By limiting construction sites, potential pollution, landscape impact and accidental spills are controlled and, in the case of urban areas, the impact on population and traffic is minimised.

FCC Construcción carried out the restoration of areas affected by construction works on 91% of its projects in order to minimise the impact of construction on the environment and preserve the landscape.

Toyo Tunnel construction site (Colombia)

Limiting the areas of occupation safeguards the soil and the landscape and reduces damage to vegetation in urban environments, as in the work carried out at the University of Zaragoza (Spain), where trees were protected during construction activities.

FCC Construcción also planned the access roads to the sites in 89% of its projects in order to avoid the impact of creating new access roads. Moreover, when there was no other option and new roads had to be opened for the project, the company looked for alternatives to use the existing ones, which meant great economic savings and less occupation and compaction of land not directly affected by the project.

Preventive actions against accidental spills were also carried out at 97% of the sites in 2020. Many of these measures concerned the safe and signposting of hazardous substances and waste generated during the construction work. Additional measures included the installation of protective barriers in the hazardous spill storage area, extreme precautions during loading and unloading, and the proper maintenance and renewal of containers and machinery used to handle wastes and chemical products that could impact on the environment.

FCC Construcción also draws up Emergency Plans in all its sites with the objective of introducing procedures for action and contingent measures in the event of an accidental discharge.

One of the main actions for the prevention of accidental discharges on occupied land is the storage of potentially polluting and hazardous substances in specific, protected, signposting and specially designed locations.

CASE STUDY

Gurasada Railway Track – Curtici – Simeria (Romania)

Client: SNCF CFR SA

Completion period: 64 months

Problem detected

Due to vehicle parking and occasional discharges from fuel tanks of the railway section between Gurasada and Simeria, both the ballast and the surrounding soil were contaminated, mainly due to substances such as oils, sludge and heavy metals. The estimated amount of contaminated material was approximately 126,955 tonnes of ballast and 404,680 tonnes of soil.

Proposed solution

FCC Construcción has set itself the environmental objective of reusing more than 50% of material in at least two activities.

Ballast decontamination consisted of:

- Study (laboratory chemical tests and analyses) the degree of contamination of excavation material by petroleum products. Stone samples were taken at a depth of 15 cm in the embankments.
- Decontaminate the soil or ballast in approved plants or "in situ" using natural, non-toxic products. In this process, soil or any other material was removed from the ballast, which was then washed and decontaminated with specific equipment. The water used in the process (closed loop) was also treated so that it could be reused or discharged in compliance with local environmental requirements.
- Analyse pollutants (hydrocarbons and heavy metals) to verify the efficiency of the decontamination process. The laboratory RENAR was in charge of the analyses and carried out tests at the beginning and at the end of the decontamination process.

For **the decontamination of the soils** affected by hydrocarbons, several actions had to be implemented, including excavation, transport, screening and the application of bioremediation techniques, before it could be reused or taken to landfill.

The process began with the preparation of a study to determine the degree of contamination of the soil by taking samples from the embankments at a depth of 30 cm. The contaminated soil was then excavated and transported to authorised plants where it was weighed and temporarily stored in batches of 2,000 tonnes. There it was sorted and divided. After storage, the soil was separated from other materials such as cement, wood, rubber or plastic using a screening station type FINTEC (model 542), with a capacity to process 100 t/h. Waste mixed with soil was temporarily stored in special containers and then sent to authorised facilities for processing. Bioremediation techniques were applied to the soil, consisting on a set of biochemical processes to favour the development of micro-organisms in the presence of oxygen (they release carbon from hydrocarbons into the atmosphere in the form of CO_2). This requires maintaining certain conditions of temperature, humidity, oxygen content, pH, etc. in the soil mass.

These conditions had to be maintained throughout the whole process in order to achieve proper soil decontamination. Devices that measure and control these environmental factors were used for verification.

To **reuse the decontaminated soil**, the approved laboratory (RENAR) carried out physicochemical analyses in accordance with the requirements of Order 756/1997.

Results

The results from the application of the different soil and ballast decontamination techniques were as follows:

- Ballast decontaminated in the period July 2017-March 2021 amounted to 13,141 tonnes. All the treated stone (ballast) was reused in backfilling processes on site.
- Soil decontaminated in the period July 2017-March 2021 amounted to 251,509 tonnes. Soil treated and analysed by the RENAR accredited laboratory was used in external projects.

Bioremediation process carried out on contaminated soil collected from the railway line between Gurasada and Simeria . The micro-organisms that develop in the soil through the bioremediation process break down the hydrocarbons and release carbon in the form of CO_2 into the atmosphere as matter, and an inert or humic material that can be reused on the construction site.

CASE STUDY

Toyo Tunnel (Colombia)

Client: Consorcio Antioquia al Mar

Completion period: 120 months

Problem detected

In the execution of the Toyo Tunnel project, specifically in the provisional works of the Quebrada del Hoyo, as a result of the works, changes were detected in the availability of water from the aquifers, as well as changes in their quality and dynamics of infiltration and runoff of surface waters, due to the edaphic properties of the land where the project is located.

Proposed solution

To correct these water alterations, FCC Construcción proposed and carried out measures to control the areas with the greatest natural drainage. In addition, given the slope of the land, a cofferdam (a temporary structural element to direct runoff) was built that allowed the temporary diversion of water from the canal.

To control drainage, the river bed was reversibly waterproofed and the flow of the Quebrada del Hoyo was permanently measured for its control. Once the works were completed, the flow was restored and the full recovery of the riverbed was carried out.

Results

The results obtained were favourable:

- With the waterproofing of the riverbed, it was possible to avoid the infiltration of water in the tunnel.
- With the flow measurement, carried out daily both upstream and downstream of the work area, the loss of flow was avoided, allowing in turn to carry out the work safely. The waterproofing pre-injection activities made it possible to continue with the excavation activity necessary in the project.

Once the works were completed, the canal bed was recovered in its entirety, the waste generated was removed from the area and the water flow was guaranteed according to the initial state, without altering the edaphic properties of the soil.

Detail of the demolition work of the structures in the riverbed.

Recovery of the riverbed once the works have been completed.

6. Use of resources

7 AFFORDABLE AND CLEAN ENERGY

FCC Construcción is committed to more efficient energy consumption as a strategy to reduce its atmospheric emissions. The company calculates and verifies its carbon footprint. In the case of the 2015 to 2019 carbon footprints, we secured the "calculate and reduce" seal of approval, which, in addition to recognising the involvement and the fact of being able to quantify and verify our Greenhouse Gas emissions, distinguishes the company as one of the organisations that effectively reduces its carbon footprint.

11 SUSTAINABLE CITIES AND COMMUNITIES

The continuous improvement of FCC Construcción's environmental and social performance involves achieving a more sustainable and environmentally friendly form of construction by promoting a better use of resources in all phases of the project life cycle.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

FCC Construcción strives to adopt the best existing sustainable techniques in all of its production processes and to contribute to the development of new ones, committing to more efficient practices in the use of resources such as, yet not limited to, water or excavation materials, and which allow less waste to be produced, in line with the principles of circular economy.

Among the most significant environmental aspects for FCC Construcción is the consumption of resources, as construction activity is especially intensive in the use of excavation materials and water, etc. The high demand for resources responds to the large size and surface area occupied by the projects, as well as their areas of influence, which can affect the quality of other existing resources in the territory.

Resource overexploitation is one of the most important global environmental problems alongside climate change, and the two are intrinsically linked. Promoting a more efficient use of resources by reducing their consumption and increasing the rate of reuse, recycling and recovery helps to reduce the energy consumption associated with their extraction, exploitation and transformation process and, therefore, contributes to reducing greenhouse gas emissions into the atmosphere.

The growing awareness and sensitisation of society, together with greater knowledge of the negative impacts of human activity on the natural environment, are promoting a worldwide transformation of individuals, societies and companies towards a more environmentally friendly model of activity. Moreover, this transformation is being driven not only by legislative and regulatory changes, but by the markets and investors themselves.

FCC Construcción, aware of the impact of its activity on the environment, has been promoting the application of best construction practices for years, improving efficiency in the use of resources and carrying out tracking and control through its Management System. In this regard, the company strives to implement measures aligned with the circular economy at the construction stage, which promote the reuse and consumption of recycled building materials or the use of recycled water or renewable energies, where feasible.

Resource efficiency contributes to reducing greenhouse gas emissions into the atmosphere and thus to climate change mitigation.

Protecting the resources around FCC Construcción projects is a priority action. One example of this is the monitoring of the flows of natural surface and groundwater bodies in the surrounding area during the construction of the Toyo Tunnel (Colombia) to control the availability of the resource.

Good Practices

Some of the risks identified by the company are shown below due to the misuse of available natural resources, together with actions implemented to prevent or reduce them:

Risks

1_ Overexploitation of natural resources
2_ Impact on the natural environment
3_ Greenhouse Gas Emissions
4_ Material waste
5_ Cost overrun
6_ Waste accumulation

Risk prevention actions

- Reuse of inert materials on site
- Use of recoverable items
- Material planning and selection
- Use of renewable energies
- Reduction of water and energy consumption
- Process optimisation
- Water reuse

	Significance	Goal (degree of implementation)		
Good Practice	% of application	1	2	3
Reuse of inert materials supplied from other sites.	3 0% 82% 75%	More than 1% of all inert materials (fillings). 0% 12% 12%	More than 5%. 0% 44% 44%	More than 15%. 0% 44% 44%
Use of recoverable elements in work processes such as removable walls (traditionally of concrete from subsequent demolition) in aggregate crushing facilities, etc.	2 0% 78% 78%	Use of a system in at least 50% of possible cases in the development of an activity. 0% 72% 72%	Idem for at least 2 activities. 0% 14% 14%	Idem for at least 5 activities. 0% 14% 14%

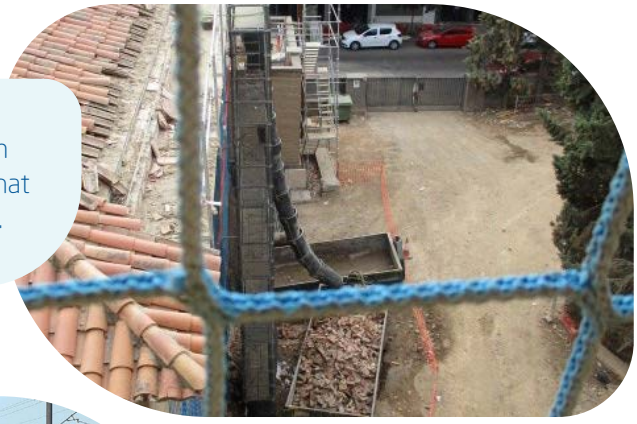
Good Practice	Significance: % of application	Goal (degree of implementation): 1	2	3
Reduction of borrow-pits with regard to the volume foreseen in the project.	3 68% 85% 78%	Reduction greater than 5%. 95% 68% 77%	More than 15%. 5% 17% 13%	More than 30%. 0% 15% 10%
Reuse of effluents and process wastewater.	2 50% 56% 55%	More than 15%. 100% 60% 66%	More than 30%. 0% 20% 17%	More than 60%. 0% 20% 17%
Reusing removed topsoil.	2 80% 94% 92%	Separation of topsoil in horizontal layers, less than 2.5 metres high. 50% 68% 66%	In addition, tipping of topsoil collected over six months. 25% 22% 23%	In addition, planting or fertilising the collected topsoil. 25% 10% 11%
Use of elements recovered from other works, such as portable water treatment plants, containers, etc.	2 50% 94% 82%	Use of 1 element. 0% 60% 50%	Use of up to 3 elements. 67% 33% 39%	Use of more than 3 elements. 33% 7% 11%
Use of recycled water for irrigation, provided it meets the necessary quality conditions.	2 33% 64% 57%	More than 30% of the water used for irrigation is recycled water from the work itself. 0% 71% 63%	More than 80% of the water used for irrigation is recycled water from the work itself. 100% 29% 37%	Recycled water from external sources is used. 0% 0% 0%
Use of renewable energies.	3 0% 40% 33%	A renewable energy source (photovoltaic solar panels, thermal solar panels, biomass boilers, etc.) is used for the self-sufficiency of the offices at the work site. 0% 100% 100%	A renewable energy source (photovoltaic solar panels, thermal solar panels, biomass boilers, etc.) is used for construction process activities. 0% 0% 0%	Both of the above. 0% 0% 0%
Use of recycled aggregates instead of filler material from borrow pits.	2 0% 92% 75%	More than 5% of the total aggregates needed are recycled aggregates. 0% 33% 33%	More than 15% of the total aggregates needed are recycled aggregates. 0% 42% 42%	More than 30% of the total aggregates needed are recycled aggregates. 0% 25% 25%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

● Building ● Civil engineering works ● Total

Numerous Good Practices are applied on site to optimise the use of resources. The reuse of topsoil on construction sites was the most applied Good Practice in 2020 with regard to the use of resources. More specifically, this Good Practice was applied in 92% of the works. Topsoil is the topmost layer of soil that is removed and stockpiled before excavation of the site begins. This soil horizon contains the highest concentration of nutrients and seeds. Topsoil is a very useful resource for restoring new elements generated after the construction of infrastructures (embankments, cuttings, roundabouts, etc.), as it favours the formation of vegetation cover that stabilises surfaces and reduces erosion processes.

Land is the most consumed natural resource in construction projects, especially in civil engineering work. Their reuse in other areas of the same project or even in other projects means a significant reduction in the impact of their extraction and transport to landfill. One way to reduce land consumption and landfill is to compensate for cuttings and embankments within the same project. Land borrowing was reduced by 78% of the works in 2020, compared to the volume foreseen in the project. It should also be noted that in 75% of the works, recycled aggregates were used instead of borrowed material.



Hardened concrete waste can be processed in aggregate crushing plants to obtain a material that can potentially be used to make concrete again.

Favouring the reuse of inert materials and topsoil on construction sites helps to reduce the environmental impact of the project.

A further Good Practice carried out on construction sites to reduce the consumption of resources is the use of extracted materials as backfill on the construction site itself after checking that they meet the requirements, or the recovery of elements from construction sites, for example, those from demolitions that can be converted into backfill material after being processed in the aggregate crushing plant. This particular good practice was applied in 78% of the works in progress during 2020.

In cases where surplus inert materials cannot be used on the site itself, the company promotes their reuse on other sites, and this Good Practice has been implemented on 75% of the sites.

From the point of view of water consumption, FCC Construcción promotes the reuse of effluents and wastewater resulting from processes (55% of projects implemented this good practice in 2020) and the use of recycled water for irrigation, provided that it meets the necessary quality conditions. This particular Good Practice was applied in 57% of the works executed in the same year.

In relation to the reuse of other resources such as equipment, tools and materials, 82% of the works executed in 2020 used elements recovered from other works such as portable water purifiers, buckets, etc.

In addition, 33% of the projects used renewable energies, reducing the consumption of energy from fossil fuels and reducing greenhouse gas emissions into the atmosphere.

The use of recycled water in some of the work processes, such as the watering of roads to reduce dust emissions into the atmosphere, contributes to a reduction in the consumption of this valuable resource and the environmental impact of the project.

Data and indicators

Consumption of construction materials

The following table shows the consumption of resources of FCC Construcción's projects in the different geographical areas where work was carried out in 2020:

Consumption (t)

Most representative materials	FCC Industrial[1]	FCC Construcción				
		Spain[2]	Europe[3]	America[4]	Middle East [5]	TOTAL
Asphalt concrete	53,554	66,641	161,105	139,430	54,328	**475,058**
Concrete	45,630	1,722,465	555,014	402,228	129,298	**2,854,635**
Steel	7,812	50,605	29,699	16,377	1,815	**106,308**
Bricks	219	22,291	1,683	-	-	**24,193**
Glass and non-ferrous metals	895	664	312	16	129	**2,016**
Aggregates, soils, and gravel, marl and limestone	85,058	2,280,969	2,448,304	12,416	16,568	**4,843,315**
Topsoil	37,090	147,914	57,053	34,338	2,972	**279,367**
Paints, solvents, release agents, concrete curing liquids, accelerators, concrete liquefiers, antifreeze and epoxy resins	586	1,344	1,545	381	786	**4,642**
Oil, grease and other harmful and hazardous substances	8,213	1,828	149	116	5	**10,311**
TOTAL	**239,057**	**4,294,721**	**3,254,864**	**605,302**	**205,901**	**8,599,845**

[1] FCC Industrial is its own brand that brings together various specialised companies. Includes data on FCC Industrial and Energy Infrastructures (FCC IIE), Matinsa, Prefabricados Delta and Megaplas.

[2] Spain includes the works and premises of FCC Construcción and Convensa in that country, as well as the facilities of Áridos de Melo.

[3] Europe includes Portugal, Bulgaria, Romania, the United Kingdom, Belgium, Norway and the Netherlands.

[4] The Americas includes Nicaragua, Costa Rica, Panama, El Salvador, Mexico, Colombia, Chile, Peru, Canada and the United States.

[5] The Middle East includes Qatar and Saudi Arabia.

As can be seen in the table, the most consumed materials are stone resources, such as aggregates, soil, gravel, marl and limestones. Specifically, soil from the earthworks that adapt the orography to the requirements of the project (cuttings, embankments, backfilling, emptying, ditches, etc.) is the material that is consumed in the greatest volume and weight in the works. Through detailed design and good planning it is possible to optimise the use of this resource in many cases, offsetting excavation with backfill throughout the project.

Sometimes these earthworks are not compensated, generating a surplus or excess of earth whose final destination is a landfill, as occurs in many tunnel excavations works in which millions of tonnes of excess materials (soil, rocks, sludge, etc.) are generated and there is no possibility of using them in the project itself. In these cases, they are destined for on-site or external landfills, the latter associated with the consumption of energy for its transportation.

Likewise, the volume of material extracted during excavation and available for use, as well as that of borrow material (volume necessary for backfilling that cannot be obtained from the excavation of the site itself), are associated with an increase in fuel consumption and atmospheric emissions, i.e. a significant environmental impact, as a consequence of their transport and extraction.

Earthworks is a very important activity on construction sites. Proper sizing of borrow volumes and forecasting of excavation volumes contributes significantly to reducing surplus materials and, therefore, to reducing the impacts derived from their transportation to and final disposal in landfills.

Whenever possible, FCC Construcción encourages the reuse of these surplus materials on its own site or on other sites to reduce the environmental impact associated with their use. The Company is committed to recycling and reusing materials, for example, by using recycled aggregates instead of borrowed materials.

The following table shows the total consumption of soil and rubble, coming from the valuation in the work itself or from other projects throughout the 2020 financial year. The consumption of valued resources minimizes the need to extract virgin material from the loans and, in addition, it avoids that the destination of the surplus resource in other works is a landfill.

The uses of inert materials are very varied, such as filler material, obtaining aggregates for the production of concrete or the production of pastes and mortars. The reuse of more than 2 million square meters of inert waste by 2020 represents a significant reduction in the demand for natural resources and, therefore, in the environmental impact of their extraction and disposal.

Total consumption of soil and rubble (m^3)

Consumed resource	m^3
Resources from the recovery of inert waste *	**2,127,454**
Excess earth or rock	2,055,730
Clean debris remains	71,724

* FCC Construcción, excluding FCC Industrial and Áridos de Melo

Energy consumption

The following table shows the consumption of energy of FCC Construcción's projects in the different geographical areas where work was carried out in 2020:

Energy consumption (Gj)

Energy type	FCC Industrial[1]	FCC Construcción				TOTAL
		Spain[2]	Europe[3]	America[4]	Middle East[5]	
Direct energy consumption	**122,144**	**123,735**	**151,996**	**49,972**	**418,704**	**866,551**
Fuel-oil consumption	784	2,360	47,473	813	0	**51,430**
Natural gas consumption	86	92	1,729	0	0	**1,907**
Gasoil consumption	119,469	119,762	100,944	44,986	414,162	**799,323**
Petrol consumption	1,638	1,521	1,850	4,173	4,542	**13,724**
Propane and butane	167	0	0	0	0	**167**
Indirect energy consumption	**12,074**	**17,113**	**11,253**	**12,269**	**1,265**	**53,974**
Consumption of electricity	12,074	17,113	11,253	12,269	1,265	**53,974**
TOTAL	**134,218**	**140,848**	**163,249**	**62,241**	**419,969**	**920,525**

[1] FCC Industrial is its own brand that brings together various specialised companies. Includes data on FCC Industrial and Energy Infrastructures (FCC IIE), Matinsa, Prefabricados Delta and Megaplas.

[2] Spain includes the works and premises of FCC Construcción and Convensa in that country, as well as the facilities of Áridos de Melo.

[3] Europe includes Portugal, Bulgaria, Romania, the United Kingdom, Belgium, Norway and the Netherlands.

[4] The Americas includes Nicaragua, Costa Rica, Panama, El Salvador, Mexico, Colombia, Chile, Peru, Canada and the United States.

[5] The Middle East includes Qatar and Saudi Arabia.

The main objective of the Good Practices applied in the field of energy is to reduce energy consumption and, in turn, to reduce greenhouse gas emissions.

FCC Construcción promotes efficient and responsible energy consumption. The company is firmly committed to the use of cleaner energy sources and systems that require lower consumption in order to reduce CO_2 emissions into the atmosphere.

FCC Construcción, based on its integrated management system, carries out tracking of the energy consumption of the premises and the projects executed. Moreover, FCC Construcción calculates the organisation's carbon footprint, which contributes to making better use of the energetic resources and construction materials.

The company asks construction sites to fill in their environmental aspects in the quality tool CACUMEN/DISCON, where the sites integrate every four months their environmental data as it's stablished in the Integrated System implemented in the company. Based on the data collected, actions and processes that need to be invested in to reduce energy consumption are prioritised.

In relation to the consumption of renewable energies, one of the Good Practices applied in the works consists of replacing fossil energy sources or those with higher energy consumption with cleaner and more efficient ones.

Energy transition is a reality. It is a common objective to be able to replace fossil energy consumption with renewable energy sources, since, among other things, they have some important advantages such as reducing greenhouse gas emissions, as well as minimising the risk associated with the uncertainty of fossil energy costs.

Water consumption

The following table shows the water consumption of FCC Construcción's works in the different geographical areas in which it has executed work throughout 2020:

Water consumption (m³)

Origin of the water consumed	FCC Industrial[1]	FCC Construcción				TOTAL
		Spain[2]	Europe[3]	America[4]	Middle East[5]	
Surface water	0	454,113	31,892	0	0	**486,005**
Groundwater	12,511	1,547	15,092	108,722	0	**137,872**
Municipal water supply	67,946	64,321	33,838	29,454	904,831	**1,100,390**
Water recycled or reused from the worksite	0	76,169	6	9,434	0	**85,609**
TOTAL	**80,457**	**596,150**	**80,828**	**147,610**	**904,831**	**1,809,876**

[1] FCC Industrial is its own brand that brings together various specialised companies. Includes data on FCC Industrial and Energy Infrastructures (FCC IIE), Matinsa, Prefabricados Delta and Megaplas.

[2] Spain includes the works and premises of FCC Construcción and Convensa in that country, as well as the facilities of Áridos de Melo.

[3] Europe includes Portugal, Bulgaria, Romania, the United Kingdom, Belgium, Norway and the Netherlands.

[4] The Americas includes Nicaragua, Costa Rica, Panama, El Salvador, Mexico, Colombia, Chile, Peru, Canada and the United States.

[5] The Middle East includes Qatar and Saudi Arabia.

Water consumption reduction is possible thanks to the application of the Good Practice based on the reuse of effluents and wastewater. This practice resulted in a reduction of 85,609 m³ of water consumed on site in 2020. This means that 5% of the water used did not need to be extracted from its source.

It should be noted that, throughout 2020, 84% of the water extracted and consumed by the works and premises of the Construction area of the FCC Group has been made in areas with water stress. The construction projects that are carried out in these places are very careful with the consumption of water resources, given their scarcity or their difficult availability.

In construction projects, various activities require high water consumption. One of these is the watering of roads to prevent the generation and emission of dust into the atmosphere. In other cases, water that is used, for example, for cooling machinery, gunning or cleaning machinery, can be stored and treated so that it can be reused for these or other activities.

In order to prevent the loss of process water, on the construction sites piping systems and/or basins are installed where the wastewater is stored for treatment. The water that has been used in the cleaning of gutters and concrete tanks, as well as in the cleaning and gunning of concrete, has a very high pH, so it must be neutralised for its reuse in other processes.

The recirculation and storage of the water used in the different construction processes allows it to be treated for reuse, thus reducing the consumption of this resource and safeguarding natural ecosystems.

Construction of runway at Dublin Airport (Ireland)

CASE STUDY

Riyadh Metro (Saudi Arabia)

Client: RCRC

Completion period: 103 months

Problem detected

Basins of groundwater near the tunnel were found during the execution of the Riyadh metro works, in particular during the excavation of the shaft tunnels, which could rupture, causing water to rise to the surface and, therefore, failure to meet the execution deadlines and the high cost of evacuating the water.

Proposed solution

FCC Construcción worked on a solution that would allow the surplus water to be used. A decision was made jointly with the municipality of Riyadh to pump the groundwater to the surface through the implementation of a pump system. A water meter was also installed to monitor and control the volume of water being extracted. The pumped water was connected to the municipality's irrigation system.

Saudi Arabia is a nation where water is rarely found on the surface in the form of rivers or lakes. However, comparatively twice as much water is consumed as in any developing nation in the world. This water comes from seawater (treated in desalination plants) or groundwater (extracted from wells). In addition, the country is classified as a water stress zone, so the use of this resource is, if possible, even more strategic than in other geographical locations.

Results

Water extraction, in addition to avoiding a problem for the execution of a project by FCC Construcción for approximately two years, has meant a benefit for the municipality of Riyadh, which has been able to use this water for irrigation, avoiding its loss and saving costs in its extraction as well as the consumption of energy and other resources.

Pipes direct water through the shaft levels to ground level.

Water meter installed by the municipality of Riyadh to monitor the amount of water used.

Use of groundwater for irrigation of gardens and construction sites.

CASE STUDY

International Airport of Bacau (Romania)

Client: Bacau County Ra "George Enescu" Bacau

Completion period: 17 months

Problem detected

During the modernization works and increase of the load capacity of the runway and taxiway of the "George Enescu" International Airport of Bacau, it was estimated that a high volume of concrete waste would be generated by demolition and crushing of the runway, in addition of a high consumption of resources in the execution of the works.

Proposed solution

To avoid that the final destination of this large volume of concrete waste is a landfill, it was proposed to recover it and crush it for reuse in the new runway and taxiway, reducing the consumption of resources from other sources.

Results

Thanks to the execution of these actions, a total of 32,400 m^3 of crushed concrete was recovered as a result of the demolition of the runway and the existing taxiway.

Its recovery and reuse reduces the environmental impact of the works, since, on the one hand, the transfer of waste to landfills is avoided and, on the other, the consumption of resources from other loans is reduced. This reduces fuel consumption and, therefore, emissions into the atmosphere, in addition to avoiding the opening of new loans with the associated impact on ecosystems.

Detail of the runway of the airport "George Enescu" of Bacau.

Demolition of the Bacau airport runway.

Recovery of concrete waste for reuse.

Reuse of waste on the new runway and taxiways once they have been shredded.

7. Waste generation

11 SUSTAINABLE CITIES AND COMMUNITIES

Through sustainable construction we contribute to the reduction of the environmental impact of cities, considering waste management as one of the main efficiency indicators of our activity.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

FCC Construcción strives to adopt the best sustainable techniques currently in existence in all its production processes and to contribute to the development of new ones, committing to more efficient practices in the use of resources and allowing for less waste production, in line with the principles of the circular economy.

The generation of construction and demolition waste (CDW) is one of the main environmental aspects to be taken into account in projects. This type of waste is of particular importance as it is one of the heaviest and bulkiest, which necessarily implies the adoption of short and medium-term measures to prevent it from accumulating on site, creating space problems or affecting a larger area of the territory. The waste is also widely disparate, which makes it difficult to manage and makes it all the more important to implement actions to encourage its segregation at source, its prevention as far as possible and the application of Good Practices in the circular economy.

FCC Construcción's main strategy with regard to waste is based on reducing the amount of CDW to be managed externally through its reuse and recovery on the site or on other sites. Likewise, the company promotes the necessary actions to encourage proper segregation and recycling, such as, for example, actions to raise awareness among personnel on site of the importance of carrying out proper waste segregation.

The proper management of this waste contributes greatly to sustainable development and the reduction of atmospheric emissions, and also generates economic benefits for the company by reducing transport requirements and landfill fees. CDW has reuse or recycling rates of up to 90%, which gives it great potential for circular economy measures to reduce some of the most serious environmental problems associated with CDW, namely its accumulation and disposal in landfills.

The European Waste Framework Directive 2008/98/EC mandated Member States to draw up strategies and establish waste management plans and set objectives for 2020 to eliminate 30% of this waste going to landfill, as well as for 70% of this waste to be destined for reuse, recycling and other recovery operations.

The EU published a new Circular Economy Action Plan in 2020, which sets out an ambitious roadmap towards a climate-neutral circular economy. The Commission will adopt concrete measures on the construction sector on the basis of this new Plan, with objectives for the recovery of raw materials and materials from construction and demolition waste, as well as measures to promote the sustainable use of excavated soils.

To achieve these objectives, as well as those that will come in the future from the EU, FCC Construcción has analysed the risks related to the generation of waste in its projects and has established specific measures throughout the life cycle of each project, contributing to improving the management of CDW and increasing the rates of recovery of materials and recycling.

The proper segregation of waste on site facilitates its management and subsequent treatment, helping to improve the recovery and recycling rates of this waste.

Some of the risks identified by the company are shown below, together with actions implemented to prevent or reduce them:

Risks	Risk prevention actions
1_ Use of large quantities of redundant materials.	Management of surplus excavation materials
2_ Improper disposal and contamination from surplus.	Proper material selection
3_ Obsolete and inefficient processes.	Maximising resource life
4_ High quantities of construction waste, in particular soil and excavation material.	New construction processes with optimal material use
5_ Non-recyclable, harmful and polluting materials.	Project planning
6_ Generation of hazardous waste and associated risks.	Savings through digitisation
7_ Inefficient product volumes.	Use of renewable energies and sustainable materials

The FCC Construcción Good Practices System includes measures in the area of waste generation and management, which are part of a global strategic vision of the company, applying the principle of precaution and caution in each of the projects.

These measures are aimed at proper segregation of waste at source in order to optimise waste management by reducing the amount of waste going to landfill, minimising, as far as possible, the hazardous waste generated, and recovering as much waste as possible. Prior to waste generation, the company promotes responsible, efficient and environmentally sustainable consumption of raw materials, which has a direct impact on reducing the amount of waste generated by its activity.

Providing green points and well-differentiated and conditioned areas for waste management reduces the environmental impact of the works on the environment in which they are carried out.

Good Practices

Good Practice	Significance: % of application	Goal (degree of implementation): 1	2	3
Reduction of inert materials taken to the landfill in relation to the expected project volume.	3 77% 91% 85%	Reduction greater than 5%. 67% 64% 66%	More than 15%. 18% 18% 18%	More than 30%. 15% 18% 16%
The construction and demolition waste is classified/separated so it can be managed individually.	2 88% 89% 89%	The construction and demolition wastes are classified into one category more than required by the legislation. 67% 50% 55%	The construction and demolition wastes are classified into two categories more than required by the legislation. 20% 19% 19%	All construction and demolition wastes are classified and recovered. 13% 31% 26%
Changes in the design or construction system in relation to the use of materials that generate hazardous wastes such as asbestos, de-coffering agents, additives, resins, varnishes, paints, etc., generating less or non-hazardous waste.	3 0% 33% 25%	Some form of hazardous waste foreseen in at least one activity/works unit is no longer generated. For example, by applying water-based paints instead of organic solvent paints. 0% 100% 100%	Idem for at least three activities. 0% 0% 0%	Idem for at least five. 0% 0% 0%
Reduction of packaging waste through practices such as requesting materials with returnable packaging to the supplier, reuse of polluted packaging, reception of bulk items instead of in packaging, etc.	2 57% 73% 67%	Applies to two or more materials. 100% 100% 100%	Idem for at least 5. 0% 0% 0%	Idem for at least 10. 0% 0% 0%
Management of surplus excavation materials.	2 79% 83% 81%	More than 1% at another worksite for the restoration of a degraded area. 13% 20% 18%	More than 30%. 34% 38% 36%	More than 50%. 53% 42% 46%
Debris valuation.	2 86% 79% 82%	Reuse or recycling at another worksite or at an external plant. 83% 53% 68%	Reused on site. 17% 37% 27%	Recycling of stones setting up a plant at the worksite. 0% 10% 5%
Use of devices to reduce waste volume (paper, cardboard, metals, etc.).	2 100% 69% 80%	Applies to one type of waste. 89% 64% 75%	Applies to two different types of waste. 0% 18% 10%	Applies to three or more different types of waste. 11% 18% 15%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

Building · Civil engineering works · Total

Requesting materials with returnable packaging from the supplier, reusing contaminated packaging, taking delivery of large-volume or bulk items instead of in packaging, etc. significantly reduces the volume of waste produced on construction sites and, therefore, its impact on the environment.

Storm water reservoir in Gijón (Spain)

The table shows that the Good Practice that was applied in the highest percentage of construction sites (89%) in 2020 refers to the classification/separation of construction and demolition waste for its individualised management in at least one more category than those required by legislation.

Actions were also taken in 100% of the building sites to reduce the volume of at least one type of waste (paper, cardboard, metals, etc.). With regard to civil engineering work, it should be noted that in 91% of the works, a reduction of at least 5% of the volume of inert waste sent to landfill was achieved with respect to the volume foreseen in the project.

Another salient Good Practice involves requesting materials with returnable packaging from the supplier, reusing contaminated packaging, receiving bulk items instead of in packaging, etc. of at least two or more materials. This Good Practice was applied in 67% of the works, with a higher percentage in civil engineering work.

In view of the seriousness of the environmental effects of hazardous waste, these are managed with stricter measures, such as storage on supports that prevent contamination of the environment and/or risks to people's health.

Hazardous waste produced on FCC Construcción sites is stored in containers and under the appropriate conditions (avoiding direct exposure to the sun, on impermeable areas, etc.). These containers must be properly differentiated and identified. Before disposing of the waste, the necessary authorisations must be in place and the responsible party for waste management must be agreed in advance.

It is vital to be aware of the risks associated with hazardous waste for the environment and people in order to exercise caution and manage it properly. This is why, in accordance with current regulations, all hazardous waste containers are labelled, showing both the waste they contain and the possible damage that incorrect management can cause.

As far as the importance of on-site waste is concerned, no significant quantities of hazardous waste are produced in the construction sector. However, this type of waste (including oils, fuels, antifreeze and paint strippers.) requires special tracking of the conditions in which they are stored and the quantities generated, fully guaranteeing adequate control to avoid risks.

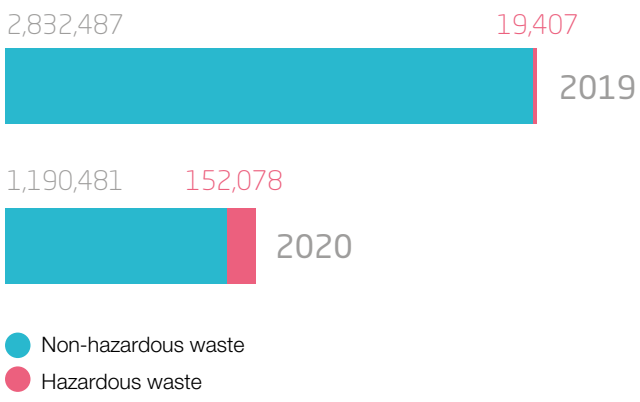
Hazardous waste labelling.

Data and indicators

There has been a reduction of more than 40% in total waste generation during 2020 compared to the previous year. This is largely due to the Good Practices implemented, the efficient use of raw materials consumed, the awareness of FCC Construcción personnel with regard to sustainability and the proper environmental performance during the planning and execution of the works.

All the waste generated by FCC Construcción's activity has been separated at source in accordance with current waste law, and treated according to its nature and hazardousness by authorised waste managers, which also makes it possible to know the type of waste generated by the company. Almost nine out of every ten tonnes generated during 2020 was non-hazardous waste, reducing the generation of waste to be treated in a special way due to its hazardousness to 11% of the total.

Types of generated waste (t)



The data in the graphs refer to the total number of FCC Construcción projects in 2020, including data from FCC Industrial.

Waste has long since ceased to be waste and has become a valuable resource for the production chain, known as the circular economy. In order to make proper use of it, it is necessary to know the diversity of waste that is generated, as well as the most appropriate treatments so that it can be reincorporated back into the production cycle as a by-product. FCC Construcción therefore prioritises treatments such as reuse or recycling as far as possible and avoids disposing of waste in landfill sites. The quantities of hazardous and non-hazardous waste destined for each treatment type (t) are broken down below:

Amount of waste generated by treatment and type of waste (t)*

Treatment type	Non-hazardous waste	Hazardous waste
Re-use	15,853.9	8.3
Recycling	151,940.5	151,000.4
Compost	39,270.3	5.1
Recovery, including energy recovery	1,758.4	11.1
Incineration	71.3	7.1
Landfill	718,010.6	490.0
On-site storage	216,105.9	443.9
Other	13,618.7	0.4
Total	**1,156,629.6**	**151,966.3**

* The data in the table refer to the total number of works and premises of FCC Construcción in 2020, excluding data from FCC Industrial and Áridos de Melo.

Generated waste

The following tables contain the hazardous and non-hazardous waste generated in the course of FCC Construcción's activity in 2020:

Generated waste (t)

Generated waste	FCC Industrial[1]	FCC Construcción				TOTAL
		Spain[2]	Europe[3]	America[4]	Middle East[5]	
Hazardous waste	111	582	151,017	62	306	**152,078**
Non-hazardous waste	33,785	550,197	5,160	447,651	153,688	**1,190,481**
TOTAL	**33,896**	**550,779**	**156,177**	**447,713**	**153,994**	**1,342,559**

[1] FCC Industrial is its own brand that brings together various specialised companies. Includes data on FCC Industrial and Energy Infrastructures (FCC IIE), Matinsa, Prefabricados Delta and Megaplas.

[2] Spain includes the works and premises of FCC Construcción and Convensa in that country, as well as the facilities of Áridos de Melo.

[3] Europe includes Portugal, Bulgaria, Romania, the United Kingdom, Belgium, Norway and the Netherlands.

[4] The Americas includes Nicaragua, Costa Rica, Panama, El Salvador, Mexico, Colombia, Chile, Peru, Canada and the United States.

[5] The Middle East includes Qatar and Saudi Arabia.

Waste generated by type**

Hazardous waste		151,966,343
Empty HW containers (kg)		**49,964**
15 01 10*	Empty hazardous packaging containing residues of or contaminated by hazardous substances	31,279
15 01 10*	Empty plastic hazardous packaging containing residues of or contaminated by hazardous substances	9,238
15 01 10*	Empty metallic hazardous packaging containing residues of or contaminated by hazardous substances	9,058
15 01 11*	Metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers	389
Solid hazardous waste (kg)		**151,776,848**
15 02 02*	Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances	31,956
16 01 07*	Oil filters	2,159
16 02 13*	Discarded electrical and electronic equipment	2,239
16 05 04*	Aerosols containing hazardous substances	3,959
16 06 01*	Lead batteries	2,529
16 06 02*	NiCd batteries	26
16 06 03*	Batteries containing mercury	74
17 02 04*	Glass, plastic and wood containing hazardous substances	5,347
17 05 03*	Contaminated soil and rocks	151,063,500
17 06 01*	Insulation materials containing asbestos	103,480
17 06 05*	Construction materials containing asbestos	268,619
19 08 06*	Saturated or used ion-exchange resins	292,431
20 01 21*	Fluorescent tubes containing mercury	272
20 01 31*	Cytotoxic and cytostatic medicines	257
Used oils (kg)		**45,401**
12 01 12*	Used waxes and grease	514
13 01 13*	Hydraulic oils	700
13 02 05*	Mineral-based non-chlorinated engine oil, mechanical transmission oil and lubricants	27,600
13 03 06*	Chlorinated mineral insulating and heat transfer oils not containing PCBs	215
13 03 08*	Engine oil, mechanical transmission oil and lubricants	11,498
13 08 99*	Oil wastes not otherwise specified	4,874
Liquid hazardous waste (kg)		**94,130**
08 01 11*	Waste paint and varnish that contain hazardous substances	2,199
08 01 19*	Aqueous suspensions that contain paint or varnish with hazardous substances	115
08 04 09*	Waste adhesives and sealants that contain hazardous substances	633
12 03 01*	Aqueous cleaning liquids	376
12 01 09*	Drilling oil. Halogen-free machining emulsions and solutions	325
12 03 01*	Aqueous cleaning liquids	600
13 05 08*	Mixtures of wastes from grit chambers and oil/water separators	1,320
13 07 03*	Liquid fuels	423
14 06 01*	Refrigerants (Chlorofluorocarbons, HCFC, HFC)	360
14 06 03*	Solvents and solvent mixtures	495
16 01 21*	Coffering removal agents, curing liquids, plasticisers, fluidisers	4,313
16 03 05*	Organic wastes containing dangerous substances	3,120
16 05 06*	Chemical laboratory products with hazardous substances	491
16 07 08*	Water with hydrocarbons	71,106
19 08 13*	Sludge from other treatments of industrial wastewater containing dangerous substances	8,254

Non-hazardous waste		**1,156,629,592**
Inert (kg)		**924,133,120**
17 01 01	Concrete	33,043,850
17 01 07	Clean rubble (concrete, mortar, bricks, prefabricated elements, other)	118,180,210
17 05 04	Excess earth or rock	772,909,060
Municipal wastes (kg)		**3,538,557**
20 02 01	Waste vegetation	899,778
20 03 01	Municipal waste and similar to municipal waste	2,546,639
20 03 07	Bulk municipal waste	92,140
Other non-hazardous waste (kg)		**228,957,915**
01 05 04	Bentonite sludge	2,314,180
08 03 18	Printer toner waste	1,203
12 01 13	Welding wastes	2,396
15 01 01	Paper and cardboard packaging	38,111
15 01 02	Plastic containers	5,186
15 01 03	Wooden packaging	18,520
15 01 05	Composite packaging	11,134
15 01 06	Non-hazardous packaging	13,158
16 01 03	Unused tyres	12,560
16 02 14	Discarded electrical and electronic equipment, non-hazardous	4,264
16 06 04	Alkaline batteries containing no mercury	345
16 06 05	Other batteries and accumulators	117
17 02 01	Wood	2,141,348
17 02 02	Glass	42,310
17 02 03	Plastic	607,291
17 03 02	Bituminous mixes (agglomerates and bitumens)	4,891,000
17 04 07	Metals	5,007,826
17 04 11	Waste cable containing no hazardous substances	51,967
17 05 08	Railway track ballast containing no hazardous substances	102,207,838
17 06 04	Insulation material containing no asbestos or hazardous substances	475,662
17 08 02	Plaster	259,630
17 09 04	Mixed rubble (containing no hazardous waste)	89,660,512
19 08 05	Urban wastewater treatment sludge (septic tanks and treatment plants)	20,911,043
20 01 01	Paper and cardboard	280,314
Total wastes		**1,308,595,935**

** The data in this table refer to the total number of projects executed by FCC Construcción in 2020, not including data from FCC Industrial and Áridos de Melo.

Proper segregation of waste at the same sites where it is generated is the first step in ensuring that it is managed properly, without risk to the environment, and that it does not end up in landfills or incinerators.

Green point located in the Hospital de Soria project (Spain)

CASE STUDY

Faculty of Philosophy and Humanities at the University of Zaragoza (Spain)

Client: University of Zaragoza

Completion period: 46 months

Problem detected

The project consists of the refurbishment and extension of the Faculty of Philosophy and Humanities at the University of Zaragoza. The work to be carried out by FCC Construcción includes the complete demolition of the Philology building and the construction of a new building (EDE building). There is also a need to carry out the complete refurbishment of the Central Building of the Faculty, which is classified as a Grade B building of architectural interest by the General Plan for Urban Zoning of Santander. In addition to the difficulty of protecting a listed building, the requirements of BREEAM certification in terms of waste must be met:

- BREEAM certification awards one point for RSD 1 Construction Waste Management if the recovery rate of construction waste exceeds 80%, reaching Exemplary Level when the recovery rate reaches 95%.
- The pre-execution Audit Report, containing information on the destination of the waste generated on site, indicates that 97% of the CDW generated in this project is potentially reusable and recyclable.
- The FCC Construcción Waste Management Plan also considers the reuse and recycling of all generated CDW.

Achieving these levels requires a high degree of waste segregation on site, as well as the provision of authorised waste managers with the capacity to recover, a requirement that is not always easy to achieve.

Proposed solution

FCC Construcción proposed the segregation of the total waste generated in the total demolition of the Philology building and partial demolition of the Central building of the Faculty, including the earthworks during the work. For this purpose, numerous containers were placed at various points on the construction site to ensure that the waste could be fully segregated.

All non-hazardous waste generated was delivered to different authorised waste managers, certifying its recovery. In addition, the company in charge of on-site excavations tested the use of these excavated soils on other sites where backfilling was required.

Results

100% of the CDW waste generated on the University of Zaragoza site has been segregated at source and treated by recycling and recovery operations, obtaining a certificate that guarantees this total management. In this way, the final deposit of the waste generated in landfill was avoided, allowing it to be recovered as raw material for new production processes.

The certificate obtained indicates that the processing operations have been R5, R12 and R13. In accordance with environmental legislation on waste, it can be verified that all those treatments indicated with the letter R have been subject to recovery. In this particular case, they have been used as recycled by-products and recovery of inorganic materials, for energy generation or as fuel.

Distribution of containers in order to carry out proper waste segregation in the remodelling works at the University of Zaragoza.

CASE STUDY

Solar Thermal Power Plant (Spain)

Client: Guzmán Energy O&M

Problem detected

FCC Industrial is carrying out operation and maintenance work on the Solar Thermal Plant located in the municipality of Palma del Río (Córdoba). This is a Solar Thermal Power plant that generates renewable energy through the movement of a turbine driven by a water-steam cycle resulting from the concentration of solar energy.

During operations at the plant, sometimes more waste than necessary was generated in terms of absorbents contaminated by hazardous products, contaminated water, etc.

Proposed solution

The employees of Guzman Energy O&M were trained and competent in waste management. With the aim of reducing this waste, the company focused on the importance of optimising the operations carried out and improving the efficiency of the processes, in order to consume the necessary raw materials and generate the minimum waste. To establish this knowledge, a test was conducted, including a short theoretical exam and a case study to demonstrate that the knowledge had been acquired by the staff.

In addition, cleaning was extended by adding an additional weekly cleaning, with the objective of reducing the volume of waste generated and preventing work equipment and tools from accumulating unnecessary dirt.

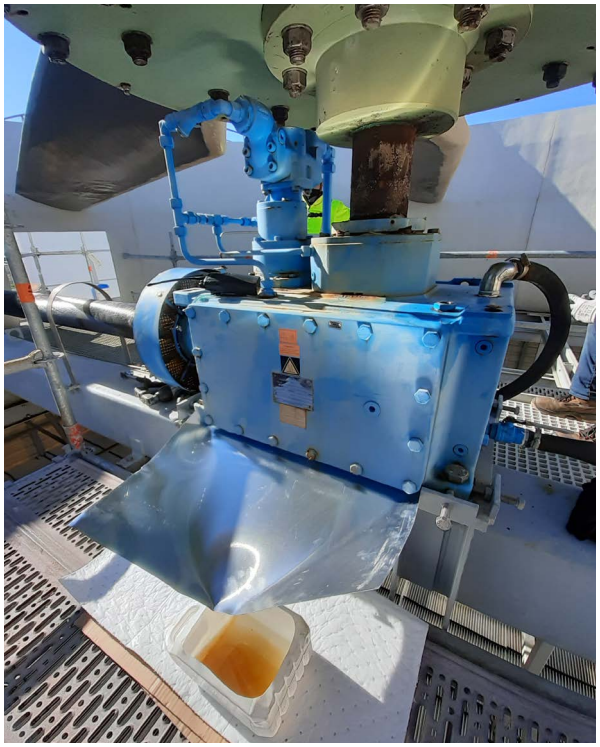
To complete the cleaning work, employees were also trained beforehand to emphasise the importance of carrying out maintenance work efficiently, avoiding the waste of water, absorbents, etc.

Results

The results of these measures were favourable. The training and environmental awareness of the personnel on site is one of the most important and successful actions to reduce environmental impacts.

Equipping employees with the knowledge to make efficient use of materials and other resources contributes significantly to waste prevention. It is planned to repeat the waste management training on an annual basis to consolidate the knowledge and ensure that the training reaches all employees.

Cleaning of tools to avoid the accumulation of residues.



By optimizing maintenance work, a reduction in the consumption of water, absorbents, etc. is achieved.

8. Land use planning

In the execution of works in urban environments there is a risk of causing some negative impact on the population (noise generation, dirt, traffic obstruction, etc.). FCC Construcción is aware of this and rigorously plans and designs the appropriate preventive measures to minimise the nuisance that its works may cause to nearby communities.

The execution of construction projects inevitably has an impact on the natural environment through the changes they generate in the surroundings. The company plans and designs actions to reduce the impact on the territory and biodiversity in such a way as to favour the conservation of its values and the coexistence of species with the works executed.

The concept of Land use planning refers to a series of actions designed with the objective of achieving a rational use of resources, taking into account the degree of fragility and the activities carried out in each territory. This is intended to avert significant soil disturbance, while preserving the natural heritage and laying the foundations for sustainability.

Due to the nature of the activities carried out, construction can cause significant alterations to the natural environment where the projects are carried out, affecting land-use planning. One of the potential impacts is the fragmentation of ecosystems, among other causes, due to the "barrier effect" that linear infrastructures (roads, railways, etc.) have on fauna, by reducing the mobility of organisms through the territory in search of food, shelter, reproduction, etc., putting their persistence at risk.

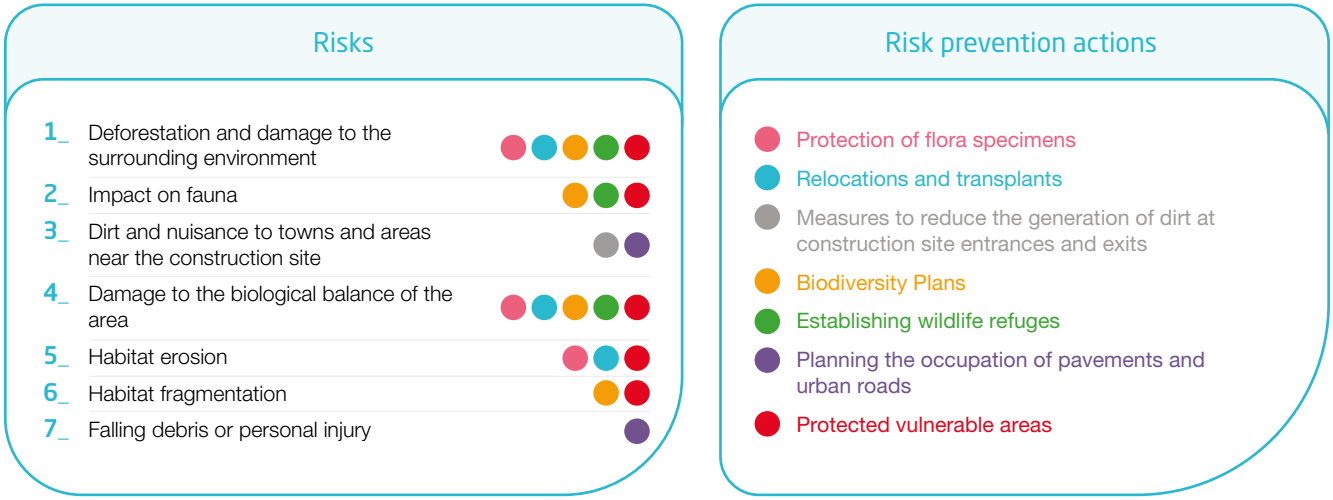
Two other frequent impacts of this activity on the territory are related to the modification of watercourses and the configuration of the landscape and relief. Activities such as soil compaction, temporary diversion of watercourses, changes in orography associated with earthworks or others associated with the design of the projects themselves, such as the creation of concrete surfaces, building, urbanisation of streets, etc. modify the permeability of the soils, causing alterations in the watersheds where the projects are located, as well as altering water quality. With regard to the modification of the landscape and relief, the activity with the greatest impact is the movement of large volumes of earth, which often causes alterations in the configuration of the landscape and the structure of the land where the projects are located, with the consequences that this entails for the territory.

To avoid or minimise all these impacts on the territory, during the design and planning phase of the project it is essential to carry out a detailed study of the area in which it is to be developed and of the activities required during its execution, in order to preserve the natural environment, avoid impact on biodiversity and protect resources such as water or soil or existing vegetation. FCC Construcción does not participate in the design of projects, but prior to the execution of each project it carries out a study of the potential risks and adverse effects associated with them on land management in order to foresee the necessary measures to guarantee the protection of the natural environment.

Land use planning is a significant aspect for FCC Construcción. Respecting the environment in which the works are located, reducing their impact on it and favouring their integration into the landscape, are key issues for the company.

Likewise, the execution of works in urban areas usually results in the generation of nuisances for the local population, among other causes, due to noise generation, dust emissions, occupation of roadways and adjacent roads, disruption of mobility, traffic of heavy vehicles and machinery, etc. FCC Construcción faces its challenges from the perspective of sustainability, seeking to reduce the negative impact of its actions in its three aspects (social, environmental and economic) and takes into consideration all the instruments available to local entities to carry out correct land planning and define the necessary measures to reduce these impacts.

FCC Construcción is aware of the impact that its activities generate on the environment, fauna and flora, so part of its commitment year after year is to analyse the possible risks generated by its activity. With this knowledge, the aim is to improve the adoption of the most appropriate and efficient corrective measures to minimise the footprint of its projects:



Good Practices

Incorporating the concept of sustainable resource management, promoting a model based on the circular economy where the elements of nature are given the value and protection they deserve, is vital to establish a model of growth that respects present and future generations. For this reason, FCC Construcción naturally assumes the protection of the territory and all its elements in such a way that it continually reviews and proposes actions aimed at reducing its environmental footprint wherever it projects its ideas.

The following table shows the Good Practices that FCC Construcción adopted regarding land use planning in 2020:

	Significance	Goal (degree of implementation)		
Good Practice	% of application	1	2	3
Physical protection of individual items.	1 75% 76% 76%	All individual specimens affected by the work are protected. 33% 54% 50%	Idem for all specimens. 33% 23% 25%	In addition, care and maintenance work is carried out. 34% 23% 25%
Transplants.	1 100% 87% 88%	An individual specimen affected by the work is transplanted. 100% 31% 40%	Idem for all unique specimens. 0% 54% 47%	In addition, the success of transplants is over 80%. 0% 15% 13%
Adaptation of the site plan to the life cycles of the most valuable species.	2 0% 60% 60%	Project forecasts are improved. 0% 83% 83%	It was not contemplated in the project but it was done. 0% 0% 0%	In addition, affected individual specimens are monitored for more than six months. 0% 17% 17%

Good Practice	Significance % of application	Goal (degree of implementation) 1	2	3
Transfer of nests or individuals.	1 0% 60% 50%	Project forecasts are improved. 0% 67% 67%	It was not contemplated in the project but it was done. 0% 0% 0%	In addition, affected individual specimens are monitored for more than six months. 0% 33% 33%
Use of resources to prevent the generation of waste at the site entrance and exit points.	2 100% 93% 96%	Entrances and exits are swept systematically. 74% 71% 72%	The wheels of all lorries are cleaned before they enter the public road. 24% 17% 20%	Fixed equipment is used for the above (ditches with water at the exit, sprinklers, etc.). 3% 12% 8%
Occupation of pavements and roads.	2 100% 89% 95%	Protective measures are taken (fencing, road signs, pavement/road separation, etc.). 45% 33% 40%	In addition, alternative access routes are provided. 48% 50% 49%	In addition, the maximum authorised occupancy time or space is reduced. 7% 17% 11%
Prevention of debris falling on public roads or adjoining buildings.	1 69% 31% 50%	Placement of a "protective tray" on the front of the façade (cantilevered scaffolding protruding from the façade with vertical protection). 56% 50% 54%	Placement of enveloping mesh around the structure of the building. 33% 0% 23%	In addition to the placement of a "protective tray" or surrounding mesh, signposting the preventative measures installed. 11% 50% 23%
Use of resources to minimise the barrier effect and avoid the running over of animals.	2 100% 17% 29%	Creation of specific wildlife crossings to facilitate the passing of animals. 100% 0% 50%	Installation of protective hunting style enclosures or dissuasive signs to prevent the passing of animals. 0% 100% 50%	Both of the above. 0% 0% 0%
Establishment of refuges for fauna with artificial structures.	1 0% 50% 33%	Temporary shelters are created for at least one animal species. 0% 0% 0%	Temporary shelters are created for at least two animal species. 0% 100% 100%	Refuges are created, which become permanent at the end of the work. 0% 0% 0%
Biodiversity Plan.	1 100% 100% 100%	An initial ecological inventory is carried out to define the habitats and the plant and animal species present on the site. 0% 0% 0%	The initial inventory is used to define and implement measures to reduce or compensate for biodiversity loss. 0% 40% 33%	In addition, measures are monitored for more than six months. 100% 60% 67%

* Data on works of FCC Construcción, excluding FCC Industrial and Áridos de Melo.

● Building ● Civil engineering works ● Total

FCC Construcción, aware of the impact that its projects can have on fauna, carries out actions for its protection and conservation such as, for example, planning the projects at times of the year where they cause the least impact on the life cycles of the species or the relocation of endemic species of high ecological value that are affected by the works.

Data and indicators

Biodiversity

FCC Construcción implements Good Practices in its works to reduce its impact on the territory and, in particular, on areas classified as sensitive, avoiding any type of activity in these areas whenever possible. In terms of biodiversity conservation, FCC Construcción promotes the preparation of Biodiversity Plans that allow habitats and the plant and animal species associated with them to be characterised and studied, with the aim of proposing good practices for their protection.

In all of the company's works, respect for the natural environment and the species that inhabit it is instilled. The Good Practices applied in FCC Construcción projects aim to have the least possible impact on the well-being of the different species, respecting their biological cycles and the special protection of endangered species.

Some of the Good Practices applied by FCC Construcción are based on establishing wildlife refuges by means of temporary or permanent artificial structures (33% of the projects applied this Good Practice in 2020), eliminating the barrier effect by creating wildlife crossings to ensure the connectivity of the territory and avoid animals being run over by vehicle traffic (applied in 29% of the projects in 2020), or relocating the nests or individuals of the species. This particular Good Practice was applied to 50% of FCC Construcción's projects in 2020.

FCC Construcción strives to transmit values of respect for the environment in all its projects. On some construction sites, species protection areas are established to prevent them from being affected by construction activities, and in the event that it is not possible to protect them in situ, they are moved and transplanted for their conservation.

The works of FCC Construcción draw up Biodiversity Plans to determine the characteristics of the fauna and flora present in the area, and to establish the appropriate measures for their conservation. For example, in the case of the new runway construction at Dublin Airport, unique macroinvertebrate species were detected and moved to safe areas to avoid damage.

In the case of flora species, measures are implemented during the execution of the works to protect the existing vegetation in the surroundings. Likewise, when these species are particularly fragile or have been granted protection, they are moved to areas far from the works. In 76% of the works executed in 2020, physical protections were installed to protect vegetation specimens and in 88% of the works transplanting was carried out.

With regard to the landscape, FCC Construcción pursues the integration of all its infrastructures into the landscape, applying design criteria, materials in keeping with the environment and eliminating the barrier effect as far as possible.

FCC Construcción always tries to avoid impacts on high-value species in the environment when carrying out projects. If this is not possible, appropriate actions are taken to minimise the impact. For example, when identifying endemic, protected or ecologically valuable species of flora that may be affected by the project works, one of the most common actions carried out is the transfer of the specimens to other locations for their conservation and preservation.

Cerro Navia and Quinta Normal Communes Project (Republic of Chile)

Land adjacent to or located in protected natural areas or unprotected areas with high biodiversity

Type of impact	Nº of Construction Works	Surface area (million m²)
Location in natural sites that are protected or highly valuable for biodiversity	7	5.15
Location where the landscape is catalogued as relevant	8	9.55
Impact on natural watercourses of a protected site	2	0.12
Impact on natural watercourses that are protected or located in areas of high biodiversity value	5	8.48
Impact on watercourses of very high or relevant value for local or indigenous communities	9	8.78
Impact on catalogued or protected flora	12	14.58
Impact on catalogued or protected wildlife	12	13.94

Restoration and protection of spaces

Protective measures	Surface area (ha)
Restoration of affected areas	522
Protection of vulnerable areas	541

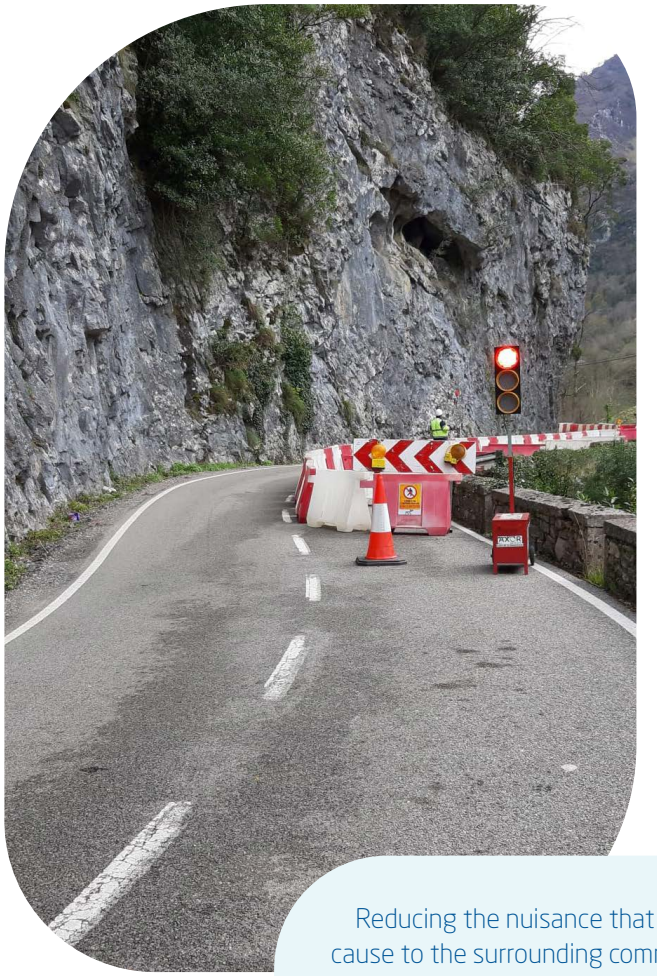
Urban environment

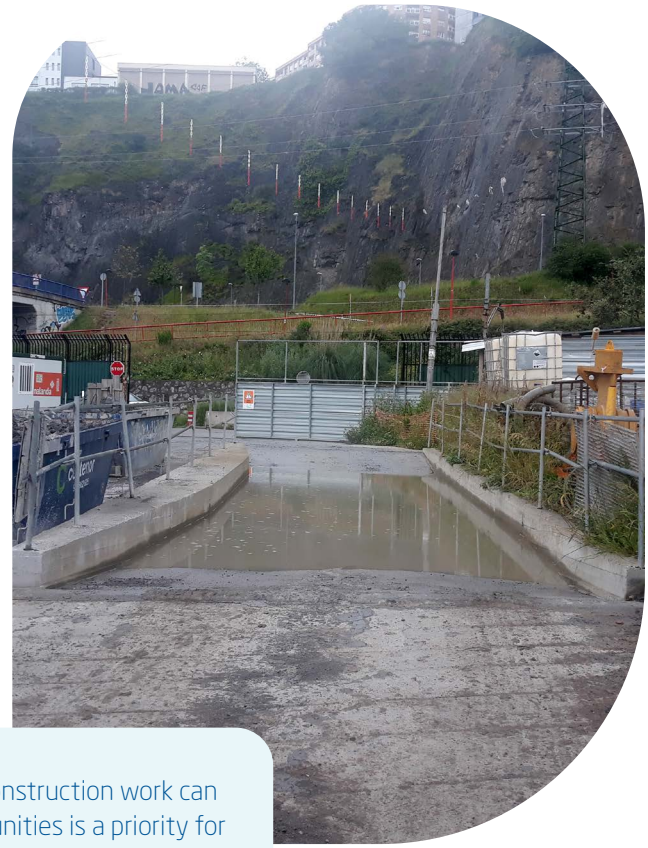
Land use planning is also applied in built-up areas according to the degree of sensitivity of neighbouring areas (proximity to hospitals, schools, housing, etc.). Initially, the aim is to avoid the execution of projects close to areas of special sensitivity, such as those mentioned above, but if this is not possible, actions are taken to minimise the impact in the vicinity of the works.

In 2020, for instance, 95% of the work carried out by FCC Construcción avoided or minimised the occupation of pavements and roads, thus allowing the normal transit of citizens. These Good Practices consisted of the adoption of protective measures (fencing, signposting, separation of pavement/roadway, etc.), but also the provision of alternative access routes and the reduction of the maximum authorised occupation time or space.

Another major impact of construction work in urban areas is littering. FCC Construcción applies Good Practices to avoid these nuisances, which include establishing barriers at the entrance and exit of the works, cleaning the lorries' wheels before they enter the public road or using some device to facilitate the latter process (pits with water at the exit, sprinklers, etc.). Measures to prevent spoiling at the entrance and exit of the construction site were used on 96% of the construction sites in 2020.

Protective elements were also installed at 50% of FCC Construcción's sites to prevent debris from falling onto the public roads or into adjacent buildings, thus preventing material damage to streets, street furniture, vehicles, etc. and, above all, to citizens. Some of these practices consist in the placement of "protective trays" on the front of the façade, wrapping mesh around the building structure or, in addition to the above, the signposting of the installed means of prevention.





Reducing the nuisance that construction work can cause to the surrounding communities is a priority for FCC Construcción. Minimisation is pursued in all projects and Good Practices are applied for this purpose , such as the installation of wheel washers at the exit of the works to reduce dirt in the environment

CASE STUDY

Mediterranean High-Speed Corridor Murcia-Almeria corresponding to the Níjar-Andarax River Segment (Spain)

Client: Adif Alta Velocidad

Completion period: 32 months

Problem detected

For the construction of the Níjar-Andarax River section of the Murcia-Almería high-speed Mediterranean Corridor platform, several plots of olive trees (*Olea europaea*) on the banks of the Andarax River were expropriated. These plantations consisted of a total of 300 olive trees, of which 270 were planted intensively and 30 extensively. These olive trees had to be removed for the construction of the platform, i.e. they had to be cut down, the land had to be cleared and the remains had to be taken to the landfill site.

CONVENSA, whose sustainability values are integrated in all its projects, studied the possibility of giving these olive trees a second life and delaying the activity on these lands so that the owners could harvest the olives.

Proposed solution

CONVENSA contacted different organisations to relocate these olive trees and, finally, several trees were donated to the CEIP Mar Mediterráneo school, a nursery school in Almería which has been awarded 3 consecutive years for its activities related to sustainability, and which has an environmental integration project for its playground called "Sueño Mediterráneo" (Mediterranean Dream).

In March 2021, CONVENSA carried out the pruning and root pruning of the olive trees and their transport to CEIP Mar Mediterráneo. It also provided the machinery and personnel necessary to plant the trees in the school playground. This action, the planting of the olive trees, was organised as an educational activity for the pupils, who collaborated in the final part of covering the root ball, fertilising and watering. With the rest of the olive trees, some 300 medium-sized trees, a nursery was created in an area where surplus soil from the construction site was collected for use in subsequent restoration work.

Results

The project gave a second life to these olive trees, which can be transplanted and used for different purposes at a later date. Moreover, the delay in action ensured that the investment and resources consumed in harvesting the olives were not lost.

Relocation of olive trees at the CEIP Mar Mediterráneo school.

Nursery created in the site collection area for future landscape restoration.

CASE STUDY

Gouvães Dam (Portugal)

Client: Iberdrola

Completion period: 42 months

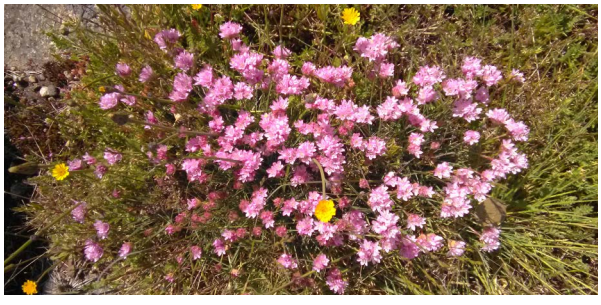
Problem detected

The area surrounding the Gouvães Dam in Portugal is a very little anthropised area, with steep slopes and high biodiversity. A study of the species in the work area revealed the presence of unique and protected specimens of fauna and flora of great importance for their conservation.

Proposed solution

Given that the area is rich in flora and fauna, including some protected species, it was decided to adopt solutions to reduce the impact on them as much as possible. Additional measures taken to protect these species included:

- A specialised electric fishing team was called in to protect the ichthyofauna in the area, a technique that is highly controlled by current legislation and which, when carried out properly, is very effective and does little harm to the fish. The specimens caught using this technique were released downstream of the work area and the dammed water was returned to the river bed.
- Nest searches were carried out in the vicinity of the construction site, with the result that one nest was detected. Their proximity to the construction site and whether or not eggs were present at the time of the work were assessed. As there were no eggs at the time of the works, they were removed.
- With regard to the flora, a study of the species located in the working area was carried out. Protected species such as *Arenaria querioides, Armeria humilis* and *Narcissus triandrus* were detected and, in order not to harm them, they were transplanted in an area agreed with the client where they would not be exposed to any external factors due to the dam works.



In the Gouvães Dam construction project, protected flora specimens were identified, such as Armenia humilis. All the specimens were transplanted by FCC Construcción to prevent them from being damaged by the works.

Results

The flora found in the water reservoir areas and at the access to Gouvães *(Armeria humilis* and *Narcissus triandrus)* were transplanted in impact-free areas, after agreement with the client.

A total of two nests were found. The nest of the black redstart *(Phoenicurus ochruros)* did not interfere with the work and did not need to be moved. The robin *(Erithacus rubecula)* nest was removed after it was found to be inactive, as it was located within the project area.

As for the protection of the ichthyofauna, more than a thousand specimens were moved downstream, which were caught by electrofishing in 4 raids. In these, a lamprey *(Cobitis calderoni)* was captured, which was treated with special care as it is endangered.

Finally, the individuals of fauna species with some degree of protection that were at the site of the works were captured and released in nearby areas outside the intervention zone. Specifically, two juvenile rabbits *(Oryctolagus cuniculus)*, a pair of black-green lizards *(Lacerta schreiberi)*, a specimen of common toad *(Bufo bufo)* and another of long-legged frog *(Rana ibérica)*, a specimen of common frog *(Pelophylax perezi)*, a pair and juveniles of slow worm *(Anguis fragilis)* and a specimen of the Colubridae family were transported to other places.

The identification of organisms that require protection or that are unique is carried out by means of raids carried out by FCC Construcción personnel, who then proceed to transfer them for their conservation

Development of the electric fishing works to move the ichthyofauna species downstream of the work and thus avoid affecting them.

3.4 Committed to the fight against climate change

Climate change caused by greenhouse gas emissions over the last century is already considered one of the greatest threats facing humanity, both in terms of its physical and economic destructiveness. This is reflected in public concern, which is increasingly demanding action to reverse the situation in the face of a future climate crisis.

Climate change has been directly linked to the average increase in global temperature, ocean acidification, rising sea levels, increased droughts and torrential rains, as well as an increase in other extreme weather events such as heat waves, floods, fires, hurricanes and cyclones. As a result, over the last decade, there has been an increasing level of urgency in commitments to combat climate change and a growing recognition of climate change as an imminent danger and not just a long-term threat.

The 2015 Paris summit was a milestone in that it became the first binding climate agreement signed by all 195 participating countries. The agreement includes the objectives of keeping the global temperature increase below 2ºC and trying to maximise efforts to keep it to 1.5ºC. These commitments have been ratified at European level.

The European Union has become a leader in the fight against climate change, as demonstrated by plans aligned with the 2030 Agenda, and more recently the European Green Deal to reach climate neutrality by 2050. The European Commission has presented the European economic recovery plan, renamed the European Green Deal, which will inject large amounts of money into the EU economy to promote projects to renovate real estate and transport infrastructures with new, more sustainable ones, build renewable energy facilities, improve industrial efficiency and projects to adapt to climate change, etc.

Aware of its importance in the construction sector, FCC Construcción, with more than 120 years of experience in this sector, has been incorporating the fight against climate change and respect for the environment into its business vision for more than a decade. The company reaffirms its commitment to the transition to a low-carbon economy and incorporates the Sustainable Development Goals closely linked to the fight against climate change.

The company's main focus to become a lower carbon company is on improving environmental performance, process efficiency, reducing resource consumption, treating discharges and improving the resilience of infrastructure, increasing its longevity and reducing the need for maintenance.

FCC Construcción became the first company in the sector to verify its GHG (Greenhouse Gas) measurements through the external verifier AENOR in 2010, and since then the company has integrated the fight against climate change into its business model, incorporating environmental performance objectives at the heart of its strategy.

In addition, the company continues its quest to the best adaptation measures to its infrastructures, analysing its vulnerabilities and opportunities in all the countries where it operates.

FCC Construcción is also working on another new line of action to align its activity with the taxonomy, which is an important tool in the European Union's Finance Plan to achieve climate neutrality by 2050 and allows progress in sustainability to be universally accredited.

BUILT ON GHG PROTOCOL

The GHG emissions quantification method is carried out in accordance with the ISO 14064-1 Standard and the ENCORD sector protocol for the construction sector, which was recognized by the GHG Protocol organization with the "Built on GHG" logo, which accredits this protocol internationally as an accounting resource that has been developed in accordance with the GHG Protocol standard.

FCC Construcción has been incorporating the fight against climate change and respect for the environment into its business vision for years. FCC Construcción has been verifying its greenhouse gas emissions since 2010, becoming the first company in the construction sector to achieve this milestone in Spain.

FCC Construcción's strategy

FCC Construcción integrates as part of its strategic planning and business model the contribution to the fight against climate change, assuming that this effort will have a positive impact on both society and the organisation. Climate change has become one of the main environmental, social and economic challenges for the company.

Since the start of its Climate Change Strategy in 2010, FCC Construcción has managed to meet its objectives, standing out on several occasions as a pioneering company in the sector in the fight against climate change:

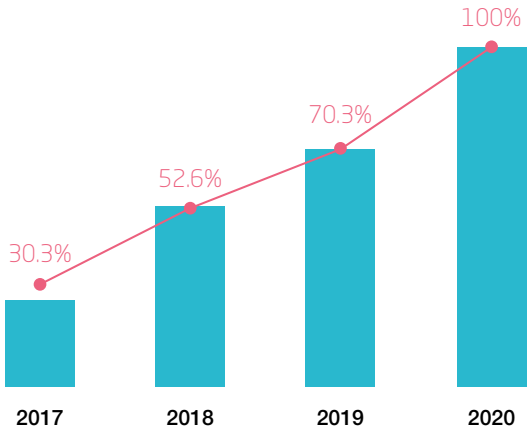
- The company has had a protocol in place for quantifying **Greenhouse Gases (GHG)** for over 10 years. Since then, FCC Construcción has been preparing and verifying its GHG emissions report annually, being the first Spanish construction company to have it verified by an independent third party.
- The company secured the "Verified CO_2 Environment" Carbon Footprint certificate in 2012, which certifies both the accuracy of the calculation and the inclusion of GHG management in the organisation's system and strategy. In 2012, this initiative received with a runner-up award in the "Management for Sustainable Development" category of the European Environment Awards, awarded by the Entorno Foundation.
- FCC Construcción voluntarily joined MITECO's Carbon Footprint, Offsetting and Absorption Projects Register in 2014 and since then has calculated its Carbon Footprint for Scopes 1, 2 and 3, accompanied by the definition of a series of commitments to reduce this footprint.
- In 2016, the company extended the scope of its registration by obtaining the "Calculo y Reduzco" seal, which has been obtained for all years from 2016 to 2020.

- The Strategy against Climate Change for the years 2017-2020 was approved in 2017, as well as the Management Objectives of FCC Construcción that, among others, included the objective of verifying in 2020 the carbon footprint of 100% of the activity of FCC Construcción under the ISO 14064-1 standard.

- To meet the objective established in 2017, in 2018 the GHG emissions of Panama, Peru and Portugal were verified for the first time, in addition to the verification of the carbon footprint of Spain, which had been carried out since the year 2010.
- In 2019, FCC Construcción participated in the United Nations Climate Change Conference held in Madrid, and the GHG emissions of 8 other countries were verified for the first time compared to those verified the previous year. A year later, another 9 countries are added, achieving in 2021 the verification of 100% of the activity carried out in the FCC Construcción area under the ISO 14064-1 standard, thus complying with the organization's strategy and the contribution of FCC Construcción to SDG 13 on Climate Action.

The following time-based chart shows the company's emissions and the percentage of verified emissions against its verified turnover:

Verified GHG emissions (tCO_2e)



	2017	2018	2019	2020
% Verified emissions	25.3%	53.1%	69.9%	100%
% Verified turnover	30.3%	52.6%	70.3%	100%

*FCC Construcción emissions excluding FCC Industrial and Áridos de Melo.

Risks and opportunities of the climate change

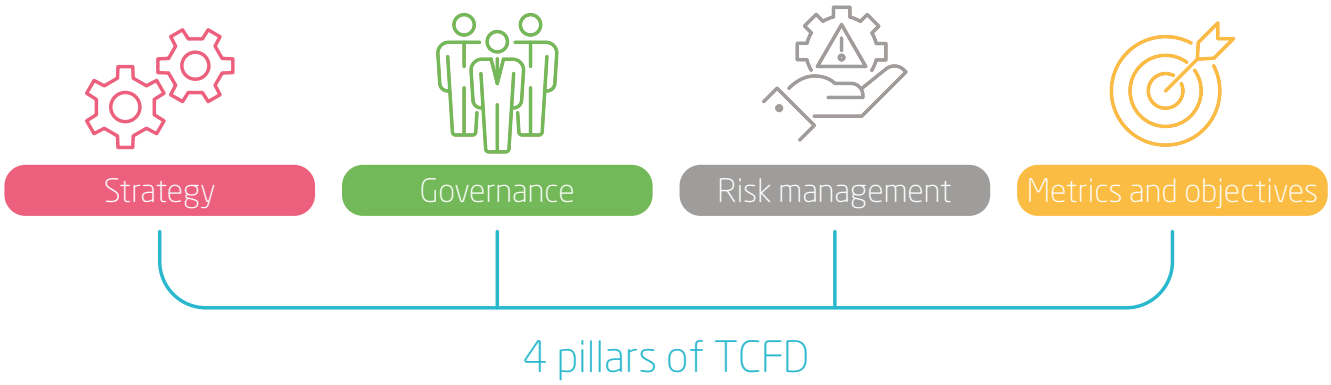
Climate change poses a new set of risks for business. The most imminent risks are of a physical nature, as a consequence of extreme events associated with climate change, however, other types of risks associated with climate change, such as financial or regulatory risks, can also lead to economic losses for companies.

Climate change is estimated to have generated global economic losses of up to 640 billion euros between 2017 and 2019, according to the latest report of the *Task Force on Climate-Related Financial Disclosures* (TCFD) published in March 2021. The same report suggests that by the end of the century, disasters resulting from global warming and its consequences could put assets worth more than 43 trillion dollars at risk.

In late 2015, G20 finance ministers and central bank governors asked the Financial Stability Board (FSB) to review how the financial sector could take climate change-related issues into account. In response, the FSB established the Task Force on Climate-Related Financial Disclosures, which was tasked with developing recommendations for effective disclosure of climate change issues in a way that would be useful to investors, financiers and insurers.

The TCFD published its first report in 2017, which set out four pillars of recommendations for organisations to better understand climate risks and how they affect or may affect their assets and investments. The 4 pillars are the strategic review, the establishment of effective governance for climate issues and sustainability, the detailed analysis and modelling of future scenarios and increase of available information, and the disclosure of climate risks.

The construction company FCC Construcción is greatly affected by climate change in the exercise of its activity and is working to respond to the recommendations of the TCFD, to understand and quantify the risks and opportunities of climate change from an economic perspective:



Strategy

The TCFD recommends that organisations disclose the actual and potential impacts of their climate-related risks and opportunities. In addition to many other elements, entities also need to identify risks and opportunities in the future and analyse long-term effects through the study of different likely scenarios.

FCC Construcción's risks can be classified into risks of negative impact on the climate (those for which the company is responsible through activities that emit GHGs) and risks of negative impact on the company (affecting the company as a consequence of climate change).

While the construction sector is still diffuse (i.e., not subject to emissions trading because emissions sources are not focused and it is less energy-intensive), FCC Construcción calculates its carbon footprint in great detail, and seeks to apply ambitious objectives and innovative measures to mitigate emissions in order to reduce their impact.

FCC Construcción identifies the following risks according to the risks with a negative impact on the company and their classification in line with the TCFD guidelines:

Transition risk		Examples
Regulatory	Risks linked to public policies that, for example, may require higher taxes or changes in the regulation of existing products and services that could be detrimental to the company.	• Increased energy efficiency requirements. • Changes in carbon pricing mechanisms that increase the price of fossil fuels. • Policies promoting sustainable land use.
Legal	Risk of litigation for failure to prevent or minimise adverse effects on climate or failure to adapt to climate change of the activity or activities.	• Risks of environmental lawsuits. • Increased regulatory capital requirements for risks associated with climate change
Technological	Risks as a result of climate-friendly technology substitution.	• Substitution of existing technology and processes by others with lower emissions. • Failed investment in new technologies. • Costs of transition to low-emission technology.
Market-related	The choice of commercial clients can be shifted towards less climate-friendly products and services.	• Shifts in market trends. • Rising raw material costs. • Financial risks.
Reputational	The difficulty of attracting and retaining clients, employees, business partners and investors if a company has a reputation as being harmful to the climate.	• Shifting consumer preferences. • Stigmatisation of a sector by an abrupt change in the perception of a sector with significant loss of sales. • Exclusions from investment due to market pressures.

Physical or material risks		Examples
Acute material risks	Risks arising from increased weather events such as storms, floods, fires or heat waves, which can damage infrastructure and buildings, as well as disrupt value chains.	• Reduced revenue due to reduced production capacity (e.g. transport difficulties, power outages, supply chain interruptions, concrete placement problems, etc.). • Rising infrastructure maintenance costs.
Chronic material risks	Risks arising from longer-term changes in climate, such as temperature changes, sea level rise, reduced water availability, loss of biodiversity and alterations in land and soil productivity.	• Loss of client asset value because they are located in areas with water supply problems (desertification). • Rising operating costs. • Population movements that can result in depression in certain areas accompanied by loss of business.

Identifying and analysing these risks is also a source of opportunities for the company. For instance, a need to render infrastructures resilient to climate change is a new line of business.

FCC Construcción's infrastructures are currently designed to be resilient to climate change. The company establishes lines of action to design its infrastructures, taking into account aspects such as the use of resistant structural strengthening systems, the use of structures and materials that withstand higher maximum temperatures and thermal oscillations, the reinforcement of existing infrastructures to improve their resistance to climate change, and the promotion of innovative solutions, etc.

FCC Construcción also advocates excellence in its infrastructures and buildings, bearing in mind the principles of sustainability in the way it acts, which gives it a strategic position to attract future investments if the demands and requirements of the markets increase in terms of climate change and sustainability.

Governance

Climate change-related risks must be elevated to a part of business decisions and integrated into the governance of the organisation. Companies are encouraged to publish information on how decisions related to climate change are made and how management is involved, as well as how climate risks and opportunities are being managed.

FCC Construcción considers climate change to be one of the greatest challenges it faces and the fight against it is integrated into its strategy. A few years ago, FCC Construcción's 2017-2020 Management Objectives incorporated the extension of the verification of the Greenhouse Gas (GHG) emissions inventory to 100% of its activity, including the entire international sphere, in accordance with ISO 14064-1, and it also approved the 2017-2020 Strategy against Climate Change, which included ambitious objectives for the reduction of the emissions produced.

FCC Construcción's strategy establishes lines of action to mitigate, firstly, the increase in greenhouse gases and, secondly, the consequences of climate change.

Risks management

Climate risk management information must be effectively integrated into the organisation. Thus, organisations should include in their reporting elements such as internal processes for identifying, assessing and managing climate-related risks or how these processes are integrated into overall risk management.

FCC Construcción deals with these risks by internalising them in management and taking them into account in the decision-making process. The company's sustainability reports clearly and concisely set out the ESG (Environmental, Social and Governance) risks identified by the company, as well as climate change risks and their identification and control mechanisms.

FCC Construcción has its own mechanisms for identifying, evaluating and managing its risks. The company has its own risk and opportunity analysis, taking into account internal and external factors affecting its Management System.

This analysis is carried out periodically and, among other factors, takes into account the characteristics of the context in which it operates; the determination of the needs and expectations of stakeholders; the products it supplies, the current construction projects, and the company's own particularities. This analysis ultimately identifies the risks and opportunities so that management can establish actions to minimise the consequences of the risks while seizing the opportunities.

Metrics and objectives

The TCFD recommends organisations to be clear in reporting on the metrics and objectives used to manage climate risks. These include transparent publication of the metrics and objectives used, clearly stated objectives, deadlines and timelines, and the indicators used to measure the organisation's performance.

FCC Construcción verifies its GHG emissions in all the countries in which it operates. The company thus provides an accurate picture of global emissions and can identify areas for improvement in any country where it is active. In addition, it reinforces your credibility and your commitment to transparent information available to all stakeholders.

Direct and indirect emissions are calculated according to Scopes 1, 2 and 3.

The activity data of the offices and fixed centers are collected every four months through FCC Construcción's own application. With them, it calculates the carbon footprint of the organization.

FCC's corporate offices in Madrid (Spain)

The renewal of fleets with electric, hybrid or biofuel, ethanol, LPG, etc. vehicles contributes to reducing Scope 1 and 3 GHG emissions.

Hybrid vehicle incorporated into Matinsa's fleet for the conservation and operation project of the Valladolid road, Golmayo (Spain)

Our carbon footprint

FCC Construcción's carbon footprint is quantified by calculating the company's emissions at its works and premises under the operational control approach and within the company's organisational limits, considering Scopes 1, 2 and 3.

Emissions are calculated from the activity data of each production centre, which transmits its data to a centralized database through FCC Construcción's corporate IT tool. The application allows defining the calculation methodology and the specific emission factors of the different countries, so that finally GHG emissions reports are generated that contemplate all scopes and are adapted to local circumstances. These reports, which can collect the emissions of a work, a country, an area of the organization or a type of work, depending on the filters selected in the application, facilitate the detection of the activities that emit more GHG emissions and, consequently, they allow establishing actions or Good Practices for their reduction, as well as raising awareness and informing the suppliers and stakeholders involved.

Calculating the 2020 Carbon Footprint

While the construction sector, as mentioned above, is a diffuse sector because of its non-intensive use of energy and because the volume of GHG emissions is not as large compared to other emissions such as particulate matter, climate change is a global problem whose solution requires an effort by all companies regardless of the economic sector to which they belong.

The main sources of emissions that are owned by FCC Construcción or that are controlled by the company and for which the organization is directly responsible for carrying out, its activity originate from the consumption of fuels in boilers, generators, and auxiliary plants for the manufacture of materials and vehicles (fuel invoiced to FCC Construcción), both on site and in premises. These emissions constitute the direct GHG or **Scope 1** emissions.

Secondly, emissions from electricity consumption that the company purchases for use at construction sites and fixed locations are indirect GHG or **Scope 2** emissions. They are so named because, although they also derive from the activity of the company, they take place in the electricity production plants, outside the organization's environment.

Thirdly, the company quantifies other indirect or **Scope 3** emissions, emissions that are a consequence of the company's activity, but that are produced from sources that are not owned by the company and over which FCC Construcción has no control. The company opted to include the following emissions to calculate this Scope:

- Emissions associated with the production of materials consumed: emissions from the manufacturing process of concrete, asphalt agglomerate, steel, non-ferrous metals, cement, bricks and glass are considered.
- Emissions associated with transporting consumed materials: emissions from the transport of concrete, asphalt agglomerate, earth, steel, non-ferrous metals, cement, bricks, glass, soil and graded aggregates to the site are considered.
- Emissions associated with the execution of subcontracted works units: earthworks are considered.
- Emissions associated with the transport and management of waste and surplus materials: the emissions associated with the transport of surplus earth and excess clean rubble and the emissions associated with the transport and landfill of municipal solid and wood waste are considered.
- Emissions associated with employee business travel.
- Emissions associated with company staff commuting to the workplace.
- Emissions caused by loss during transport and distribution of electricity.

The table below contains FCC Construcción's GHG emissions resulting from its activity in 2020 broken down by geographical area:

GHG emissions (t CO_2e)

		FCC Construcción					
	FCC Industrial[1]	Spain[2]	Europe[3]	America[4]	Middle East[5]	Total	Total verified
Scope 1: Direct GHG emissions	8,358	8,928	11,252	3,625	31,109	**63,272**	**54,892**
associated with on-site fuel consumption	3,815	8,486	10,451	1,443	31,095	**55,290**	**51,452**
associated with fuel consumption at premises	4,543	442	801	2,182	14	**7,982**	**3,440**
Scope 2: Indirect GHG emissions	841	1,188	922	668	182	**3,801**	**2,960**
associated with the consumption of electricity on site	197	831	889	460	176	**2,553**	**2,357**
associated with electricity consumption at premises	644	357	33	208	6	**1,248**	**603**
Scope 3: Other indirect emissions	1,334	340,564	170,850	87,352	26,834	**626,934**	**594,967**
associated with the production of used materials	0	316,886	152,228	80,513	23,631	**573,258**	**544,193**
associated with the transport of used materials	0	8,448	13,800	436	566	**23,250**	**21,687**
associated with the performance of subcontracted works units	0	8,652	1,644	3,444	793	**14,533**	**14,530**
associated with the transport and management of waste and surplus materials	0	4,675	1,743	1,629	1,280	**9,327**	**9,326**
associated with employee business travel	331	587	332	530	455	**2,235**	**1,904**
associated with staff commuting to the workplace	926	1,207	1,024	724	93	**3,974**	**3,046**
caused by loss during transport and distribution of electricity	77	109	79	76	16	**357**	**281**
Total Emissions	**10,533**	**350,680**	**183,024**	**91,645**	**58,125**	**694,007**	**652,819**

[1] FCC Industrial is its own brand that brings together various specialised companies. Includes data on FCC Industrial and Energy Infrastructures (FCC IIE), Matinsa, Prefabricados Delta and Megaplas.

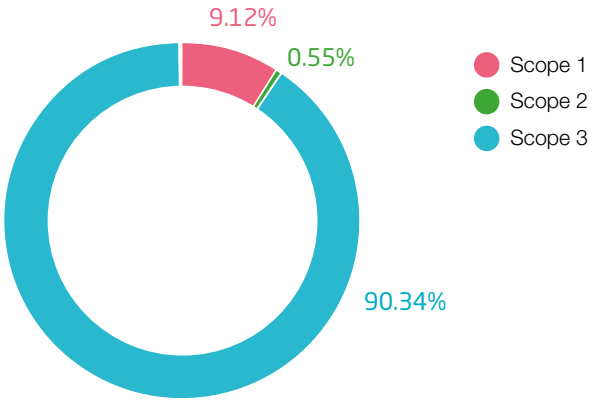
[2] Spain includes the works and premises of FCC Construcción and Convensa in that country, as well as the facilities of Áridos de Melo.

[3] Europe includes Portugal, Bulgaria, Romania, the United Kingdom, Belgium, Norway and the Netherlands.

[4] The Americas includes Nicaragua, Costa Rica, Panama, El Salvador, Mexico, Colombia, Chile, Peru, Canada and the United States.

[5] The Middle East includes Qatar and Saudi Arabia.

Construction Area GHG Emissions



* Emissions data of FCC Construcción including FCC Industrial.

Emissions avoided by application of Good Practices

FCC Construcción incorporates measures to maximise the efficiency of processes and prevent the emission of GHGs. The emissions avoided at construction sites as a result of the application of Good Practices are shown below.

The table shows that the Good Practice that led to the greatest reduction in GHG emissions into the atmosphere in 2020 was the reuse of the material on the site itself, precluding its ultimate disposal in a landfill. This Good Practice also contributes to the reduction of other types of emissions, such as particulates and NOx, as well as energy consumption as a result of the reduction of vehicle trips to landfill.

Emissions avoided (t CO_2e)

	Total	Total verified*
For reusing the material on site and not taking it to landfill	6,386	6,385
Due to neutralisation of the pH with CO_2	46	46
Due to proper maintenance of machinery operating on site	953	900
Due to control of the speed of vehicles on site	36	36
Due to the use of electric vehicles	26	0
Total emissions	**7,447**	**7,367**

*In 2020, the emissions of all the works and premises of FCC Construcción in 21 countries have been verified. The emissions of FCC Industrial, nor of Áridos de Melo have not been verified.

On the path to Environmental Taxonomy

The European Union in 2018 devised a Sustainable Finance Plan to promote the movement of private capital towards sustainable investments in order to achieve the commitment to achieve a climate-neutral Europe by 2050. One of the key instruments of this Plan, is the European Taxonomy.

Much of the financing to achieve this objective will come from private capital, with companies and financial institutions playing a vital role in the transition to a low-carbon, climate-resilient economy. Mindful of this, the Commission published the Action Plan for Financing Sustainable Growth in March 2018, with one of the main objectives being to redirect capital towards sustainable investment and the achievement of these objectives, but how does one know that an investment is sustainable?

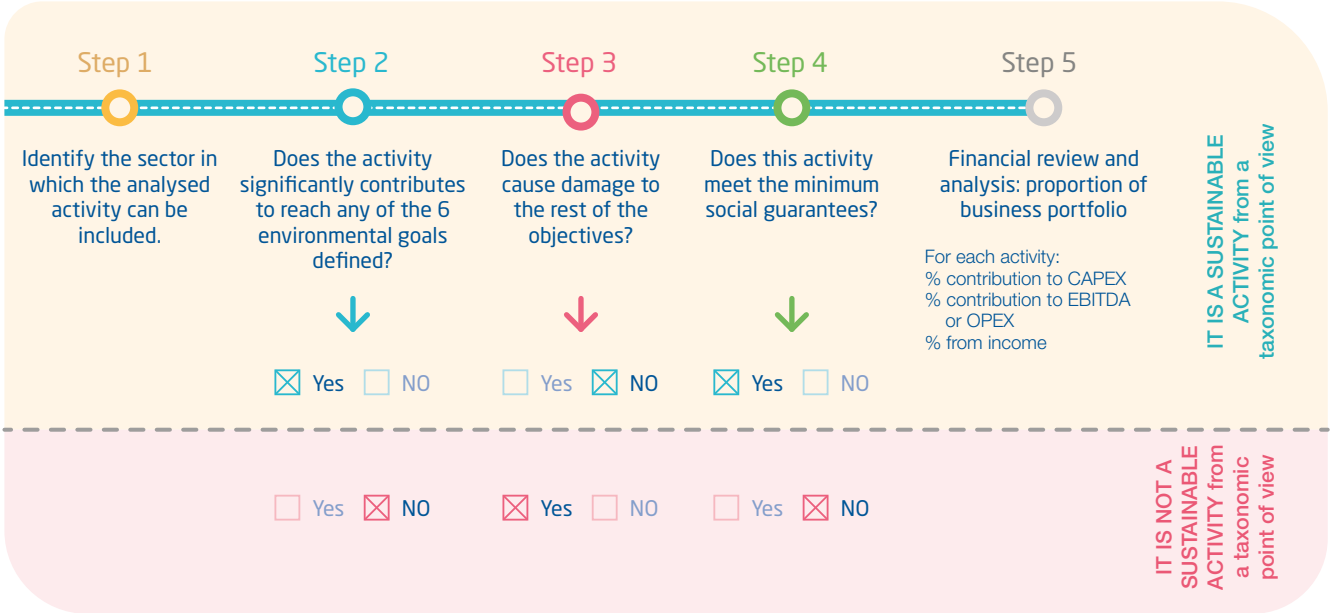
To answer this question, the Commission set up a Technical Expert Group (TEG) on Sustainable Finance that has defined a common framework to enable investors, issuers, legislators and companies to identify what constitutes environmentally sustainable economic activity. This common framework is the so-called *EU Taxonomy*, published in June 2019.

In summary, the *Taxonomy* states that an activity is considered to be environmentally sustainable if it contributes to one or more of the defined environmental objectives: *climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems.* Moreover, to be sustainable, such activity must not cause any significant harm to the achievement of any of these objectives

and must comply with minimum social guarantees, such as respecting the principles and rights set out in the vital conventions referred to in the International Labour Organisation's Declaration on Fundamental Principles and Rights at Work.

Currently, the Taxonomy only contains the technical criteria for identifying whether or not an activity meets the first two objectives with respect to climate change, but work is underway to define the other four.

The taxonomy provides an opportunity to build a different model of recovery and development as part of the Green Recovery, resulting in a decarbonised, sustainable and resilient post-pandemic economy. FCC Construcción is working to analyse each of its activities, asset by asset, to see if they comply with the technical requirements currently defined in terms of climate change. To do so, the company follows the following steps:



As can be seen, the integration of more demanding and measurable objectives in the environmental field and, in particular, in the fight against climate change, is becoming increasingly relevant within organisations. Along these lines, FCC Construcción assumes its commitment to society and the planet, and strives to reduce GHG emissions in its activity, as well as becoming a driving agent and facilitator of the fight against climate change in society.

4

FCC Construcción's approach to global sustainability

Castrovido dam (Spain)

FCC Construcción applies the highest sustainability standards in all its works, pursuing the benefit for present and future communities.

Sustainability is undoubtedly becoming increasingly important in decision-making and in the development and competitiveness of companies, just look back and see its evolution from an almost voluntary concept to an increasingly regulated one. Sustainability has become a necessity, and companies that do not integrate it into the way they operate are doomed to disappear.

This growing importance of sustainability has come hand in hand with the social, environmental and economic changes that have taken place in recent decades and the imbalance generated by the demand for limited resources, putting the planet's biocapacity at risk and favouring the appearance of social, economic and geographical inequalities, etc.

Aware of the importance and the need to embrace sustainability in its day-to-day work, FCC Construcción has not only been integrating the global initiatives that are emerging in this area into its strategy and business model for years, but has also positioned itself as a driving force in this area through its contribution to different innovative projects and its participation in various working groups. Its international operational scope and, specifically, its activity in developing territories, make it an important vector of sustainable development in its three aspects (social, environmental and economic) and an important agent involved in the fight against inequality.

The 2030 Agenda is the primary sustainable development instrument to address new global challenges. FCC Construcción actively contributes directly to achieving some of the Sustainable Development Goals (SDGs) of the Agenda and indirectly affects all the SDGs in the exercise of its activity.

One of the great global challenges is the fight to curb climate change, proof of which is that this is one of the 17 SDGs of the 2030 Agenda and that, at the end of December 2019, Europe launched the European Green Deal to achieve an ecological transition towards a CO_2-free economy by 2050. The environmental and social initiatives implemented by FCC Construcción projects are aligned with the European Green Deal and pursue the same objectives.

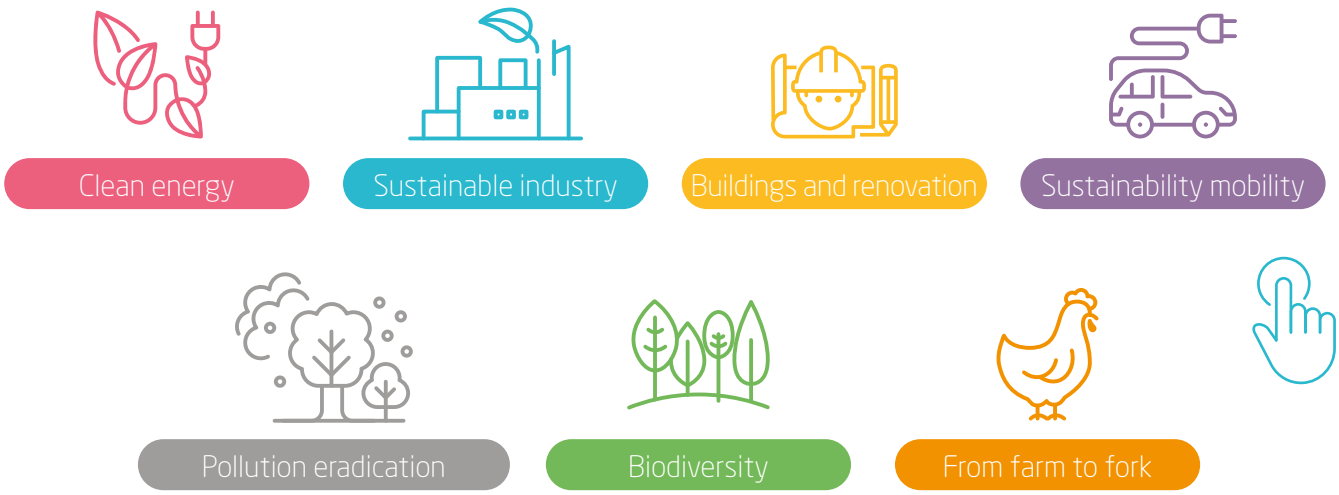
FCC Construcción aims to become a world reference in the field of sustainability when facing the global challenges and opportunities that arise, always seeking to anticipate the requirements imposed by law. As an example of this, the initiatives that FCC Construcción is developing and how they contribute to achieving the main lines of action of the European Green Deal are presented in more detail below.

4.1 We rely on the European Green Deal to achieve climate neutrality

The European Green Deal has the objective of making Europe the first climate-neutral continent by 2050. This initiative, which encompasses all sectors and all greenhouse gases, bases its roadmap on seven vital pillars, only one of which is not directly impacted by FCC Construcción's activity, known as "*From farm to fork*".

FCC Construcción contributes to different degrees to the six pillars and, although there is still a long way to go, the company shares the European Union's objective of moving towards a decarbonised activity throughout the territory in which it operates. The specific actions being developed by FCC Construcción around these pillars are shown below.

7 vital pillars of the *European Green Deal*

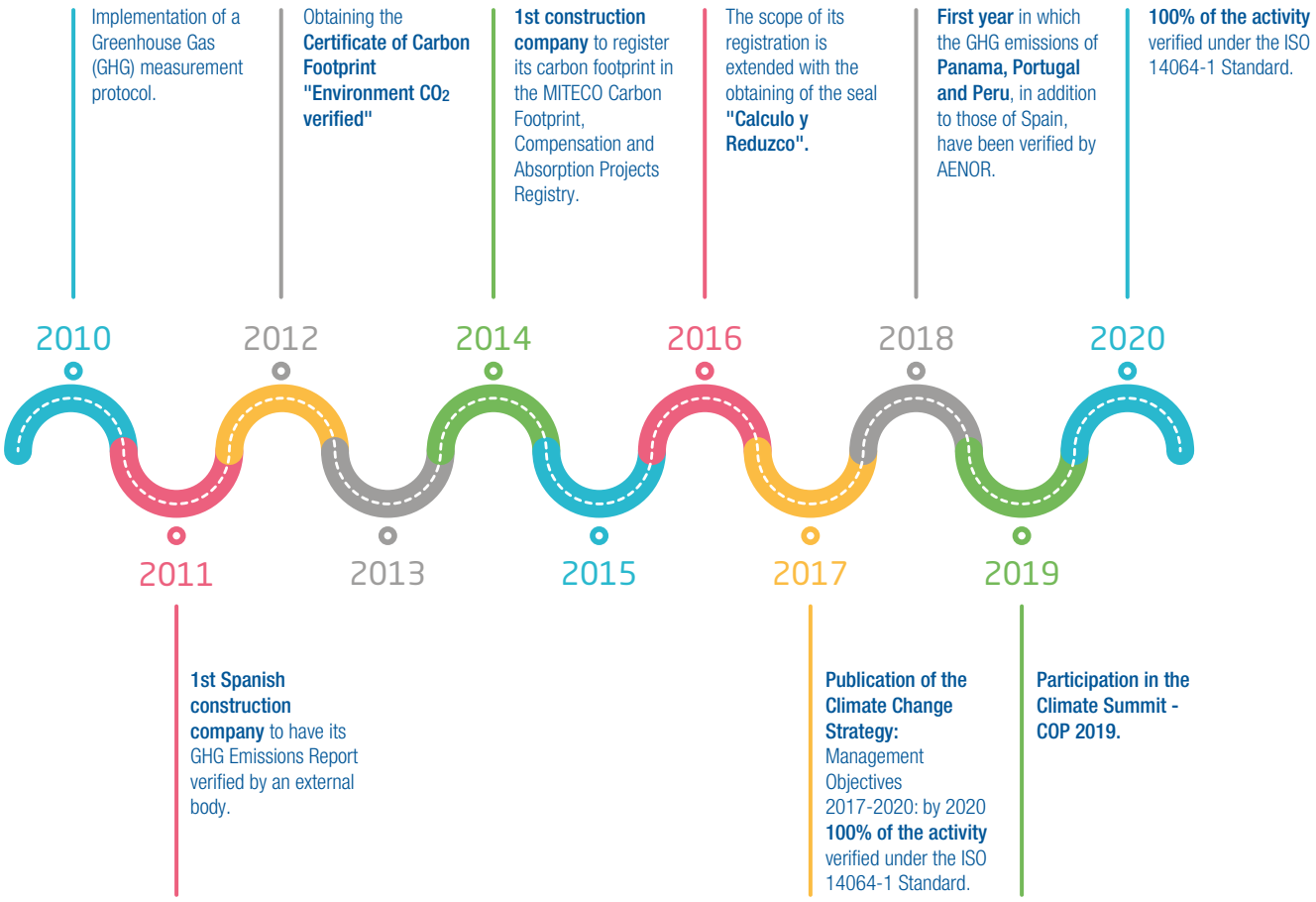


Supporting the transition to cleaner energy

This first pillar is based on decarbonisation through clean, affordable and secure energy. FCC Construcción executes multiple construction projects designed to be energy efficient, with an ever-increasing commitment to renewable energy sources. However, this effort is not only transferred to the operation phase of buildings and infrastructures that the organisation builds, but also, as a sign of its performance, FCC Construcción seeks to minimize carbon emissions in the construction phase of the projects, that is in the day-to-day of its activity. In this regard, it promotes a series of actions and Good Practices that allow it to use cleaner resources more efficiently.

FCC Construcción implemented a Greenhouse Gas (GHG) measurement protocol in 2010 and, since then, has calculated its Carbon Footprint and drawn up a report on its emissions which is verified annually.

Developments in FCC Construcción's Carbon Footprint measurement strategy since 2010



The calculation of the carbon footprint allows the company to monitor and track its energy consumption, in order to know where to focus on improving its energy performance. In relation to electricity consumption, the company has implemented a series of actions to reduce its consumption.

Some of these measures include, for example, the implementation of more efficient and environmentally friendly night-time lighting systems, the installation of timers to automate switch-on and switch-off times or the installation of presence detectors or directional lighting systems that allow only a specific area to be illuminated.

Likewise, another of the Good Practices being developed in the FCC Group's Construcción area of, specifically in those companies that have their own fleets of vehicles, is to opt for vehicles with lower consumption and lower emissions, a strategy that is aligned with the European sustainable mobility strategy.

Although it is not very widespread in the construction sector, another key to accelerating the company's transition towards a zero-emission future is the commitment to the use of renewable energies on site, such as photovoltaic panels, mini-wind turbines or hydrogen green, which are cleaner and more environmentally friendly sources of energy. Likewise, it is key to promote innovation projects, which help the company to implement a more efficient use of energy resources in construction projects, characterized by their temporality and casuistic variability.

Below are some of the actions developed by FCC Construcción in 2019 and 2020 aligned with the "*Clean Energy*" pillar:

Actions speak for themselves

New runway at Dublin Airport (Ireland)

Client: Dublin Airport Authority (DAA)

Completion period: 29 months

Initiative

FCC Construcción has a contract from 2019 covering the detailed design, construction, testing, commissioning and finishing of the runway, taxiways and associated infrastructure.

To improve the efficiency of energy consumption in the implementation of the project, 100% renewable energy acoustic monitors have been installed. These meters are equipped with solar panels that produce the energy necessary for their operation. It is a clean alternative to the use of generator sets that consume fossil fuels.

Another action that has been carried out on the site is the installation of hybrid lighting towers, also powered by solar energy.

Results

This initiative has contributed to a significant reduction in CO_2 emissions and noise emissions and has also proved to be very effective in controlling noise and lighting in areas of temporary construction work.

Hybrid lighting tower on the construction site of the new runway at Dublin Airport.

Acoustic meter powered by 100% renewable energy.

Southwest Motorway A-5 (Spain)

Client: Demarcación de carreteras de Madrid

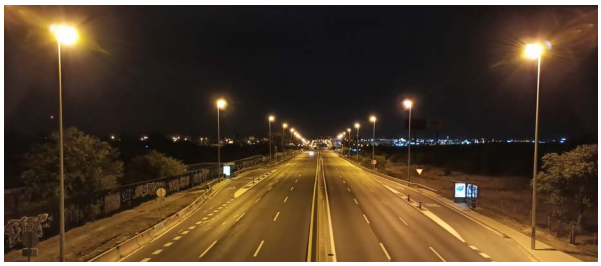
Completion period: 3 months

Initiative

In order to reduce energy consumption on the A-5 Southwest Dual Carriageway, MATINSA replaced 805 High-Pressure Sodium Vapour (HPV) lamps with LEDs between ppkk 10+000 and 19+400. Apart from the difficulty of managing HPSV lamps at the end of their useful life, these lamps consume more energy than LEDs, so replacing them will minimize different environmental impacts.

Results

Installing LED lighting led to a 50% reduction in lighting consumption and, consequently, a 50% reduction in CO_2 emissions into the atmosphere compared to the year before the LEDs were installed. MATINSA has thus exceeded its target of reducing energy consumption on this section of the A-5 motorway by 5%.



Comparison between the luminous efficiency of High-Pressure Sodium Vapor (HPV) lamps (photos on the left) and LED lamps (photos on the right).

Circular economy as a vital pillar for a sustainable industry

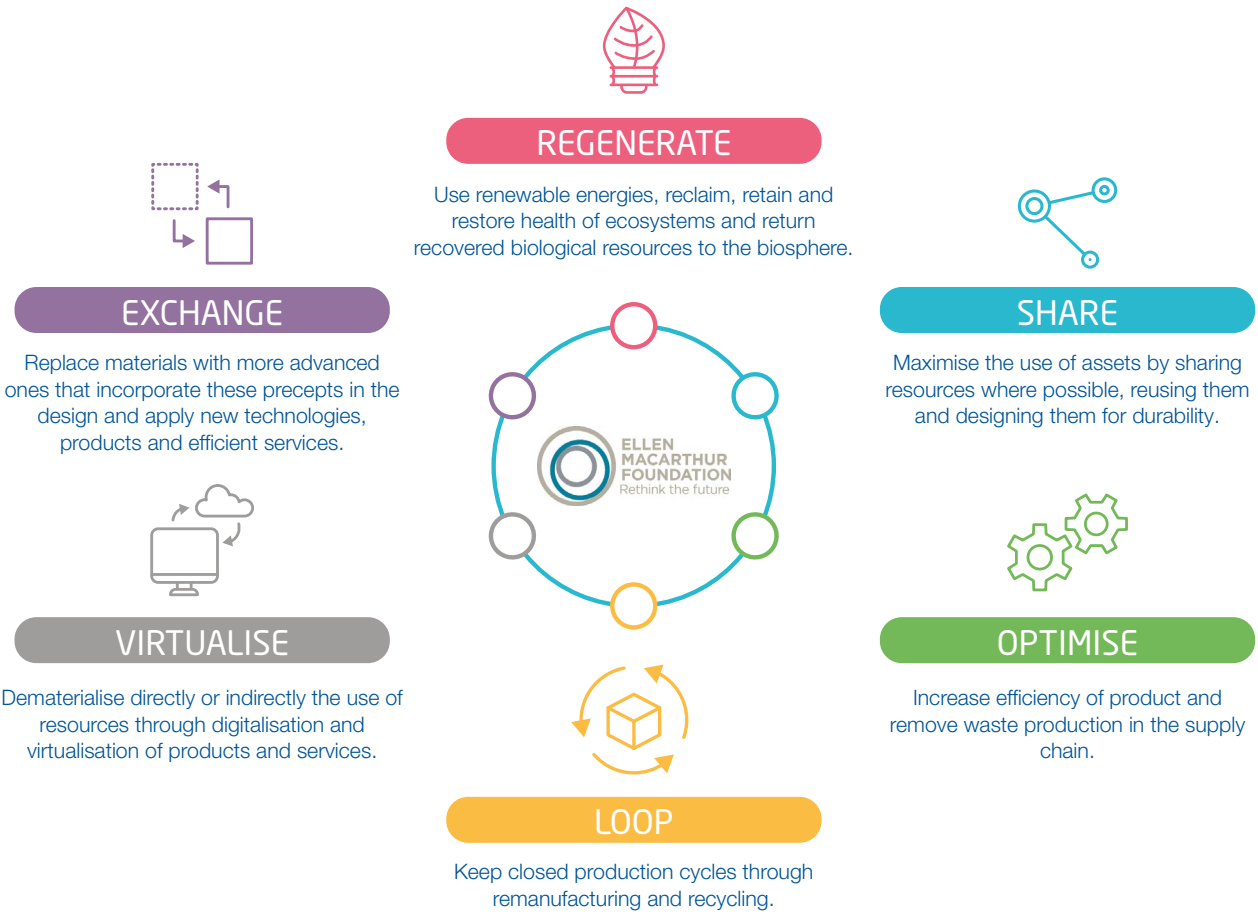
This second pillar is based on fostering the insertion of the circular economy in industry to ensure more sustainable and environmentally friendly production cycles. The integration of the circular economy is a global challenge to end the current linear economic model based on extract, produce and dispose, and move to a circular one where the usefulness and value of materials, components and elements is maintained for as long as possible.

FCC Construcción argues that the circular economy is a good opportunity to reorganise the ideas and actions that are already being applied and to move towards a much more environmentally friendly and sustainable way of acting over time. The company signed the first Circular Economy Pact in 2017, as a sign of its commitment, promoted by the different Ministries in Spain with the objective of involving economic and social agents in the transition towards this new economic model.

The circular economy is a source of opportunities for the construction sector, among other reasons, because it is the sector that produces the greatest amount of waste (between 25% and 30% of the waste produced in the EU), mainly due to the amount of raw materials used and the large surface area that can be affected by projects. Most projects carried out require earthworks where large volumes of inert materials are generated, a high percentage of which, as is the case with construction and demolition waste, can be recycled.

Since the same year that FCC Construcción signed the Circular Economy Pact, the company has structured its progress towards the circular economy around the six areas of action defined by the ReSOLVE framework, created in 2012 by the Ellen MacArthur Foundation, the world's leading reference in this area. This framework facilitates the control and measurement of the development of organisations towards the circular economy and encourages the identification of business opportunities linked in each area to this transition process, essential for progress towards sustainable development.

Areas of action proposed by the Ellen MacArthur Foundation in its ReSOLVE framework



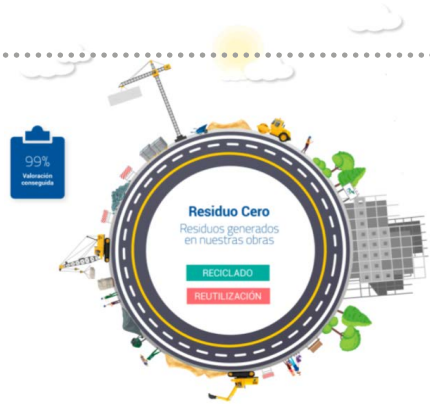
The following is a description of FCC Construcción's actions in each of the areas that make up the ReSOLVE framework.

Regenerate

The analysis of the life cycle of the products and the conception of each project as a regenerative system allows the company to obtain optimum knowledge of the materials and to opt for those with the best performance throughout their useful life and the lowest impact on ecosystems. FCC Construcción is also working to replace fossil energy sources with renewable energies and to reduce their impact on the environment.

This line of action implies, in turn, reducing waste as much as possible, but also conceiving it as a secondary material that can be reincorporated into the construction cycle, thus prolonging its useful life and its potential for recovery.

Through its subsidiary FCC Industrial, FCC Construcción has secured the Zero Waste management traceability system certificate by AENOR. With this, the company becomes the first construction company to receive this certificate, which guarantees the traceability of waste management and establishes recovery requirements to prevent waste from ending up in landfills. The project where this initiative has been applied achieved the recovery of 99% of the waste generated on the site.



FCC Industrial secured the AENOR certificate. Zero Waste, with a 99% recovery of the waste generated on a pilot work located in Torija (Spain).

Sharing

Avoiding the purchase of new products by reusing existing ones, participating in the second-hand market, promoting actions such as renting or prolonging the life span through maintenance, sustainable design, promoting upgrading, etc., contribute significantly to reducing the need for extraction of raw materials and, by extension, to reducing pressure on the environment.

FCC Construcción has its own fleet of machinery which allows it to manage and share machinery and equipment in the different construction projects, reducing the need to acquire them again on the different sites. FCC Construcción also carries out other actions along these lines, such as favouring the rental rather than the purchase of new technology, favouring the use of common spaces for different projects or areas of the same organisation, or the donation of equipment and materials left over from some projects, obtaining other social and economic returns in the beneficiary communities in addition to the environmental benefits.

Sharing storage space for machinery and tools between different projects means a significant reduction in the consumption of resources.

Optimise

Improved resource productivity translates into increased process performance and efficiency, which allows the company to reap huge benefits.

FCC Construcción is committed to innovation as part of its commitment to continuous improvement to achieve new forms of sustainable consumption. In this sense, the insertion of innovative techniques such as intelligent deconstruction and selective demolition is pursued, as well as manufacturing, modular design and 3D printing for the manufacture of building materials or the manufacturing process of components and products according to an open and efficient system of subsequent assembly on site, which reduces the waste generated.

Along the same lines, FCC Construcción seeks to optimise its processes with actions such as the reuse of excavated material to reintroduce it into the production cycle, or the reduction in the use of non-renewable raw materials and fossil fuels.

The following table breaks down the expected and actual amount of surplus clean soil and debris generated by FCC Construcción in 2020, and also the origins and destinations of these materials. FCC Construcción's management of left-

Dock Caisson, Tarragona (Spain)

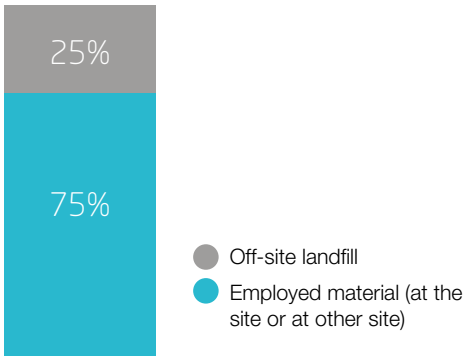
over clean soil and rubble is an important contribution to the company's circular economy, as it is a material that is produced in high volumes in the construction sector and whose physical-chemical characteristics allow it to be reintroduced into the production cycle.

Recycled/used materials

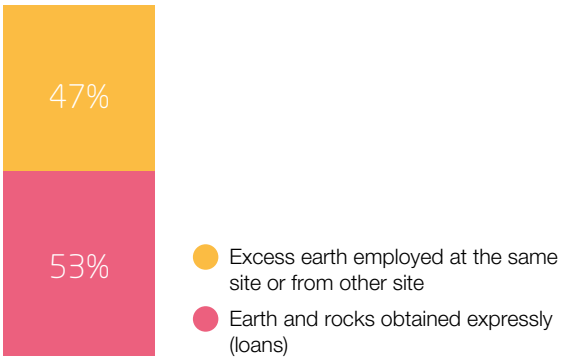
	Expected Quantity (m^3)	Real Quantity (m^3)
Excess earth or rock		
Obtained expressly (loans)	2,973,388	2,299,094
Used from other sites	261,659	335,725
Used in the same project (compensation-excavation-fill)	3,409,106	1,720,005
Temporary storage (before final employment)	512,089	42,137
In-site landfill	2,492,460	645,489
Off-site landfill	2,234,199	999,864
Used in other projects	463,818	578,043
Total excavation	**9,111,672**	**3,985,538**
Total fill	**6,644,153**	**4,354,824**
Clean rubble (concrete, mortar, bricks, prefabricated elements, other)		
Disposed in landfill	186,250	91,663
Used at the site	122,614	71,155
Used from other sites	5,717	568
Used in other projects	5,651	8,874
Delivered to a recovery installation	788,594	406,231

*Data of works executed by FCC Construcción (does not include data of FCC Industrial nor Áridos de Melo).

Destination of the material obtained in excavations



Origin of filler material



Closing the circle

This circular economy axis is one of the most important and is based on maintaining closed production cycles through actions such as re-manufacturing of products and components, extraction of biochemical components from organic waste, anaerobic digestion of components, recycling of materials and reuse of natural resources such as water.

Each FCC Construcción project is planned to integrate as far as possible these options in such a way as to close the circle. Throughout the construction phases, the aim is to maximise the reuse of materials, to integrate secondary raw materials from other industries and to manage waste in the best way to facilitate its reuse, recycling or recovery, so as to achieve a circular life cycle of materials and products.

FCC Construcción is also aware of the need to involve all the participants in the value chain, of the importance of closing the circle, and therefore provides training, both for its employees and its subcontractors, in environmental awareness and sensitisation. Greater involvement of staff makes it easier to implement actions to maximize the value of recyclable materials, reuse water on site or take advantage of aggregates and gravels for the production of concrete.

Further Good Practices that FCC Construcción carries out in this area include the management of surplus excavation waste, the recovery of rubble and initiatives aimed at reducing packaging waste through the purchase of products in bulk and the reuse of reusable containers.

Green points on construction sites that allow for the segregation of most waste help to reduce the percentage of those that are landfilled as a final destination.

Digitalise

FCC Construcción is committed to digitalisation to reduce the consumption of resources and therefore promotes the use of technology to facilitate its activity, minimising the necessary resources and therefore reducing costs for the company.

As part of its commitment to promoting digitalisation, FCC Construcción has been developing the *Building Information Modelling (BIM)* research line for several years. Through the participation of the working groups of the Executive Committee of the National BIM Implementation Strategy, the company reinforces the promotion of the implementation of BIM in the projects and processes it develops. In recent years, four research projects based on BIM technology stand out:

Grangegorman University, Dublin (Ireland)

ROBIM. The ROBIM project is based on the use of autonomous robotics for the inspection and evaluation of existing buildings with BIM integration, with the objective of obtaining accurate and detailed information on the construction systems and possible pathologies of the buildings analysed.

BIMCHECK. The BIMCHECK project aims to improve the company's productivity by automating the quality control and management processes of projects and works through BIM methodology and Blockchain technology.

SAFETY4D. The SAFETY4D project has the objective of reducing the risk of accidents on site, as well as minimising the consumption of resources in the field of Health and Safety, through the development of a new tool and methodology based on the use of BIM methodology.

ONLYBIM. The ONLYBIM project is based on the development of a design tool for civil engineering work, which increases the effectiveness of the design and execution process of non-linear works for its potential users (engineering companies, construction companies, public administrations) and guarantees the connection with existing BIM tools.

Replace

This axis of the circular economy seeks to substitute and replace obsolete materials with more advanced non-renewable materials with a longer useful life, as well as to apply new technologies to materials and choose new products that are more easily repairable or whose components are mostly recoverable, reusable or recyclable.

FCC Construcción strives every day to replace non-renewable energy sources in the different phases that require an energy contribution and to promote the use of new materials that are more efficient and easier to recycle and reuse, aware that this is a future investment that creates value both for the company and for other industries.

The promotion and use of more resistant, durable and easily repairable materials generates advantages such as longer life cycles of products and developments, as well as the reduction of maintenance needs for FCC Construcción infrastructures, which implies reducing the consumption of resources and minimising the generation of waste from the design phase.

Below are some of the circular economy actions that were implemented on construction sites executed in 2019 and 2020.

Actions speak for themselves

A9 motorway renovation (Badhoevedorp- Holendrecht) (The Netherlands)

Client: Veenix Baho B.V

Completion period: 92 months

Initiative

Construction and Demolition Waste (CDW) accounts for approximately one third of all waste generated in the European Union. Better waste management and separation means that waste does not end up in landfill and can be reused.

An expropriated building was demolished for the construction of the A9 motorway in the Netherlands. FCC Construcción proposed the maximum reuse of all the material from the site and, for those materials whose recycling was very complex or required more laborious recycling techniques, their separation and proper management. This is the case for aluminium windows, pipes, electrical materials and sanitary ware.

For the proper separation of the material, special machinery was used to enable dismantling and selective demolition, and different containers were installed to facilitate the proper separation of the waste, its storage and subsequent removal and treatment.

Once the building had been demolished and the building site material to be reused had been collected, the crushing phase was started with specific machinery, and then the crushing was carried out in the plant to achieve the desired granulometry characteristics for its reuse in the construction of the A9 motorway.

Simultaneously, irrigation was carried out, where necessary, to prevent dust emissions into the atmosphere.

Results

With selective demolition and the proper separation of waste, the environmental impact of the work has been significantly diminished. The extraction of raw materials at the source has been reduced, reducing the pressure on ecosystems; emissions into the atmosphere have been lowered as a result of the reduction in fuel consumption due to the absence of transport of raw materials; and waste, the final destination of which was landfill, has been significantly reduced, which contributes to close the circle.

Selective extraction and separation of waste for subsequent recycling.

Gathering of the material and start of the crushing phase.

Stockpiling materials after crushing for later reuse.

Spread of recycled material on the A9.

Actions speak for themselves

Haren prison (Belgium)

Client: Regie Der Gebouwen (Federal State Property Manager) **Completion period:** 44 months

Initiative

The construction of the Haren Prison in Brussels (Belgium) includes the construction of 108,000 m^2 on an area of 15 hectares. The perimeter guard wall is also longer than 1,200 metres. A project of this nature requires a huge amount of raw materials.

As part of the environmental improvement of the project, and specifically with the objective of reducing the extraction of raw materials needed on site with the consequent impact on the environment, the client and the construction companies agreed with the subcontractor to use recycled secondary materials with a certificate of origin.

A total area of 56,000 m^2 was filled with recycled artificial gravel in 2020, applying a 20 cm thick layer of this material in the outdoor courtyards of the Prison.

Results

The use of certified recycled materials has reduced the impact on the environment resulting from the extraction of raw materials and their transport, as well as reducing the amount of waste that ends up in landfill without any kind of treatment, thus helping to close the circle.

Aggregate arranged to be spread out in the courtyard outside the prison.

FCC Construcción as a benchmark for sustainable construction

This pillar arises from the need to implement new, more sustainable forms of construction, both in the use of energy and materials. An estimated 40% of the energy consumed in the European Union is used for building construction and maintenance. Designing and constructing buildings that are more efficient in their use phase is also a major global challenge.

FCC Construcción is taking part in this great challenge, but it is not only focusing on the buildings it constructs, but also on infrastructures. The company is actively involved in the search for innovations in sustainable construction. Sustainability is promoted by the company through the development of guidelines, standards and directives in collaboration with various national and international working groups.

Some of the actions the company is working on include the development of tasks related to the definition of the terminology and general principles of sustainable construction, the description of the life cycle of the building or infrastructure, the definition of sustainability indicators of the Environmental Product Declaration or the determination of methods for the evaluation of the sustainable performance of the works.

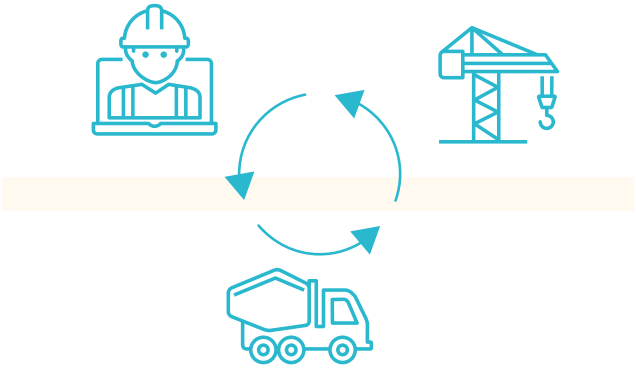
FCC Construcción's contribution to the working groups of the ISO/TC 59/SC 17 (international) and CEN/TC350 (European) Technical Committees is particularly active, focused on the drafting of sustainability standards in civil engineering work, one of the most important activities in FCC Construcción.

The following table shows the most relevant organisations and working groups in which the company is present and with which it collaborates to establish sustainability criteria in the three aspects of sustainable development (economic, environmental and social) related to sustainable construction:

Sustainable construction workgroups

Organisation	Participation
International Technical Committee **ISO/TC59/SC17** "Building construction/Sustainability in building construction".	• Participation in ISO/TC59/SC17/WG1: *General Principles and Terminology.* • Participation in ISO/TC59/SC17/WG2: *Sustainability Indicators for Buildings.* • Participation in ISO/TC59/SC17/WG3: *Environmental Declaration of Building Products.* • Participation in ISO/TC59/SC17/WG4: *Framework for Assessment of Environmental Performance of Buildings and Constructed Assets.* • Presidency of ISO/TC59/SC17/WG5 Civil Engineering Works. *Sustainable Civil Engineering Committee.*
International Technical Committee **CEN/TC350** *"Sustainability of Construction Works".*	• Participation in the CEN/TC350/Task group: *Framework for assessment of buildings.* • Participation in CEN/TC350/WG1: *Environmental performance of buildings.* • Participation in CEN/TC350/WG2: *Building life cycle description.* • Participation in CEN/TC350/WG3: *Product level.* • Participation in CEN/TC350/WG4: *Economic performance assessment of buildings.* • Participation in CEN/TC350/WG5: *Social performance assessment of buildings.* • Presidency of CEN/TC350/WG6: Civil Engineering Works. *Sustainable Civil Engineering Committee.*
Technical Committee for Standardisation **AEN/CTN198** "Sustainable Construction".	• Vicepresidency of the Technical Committee for Standardisation AEN/CTN198 "Sustainable Construction" • Participation on the Technical Standardisation Subcommittee AEN/CTN 198/SC 1 "Sustainable building". • Presidency of the Technical Standardisation Subcommittee AEN/CTN 198/SC 2 "Sustainable civil engineering".
International Initiative for a Sustainable Built Environment **(iiSBE)**	• Members.
Green Building Council España **(GBCe)**	• Members of this organisation, which constitutes the Spanish Council of the International Association *"World Green Building Council"*, set up as a source in Spain for all the information on the LEED building certification tool.
BREEAM Spain	• Members of the Advisory Committee, responsible for defining the development strategy at BREEAM Spain, representing stakeholders in the building sector.

The real *leitmotiv* of FCC Construcción is to encourage alliances between the different players in the construction sector, to learn from partners and competitors and to contribute our knowledge and experience, so that together we can establish *win-win* relationships and draw up guidelines and standards from the sector itself, which help us to evaluate the sustainability of our projects, calculate the carbon footprint and propose strategies to minimise emissions on site or define how to digitise the construction sector.



FCC Construcción specifically led the work of the international ISO/TC59/SC17/WG5 working group in 2020, which is developing standard 21928-2, which will define a framework for the development of sustainability indicators to be used in civil engineering work, highlighting their relationship with the SDGs of the 2030 Agenda. Also relevant is the revision of ISO 21931-1, on methods for assessing the environmental performance of buildings, which is being extended to consider the social and economic dimensions, as already reflected in the equivalent standards for civil engineering work. The approval of ISO / DIS 22057 on data templates for the use of environmental declaration information of construction products in BIM helps us to understand that our future challenges are increasingly about combining the concepts of "digital" and "sustainable" in our business strategy.

The European working group CEN/TC350/WG6, led by FCC Construcción, recently develop a standard related to sustainability calculation methods, EN17472, "Sustainability of construction works - Sustainability assessment of civil engineering works - Calculation methods", which will provide specific methods for evaluating the environmental, economic and social performance of a civil engineering work, so that it can be used as an aid in the decision-making process of a project. The organization has also contributed to the updating of the EN 15643:2021 standard on sustainability assessment of buildings and civil engineering work, an important benchmark in this field. Within the European Union's clear commitment to sustainable building, which is shown in the "Renovation wave" initiative, having participated in the first person in the development of standards on the evaluation of the environmental, social and economic performance of buildings or on the evaluation of options for the sustainable renovation of buildings, positions FCC Construcción in the front line to promote the sustainability of the built environment and generate value among its interest groups.

Lining of the tunnel construction project of Lines 2 and 4 of the Lima metro (Peru)

The extensive technical knowledge of FCC Construcción's professional team is shared in areas as diverse as innovation, CSR and the environment, through its participation in committees, working groups and different organisations that contribute, in turn, to promoting sustainability in construction. Some of the groups in which it collaborates are listed below:

Groups in which FCC Construcción collaborates

Organisation	Participation
International Technical Committee **ISO/TC207** "Environmental management"	• Participation in the ISO/TC 207 SC1 Subcommittee: *Environmental management Systems.* • Participation in the ISO/TC 207 SC4 Subcommittee: *Environmental performance evaluation: Workgroup WG 4 "Data quality".*
Technical Committee for Standardisation, **CTN 83** Concrete	• Participation in the AEN/CTN 83/SC 10 Subcommittee "Durability". • Participation in the AEN/CTN 83/SC 11 Subcommittee "Execution".
Technical Committee for Standardisation, **CTN 146** Aggregates	• Participation in the AEN/CTN 146/SC 2 Subcommittee "Aggregates for concretes". • Participation in the AEN/CTN 146/SC 6 Subcommittee "Trials" and the Workgroup on aggregates-alkalis.
Technical Certification Committee, **CTC 015** Cements	• Spokesperson for the Technical Certification Committee.
Technical Certification Committee, **CTC 061** EHE 98 Concrete	• Spokesperson for the Technical Certification Committee.
Technical Certification Committee, **CTC 079** EHE 08 Concrete	• Spokesperson for the Technical Certification Committee.
Technical Committee for Standardisation **CTN 140**-EUROCODES	• Participation in the Climate Change Working Group.
Madrid World Capital of Engineering, Construction and Architecture Association **(MWCC)**	• Presidency of the Association. • Participation in Working Groups (Sustainability, Certification and Standardisation, Training).
Spanish National Commission on Large Dams **(SPANCOLD)**	• Spokesperson for the Spanish National Commission on Large Dams. • Presidency of the Technical Commission on "Engineering Activities in Planning". • Participation on the Technical "Hydraulics for dams" Committee. • Participation on the Technical "Environment" Committee. • Participation on the Technical "Concrete dams" Committee.
International Commission on Large Dams **(ICOLD)**	• Participation in the *Committee on Engineering Activities in the Planning Process for Water Resources Projects* (ICOLD), representing Spain.
Blue Dot Network **(OCDE)**	• Members of the Executive Consultation Group.
Madrid Office of the Professional Association of Civil Engineers	• Participation on the Transparency and Social Responsibility Committee.
AENOR Advisory Committee of Construction Firms	• Participation on the Technical Environment Commission. • Participation on the Quality Commission. • Participation in the AENOR Forum on standards for Connected Industry 4.0.
SEOPAN	• Participation on the Quality and Environment Commission. • Participation on the Innovation Commission.
Spanish Quality Association **(AEC)**	• Participation on the Environment Committee. • Participation on the Construction Committee.
European Network of Construction Companies for Research and Development **(ENCORD)**	• Participation in the Environment and Sustainability Workgroup. • Participation in the workgroup dedicated to the creation of a Sustainability Declaration for European construction firms.

Organisation	Participation
European Construction Technology Platform **(ECTP)**	• Management Committee members. • Participation in the *"Quality of life"* area: – Workgroup WG1 *"Reduce environmental impact".* • Workgroup WG3 *"Improving the built environment for people"*.
Spanish Construction Technology Platform **(PTEC)**	• Trustees of the PTEC Foundation. • Participation on the Strategic Line for Sustainable Construction: – Coordination of workgroup 1: "Competitiveness". – Workgroup 2: "Environment". • Participation on the Strategic Line for the City of the Future. – Workgroup 1: "Efficient city". • `Workgroup 2: "Smart city".
es.BIM BIM Implementation in Spain	• Participant of the initiative "es. BIM", to detect BIM-related innovations in Spain.
Railway Innovation Hub **(RIH)**	• Associate member of the initiative to promote technology and knowledge in the railway industry at an international level.
National Confederation of Construction **(CNC)**	• Participation on the Environment/Waste Commission.
Spanish Confederation of Employer Organisations **(CEOE)**	• Participation on the R&D Commission. • Participation on the CSR Commission (WG 2030 Agenda). • Participation on the Sustainable Development and Environment Commission.
Sustainable Development and Business Committee for the Economic and Trade Office at the Spanish Embassy in Colombia	• Participation in the Workgroup for sustainable development in Colombia.
Spanish Network of the United Nations Global Compact	• Partners. *"Participant"* level.
Spanish Structural Engineering Association **(ACHE)**	• Participation in the Workgroup on "Incrementally launched bridges" • Participation on Commission 3 "Execution".
Technical Ports and Coasts Committee **(ATPYC)**	• Presidency of the Association. • Participation on the Technical Port Engineering Committee • Participation in the Workgroup on "Seismic design".
World infrastructure association for aquatic transport **(PIANC)**	• Presidency of the Maritime Commission.
Association of Tunnels and Underground Works **(AETOS)**	• Participation in the Workgroup for the preparation of the "Tunnels Guide".
Madrid City Council Cluster	• Participation in the training, professional training and R&D (Research, Development and Innovation) working group, within the area of markets and financing and in the Sustainability working group.
Spanish Railway Technology Platform **(PTFE)**	• Participation with the objective of achieving scientific and technological advances to ensure the competitiveness, sustainability and growth of Spanish railways.
Building Smart	• Partner.

Fostering sustainable mobility

Transport accounts for a quarter of greenhouse gas emissions. FCC Construcción is contributing to the decarbonisation of mobility through its contribution to the execution of civil engineering work such as the Riyadh metro, the Gurasada train and the Maya railway. The construction of infrastructure also improves connections between regions and helps to minimise or prevent problems of depopulation. Infrastructure maintenance is also vital for improving sustainability through mobility or reducing fuel consumption.

Internally, steps are beginning to be taken to replace the vehicle fleet with one that is more energy efficient or uses alternative energy sources (hybrid vehicles) to develop a less polluting activity. However, FCC Construcción hardly has its own fleet of vehicles and machinery, so the effort is extended to the selection of more efficient vehicles in rental contracts or in machinery and subcontracted work.

Some of the initiatives developed by FCC Construcción during 2019 and 2020 are shown below:

Actions speak for themselves

Conservation and maintenance of Sector O-05 of the National State Road Network (Asturias, Spain)

Road maintenance in Palencia (Spain)

Client: Ministry of Development (Principality of Asturias). Completion period: 12 months

Client: Directorate General of Roadways and Road Unit in Soria (Palencia). Completion period: 60 months

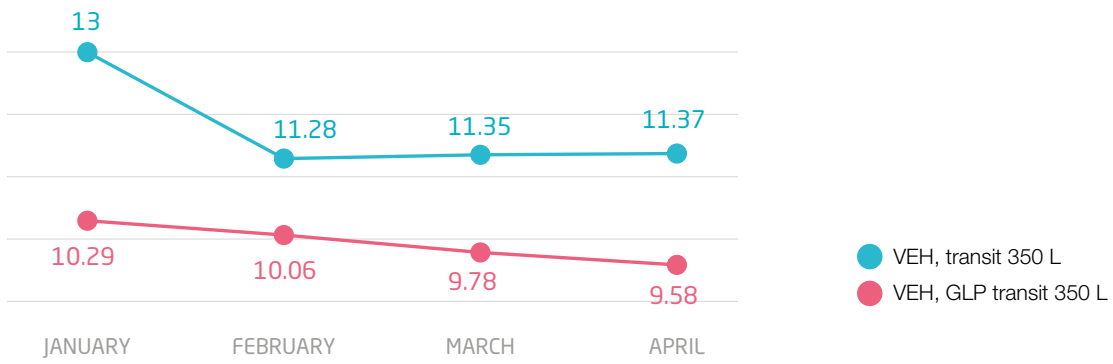
Initiative

In order to carry out the various conservation and operation operations on the roads of Sector SO-2 (Palencia) in the contract for the conservation and maintenance of sector O-05 of the National Road Network of the State in the Principality of Asturias, MATINSA has proceeded to replace the vehicles that used to run on diesel with diesel and LPG hybrids.

Results

Diesel consumption has been considerably reduced and, with it, greenhouse gas emissions into the atmosphere. During the months that consumption records were made in the database for comparison between vehicles, consumption decreased from 11.34 l/100 km to 9.93 l/100 km, the only difference being the use of the LPG system. This type of vehicle travels an average of 900 km per day with a diesel saving of 141 l/100 km and taking into account that the vehicle consumes 114 l/100 km of LPG.

Comparison of diesel fuel consumption between diesel vehicles and hybrid vehicles using LPG



Gouvães dam (Portugal)

Actions speak for themselves

New runway at Dublin Airport (Ireland)

Client: Dublin Airport Authority (DAA)

Completion period: 29 months

Initiative

A smart hybrid excavator has been purchased for the Dublin Airport site with the objective of achieving fuel savings. This excavator incorporates a 100% electric swing, leaving the hydraulic power available to be released in the movement of the boom, arm and bucket, significantly improving cycle times and production, so in addition to saving fuel, it allows tasks to be carried out more efficiently. In addition, the excavator has an intelligent control system that allows operators to be more efficient in the depth and slope at which the shovel is inserted into the ground.

A further measure taken at the airport facilities entailed installing a charging point for electric cars in the on-site car park, promoting sustainable mobility when travelling to and from the site.

Results

The use of the hybrid excavator has resulted in a 40% reduction in fossil fuel consumption and therefore a 40% reduction in emissions. The installation of the charger is also encouraging greater use of electrically powered cars by reducing range problems.

Hybrid excavator used at the Dublin Airport site.

Electric car charging point located in the car park of the construction site.

Reducing pollution in all our processes

This line of action seeks to protect human health and reduce pressure on ecosystems by taking action to prevent air, water and soil pollution. FCC Construcción is deeply committed to reducing all forms of pollution that could result from the development of its activity.

Dust emissions are proportionally the most significant in construction. This is perceived and recorded by the sites after the identification and assessment of environmental aspects. These point and localised emissions are managed by the sites through the voluntary application of Good Practices to avoid or mitigate their impact.

Some of these Good Practices are the application of watering of roads and stockpiles, control of truck speed, use of tarpaulin trucks or the use of dump trucks for the discharge of debris. As has been shown, these measures significantly reduce the suspension of dust in the air, preventing air pollution.

Preventing the discharge or infiltration of pollutants into the water is yet another focus of special interest in the works. The primary sources of water pollution are mainly the occupation of watercourses and seabeds, water catchments and subsequent accidental discharges, the dragging of solids from stockpiles or uncompacted surfaces, spills produced in the storage areas of chemical products or hazardous waste, or accidental spills of hydrocarbons and oils produced during machinery maintenance work.

The Good Practices applied in these cases to prevent water pollution consist of the installation of effluent settling basins with or without the use of additives in effluent and process water discharges, neutralisation of the pH of basic effluents, reuse of concrete tank washing water, identification and waterproofing of areas for the washing of gutters or the use of portable treatment plants or prefabricated watertight pits for the treatment of sanitary water. Through chemical analyses of the water and the application for administrative authorisations, FCC Construcción guarantees that the water meets the appropriate quality parameters to be discharged into natural watercourses without posing an environmental risk to ecosystems.

The following is an example of one of the on-site actions to prevent pollution and alteration of an aquatic ecosystem.

Installation of a waterproofed gutter washing area to prevent soil and water contamination.

Actions speak for themselves

Tâmega-Oura Bridge (Portugal)

Client: Iberdrola

Completion period: 20 months

Initiative

The method used for the construction of the foundations of the bridge piers over the Tâmega river had a direct impact on the river bed by increasing the content of suspended solids and hydrocarbons.

A further problem identified on site was the large volume of water from the water table coming into contact with the applied concrete, causing an increase in the alkalinity of the water and requiring this to be neutralised before the water was discharged into the river.

As a solution to the oil problem, an absorbent hydrophobic barrier was placed downstream to absorb the oil and an environmental emergency kit was kept on site to deal with oil spills in water and soil.

For the excavation of the bridge footings, the influent water from the water table contaminated with suspended solids was diverted to a settling system consisting of two geotextile-lined basins of sufficient size to allow the retention of solids. The basins were cleaned as many times as necessary using mechanical means to avoid clogging and loss of efficiency of the settling process.

During the concreting works, the influent water from the water table that came into contact with the fresh concrete was directed to a set of tanks where its pH was controlled. When the pH values reached the range of 6 to 9, the water was pumped to the settling system for separation of suspended solids and subsequently discharged to the river course or used for road irrigation.

When pH values were higher than 9, pH correction was carried out by in situ neutralisation with the addition of a pH reducing agent. After pH correction, the treated water was returned to the sedimentation basins and subsequently discharged into the river.

In addition, a 12,000-litre cistern towed by a tractor was available on site in case it was necessary to collect and take the contaminated water to the existing treatment plant to other of the works executed by RRC, FCC Construcción company in Portugal.

Results

The adopted methodology prevented the discharge of untreated polluted water with high levels of suspended solids and alkaline pH into the river, protecting the aquatic flora and fauna and the ecosystem as a whole.

Detail of water recirculation to the settling basins and tanks for pH control.

Water settling basin.

Tanks for pH control of the influent water from the water table that comes into contact with the fresh concrete.

Tanker truck on site to be able to take contaminated water to the existing treatment system at a nearby construction site, if necessary.

Protecting biodiversity

High biodiversity in ecosystems is synonymous with resilience. The richer and more biodiverse ecosystems are, the more resilient they are to disturbances such as those occurring as a result of climate change. But a diverse and balanced ecosystem is also better able to reduce and mitigate the effects of this climatic imbalance, with multiple benefits beyond the ecosystem itself.

Healthy ecosystems act as barriers to protect the quality of life and health of societies. For example, well-maintained riparian vegetation helps to regulate and reduce the impact of river floods in the face of increased rainfall intensity as a result of climate change. In other cases, maintaining ecosystems in an adequate state of conservation has been shown to help prevent zoonoses (transmission of diseases from animals to humans).

FCC Construcción integrates measures for the prevention, protection and conservation of biodiversity in all its projects to avoid, reduce or try to minimise the effect of its activity on ecosystems, as well as integrating restoration measures in those that have already been impacted and, when restoration is not possible, promoting measures to compensate for the damage caused.

The company not only implements the actions required by the project in this area, but goes further. FCC Construcción has included in its Good Practices System a series of voluntary actions such as, for example, the establishment of a Biodiversity Plan which includes an initial ecological inventory to define the habitats and the plant and animal species existing on the site, the establishment of wildlife refuges with artificial structures or the adaptation of the planning of the work to the life cycles of the species in order to reduce the impact on them as much as possible.

Insect hotel built in the vicinity of the new airport runway with disposable materials from the construction process.

Construction of the northern runway at Dublin Airport (Ireland)

Below are specific actions that the company has launched in 2019 and 2020:

Actions speak for themselves

Maya railway - Section 2 (Mexico)

Client: National Tourism Development Fund (FONATUR)

Completion period: 88 months (28 construction, 60 maintenance)

Initiative

The Maya railway construction site in the state of Campeche (Mexico) is an area of great importance for the conservation and protection of the Maya Forest due to its rich biodiversity and the importance of its aquifers.

The local wildlife in this area include:

- Mammals such as the jaguar, ocelot, tapir, howler monkey, spider monkey, puma, tlacuache, raccoon, cacomixtle and a great diversity of bat species.
- Various reptiles including several species of turtles, snakes, crocodiles and iguanas.
- Different species of birds including macaws, toucans, quetzals and flamingos, and many other species of resident and migratory birds.

Plant life includes species such as the ramón tree, cedar, and ciricote, as well as various species of mangrove and palm trees.

Many of these species are listed as threatened or endangered and are subject to a special protection regime. The implementation of the project threatened the ecological balance and connectivity of the ecosystem and measures had to be put in place to minimise this impact as much as possible.

These measures included the implementation of actions to rescue the native flora and fauna of the area.

Maya railway - Section 2 (Mexico) (continuation)

Flora rescue and relocation programme

The environmental brigades carry out tours of the work areas, identifying the most suitable areas to proceed to the collection of individuals for rescue, paying special attention to those species in danger according to the list of species contemplated in the Mexican regulations.

Depending on the number of individuals to be removed, temporary nurseries are strategically located, where healing and/or preparation of the organisms can be carried out prior to relocation. To help the species to acclimatise once relocated, each time an individual is rescued, basic records are taken of the parameters necessary to reproduce the natural conditions where the species was found. Parameters such as location coordinates, angle of solar incidence, characteristics of the area, etc., are noted. All these data are recorded in the flora rescue and relocation logs.

Construction of the new roads does not begin until the rescue work is completed.

Wildlife rescue and relocation programme

The same measures were taken for the wildlife. A programme of rescue and relocation of individuals belonging to the different groups of amphibians, reptiles, mammals and birds is being carried out, particularly individuals of those species that are under conservation status within Mexican regulations. Where necessary, nests and burrows may also be collected, for which coordination agreements or arrangements are made with the relevant authorities. The results of wildlife rescue and relocation activities are reported in the environmental monitoring and surveillance programme.

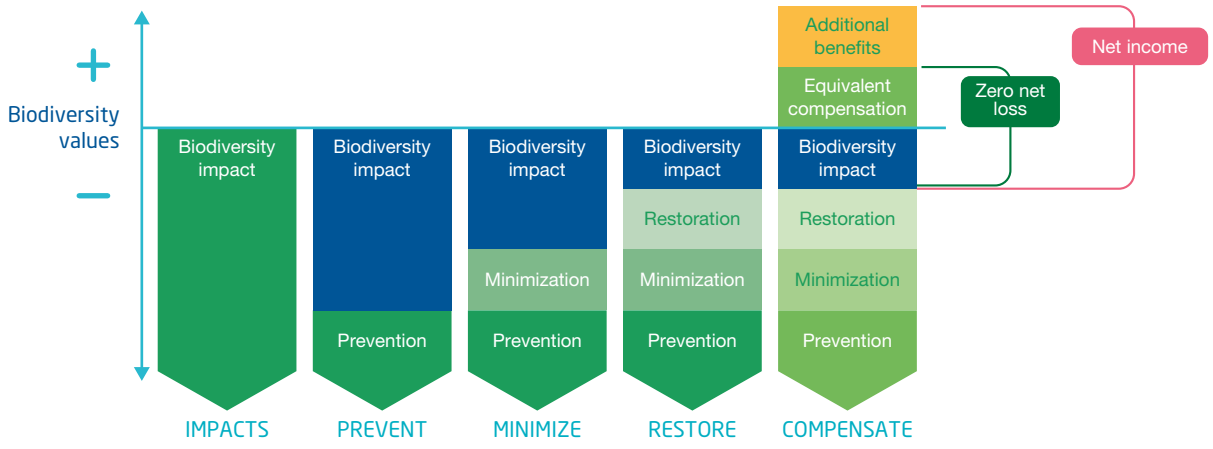
Additional initiatives underway in the area to protect the fauna include the implementation of an environmental education programme for workers, in which they are informed of the type of species present in the project area. Rescue brigades have also been trained in the different techniques for handling and capturing individuals. A signposting programme has also been set up in the area with signposting urging care and conservation of the environment and reminding workers of the ban on hunting in the area.

During environmental mitigation activities, priority is given to the rescue of species listed in the Standard (Flora and Fauna), as well as species that, due to their stage of development (Flora), are susceptible to being rescued and kept in nurseries until they are relocated. In terms of flora, species of cultural importance for the communities are also considered.

Results

A total of 511 wildlife specimens (of which 36 were endangered) and 18 wild flora individuals (of which 9 were endangered) were rescued by 31 March 2021 by means of wildlife repelling, rescue and relocation techniques.

Biodiversity impact mitigation hierarchy



Source: In-house based on IUCN 2015.

Actions speak for themselves

Subsidiary execution contract with Madrid City Council (Spain)

Client: Madrid City Council

Completion period: 24 months

Initiative

During clearing work on a plot of land, a slope with a breeding colony of bee-eaters was detected. These birds breed during the second half of July, which is the same time as the technical planning for the execution of the works. The bee-eater is included in the list of wild species under special protection regime, according to RD 139/2011, so the company decided to adopt measures to protect this species and support its conservation.

FCC Construcción determined that it was necessary to delay the start of the activities until the end of the breeding period and, during that time, ensure that the process was as successful as possible. To this end, measures were established to mitigate the disturbance to the birds and the construction of the slope with the nests was delayed until the bee-eaters abandoned them.

Some of the measures adopted on the site consisted of signposting the affected slope and delimiting a perimeter area to warn of their presence, as well as avoiding the circulation of machinery near the site and locating the machinery and vehicle parking area as far away as possible from the nests.

An order was also given not to clear the slope within 20 m of the breeding colony until the bee-eaters would abandoned the nests, road and soil irrigation was implemented to reduce dust emission, and site workers were informed of the existence of the colony and the need for protection and conservation.

Results

An analysis of the activity of the colony and individuals in the colony, based on observations, led to the conclusion that the bee-eater colony on the target slope has not been affected by the construction work.

The individuals abandoned the nests once the breeding period was over, and the work to clear the slope could be continued successfully.

Slope where the bee-eater nests are located.

4.2 Focus on other global challenges

Confronted with today's global disruptions, such as bringing an end to COVID-19, restoring the pre-pandemic economic situation, combating climate change and its effects, protecting human rights in developing countries where there are insufficient mechanisms to guarantee them, supporting recovery and cooperating with countries hardest hit by pandemics, political crises, wars and extreme weather events, a global effort is needed to ensure that future generations can meet their needs as well as, or better than, today, while safeguarding their future.

It is noted that achieving sustainable development must be one of the vital pillars that must guide recovery and in which all groups in society must participate, not only governments, but also businesses and society in general. In this recovery, companies are also emerging as the driving force. For example, the European Union puts companies at the centre of its Sustainable Finance Plan to achieve a Green Recovery.

The United Nations 2030 Agenda already called for action by different groups in society to achieve its ambitious Sustainable Development Goals (SDGs). Today more than ever, less than a decade to reach this horizon, the need to continue working towards the achievement of its Objectives is more pressing than ever. Companies become active players in the achievement of the 2030 Agenda by integrating their SDGs and targets into their strategy and business model, and by setting KPIs and metrics to assess progress in their implementation.

Moreover, in recent years, new global challenges have emerged in the future to which companies must respond: The safeguarding of Human Rights and the environment in the supply chain, the application of nature-based solutions or natural capital are some of these major challenges.

Sustainable development is defined as meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.

Brundtland Report, 1987

FCC Construcción's strategy integrates the potential risks and opportunities derived from global challenges, pursuing sustainable development in its three dimensions (economic, social and environmental) in each project. The company attaches great importance to defining and achieving objectives to reduce its environmental and social footprint year after year, protecting the planet through the implementation of actions that contribute to a better use of resources, improved environmental and social performance and the implementation of measures to address climate change and other global challenges.

FCC Construcción also wants to be a pioneer and set an example in the integration of those trends and external conditioning factors that may arise in the future, committing to sustainable construction, technological innovation and favouring the transition towards a circular, low-carbon economy.

All FCC Construcción projects have an intrinsic added social value and, as far as possible, an environmental value. FCC Construcción strives to create infrastructures that promote sustainable development, and pursues the incorporation of the great global future challenges in its business model, in order to continue to be a reference in the construction sector in the future.

FCC Construcción aspires to play a role in future global challenges and is working to integrate the best and most innovative building techniques into its projects, contributing to the creation of sustainable cities.

2030 Agenda

All the governments of the United Nations came together in 2015 to draw up an ambitious sustainability agenda. This is the so-called 2030 Agenda consisting of 17 Sustainable Development Goals (SDGs), which include 169 social, economic and environmental targets.

The countries agreed on the need for an Action Plan to promote global sustainable development and to work together against climate change and the deterioration of the planet. In order to achieve the objectives included in the Agenda, it was recognised that the participation of all groups in society was necessary: governments, businesses, civil society and citizens around the world. This is a joint and universal undertaking.

The United Nations recognises companies as a key agent for achieving its global objectives and considers their alliance essential for the economic, social and climate targets of the 2030 Agenda. Therefore, since the approval of the 2030 Agenda in 2015, FCC Construcción has worked to align its corporate management with the SDGs, establishing a series of commitments and Good Practices connected with the Plan's strategy. These include linking the organisation's 2017-2020 management objectives to the SDGs, the CEO's commitment to the 2030 Agenda and employee outreach and training on the SDGs.

The achievement of the 2030 Agenda also represents a great opportunity for FCC Construcción. The transformation of processes to more sustainable ones represent a business opportunity, implies a potential cost reduction, improves stakeholder relations and promotes innovation within the company.

FCC Construcción strives to contribute to the achievement of the SDGs through its activity, during the construction of infrastructures (SDGs 9 and 11), by supporting decent work and economic growth (SDG 8) and climate action (SDG 13) or the reduction of inequalities (SDG 10), and further SDGs. The company recognises that the 2030 Agenda serves as a roadmap for coherent action, bringing together the objectives of sustainability and social solidarity to create a new economic paradigm of solidarity.

Since the approval of Agenda 2030 in 2015, FCC Construcción has worked to align its corporate management with the SDGs, establishing a series of commitments and Good Practices connected to the Plan's strategy.

Human rights and environmental supply chain security

The European Commission was urged by the European Parliament in March 2020 to develop tools for EU states to oblige companies to safeguard human and environmental rights in their business practices. The Commission was tasked with defining principles, compliance with which had to be ensured by companies, not only in their practices directly and through their subsidiaries, but also throughout their supply chain.

It also called for the EU to urgently adopt binding requirements for companies to identify, assess, prevent, halt, mitigate, monitor and report on potential and/or actual adverse human rights, environmental and governance impacts within their supply chain.

Accordingly, the Directive on corporate due diligence in relation to human rights and the environment is expected to be published very soon. What is new in this directive is the extension of responsibility along the entire value chain, the need to monitor subsidiaries and suppliers, the introduction of investigations into all types of companies, the incorporation of sanctions, and even the creation of a monitoring centre to receive complaints and reports on companies.

FCC Construcción, as a transnational company that manages construction services worldwide, building large infrastructures throughout the planet, has the responsibility to guarantee respect for human rights and public freedoms within its area of influence, based on the legal framework of each country and has mechanisms for this.

The FCC Group has a Compliance Model with a developed regulatory block, in which the Code of Ethics and Conduct stands out, as the central cornerstone, but which has other procedures such as the Crime Prevention manual, the Anti-corruption Policy, the policy on relationship with partners in relation to Compliance, the investigation and response procedure, the Ethical Channel procedure, the Human Rights Policy, the Compliance Committee regulations, the Agent policy, the Gift policy, the participation policy of the FCC Group in bidding processes for goods or services and the Harassment Prevention and Eradication of Protocol.

One of the provisions of the Code of Ethics requires partners, collaborators and suppliers to respect the environment in all their activities, not only by complying with current legislation, but also by developing their activities in such a way as to minimise negative environmental impacts and establishing sustainable environmental management. Specifically, when supplier activities are carried out at FCC Group facilities, the supplier must ensure that its workers understand and comply with the applicable internal and external environmental protection rules, regulations and standards. Likewise, contracts with suppliers and contractors include ethical clauses and contracting conditions that require suppliers to comply with human rights.

The company also has control mechanisms in place to ensure compliance with regulations:

1

Ethics Channel

Open tool to help identify and report potential breaches or violations of the Code of Ethics and Conduct and the regulations that develop them.

2

The Compliance Committee

Internal, high-level body with autonomous control powers to ensure the proper functioning of the Ethics Channel and to assess possible improvements in the controls and systems established in the company, being able to recommend corrective actions if necessary. It reports directly to the Audit and Control Committee of the Board of Directors.

3

Audit and Control Committee

The main function of the Audit and Control Committee is to support the Board of Directors in its oversight duties by periodically reviewing, inter alia, the process of preparing economic and financial information, its internal controls and the independence of the external auditor.

In addition, FCC Construcción is adhered to the main international frameworks in terms of respect and monitoring of Human Rights, such as the United Nations Global Compact, Universal Declaration of Human Rights Framework, Declaration of the Rights of the Child, various ILO conventions and other agreements of the Building and Wood Workers' International (BWI) global federation.

FCC Construcción also safeguards human rights during tender processes to ensure that they are respected throughout the value chain. To this end, policy documents are in place to ensure that recruitment is consistent with the group's Code of Ethics and Conduct.

Nature-based solutions

The urbanisation of natural environments and the expansion of cities, resulting from population growth in recent decades, has increased pressure on the territory. This impact on the environment is even greater if aspects such as land-use planning have not been taken into account, with repercussions on the quality of life of the population.

It is common for infrastructure and buildings to be damaged by extreme events such as flash floods or storms with strong waves, as they are located on the coast or in river flood plains. Likewise, the channelling of water in those sections of rivers where its sinuosity and the regime of sediment entrainment and deposition has been altered generates important impacts on the associated ecosystems and can contribute to an increased risk of flooding.

In recent years it has become clear that the way we build is strongly linked to climate change mitigation and adaptation. For this reason, the Climate Change Adaptation Plans are committed to providing cities with green areas to reduce the effect of heat waves on the population and mitigate the effects of possible flooding, among other things.

Through the Horizon 2020 Research and Innovation Programme, the European Commission is funding one of the main instruments for responding to societal challenges such as climate change, food security and disaster risk. This instrument is embodied as Nature-Based Solutions (NbS).

Detail of the contaminated soil surface that was removed for the application of bioremediation techniques at the Simeria station

Section 3 of the railway line between Gurasada and Simeria (Romania)

NbS *(Nature-based Solutions)* are built on mimicking ecosystem functions to address current problems such as those outlined above, rather than relying solely on conventional solutions. Ecosystems and their functions potentially serve as a form of green infrastructure and, in many cases, can be more cost-effective solutions.

NbS is a new concept that encompasses all actions that rely on ecosystems and the services they provide, and includes a number of different approaches such as Ecosystem-based Adaptation.

Once again, FCC Construcción has wanted to join the new approaches that make its activity more respectful of the environment, such as the NbS, and proof of this is that in 2019 FCC Construcción was invited to a round table at COP 25 to share its experience in the use of nature-based solutions for the development of climate change resilient infrastructures and to present practical cases in specific projects, as the actions developed in the Bogotá river dredging project (Colombia) to improve the environmental conditions of the river by restoring the morphology of the river or recovering areas of ecological interest, or the protection of the Mersey estuary (UK), through actions such as the restoration of marshes and surrounding reed beds, and the establishment of biodiversity laboratories for the collection of wildlife data.

FCC Construcción's initiatives or examples developed in NbS in 2020 included the following:

- The implementation of bioremediation techniques to decontaminate soils contaminated by petroleum derivatives and oils during the construction of the Gurasada-Simeria railway line in Romania.
- The installation of an insect hotel with materials left over from the execution of the works, with the objective of contributing to increasing the biodiversity of invertebrates in the area of the works, due to the multiple benefits of protecting invertebrate communities in the future, etc., increasing the resilience of ecosystems by increasing the prolongation of pollination or the control of species.

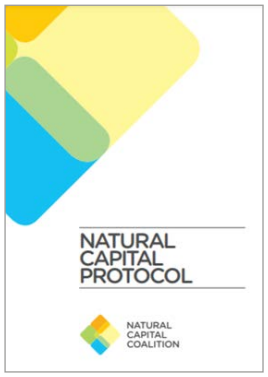
Natural Capital

According to the Natural Capital Coalition, Natural Capital is the inventory of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soil, minerals) that, combined, provide benefits to people. Natural capital also embodies the profits, reserves and interest generated from natural assets, i.e. the flow of goods and services on which economies and societies depend for their survival.

This term has been refined over time. Intangible aspects such as the capacity of forests to halt erosion and desertification, the capacity to produce oxygen, absorb carbon, pollinate, etc., are now also considered natural capital.

The construction sector plays a vital role in the preservation of natural capital. The valorisation of this capital by companies is of vital importance to transform urban and natural spaces in a sustainable way. Activities such as earthworks, the transformation of vegetation cover or paving, if not carried out properly, could result in irreparable damage to natural resources and intangible natural capital. The impact of these actions on the capacity of soils, for example, to retain water or sequester carbon has to be taken into account in the design and implementation of projects, in order to preserve their value and functions.

The Natural Capital Protocol defined by the Natural Capital Coalition, which calls for organisations to identify, measure and value both direct and indirect impacts and the organisation's dependence on natural capital, allows integrating the value of natural capital into the organisation's processes. In the future, the adoption of this Protocol could have a great impact on companies in the construction sector.



The Natural Capital Protocol is a decision-making framework that enables organisations to identify, measure and value their direct and indirect impacts and dependence on natural capital.

Knowing and understanding the dynamic relationships that exist in nature, as well as the complexity of ecosystems, allows FCC Construcción to make the best decisions based on the information obtained.

FCC Construcción has proved to be exemplary in the integration of those trends and external conditioning factors that have arisen, and will continue to maintain this effort and environmental performance in the future, always committed to sustainable construction and the integration of the most advanced technology to achieve an early transition to a circular, low-carbon economy and a better future for society and the planet.

Natural capital includes both tangible and intangible resources provided by the biosphere. Its care and protection is vital, since without natural capital there are no goods and services, and no progress in society.

Knowledge of these resources is vital for informed and objective-based action.

Av. del Camino de Santiago, 40. Madrid 28050.
Tel. +34 91 757 39 00
www.fcc.es
www.fccco.com
calidad_rsc_construc@fcc.es