Environmental Sustainability in the Healthcare and Social Sector



Consorci de Salut i Social de Catalunya



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1. Preface

The mission of the <u>Consortium of Health and Social Care of Catalonia (CSC)</u> is to promote excellent and sustainable health and social models to improve the quality of life of individuals, offering high-value-added services to its associates. This is how we defined it in 2019 when we were already aware that sustainability was becoming a fundamental value within our institution, as well as one of the major challenges in the sector, in which we aimed to play an active role.

As a result of this commitment, we have been working for some time on implementing actions aimed at achieving the goals of the 2030 Agenda and the <u>United Nations Sustainable Development Goals</u>. We do this through the <u>Catalonia 2030 Alliance</u>, as active members of the core group, alongside our associates within the Sustainability Commission, and also internally, ensuring that social and environmental sustainability criteria guide the way we operate and interact with our environment.

Within the framework of this commitment, the environmental footprint of the sector is an issue that concerns us, and CSC cannot remain indifferent. If it were a country, the healthcare sector would be the <u>5th largest emitter of</u> <u>CO2 on the planet and is responsible for at least 4.4% of the emissions in the</u> <u>European Union (EU)</u>. At the same time, the healthcare network in Catalonia generates more than <u>96 tons of hospital waste daily</u>, of which half is medical waste. Data like these illustrate the responsibility we have as a sector to stop being part of the problem and take urgent action to find a solution.

With this spirit, in 2019, we organized the event <u>"The Healthcare Sector</u> <u>Facing Climate Change: What Can We Do?"</u> during which data on global warming and its consequences for our health were shared.



We also had the opportunity to discuss the impact of the activities of healthcare and social organizations on the planet, highlighting the shared willingness among the attendees to take action in response to climate change.

This year, in a second event titled <u>"The Healthcare and Social Sector Facing</u> <u>the Climate Emergency: What Are We Doing?"</u> we wanted to understand the progress we have made in this area and the actions that have materialized the commitment expressed in that first session. To do so, from the CSC, we conducted the survey <u>"State of Environmental Sustainability in</u> <u>Healthcare and Social Organizations Associated with the CSC"</u>, the initial results of which we shared in July during the event. With the study presented below, we have conducted a more thorough analysis of these results and have also compiled best practices from associated centres and successful international cases.

The study involved the participation of 41 public healthcare and social service provider organizations associated with the Consortium of Health and Social Care of Catalonia. Therefore, it is based on a representative sample of the sector which provides an overview of the current state of environmental sustainability in these organizations and, thus, serves as a valuable starting point for defining and prioritizing action areas in this field.

We would like to thank all these participating organizations for their collaboration in a study that will enable us to reflect and continue moving forward together in the response of the healthcare and social sector to the climate emergency.



2. Context: Legislation, Sector Impact

The current context of climate emergency, with droughts and extreme climate conditions, a growing loss of biodiversity, and the proliferation of microplastic particles invading the human body, has led to the need for environmental sustainability legislation to attempt to mitigate the impact of economic activity in general, and the healthcare sector in particular.

At the European level, the fight against climate change, biodiversity loss, and pollution are currently the three strategic priorities for the European Commission, addressed through the <u>European Green Deal</u>, which focuses on:

- Achieving climate neutrality by 2050, with a mid-term target of reducing emissions by 55% by 2030 compared to 1990.
- Protecting human life, animals, and plants by reducing pollution.
- Contributing to ensuring a just and inclusive transition.
- Assisting businesses in becoming global leaders in clean products and technologies.

The achievement of these goals requires the implementation of an ambitious roadmap with policies, strategies, plans, and regulations that each member state must transpose within the appropriate timeframe and in the proper manner.

In the national context, several laws have recently been approved to reduce the ecological footprint and promote sustainable development:



- The <u>Climate Change and Energy Transition Law</u> has been approved with the goal of achieving 42% renewable energy by 2030.
- The new <u>Law on Waste and Contaminated Soils for a Circular</u> <u>Economy</u>, Law 7/2022.
- <u>Royal Decree 192/2023, dated March 21</u>, which regulates medical devices (including reprocessable products).

In Catalonia, the <u>National Plan for the Implementation of the 2030 Agenda</u> has been developed, including 920 commitments, of which 810 are to be achieved in Catalonia. This plan also requires the approval of new laws, budgets, and control systems.

It's important to note that the healthcare sector is at the forefront of addressing the health impacts caused by environmental deterioration and has been identified as one of the sectors with a significant environmental impact, especially due to intensive energy consumption (24/7 and highconsumption devices) and the extensive use of single-use plastics.

In fact, according to a study by <u>Health Care Without Harm</u>, the healthcare sector contributes to 4.4% of global CO2 emissions and, if it were a country, it would be the fifth-largest emitter in the world.

<u>Health Care Without Harm</u> is an international organization that manages the <u>Global Green and Healthy Hospitals Network (GGHH)</u>. CSC is part of this network, which is currently a leading organization in environmental management within the healthcare sector.

In the national context, it's also worth noting that 2% of the energy consumed corresponds to hospitals. As for waste, according to the World Health Organization, <u>hospitals generate an average of 0.5 kg of hazardous</u> <u>waste per bed per day.</u>



3. The Study

3.1. Diagnosis Blocks

Environmental sustainability in the healthcare sector encompasses different aspects that are key to identifying an organization's impact on the environment and, therefore, establishing commitments, objectives, and actions to minimize it.

At The Consortium of Health and Social Care of Catalonia we have identified eight major thematic blocks that range from the organization's internal structure and management of environmental impacts to the environmental aspects that can have the most significant impact on the healthcare sector. It also includes communication and engagement with all stakeholders, which is a key and essential aspect for significant reduction of the organization's environmental impact.





3.2. Methodology

As a result of the synergy between the Sustainability Department of the CSC and the General Services Commission of the CSC, a study was initiated to understand the current situation of healthcare and social care organizations in relation to environmental sustainability.

Through a specially designed <u>environmental sustainability questionnaire</u> that incorporates the eight distinct sections based on the defined thematic blocks, information regarding the status of healthcare and social care provider organizations was collected.

This questionnaire was sent in early May 2023 to the general services departments of healthcare and social care organizations associated with the CSC, and the study results were presented at the II Sustainability Event of the CSC, held on July 13, 2023.

The study involved 41 organizations, representing nearly 70% of the healthcare and social care provider organizations associated with the CSC.





The results presented in this document are based on the information provided by the associates through the environmental sustainability questionnaire. Additionally, this information has been supplemented with data available on the websites (latest news and activity reports) of the 41 participating entities in the study.

It's important to note that the quantitative results only show the percentage of entities that have answered in the affirmative. There may be initiatives that have been implemented but not reported, and therefore, they are not included in this compilation.

3.3. Results

3.3.1. Environmental Management System

Environmental management systems, whether certified by <u>ISO 14001</u>, <u>ISO 50001</u>, and/or <u>EMAS</u> or not, are highly useful systems for organizing and structuring environmental management. The need to have procedures, instructions, records, objectives, and indicators is crucial for ensuring the process of continuous improvement.

Currently, very few healthcare and social care provider organizations are certified with any environmental management system. Specifically, only 15% of the participating organizations have one of these certifications.

However, several organizations work according to an environmental management system even if they are not certified. Additionally, some organizations are actively working to obtain certification with one of these systems in the near future.





Of this 15% of entities, all but two have more than one environmental management system certification. The most common certifications are ISO 14001 (83%) and EMAS (66%).

Below, the chronology of certifications in healthcare and social care provider organizations in Catalonia that currently have a certified environmental management system is shown:



The <u>Hospital Sant Joan de Déu</u> in Esplugues de Llobregat is the first hospital in Catalonia to receive EMAS certification (March 2003). It is also the first hospital in Catalonia to have ISO 14001 certification since December 2002.



In Europe, 149 healthcare sector organizations have obtained EMAS registration, which, unlike ISO 14001, requires the publication of an annual Environmental Statement.

On the other hand, in this section, organizations were asked whether they have an environmental technician. It was found that 13% of the consulted health and social care provider entities have this role. It is important to highlight that this percentage would be higher if we also considered organizations that have an environmental technician who combines these functions with others.

The organizational dependency of the environmental technician is, in 75% of cases, under the Department of Services, Engineering, General Services, or similar. In one case, it falls under a dedicated Environmental Department.



Other National and International Experiences

EMAS at the Catalan Institute of Health

The European Commission highlights some successful cases in the implementation of EMAS in the European context, including the Catalan Institute of Health (Institut Català de la Salut). They began the implementation and certification process in 2005, starting with a pilot project at 21 primary care centers. As of now, they have expanded to 145 certified centers.



3.3.2. Energy Efficiency

One of the key aspects for reducing carbon footprint is energy efficiency, as it involves consuming less energy to achieve the same result, which is equivalent to the first "R" of "reduce, reuse, and recycle" in the context of a circular economy.

Energy efficiency is the ability to use energy appropriately and efficiently. Measures implemented in this area aim to minimize unnecessary energy consumption and the impact of CO2 emissions in the atmosphere.

According to the study, 79% of the entities state that they have implemented some energy efficiency measures, while 67% claim to have renewable energy sources.



The main measures implemented in this regard include:

- The use of renewable energies through the installation of photovoltaic solar panels and solar thermal panels.
- Replacement of lighting fixtures with LED technology and the incorporation of regulation elements such as motion and presence sensors.
- Substitution of oil boilers with natural gas boilers.
- Replacement and upgrading of less efficient equipment such as air conditioning and refrigeration systems.



- Implementation of automated regulation and control systems for facilities to prevent unnecessary energy consumption, both in terms of lighting and climate control.
- Application of sustainable construction criteria.
- Conducting awareness campaigns for World Energy Efficiency Day (March 5th).

>> Use of Renewable Energies

Some entities have highlighted their new installations and the savings achieved through the use of photovoltaic and solar thermal panels. Here are some of the notable news items:

- The <u>Sanitary Consortium of L'Anoia is making a commitment to</u> <u>sustainability and renewable energies with an investment of 900,000</u> <u>euros</u>. With the launch of this photovoltaic park, an estimated power of 550 kWp is expected to be generated, with a projected savings of 720,000 kWh per year, representing a 15% reduction in current consumption. (Sanitary Consortium of L'Anoia, January 2023).
- <u>Two solar generation parks are being established at the hospitals in</u> <u>Vic and Manlleu</u>. The installation of nearly 1,500 photovoltaic panels on the University Hospital of Vic and the Sant Jaume Hospital in Manlleu will enable the self-generation of up to 13.7% of the energy consumed at the centers. (Hospital Consortium of Vic, March 2023).
- <u>12% of the energy consumed by Palamós Gent Gran is produced by</u> <u>the photovoltaic plant.</u> One year after its launch, the Palamós Gent Gran photovoltaic plant has produced over 136 MWh, which is



equivalent to 12% of the annual electrical energy consumption at the facility. In other words, it is equivalent to the annual electricity consumption of 42 households. (Integrated Health Services of Baix Empordà, August 2023).

 <u>The Hospital in Olot has installed photovoltaic panels and electric</u> <u>vehicle charging stations</u>. With an installed capacity of 222.85 kWp for photovoltaic generation in a self-consumption mode, the solar park will enable the hospital to self-generate 6% of the energy it currently consumes and reduce 79.29 tons of CO2. (Olot Hospital and Comarcal de la Garrotxa Foundation, August 2023).

The CSAPG (Sanitary Consortium Alt Penedès-Garraf) awarded for energy efficiency. The Sanitary Consortium Alt Penedès-Garraf has received one of the "Ingeniería en Acción - Emergencia Climática" (Engineering in Action - Climate Emergency) awards at the 38th National Congress of Hospital Engineering for the actions carried out in recent years at their facilities to improve and renew technical installations, which have contributed to reducing gas and electricity consumption. (Sanitary Consortium Alt Penedès-Garraf, November 2021)

>> Sustainable Construction

Sustainable construction is based on a building model that considers the environmental impacts related to the entire construction process and the life of the building. It takes into account aspects such as efficient use of energy and water, the use of environmentally friendly materials and natural resources, proper waste management, and the use of renewable energies, with the goal of minimizing the building's environmental impact.



Here are some notable sustainable buildings from healthcare and social care entities participating in the study:

- Frederic Duran i Jordà Building, the headquarters of the Blood and Tissue Bank, was a finalist at the "Sustainable Energy Europe Awards 2021." <u>Link for the presentation</u>
- The Mollet Hospital, constructed in 2010, received the Silver Award at the Ashikaga-Nikken Excellence Award for Green Hospitals at the International Hospital Federation Awards 2021. <u>Link</u>
- The new Hospital del Mar, currently under construction. Link

Other National and International Experiences

<u>"Energy efficiency and better patient care"</u> at the Barts Health NHS Foundation Trust

The Barts Health NHS Foundation Trust achieved energy savings and improved patient experience through simple actions taken by healthcare staff:

- 1. Turning off equipment when not in use to reduce heat and noise.
- 2. Turning off lights to promote rest and reduce light pollution.
- Closing doors to enhance security and privacy and help regulate room temperatures.

The implementation of these measures in a quarter of their facilities resulted in annual savings of £100,000 and a reduction of 800 tons of CO2 emissions.



3.3.3. Sustainable Mobility

Mobility is an activity that typically contributes to a high percentage of an organization's carbon footprint, making it essential to work on minimizing its impact.

Sustainable mobility encompasses various alternatives designed to counteract the negative impact of transportation on the planet. Many of these alternatives aim to shift away from the model of individual car use, with measures such as carpooling and promoting the use of cleaner transportation modes.

According to the study, 21% of the entities have established a Sustainable Mobility Plan, and a slightly higher percentage, 36%, has implemented measures to promote sustainable mobility. This indicates efforts to reduce the environmental impact of transportation within these organizations.



The main measures implemented for sustainable mobility include:

- Installation of bicycle and scooter parking facilities for both staff and visitors.
- Installation of private electric vehicle charging stations in staff and visitor parking areas.



- Promotion of the use of public transportation, including providing bus cards for free or offering discounts to staff for public transportation tickets.
- Promotion of a greener internal fleet, including hybrid and electric vehicles, as well as alternative transportation modes like electric bicycles and scooters.
- Emphasis on local logistics and purchasing to save and reduce travel distances.
- Organizing campaigns during the European Mobility Week (from September 16 to 22).
- Measures that reduce travel, such as teleassistance and the implementation of telecommuting.

Here are two notable initiatives in the field of sustainable mobility:

- <u>Electric Bicycles for Home Visits</u>: This initiative aims to optimize the mobility of primary care staff within the town and its surroundings, saving time on travel and parking during home healthcare visits to patients who cannot visit the health center or clinic. (Integrated Health Services of the Baix Empordà, September 2023).
- <u>T-Hospital Card</u>: In December 2019, the T-Hospital card was introduced to promote communication between Terrassa Hospital and different city neighbourhoods and encourage the use of public transportation. The card allows for free travel to Terrassa Hospital. (Terrassa City Council and the Terrassa Health Consortium, December 2019).

Other National and International Experiences

"Green Travel Agreement for Employees" Landspitali, Iceland

The National University Hospital of Iceland managed to increase the proportion of sustainable mode of travel by its employees from 21% to 40%. This was primarily achieved by incentivizing bicycle usage with financial incentives and through voluntary agreements with individuals who made at least 60% of their work-related trips sustainably.

3.3.4. Water Consumption Optimization

Global warming has led to increasingly intense and frequent situations of water stress and drought, especially in Mediterranean regions. All hospitals have a backup cogeneration system, but few have a backup water system. Water is essential for sanitation, sterilization, and cooling of essential healthcare equipment, in addition to its regular uses in any organization: air conditioning, heating, showers, sinks, kitchens, gardens, etc.

Water consumption optimization measures aim to reduce water consumption while also contributing to economic savings. In the current context of drought, these measures take on special relevance.

According to the study, 69% of healthcare and social care organizations claim to have implemented some water consumption optimization measures. It is believed that this percentage may be slightly higher since some actions may be considered so basic that they were not identified as water optimization measures.





The main measures implemented include:

- Installation of flow restrictors or aerators.
- Installation of dual-flush toilets.
- Dry cleaning practices.
- Collection of rainwater for irrigation and toilet use.
- Drip irrigation systems.
- Reuse of clean water generated during haemodialysis treatment.
- Campaigns for World Water Day (March 22).

Below are highlighted two initiatives in the field of water consumption optimization.

Serveis de Salut Integrats del Baix Empordà has created an infographic on the <u>use of groundwater in the buildings of Palamós Gent Gran and</u> <u>Palafrugell Gent Gran</u>.

Sant Andreu Salut has also demonstrated its commitment to innovation by installing <u>intelligent and more sustainable showers</u>. These showers not only provide more autonomy and privacy but also reduce healthcare professional attendance times and optimize processes, contributing to water



consumption optimization with a reduction of over 50% compared to traditional showers. (Sant Andreu Salut, October 2023)

Other National and International experiences

"Rainwater Harvesting System"

District Six Clinic, South Africa

Through two interconnected but separate storage systems for handwashing and toilets, regulated by a float system, they have been able to use 175 m3 of water per year from an annual rainfall of 700 mm.

"Reducing Water Use at Healthcare Facilities: 10 Things to Do"

Department of Health, State of Victoria (Australia)

Although each center and facility are different, there are common measures that can be implemented to reduce water consumption. The Department of Health in the State of Victoria, Australia, has established a guideline for healthcare facilities, which begins by recommending an audit as a key element to identify the most cost-effective water-saving opportunities.

3.3.5. Nature and Biodiversity

In recent times, there has been a disconnection from the natural environment and biodiversity. A connected and rooted model with nature is beneficial for both individuals and the environment because the connection facilitates a well-preserved natural environment, which, in turn, has therapeutic properties and can serve as a climate refuge and a reservoir for CO2 retention.

Biodiversity encompasses the wide variety of living beings (plants, animals, insects, and fish) that inhabit the Earth and their natural patterns. Currently,



these patterns are the result of the increasing influence of human activity, according to the <u>Convention on Biological Diversity</u>.

Among the United Nations' Sustainable Development Goals (SDGs) are the goals to protect, restore, and promote the sustainable use of terrestrial ecosystems (SDG 15) and to conserve and sustainably use the oceans, seas, and marine resources (SDG 14).

On December 19, 2022, at a meeting of the <u>United Nations Conference on</u> <u>Biodiversity in Montreal, Canada, COP15</u>, 196 countries signed an international agreement to protect the planet's biodiversity. The signing countries committed to conserving 30% of their terrestrial territory and 30% of their oceans.

In Catalonia, the study shows that 38% of the organizations have implemented measures to improve the natural environment, and 21% have taken actions to preserve biodiversity.



Here are some of the experiences being promoted by healthcare and social care providers participating in the study. Most of these experiences have a dual objective: on one hand, improving the natural environment and biodiversity, and on the other, contributing to health and well-being, from a therapeutic perspective.



- <u>"One Baby, One Tree"</u>: An initiative that aims to connect all babies born in the Garrotxa region with nature and stimulate protective factors and contact with nature from the moment of birth. This project was launched in late 2020 thanks to the <u>Garrotxa Naturalist and</u> <u>Ecologist Association</u> and the <u>Natural Park of the Garrotxa Volcanic</u> <u>Zone</u>. (Foundation Hospital of Olot and Comarcal de la Garrotxa, November 2020).
- <u>"Hospitality and Nature"</u>: This project promotes the integration of nature into personal and collective health strategies for both patients and healthcare professionals, while also making use of natural spaces for activities that complement medical practice. This project is the result of an agreement between the <u>AUBE Association</u>, the Móra <u>d'Ebre Comarcal Hospital</u>, and the <u>Móra d'Ebre City Council</u> (Móra <u>d'Ebre Comarcal Hospital</u>, February 2023).
- <u>"Recovery of the Puig dels Jueus"</u>: An initiative led by the Vic City Council, framed within the European Healthy Cities project. The Vic University Hospital is located at one end of this area and, with its strategic commitment to environmental protection, has become a key player in defining the Action Plan to recover and bring its nature and biodiversity closer to the entire population (Vic Hospital Consortium).
- <u>"The Pare Vilaseca Residence launches the 'Garden of the Senses'</u>
 <u>project with the first planting"</u>: The aim of the project is to create a
 garden with flowers and plants that stimulate the five senses
 throughout the year. The therapeutic value of contact with nature has
 been present throughout history, and the benefits of engaging in
 activities in a natural or naturalized environment are scientifically
 proven. This project involves the participation of the Eixarcolant
 Collective, which works on the recovery of wild species and traditional



flower and plant varieties and has received the collaboration of Flors Roset (Sociosanitary Consortium of Igualada, April 2023).

 Additionally, vertical gardens have been implemented in different healthcare providers, and green roofs have been established, such as the one on the extension building of the Granollers Hospital (Private Foundation Hospital Asil de Granollers, 2022).

Other national and international experiences

"Forests for health: one child, one tree"

The Paediatric Environmental Health Unit (PEHSU) at the Virgen of Arrixaca University Clinical Hospital in Murcia is a unit that includes family doctors, paediatricians, nurses, environmentalists, and environmental health technicians with experience in Paediatric Environmental Health. They collaborate with other paediatric subspecialties, adult medicine, and other areas to understand, assess, and manage environmental diseases and risks. Since 2014, this unit has been piloting the "Forests for Health" project, with the goal of having each child born and raised in connection with a tree, thereby incorporating a "forest for health" into the therapeutic services offered by hospitals. This experience has been replicated in Olot, Zamora, Asturias, Mexico, Argentina, and more.

Over 24,000 babies have grown up connected to a tree as part of this initiative.

>> What is a PEHSU?

A PEHSU stands for "Paediatric Environmental Health Specialty Unit." In recent years, various scientific organizations have expressed concern about



the contamination of the planet, primarily affecting the child population. According to the United Nations, 88% of illnesses in children under five years old can be attributed to the effects of climate change.

Children and pregnant women are particularly vulnerable to the environment in which they live due to their physical, biological, and behavioural characteristics. The need for an environmental approach to child health is urgent and essential.

PEHSUs, which stands for Paediatric Environmental Health Specialty Units, began to be established in North America in the 1990s and have been implemented in several countries. <u>The PEHSU of Garrotxa</u> is the first unit of its kind in all of Catalonia and the second in operation in all of Spain, where there is also the <u>PEHSU Murcia</u>.

In September 2023, the creation of two new paediatric environmental units was announced, one at the <u>Hospital de Terrassa</u> (Terrassa Health Consortium) and the other at the <u>Hospital Sant Joan de Déu in Esplugues.</u>

The PEHSU of Garrotxa (Garrotxa Hospital and Comarcal de la Garrotxa

Foundation) was launched in 2016. This unit has provided guidance to different agencies on various Paediatric Environmental Health (PEH) topics such as child health and tobacco, alcohol, or other drugs. It has also conducted courses and seminars on PEH for healthcare professionals, community outreach through local radio, television, and social media, and workshops at schools and institutes.

The main activities carried out in the clinical field have been as follows:

• Environmental screening during pregnancy ("Green Sheet"): detection and management of the most important environmental risks during



pregnancy. This screening is implemented in the pregnancy monitoring program throughout Garrotxa.

- Smoking cessation consultation during pregnancy: Support and monitoring for pregnant women or their partners who want to quit smoking.
- Mediation and substance use consultation: Mediation for adolescents and pre-adolescents with family, academic, or social conflicts. It addresses initial use of legal or illegal drugs and related issues.
- Environmental paediatrics consultation: Evaluation and management of diseases and environmental risks from the preconception stage to the end of adolescence.

The concept of planetary health linked to human health is gaining momentum, and in fact, there are numerous studies providing evidence for it. If the nine countries that generate the most emissions manage to meet the goals of the <u>Paris Agreement</u>, by 2040, it could prevent 1.6 million deaths due to improved air quality. This prediction comes from a recent study published in <u>The Lancet Planetary Health</u>, where the authors analysed the health benefits that would be achieved if these countries implemented sufficiently ambitious climate plans.

>> Remarkable studies:

 <u>"Some environmental chemical contaminants increase the risk of</u> <u>developing COVID-19</u>. The world's first prospective study on the influence of certain chemical contaminants on the risk of SARS-CoV-2 infection and COVID-19 contraction." (IMIM - Hospital del Mar and ISGlobal, February 2023)



- <u>"13th FAROS HSJdD Report</u>: The environment and its impact on maternal and child health: what are we facing?" (Hospital Sant Joan de Déu in Esplugues, November 2022)
- <u>"PEHSU Garrotxa participates in the study of lead analyses in Bonmatí.</u> The results of the samples are part of a more comprehensive study conducted by the Public Health Agency, along with all the information obtained from the Green Sheet. Once completed, the conclusions will be presented to the citizens of Sant Julià del Llor and Bonmatí." (Fundació Hospital d'Olot i Comarcal de la Garrotxa)

3.3.6. Circular economy

The circular economy is a model of production and consumption that involves sharing, reusing, repairing, refurbishing, and recycling existing materials and products as many times as possible to extend their lifespan. In practice, it aims to minimize waste.

The reuse of products slows down the consumption of natural resources, reduces landscape disruption, and helps limit biodiversity loss. Another benefit of the circular economy is the reduction of greenhouse gas emissions.

According to the study, 74% of healthcare and social care providers have implemented measures to reduce plastic consumption, 79% to reduce single-use plastic consumption, 85% to reduce paper consumption, and 56% have implemented material reuse actions.





The main measures implemented to eliminate single-use plastic and reduce plastic consumption include:

- Replacing single-use plastic products (cups, cutlery, water bottles, etc.) with more sustainable materials (compostable, biodegradable, cardboard, paper).
- Replacing plastic bags in laundry services, restaurants, and pharmacies with fabric or other materials.
- Installing water fountains to reduce the consumption of plastic bottles.
- Using reusable corporate water bottles to avoid generating waste.
- Replacing single-use containers for biological waste with reusable containers.
- Conducting audits with external suppliers to reduce the use of secondary packaging.
- Conducting awareness campaigns, such as the International Plastic Bag Free Day (July 3rd).



Hospital Universitari El Parc Taulí participated in a project in collaboration with B-BRAUN and the CLUB EMAS to analyse how sutures and serums were recycled at the end of their useful life. Regarding supplies, they identified actions that would reduce the secondary packaging of these products. You can consult their experience for more details.

The main measures implemented for reducing paper usage include:

- The digitalization of processes within the entities.
- Incorporating dual screens and centralizing printing points in administrative areas.
- Conducting internal campaigns to reduce paper usage.
- Using recycled or certified paper sourced from forests with controlled logging.

The primary measures implemented for material reuse are:

- Using reusable gowns.
- Tandem project between Consorci Hospitalari de Vic and Fundació Dr.
 Trueta for the <u>reprocess of discarded clothing to make reusable bags</u>.
- Use of reusable lunch boxes is encouraged, and the <u>Bumerang</u> <u>initiative</u> is highlighted. It is a service that provides reusable lunch boxes available in the cafeterias of healthcare centres. Some entities that have already incorporated this initiative include the Vic Hospital Consortium, Hospital del Mar, the Empordà Health Foundation, and Integrated Health Services of Baix Empordà.
- Measures to reduce food waste, with Hospital de la Santa Creu i Sant Pau being recognized for its initiatives in food waste reduction, such

as the menu of choice, among others. Also, the <u>TO GOOD TO GO</u> initiative, to which some entities have joined.

The Clínic Hospital has recovered more than a ton of uniform clothing, reaffirming its sustainability commitment. In 2022, they recovered 37% of discarded uniforms, including gowns and others, which amounts to more than 2,800 uniform pieces, equivalent to over one ton of fabric (approximately 1,200 kg). This action is estimated to have saved more than 3,300 kg of CO2. It also resulted in saving over 98,600 kWh of energy and more than 630,000 liters of water. (Clínic Hospital of Barcelona, August 2023)

It is essential to continue progressing in material reutilization, particularly at hospitals clinical services. However, there's a legal barrier: the new <u>Royal</u> <u>Decree 192/2023</u> on medical products regulating reprocessing could be a turning point.

While recycling is typically at the end of the waste management pyramid, here are a couple of initiatives with specific significance: the recycling of iodinated contrast and cigarette butt recycling:

- <u>The Clínic Hospital has become the first center in Catalonia to</u> <u>incorporate iodinated contrast recycling</u>. The Clínic Hospital in Barcelona partnered with GE HealthCare in a project focused on recycling iodinated contrast, a substance used in certain tests to diagnose diseases through computed tomography (CT scans). The hospital's Imaging Diagnostic Center (CDI) introduced this practice as part of its sustainability and environmental preservation initiatives in November 2022, making it the first healthcare center in Catalonia to recycle this substance. (Clínic Hospital of Barcelona, June 2023)
- <u>The Figueres Hospital and the CSS Bernat Jaume became the first</u> <u>healthcare centers in Spain to recycle cigarette butts</u> thanks to an



outdoor ashtray system. In this first phase, six ashtrays have been installed on the exterior perimeter of the two buildings, each with a specific bin for collecting cigarette butts. To facilitate this recycling, an agreement has been signed with Keenat, the only Spanish company providing a solution for tobacco waste. (Salut Empordà Foundation, November 2022)

Hierarchy of Waste Management



Other national and international experiences

"Circular supply of assistive technology"

Västra Götaland Center for Assistive Technology, Sweden

With a policy of material reuse, including crutches, prostheses, and more, they have managed to reuse between 60-67% of the material. This has resulted in avoiding 550,000 purchases between 2012 and 2018. For example, it prevented the purchase of 77,500 wheelchairs.



3.3.7. Carbon Footprint

Carbon footprint is a significant indicator for measuring the environmental impact and greenhouse gas emissions of an activity or product. It is calculated in kilograms of carbon dioxide equivalents and encompasses three scopes:

Scope 1: Direct emissions from sources owned or controlled by the organization. This includes emissions resulting from the consumption of fuels such as natural gas and other fossil fuels in organization-owned vehicles, the consumption of refrigerants, anaesthetic gases, and fire extinguishing gases.

Scope 2: Indirect emissions resulting from the generation of purchased and consumed electric energy by the organization.

Scope 3: Indirect emissions arising from the organization's activities but occurring in sources not owned or controlled by the organization. This includes emissions resulting from water consumption, material consumption, waste management, mobility of professionals, mobility of patients/users or visitors, transportation of materials by suppliers, and the consumption of inhalers.

Recently, the <u>Ministry of Health</u>, through the autonomous communities, has requested healthcare providers to calculate their carbon footprint to measure their impact on the healthcare sector.

This project, part of the health agenda of the <u>Spanish Presidency of the</u> <u>Council of the European Union</u>, will include a guide of recommendations based on this study, which will be presented soon.

For calculating the carbon footprint of an organization, various tools can be used. For instance, the <u>guide</u> and <u>calculator</u> provided by the Office of Climate



Change of the Government of Catalonia, which is updated annually and is based on ISO 14064-1.

We can also use the <u>SCOPECO2</u> tool, specifically developed for the healthcare sector by <u>Sanidad #PorElClima</u>, which is the tool chosen by the Ministry of Health to report emissions in the sector.

Once the organization's carbon footprint has been calculated, two aspects need to be addressed: mitigation and adaptation.

>> Mitigation

The greenhouse gas mitigation plan answers the question: What will we do to reduce emissions?

Mitigation can be addressed with a plan or a roadmap that must define reduction objectives and the actions to be taken to achieve them, with a schedule and indicators that allow us to monitor progress. Therefore, it will encompass many aspects covered in the other seven thematic blocks in which we have structured this analysis.

About this matter, it's remarkable the <u>Race To Zero</u> initiative, to which various health and social care organizations in Catalonia, including CSC, have joined.

This is a global campaign framed within the United Nations Framework Convention on Climate Change, led by the <u>High-Level Champions</u> and the presidency of the COP, and consists of a coalition of initiatives and stakeholders including businesses, investors, cities, universities, and other economy actors committed to a healthy, resilient, and just recovery from the COVID-19 crisis that also creates jobs, stimulates inclusive and sustainable growth, and reduces the risk of future threats and crises.



The roadmap pursued is to achieve Net Zero by 2050 and reduce emissions by 50% by 2030.

>> Adaptation

The Climate Change Adaptation Plan answers the following question: How do we prepare to be less vulnerable to climate change?

In this context, the European initiative <u>LIFE RESYSTAL</u> (Climate change resilience framework for health systems and hospitals) is noteworthy. Its goal is to develop resources that enhance the resilience capacity of European healthcare systems and related critical infrastructures.

From September 2021 to August 2025, a pilot test is planned to be conducted at seven hospitals and two regional healthcare administrations to develop, demonstrate, evaluate, and disseminate a conceptual and practical framework for climate-resilient health systems.

Many of the measures implemented in various areas of the study (energy efficiency, circular economy, sustainable mobility, among others) have an impact on emissions reduction. This section aims to find out whether organizations have calculated their carbon footprint and defined both a greenhouse gas mitigation plan and a climate change adaptation plan.

The data presented below shows that carbon footprint is one of the areas that entities have worked on the least, indicating a challenge to be addressed in the near future.





CHV has committed to "Race to Zero" and has established a roadmap to achieve mitigation, with the goal of reducing emissions by at least 50% by 2030. Regarding adaptation, it participates in the extended network of the Life Resystal project, through which it will test the materials and tools developed within the framework of this program to provide feedback and support in the creation of a guide for future implementations. <u>More information</u>

Two recent news highlights in this regard are:

- <u>Hospital Universitari Mollet achieves Net Zero in direct emissions</u>: The center has reduced its direct emissions by 85% over a decade through three main strategies: sustainable structures and facilities, process improvements for efficiency, and a culture focused on sustainability.
 (Fundació Sanitària de Mollet, July 2023)
- <u>The Generalitat recognizes the environmental commitment of the</u> <u>Consorci Sanitari del Maresme</u>: The Consorci Sanitari del Maresme is one of the entities that has joined the voluntary compensation program as a social entity promoting a greenhouse gas emissions reduction project in Catalonia. (Consorci Sanitari del Maresme, June 2023).



Other national and international experiences

MITIGATION: "Zero Emissions for Nitrous Oxide by 2027"

NHS Scotland

Nitrous oxide (N2O) is one of the most polluting anaesthetic gases, 300 times more so than CO2. NHS Scotland identified that 95% of this anaesthetic gas was being wasted during its use. Therefore, as part of its 2022-2026 emergency climate and sustainability strategy, it has created a Nitrous Oxide mitigation plan. This plan involves raising awareness among professionals to reduce leaks, with the aim of achieving zero emissions by 2027.

Other national and international experiences

ADAPTATION: <u>"New North Zealand Hospital: A resilient acute care</u> hospital for the future, Hillerød, Denmark<u>"</u>

North Zealand Hospital

Climate change is increasing the frequency and magnitude of extreme weather events, posing risks to healthcare facilities that are increasingly exposed to heatwaves, floods, and other climate-related impacts. The new North Zealand Hospital in Hillerod, Denmark, aims to reinvent hospital design by enhancing its resilience to future climate-related impacts. The hospital features a building with a maximum of four floors, integrated into its surroundings, and a water harvesting and evacuation system that allows for maximum utilization and rapid evacuation.



3.3.8. Communication and Stakeholder Engagement

Communication and stakeholder engagement are key aspects to consider in any action.

In recent years, there is a growing trend among healthcare and social care provider entities in communicating actions related to environmental sustainability and engaging different stakeholders in various awareness campaigns.

According to the study, 67% of healthcare and social care provider entities have conducted one or more internal awareness campaigns, and 33% have conducted one or more external awareness campaigns. Furthermore, 56% of these entities have included environmental aspects in their annual activity report, while only 26% have prepared a sustainability report.



The Catalan Institute of Oncology received the Avedis Donabedian Foundation 2022 award for the best sustainability report. Link to the 2022 Sustainability Report: <u>Sustainability Report 2021</u>



The Fundació Salut Empordà provides a <u>summary of internal and external</u> <u>awareness campaigns</u> carried out between 2019 and 2023.

>>Internal and/or external awareness campaigns

Below are some awareness campaigns carried out between 2022 and 2023 on environmental occasions:

- <u>The Empordà Health Foundation and the City Council of Figueres are</u> <u>collaborating on a joint campaign to promote sustainable</u> <u>transportation and an active lifestyle</u> (European Mobility Week Campaign, Empordà Health Foundation, September 16-22, 2023).
- <u>Olot Hospital celebrates World Environment Day</u> (Olot and Garrotxa Regional Hospital Foundation, June 5, 2023).
- Information panels for International Plastic Bag Free Day (International Plastic Bag Free Day, Sant Joan de Reus Hospital – Baix Camp, July 3, 2022).
- <u>A Plogging event to clean the Aubi stream</u> (Campaign during the European Week for Waste Reduction, Integrated Health Services of Baix Empordà, November 2022).



Other national and international experiences

"Glove Awareness Campaign for the Proper Use of Gloves"

Royal College of Nursing

Gloves are a vital part of personal protective equipment (PPE), but there are many occasions when they are not necessary, as hand hygiene is entirely effective for protection. Therefore, it is possible to safely reduce the use of gloves, contributing to more sustainable healthcare.

Other national and international experiences

"The gloves are off!"

Great Ormond Street Hospital for Children (GOSH), NHS Foundation Trust

In 2019, three nurses from GOSH initiated a campaign to reduce the consumption of gloves, as the center was purchasing over 200,000 pairs of gloves per week, and there were also several cases of dermatitis among the nurses. Thanks to this initiative, they achieved a saving of 21 tons of plastic.



4. Alliances and References

Alliances between different entities allow for the exchange of knowledge, technology, and financial resources. Here are some organizations that promote alliances on an international and national scale and are references in environmental sustainability in the healthcare and social sector:

International Alliances:

- <u>Health Care Without Harm</u> (HCWH) and its <u>Global Green and Healthy</u> <u>Hospitals</u> (GGHH) network. HCWH is an international organization that manages the Global Green and Healthy Hospitals (GGHH) network, a global community of hospitals, health systems, and professional and academic organizations committed to reducing the environmental impact of healthcare activities.
- Practice Greenhealth. It is a leading organization in sustainable healthcare, providing environmental solutions to over 1,400 hospitals and health systems in the United States and Canada. Its network includes hospitals, health systems, community health organizations, NGOs, non-profit entities, governments, academic institutions, and the healthcare supply chain.

National Alliances:

<u>Sanidad #PorElClima</u> - Act to Stop Climate Change
 (sanidadporelclima.es). It is a platform that brings together the
 community of healthcare agents committed to society, the
 environment, and a better future. Its goal is to accelerate action in the
 healthcare system by reducing carbon emissions, facilitating its role as



a proponent of preventive measures, and raising awareness of the relationship between people's health and climate change.

- <u>Global Alliance for Naturalizing Child and Adolescent Health (GRSIA).</u> This alliance aims to promote the reconnection of these groups with nature. Researchers, companies, institutions, scientific societies, and civil organizations, led by the Spanish Association of Paediatrics and its Environmental Health Committee (CSMA), are among the entities that have signed this agreement.
- Project 2023 + SUSTAINABLE of the Spanish Society of Hospital Pharmacy (SEFH). This project consists of 12 specific actions, one for each month, aligned with the Sustainable Development Goals (SDGs), with the goal of collaborating with the 2030 Agenda as professionals and as a society.
- <u>One Health</u>. This platform promotes the effective implementation of the One Health strategy to sustainably balance and optimize the health of people, animals, and ecosystems.
- Medical Alliance against Climate Change. Driven by the General Council of Official Colleges of Physicians of Spain, it represents over 250,000 physicians practicing in Spain who are committed to raising awareness among healthcare professionals to combat climate change and take a proactive stance in decarbonizing healthcare, meeting the 2030 Agenda, and achieving the Sustainable Development Goals.



5. Conclusions

The data collected through the CSC questionnaire demonstrate that all healthcare and social care organizations that participated in the study are working on environmental sustainability. This highlights the growing awareness of the sector regarding the environmental impact of its activities, which is slowly but steadily becoming an integral part of organizations' strategies.

The proliferation of actions to combat climate change is evident, especially in the field of the circular economy. Current regulations require measures to reduce plastic use, particularly single-use plastics. As a result, healthcare centers, especially those in non-assistance roles, have implemented measures such as replacing plastic bags with clothe bags in laundry services and using reusable water bottles in catering services.

Another notable aspect is the advancements made by centers in terms of energy efficiency measures. The increase in these measures is driven by the government's commitment to renewable energies, which has led to increased subsidies and support in this area. The long-term economic savings these actions provide to organizations, particularly in an energy crisis context, have also played a role.

The data collected also highlight the areas with fewer implemented actions and, therefore, more room for improvement, such as sustainable mobility and carbon footprint calculation. Only a few entities calculate the footprint of their direct and indirect activities, and there are also limited cases of centers taking measures to make the transportation of both professionals and patient/users more sustainable when accessing healthcare or social facilities.



Additionally, the percentage of entities with an environmental management system is still very low. Certifications in this area provide a good framework for organizing, systematizing, and ensuring continuous improvement, serving as a guide to systematically advance in environmentally sustainable management.

The CSC encourages the healthcare and social care sector to continue working on environmental sustainability. In this regard, we hope that the provided information is useful, the presented experiences are inspiring, and we can continue sharing knowledge and best practices to reduce the environmental impact of our organizations and contribute to the achievement of sustainable development goals.



Annex: Environmental

Sustainability Questionnaire

It is widely known that the healthcare sector has a significant impact on the environment. In fact, according to a recent study by the international organization Health Care Without Harm <u>(HCWC)</u>, if the global health sector were considered a country, it would rank fifth in greenhouse gas emissions.

Therefore, it is important and urgent to take measures to minimize this impact. Fortunately, we are not starting from scratch, and there are likely many actions that have already been implemented. This questionnaire aims to help understand and appreciate the actions already implemented in the organization and, thus, identify new actions to be taken.

0. IDENTIFICATION OF ENTITY AND CONTACT PERSON

- 0.1. Entity name:
- 0.2. Name and surname of the person responding to the survey:
- 0.3. Email address:

1. ENVIRONMENTAL MANAGEMENT SYSTEM

1.1. Do you have an implemented an environmental management system, including a policy, procedures, instructions, records, ISO 14.001, EMAS, or equivalent types?

- Yes
- No
- In process
- Not applicable



1.1.1. If the answer is affirmative, is it certified?

- Yes
- No
- In process
- Not applicable

1.1.2. What certification system is it?

- EMAS
- ISO 14.001
- Others

1.1.3. Since when have you been certified? (year)

1.1.4. What is its scope?

- Entire organization
- Some departments/units/centers
- Others (specify)

1.2. Other questions related to the environmental management system

	Yes	No	In	Not
			process	applicable
Have you formalized any commitment				
regarding the Sustainable Development				
Goals (SDGs)?				
Do you have a roadmap for the SDGs?				
Do you have the figure of an				
environmental technician or equivalent?				
Have you received any awards or				
recognition for environmental efforts?				



1.2.1. In case you have the figure of an environmental technician or

equivalent, under which department does it fall?

1.2.2. In case you have received any award or recognition, could you indicate which one?

2. CARBON FOOTPRINT

2.1. Answer the following questions related to the carbon footprint

	Yes	No	In	Not
			process	applicable
Have you calculated the carbon footprint				
of your direct activity?				
Have you calculated the carbon footprint				
of your indirect activity (e.g., supply				
chain)?				
Do you have a plan to mitigate				
greenhouse gas emissions?				
Do you have a plan for climate change				
adaptation?				

3. ENERGY EFFICIENCY

3.1. Answer the following questions related to energy efficiency

	Yes	No	In	Not
			process	applicable
Do you have measures to improve energy				
efficiency?				
Do you have renewable energy?				



If you have renewable energy, can you specify which ones?

4. SUSTAINABLE MOBILITY

4.1. Answer the following questions related to sustainable mobility

	Yes	No	In	Not
			process	applicable
Do you have a Sustainable Mobility Plan?				
Do you have measures to improve				
mobility to make it more sustainable?				

5. OPTIMIZATION OF WATER CONSUMPTION

5.1. Answer the following questions related to the optimization of water consumption

	Yes	No	In	Not
			process	applicable
Have you implemented measures to				
minimize water consumption?				

6. CIRCULAR ECONOMY

6.1. Answer the following questions related to the optimization of water

consumption

	Yes	No	In	Not
			process	applicable
Have you implemented measures to				
reduce plastic consumption?				



Have you implemented measures to		
reduce single-use plastic consumption?		
Have you implemented measures to		
reduce paper consumption?		
Have you incorporated environmental		
criteria into purchases?		
Have you incorporated environmental		
criteria into tenders?		
Have you implemented any material		
reuse actions?		
Do you segregate waste?		
Do you carry out waste valorisation?		

7. NATURAL ENVIRONMENT AND BIODIVERSITY

7.1. Answer the following questions related to the natural environment and biodiversity

	Yes	No	In	Not
			process	applicable
Have you implemented any measures to				
improve the natural environment?				
Have you implemented any measures to				
preserve biodiversity?				

8. COMMUNICATION AND STAKEHOLDERS' ENGAGEMENT

8.1. Answer the following questions related to communication and stakeholders' engagement.



	Yes	No	In	Not
			process	applicable
Have you conducted internal training on				
environmental matters?				
Have you carried out any internal				
awareness campaign (professionals)?				
Have you carried out any external				
awareness campaign (users, patients,				
companions, suppliers, society in				
general)?				
Have you published any environmental				
declaration report?				
Have you published any activity report				
that includes environmental aspects?				
Have you published any non-financial				
status report (NFSR)?				
Have you published any sustainability				
report?				

9. GOOD PRACTICES AND IMPLEMENTED MEASURES

9.1. Indicate the good practices and measures you have implemented in the following areas related to environmental sustainability:

- 9.1.1. Related to the mitigation of greenhouse gas emissions
- 9.1.2. Related to climate change adaptation
- 9.1.3. Related to the promotion of energy efficiency
- 9.1.4. Related to the minimization of water consumption
- 9.1.5. Related to the reduction of plastic consumption



9.1.6. Related to the reduction of single-use plastic consumption

- 9.1.7. Related to paper consumption
- 9.1.8. Related to material reuse
- 9.1.9. Related to environmental criteria included in purchases and/or tenders

9.1.10. Related to the improvement of the natural environment and/or

preservation of biodiversity

10. TRACKING INDICATORS

10.1. Indicate which tracking indicators you have implemented to monitor the following:

- 10.1.1. Energy efficiency indicators
- 10.1.2. Sustainable mobility indicators
- 10.1.3. Optimization indicators of water consumption
- 10.1.4. Indicators of plastic consumption reduction
- 10.1.5. Indicators of waste valorisation and segregation

11. OBSERVATIONS AND COMMENTS

