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BACHELOR'S THESIS

360 HOTEL. THE CIRCULAR HOTEL

María Dolores Amengual Serra

Degree in Tourism

Faculty of Tourism

Academic Year 2021-22

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Thesis Supervisor's Name Antoni Serra

Tutor's Name (if applicable)

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Author		Supervisor	
Yes	No	Yes	No
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Abstract

This bachelor's thesis presents a model hotel (360 Hotel) located in Mallorca which is based on the Decree Law 3/2022, of 11 February, on urgent measures for the sustainability and circularity of tourism in the Balearic Islands. But before this, the current situation of climate emergency that we are experiencing, both globally and locally, is exposed. In addition to the impacts of tourism and the measures we can take in terms of circularity and sustainability.

A series of certificates focused on the matter that concerns us, such as EMAS, the EU Ecolabel and the Green Key, are presented.

Then, to get into the subject, the concepts of circular economy and the whole series of procedures that must be carried out to make a hotel known as a circular hotel, such as the circularity plan and the circular assessment, are presented. A summary is also given of the measures described in the Decree Law 3/2022 with respect to the areas identified as priorities: energy, water, waste, and food. To conclude, the 360 Hotel and all the facilities and initiatives taken to be a circular and sustainable hotel are presented.

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1. Introduction

1.1 Thesis motivation and justification

The main motivation to develop this project, besides contributing to curb climate change and all the impacts caused by tourism as we know it now, is somehow the possibility of turning it into something tangible and thus begin to develop my professional career.

Another factor that has greatly influenced my decision to carry out this project is the approval of Decree Law 3/2022, of February 11, on urgent measures for the sustainability and circularity of tourism in the Balearic Islands. So, it is a topical issue that has enormous potential and scope.

The hotel I am going to talk about, Hotel 360, is a model hotel based on this new decree, in the process of becoming law, which will serve as a guide for hotels that must now apply all the measures described in it. I have not only considered the provisions of the decree law in question, but I have gone further and implemented infrastructures that make the 360 Hotel an almost 100% self-sufficient establishment.

In addition, with this project I have been able to apply all the knowledge acquired during my studies, especially those of the subject "Environmental Economics in Tourist Areas". Also, dealing with this subject in depth has opened the door to an engineering firm to develop this project.

1.2 Bachelor's thesis object

The object of this paper is to introduce a pilot circular hotel (360 Hotel) located in Mallorca which is based on the Decree Law 3/2022, of 11 February, on urgent measures for the sustainability and circularity of tourism in the Balearic Islands.

2. Methodology

The methodology I have followed has been quite simple, since after studying the Decree Law 3/2022 well, I have searched for information in scientific articles, reports, and official pages on all related topics. I have studied in depth the current situation of the planet with respect to climate change, the area of renewable energies and I have interviewed several professionals in the sector, such as tourism consultants, lawyers, hoteliers and engineers, to learn about their experience and to find out what measures I could apply to the Hotel 360.

3. Context

3.1. Global Context

We are currently experiencing a global environmental, social, and economic crisis. Just as we seemed to be emerging from the health and economic crisis caused by the pandemic, a war breaks out in Ukraine.

During confinement, despite a large drop in emissions, there was an exponential growth in non-recyclable plastic waste, such as masks, antigen tests, waste from vaccination campaigns, hazardous hospital waste, etc.

Global priorities, previously focused on climate action and the global agreement to achieve the 17 Sustainable Development Goals, shifted to the fight against the coronavirus, concentrating almost all scientific and economic efforts and resources on this challenge.

Now that the mission of tackling climate change through regulation, action plans and *Next Generation* funding for recovery and resilience has been taken up again, the war in Ukraine starts and stalls the whole process again.

This is not only contributing to the destruction of the planet and human beings, but it is also causing resources that were supposed to be used to curb climate change to be used for military weapons and so on. We know from experience that wars always have serious ecological and environmental consequences, which is why it is very likely that the European Union's emissions levels will increase significantly in this one. We are talking about a planetary environmental, social, and humanitarian crisis.

This war is going to seriously affect the 2030 Agenda in Europe, just as it did with the pandemic. Both events have pushed climate policies and the ecological transition into the background.

Despite all this, we must take action as soon as possible because we are facing an emergency situation, as Greta Thunberg said, "our house is on fire" and we cannot act as if nothing is happening. The Intergovernmental Panel on Climate Change (IPCC) warns that global temperatures will exceed 2°C above pre-industrial temperatures during the 21st century, exceeding the 1.5°C limit established by the Paris Agreement and right now we have already reached 1.1°C.¹

If we let the temperature rise even further, we will have to deal with natural disasters such as: the extinction of more than 14% of the species, between 50% and 75% of the world population will be exposed to hazardous climate conditions of extreme heat and humidity and irreversible damage will be caused in humans and natural systems.

To stop climate change, we must limit global warming to 1.5°C above pre-industrial levels by collectively and drastically reducing our greenhouse gas emissions now and in the coming decades.²

¹ Center for Responsible Travel. (2022, 29 March). Climate Change.

² Kuhnenn, K., Costa, L., Mahnke, E., Schneider, L., & Lange, S. (2020). To stop climate change, we have to limit global warming to 1.5°C. (VOLUME 23). Heinrich Böll Foundation and Konzeptwerk Neue Ökonomie.

3.2. Local Context

The Balearic Islands, like the other islands, are particularly vulnerable to climate change and it comes with some physical changes. This is largely because the average temperature increase in the archipelago is expected to be higher than the global average, according to the Spanish Meteorological Agency. In the last 40 years, the average temperature has risen by 0.44 - 0.37°C per decade (Herrera et al. 2016). If the greenhouse gases (GHG) emissions continue the current trends, is predicted, in the worst case, an increase of 3-5°C in temperatures by the end of the twenty-first century compared to 2010 (Adaptecca 2018) and under a moderate scenario the rise will be between 1.75 and 2 °C.

The increase in temperature and sea level, the reduction in average precipitation and the rise in evapotranspiration have brought with them extreme phenomena such as heat waves and intense rainfall. For all these reasons, it is stated that the Balearic Islands are exposed to a high risk of meteorological and hydrological drought. Some of the most concrete impacts could be increase in wildfires, emergence of invasive species, the loss of crops, the acceleration of desertification processes, increase in water salinization and loss of coastal ecosystems due to the rise in sea level, which is expected to be between 37 and 90 cm in the coming decades (MedECC 2020). Rising temperatures would also greatly affect *Posidonia Oceanica*, a plant that contributes to maintaining the quality and transparency of the waters off the Balearic coast. In addition to preventing beach erosion and providing shelter for many fish that are key to recreational fishing. Due to all these impacts, the tourist attractiveness of the islands will progressively decrease.

It should be noted that the Balearic Islands is the autonomous community with the greatest external energy dependence and the least implementation of renewable energies. In fact, most of the electricity generated is from polluting fossil fuels, such as coal.

It should also be pointed out that in the Balearic Islands, the ratio of private cars per inhabitant is higher than the European average. Although the reference values for most pollutants are met, nitrogen dioxide levels have been exceeded on several occasions in the Palma area, and ozone levels have exceeded the objective value for the protection of human health and the objective value for the protection of vegetation. These pollutants come mainly from transport emissions, according to annual statistics from AENA, a total of 141.189 aircraft landed and took off at Mallorca airport in 2021.

In addition to all this, according to a report drawn up by the University of the Balearic Islands, we are the territory with the highest tourist intensity index of all the island territories in the world.³ In the last 20 years, the Islands have attracted 48.2% more tourists, from 11.1 million in 2000 to 16.4 million in 2019. And not only has increased the number of tourists, the fact of being a territory with a high level of economic dynamism and high levels of well-being has led to

³ Marco general del cambio climático en las Illes Balears. (s. f.). Govern de les Illes Balears.

an increase in the population, which has risen in 40 years from 642,780 inhabitants to 1,210,725 in 2020.⁴

It is very important to highlight the impact of the seasonal nature of tourism on resource consumption and energy demand. Due to the socio-economic system of our territory, there is a high consumption of the scarce water reserves of the archipelago. According to the Economic and Social Council of the Balearic Islands, there is a correlation between the increase in the floating population and the demand for water resources, as both factors peak in the central summer months when approximately the 82% of water consumption comes from the tourism sector. Furthermore, according to data collected by the Balearic Institute of Statistics (IBESTAT) of the Spanish Electricity Network on monthly energy demand in the Balearic Islands, energy consumption is closely linked to the number of people residing or passing through the archipelago.

Therefore, it should be noted that during the summer in the Balearic Islands there is an average demand of 26% more energy than the monthly average for the whole year, a fact that shows a clear correlation between the floating population and the increase in energy consumption and, consequently, in greenhouse gas emissions.⁵

As specified above, the main threats faced by the Balearic Islands are rising sea levels and temperatures, increasing acidification and deoxygenation of the oceans, droughts, reduced rainfall, and higher evapotranspiration. These factors pose a risk to the economy as tourism is extremely vulnerable to climate change.

4. General overview of the measures and Decree Law 3/2022

4.1. General view of the circular measures in the Balearic Islands

Mitigation and adaptation measures in terrestrial and marine ecosystems, water resources and energy, as well as in infrastructure, urban planning, human health, economics, law, and education, are recommended to mitigate the negative effects of climate change on tourism. Sustainable mobility and waste management are also considered important fields for mitigation action. As Torres et al. conclude in their "Climate change and its impacts in the Balearic Islands: a guide for policy design in Mediterranean regions" report, it is necessary to diversify the current socio-economic model in order to increase the resilience of the community and the territory.

The fight against climate change and the transition to a new energy model also represent an important economic and social opportunity.

^{4 5} Decreto ley 3/2022, de 11 de febrero, de medidas urgentes para la sostenibilidad y la circularidad del turismo de las Illes Balears. BOIB, Núm. 22.

Indeed, the International Labor Organisation's 2015 document "Policy guidelines for a just transition to environmentally sustainable economies and societies for all" states that the greening of the economy can act as a new engine of growth and as a net generator of decent and green jobs that can contribute greatly to poverty eradication and social inclusion as well as a competitive economy.

On a global scale, the United Nations considers that the circular economy is an accelerator of the 2030 Agenda and that tourism can make a significant contribution to meeting the Sustainable Development Goals.

Becoming a fully sustainable and circular destination will make us a benchmark in the tourism sector and thus boost the overall sustainable competitiveness of the archipelago. The road to achieving our goal involves embracing change and not being afraid of it. The power of each of us lies in our capacity for adaptation. Implementing a circular economy therefore entails taking an innovative approach, with strong support for optimisation process and the redesign of products and services, which decouples the consumption of resources and materials from the sector's growth and development expectations.

It is vital to move away from the predominant linear "extract-produce-use-throw away" character of production and consumption decisions and to focus on maintaining the functional value of materials for as long as possible, in order to minimise both pressure on resources and waste generation.

Therefore, the mission of this project is to contribute to the mitigation of climate change and global warming effects by doing our bit in the tourism sector. In the Balearic Island we should confront the climate emergency in an effective and fair way before 2030.

4.2. Decree Law 3/2022, of 11 February, on urgent measures for the sustainability and circularity of tourism in the Balearic Islands summary and concept definitions ⁶

The Decree law 3/2022 is not a new law but implements a series of amendments to Law 8/2012 on tourism in the Balearic Islands and other existing laws.

It defines **circular economy** as the production and consumption model, based mainly on the optimization of processes and the redesign of products and services, which aims, through biological and/or technical cycles, to maintain the functional value of products and materials for a maximum period of time, with a clear objective of minimizing both the pressure on resources and the generation of waste.

⁶ Decreto ley 3/2022, de 11 de febrero, de medidas urgentes para la sostenibilidad y la circularidad del turismo de las Illes Balears. BOIB, Núm. 22.

"Repair, reuse, recycle" are the basic principles of the circular economy. In short, it is a regenerative system in which the consumption of resources and energy is minimized.

Now that we are clear about the concept of circular economy, we must consider that the first thing to establish before starting with the circularity plan is a **circularity strategy**. This consists of the procedure that a company must carry out to set the motivation, vision, and objectives regarding circularity. This strategy should be set out in the **circularity plan**, which is a document that includes the priorities and lines of action that a company must carry out to integrate planning, consumption and production guidelines and circular commitment in its business strategy, its internal processes, and relations with its main stakeholders. The circularity plan must make special mention in the areas designated as priority areas for action and must include, at the same time, all the necessary elements for a correct circular planning and evaluation.

According to the decree law in question, the specified priority areas are water, energy, food, materials, and waste. In addition to those that can be set by each company according to its circularity strategy.

As I have mentioned above, the circularity plan consists of the circular planning and the circular evaluation.

The **circular planning** which is the relation and accrual of tasks and actions, resources, investments, protocols and any other human, material, and economic means necessary to guarantee the execution of the lines of action included in the circularity plan. The plan should focus on the five priority areas: water, energy, food, materials, and waste.

Each plan will be valid for a maximum of five years and must therefore be renewed periodically and evaluated annually. The **circular evaluation**, which would be a system oriented to measure circular progress and ultimately facilitate the feedback of its strategic vision and the revision and/or setting of new lines of action.

The regulation establishes that the circularity plan, as well as its modification, revision and/or renewal, "must be reflected in a document in physical or electronic format that must be available to the inspectors of the tourism administration and the legal representatives of the workers".

As it is something new in the tourism sector, before drawing up the first circularity plan, an **initial circularity assessment** must be carried out, considering its particular characteristics, especially with regard to the possibility of adopting certain circularity measures, such as the programming of renewable energy installations, preferably in terms of energy consumption or the collection and use of rainwater, among others.

Tourist accommodations with minimum categories of four stars or four keys have to draw up the first circularity plan by 1 May 2023 at the latest, and the

rest of the accommodations by 1 January 2024. Failure to have a circularity plan in place will result in a penalty of 100,000 euros.

Among the environmental and efficiency measures in terms of circularity, establishments must take different measures for each of the priority areas. Thus, in the area of **energy**, the tourist establishments determined by the regulation must eliminate thermal installations that run on fuel oil or gas oil and replace them with others that use energy sources that reduce the environmental impact. Likewise, tourism companies must adjust the temperatures and use of thermal installations to that provided for in the Royal Decree on thermal installations in buildings.

In relation to the priority area of **water**, the tourist establishments in question must have a double push button or push button with interruption of flushing in the toilet cisterns. Likewise, they must have water-saving devices in the taps of washbasins, bathtubs, and showers such as diffusers and aerators.

In relation to the priority area of **waste**, it is established that tourist establishments may not make disposable toiletries available to customers, except at the individual request of the customer and provided that the containers, packaging, components and/or products are reusable, recyclable, biodegradable or compostable.

In the **food** priority area, it is foreseen that tourist establishments, depending on their activity, may not make use of species classified as endangered categories for food consumption, in particular critically endangered, endangered, or vulnerable, in accordance with the red list, in force at any given time, of the International Union for Conservation of Nature. In addition, they must indicate in a differentiated manner on the menu, menu or similar, made available to customers, both seafood and fish products that have Balearic origin, and they must be able to guarantee and accredit their veracity and the verification of the data.

5. Circularity and sustainability certifications

A sustainable project is one that comes from a process that does not destroy natural resources and that contributes to the economic and social improvement of its community.

Therefore, we understand sustainable tourism as tourism that seeks to minimize the socio-cultural impact while providing economic benefits to the host country or local community.

In order to signal those companies that really offer sustainable tourism or to distinguish them from other tourism industries, certifications are granted. These are a way of guaranteeing that a product meets certain standards. It is therefore an effective way to prevent travelers from potential fraud, to improve the quality of the service or product, and to help strengthen environmental awareness.

All tourist accommodation companies in the Balearic Islands can market or advertise themselves as a circular company that applies circular economy strategies only if they have an EU Ecolabel, an EMAS system or any certification issued by entities duly accredited to grant it, such as the National Accreditation Entity (ENAC).⁷

The **EU Ecolabel** is a label of environmental excellence, recognised throughout Europe and worldwide, awarded to products and services that meet high environmental standards throughout their life cycle. It provides demanding guidelines for companies seeking to reduce their environmental impact and ensure the effectiveness of their environmental actions through third party controls.

Moreover, it is a reliable label that enables consumers to make real sustainable choices and brings benefits and opportunities to businesses and retailers. On the way to a greener future, the EU Ecolabel contributes to the EU's environmental goals, such as the circular economy, climate neutrality and zero pollution.⁸

The EU Eco-Management and Audit Scheme (**EMAS**) is an instrument allowing organizations to evaluate, report, and improve their environmental performance. EMAS is an environmental management tool that can be used by any type of enterprise, but in the tourism sector we can say that it helps companies to become more sustainable and to communicate this commitment to customers in a credible and transparent manner.⁹

EMAS supports tourism organizations to optimize environmental management, from the design of the service to the final result; reduce energy consumption, CO2 emissions, water consumption, use of chemicals, waste generation and optimize waste management.

As a result of all these actions, a reduction of negative impacts is observed, leading to an increase in the quality and environmental attractiveness of the destination. Businesses will enjoy environmental credibility. They will also have economic savings thanks to the efficient treatment of resources. And they will have better strategic planning through systematic monitoring of environmental performance.¹⁰

It should be noted that companies that already comply with an environmental management system such as ISO 14001 will find it easier to move to EMAS. The ISO 14001 constitutes the necessary criteria to carry out an Environmental Management System, being able to certify companies under this standard.

⁷ Decreto ley 3/2022, de 11 de febrero, de medidas urgentes para la sostenibilidad y la circularidad del turismo de las Illes Balears. BOIB, Núm. 22.

⁸ EU Ecolabel - Environment - European Commission. (2022). EU Ecolabel

⁹ Environmental performance management and certification. (2017, November 7). European Commission - European Commission.

¹⁰ EMAS and the tourism sector. (2021). SUSTAIN EUROPE.

Another interesting eco-label is the **Green Key**, which is focused on the standard for excellence in the field of environmental responsibility and sustainable operation within the tourism industry.¹¹

These certifications are very important to be good indicated when presenting a product, because according to the Responsible Tourism Institute and the Global Sustainable Tourism Council, "90% of travelers would choose a sustainable hotel and 34% would be willing to pay more to stay in them".

6. 360 Hotel – “Adapt Yourself”

6.1. Our mission, vision, and values

360 Hotel is a forward-looking hotel concept based on our mission: to implement a circular economy and thus do our bit to save the planet and reach net zero by 2050. It is located in Mallorca, and it is developed and designed under the measures established in the Decree law 3/2022, previously specified in point 3.2.

Our vision is to inspire and to be the model followed by the island's hotels in order to be a completely sustainable and circular tourism destination. The Balearic Islands will become a world reference in this field.

Our values are, first and foremost, adaptability, transparency, proximity, excellence, coherence, diligence, and consistency.

At 360 Hotel we are characterized by offering the best quality in the most sustainable and environmentally friendly way.

6.2. Hotel facilities

The Hotel 360 is a circular and ecological hotel in an unbeatable location on the first line of the north coast of Mallorca. It is surrounded by local flora and fauna, in an idyllic setting, perfect to disconnect and get in touch with nature.

The hotel has 50 double rooms, very spacious and comfortable. It also has several common areas, an outdoor saltwater pool and a wide range of complementary and very sustainable offerings that encourage you to enjoy the environment around us, leading a healthy and active lifestyle. It offers guests a unique experience, where they will become aware that they can enjoy their vacations without harming the planet and enjoy what Mother Earth has to offer.

It should also be noted that its architectural design and decoration are integrated to the maximum with the environment.

6.3. Product and processes design

¹¹ Green Key. (n.d.). Green Key

In particular, the 360 Hotel applies the circular economy model in its purchasing and waste disposal methods, in addition to having water saving systems and devices to produce renewable energies. Moreover, it is implemented the environmental management system (EMAS) and it has a sustainable purchasing policy, a code of conduct for suppliers, and an awareness system for customers and employees, among other things. To improve the hotel's environmental performance, the use of EMAS is essential, as it helps to establish clear control structures and procedures.

The application of a sustainable purchasing policy that considers the total cost and environmental impact throughout the life cycle of the product or service helps us in implementing the circular economy model.

The following is a description of the hotel's facilities and the measures taken with respect to the priority areas established by the Decree law 3/2022.

6.3.1. Energy

As specified in the Decree Law 3/2022, in the area of energy, hotels must eliminate thermal installations that run on fuel oil or diesel, so we have replaced these conventional energy sources with renewable energies that reduce the environmental impact.

In addition, the 360 hotel is oriented to the east, as this way we get a great energy savings to be in an area with warm weather especially in summer. Being oriented in this way, the hotel is fully illuminated until noon, which allows heat to accumulate, which is gradually released during the afternoon.

We take advantage of renewable energies thanks to the installation of solar panels to capture sunlight, a geothermal well to obtain geothermal energy and a biomass boiler.

6.3.1.1. Solar panels

The solar panels convert solar energy directly into electrical energy through photoelectric energy. Thus, during sunlight hours, the energy consumed by the hotel comes from solar energy transformed into electricity. It should be noted that the surplus energy generated is fed into the electricity grid, thus offsetting the electricity consumption that comes from the grid during the hours when there is no sunlight.

We recommend this method, since the installation of solar panels with batteries, besides being more expensive, generates waste. In this way, we use the existing electrical grid as a battery.

6.3.1.2. Geothermal

Geothermal energy is obtained by harnessing the constant temperature of the subsoil to heat and cool, in this case, a hotel. It is a renewable energy that eliminates dependence on fossil fuels, contributing to the reduction of CO₂

emissions that cause the greenhouse effect. It is a clean, inexpensive, constant, and inexhaustible source of energy, as well as being environmentally friendly and not influenced by outside weather conditions. It therefore works 24 hours a day and in all seasons of the year.

The hotel's open geothermal system consists of three wells, two of which are used to absorb groundwater and one of which is used as a drain. As we are on the seafront, less than 200m from the sea, the circuit is open, as we use sea water. In addition, we have installed a desalination plant to take advantage of part of the water used in the geothermal circuit and obtain drinking water.

The wells are made at a depth of approximately 50 meters where the temperature of the water is 20°C. The absorption wells, together with pumps, absorb the water from the subsoil (seawater), which passes through an exchanger. In this way we cool the air-conditioning systems and the waste heat generated by them is used to preheat the domestic hot water (DHW). This water, intended for showers, toilets, etc. will reach the biomass boiler at a temperature of about 40°C and not at the ambient temperature of the water coming from the street, so less energy will be needed to heat the water as the difference between 40°C and 60°C is less than for example from 15°C to 60°C (temperature at which the hotel's DHW must be).

Before sending the water to the drain to return it back to the sea, we canalize part of it to our desalination plant. With it we produce about 3000 liters of drinking water per hour so that we can cover 100% of our water needs.

In summary, we can say that, in winter, the pump absorbs heat from the ground and releases it into the building and in summer the opposite process takes place, absorbing heat from the building and transferring it to the ground. Although I must say that the performance is higher in summer than in winter, as the thermal jump between the seawater temperature and the DHW is lower during the hot months of the year.

We also control and adjust the temperatures and the use of the thermal installations between the values indicated below.

As provided for in Royal Decree 178/2021, of March 23, amending Royal Decree 1027/2007, of July 20, approving the Regulation on Thermal Installations in Buildings, in amendment number twenty-five, temperatures should be regulated as follows: "For people with sedentary metabolic activity of 1.2 met, with degree of clothing of 0.5 clo in summer and 1 clo in winter and a PPD (percentage of unsatisfied persons) less than 10 %, the values of the operating temperature and relative humidity, assuming a low air velocity level (<0.1 m / s), shall be between the limits indicated" in the following table.

Interior design conditions		
Season	Operating temperature °C	Relative humidity %
Summer	23...25	45...60
Winter	21...23	40...50

Table 1. Table 1.4.1.1. from the Royal Decree 178/2021, of March 23, amending Royal Decree 1027/2007, of July 20, approving the Regulation on Thermal Installations in Buildings, translated into English.

Thus, by law, the temperature in summer would be kept at a value of not less than 21°C, although we recommend that it should not be less than 22°C, and in winter at a maximum temperature of 25°C.

Despite this, we recommend adapting to the environment and using heating and air conditioning systems as little as possible. In our hotel we manage to create a kind of microclimate that allows this, as we have a lot of shadows and interior gardens that give a cooler sensation in summer, and the temperature is milder as we are in front of the sea. We also have ceiling fans in all the rooms of the hotel, a saltwater swimming pool in which to cool off, as well as fresh water and cold infusions free of charge for our guests.

6.3.1.3. Biomass boiler

Biomass is a renewable organic resource, which comes from living or once-living organisms. The biomass energy in our case is created by combustion to finish heating the DHW to 60°. The biomass we produce, and use is made up of nut shells, fruit skins, olive pits, etc. which are kitchen waste that we use for our boiler.

6.3.1.4. Other energy-efficiency initiatives

In 360 Hotel we make the most of natural light, all our windows have double glazing to avoid leaks of cold or heat, the activities in which much energy is consumed are distributed throughout the day to avoid excessive consumption at peak hours, the bulbs we use are energy efficient and we have presence detectors in the corridors and rooms, etc. We also have training programs for our staff in the field of energy saving, as well as awareness programs for our clients during their stay.

All these facilities involve a large initial investment, but they pay back relatively quickly, reducing monthly expenses by up to 70%. Moreover, at 360 Hotel we see it not only as an economic investment, but as an investment in making the planet a better place in the years to come.

6.3.2. Water

As stated in the Decree Law 3/2022 regarding the water area, at 360 Hotel we have several water saving devices. All our toilets have a button that interrupts the flushing of water, and we also have aerators and pressure limiters on all taps, both basins, bathtubs, and showers. In addition to other facilities such as: a desalination plant and a biological treatment plant.

6.3.2.1. Desalination plant

Also noteworthy, as I mentioned before, we have a desalination plant connected to the geothermal system to supply our water needs with drinking water. This is also very important because we avoid the breakdowns normally caused by lime, since in Mallorca we have a very hard water.

6.3.2.2. Biological treatment plant

In the hotel we have a biological treatment plant, in which we carry out two processes for wastewater:

On the one hand, we have the soapy water, it is the water that is discarded in the showers and after being treated with a biological purification system, it is used exclusively for the toilet cisterns. After conversations with people in the sector who use this system, I came up with the conclusion that it is necessary to have a system of automatic emptying of the cisterns every 48 hours, since this water can sometimes produce bad odors if it remains stagnant for more than two days. The surplus of this water goes to the drip system of the garden.

On the other hand, we have the ordinary wastewater that once it has passed through our biological treatment plant, the water is used to irrigate the garden and the surplus is transferred to the municipal network of treated water for irrigation.

6.3.2.3. Other water-efficiency initiatives

At 360 Hotel, in addition to those mentioned above, we take more measures to save water, such as: we have a drip irrigation system in the gardens, since they are composed of native plants that do not need much water. As I previously mentioned, the water we use to irrigate the plants is the wastewater that we treat. It should be noted that we water our gardens during the hours of low sunlight to avoid water evaporation. We also have a plan to reduce water consumption, as we have calculated and optimized the amount of water needed to clean the hotel.

6.3.3. Waste

We are very conscious of waste generation, that's why as described in the Decree Law 3/2022 toiletries such as soap, shampoo and shower gel are in reusable containers, so that we do not generate any plastic waste. In addition, the components of the products are 100% natural, silicone-free and cruelty-free.

As for the cleaning products, most of them are refilled, eco-labelled or are used in concentrated doses. We have also eliminated plastic or cardboard bottles and cups, so that the complimentary water for our customers is bottled in glass bottles that we reuse.

We have also completely changed the garbage collection system, as we normally see one litter bin per room. At the 360 Hotel we have selective collection points in each corridor and in the common areas, so we have

containers divided into four sections: one for plastic containers, another for cardboard, the third for organic waste and finally one for glass. It is true that inside our establishment the waste generated by the customer is almost null, but we do not know what they can bring from outside.

The life-cycle approach is applied to all purchasing decisions that we made in a way that favors leasing or loan-for-use contracts as it is a new way to save money and always have the best on the market. It allows us to test new products, have maintenance guarantees and establish long-term relationships with suppliers. We also donate to Caritas or give a second life to all furniture that is no longer in use or has reached the end of its useful life.

Another zero-waste initiative we have taken is to produce compost from the hotel's kitchen and garden waste. This compost is given to a local farmer who uses it in our urban gardens together with the people of social inclusion to grow the vegetables we serve at 360 Hotel.

I would also like to include in this section, that all sheets and table linens are made of organic cotton and are 100% handmade, and in addition, everything is digitized, so we do not use paper.

6.3.4. Food

As provided in the Decree Law 3/2022 regarding the food priority area, we do not make use of species classified as endangered species that appear on the red list of the International Union for Conservation of Nature. In addition, in the menu we differentiate the seafood and fish from the Balearic Islands with a very noticeable symbol.

As I previously stated, we have 20 urban gardens that are used by people in social inclusion, led by a local farmer. Everything that is grown is then destined for the hotel's kitchen, so that we have high quality food from km 0 and treated in a totally natural way with our compost. This initiative is not only a corporate social responsibility initiative, but also serves to offset our carbon footprint.

We do not have a buffet service, so we opt for the a la carte option because it does not generate as much waste. And we also recommend reducing meat consumption, so we have vegan options, as they are much more environmentally sustainable.

6.4. Labor protection

Decree Law 3/2022 mentions the obligation to have elevating beds to make it easier for housekeepers to clean the rooms. So, all our beds are electric and can be raised at the touch of a button.

Also, to reduce the workload of our housekeepers, we have robot vacuum cleaners that are charged by solar panels and clean the common areas during the night.

Another initiative we took is an application for our staff to share transportation and reduce our environmental impact. And we also offer childcare services for our staff, to make it easier for all those who have little children.

While we are on the subject of our staff, I would like to include that once a month the entire 360 Hotel team meets to propose improvements and come up with new ideas. In our hotel all opinions count.

6.5. Complementary offer

As one of our objectives is to encourage people to lead a healthy, sustainable, and active lifestyle. Our complementary offer consists of rental service of paddle surf boards, of the brand "Santa Catalina SUP", a local brand, and both normal and electric bicycles, which are also fully available to our employees.

The activities of our animation team are focused on making our clients aware of the environment and the local culture.

Another activity that we like very much and that gives very good results is "the hotel visit" in which our director takes our clients on a tour of the hotel and shows them absolutely everything, from the kitchens to our geothermal installations. In this way we show total transparency and give our clients first-hand knowledge of our sustainable initiatives and facilities. This visit always ends in the kitchen with a snack prepared by our chef.

7. Conclusions

In conclusion, despite being a utopian hotel that requires a large economic investment, I believe it is the future of the hotel offer. The planet is crying out for it, and although at first it may not be something that attracts the attention of potential clients, it is something necessary.

I would like to emphasize that we must become aware of the environmental emergency we are experiencing, because the time to act is now. Our joint mission must be to make our planet a better place for future generations. Not only at the level of sustainable businesses and companies, but we must reduce our environmental impact in a particular way, by changing small actions in our daily lives, which can have a great impact at a global level. I only hope and wish to see hotels like this in the future and more people concerned about the environment.

As the saying goes, only he who adapts survives. Therefore, the only thing I can say in closing is: Adapt Yourself!

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