TOUCAN

The future of tourism without a carbon footprint

Module 2. Energy saving at the place of accommodation

INDEX

MODULE 2. ENERGY SAVING AT THE PLACE OF ACCOMMODATION

The continued growth of ecotourism among travelers makes it more important than ever for hotel owners to make major changes and implement resource-saving solutions. According to the study "Climate change awareness" [4], consumers increasingly pay attention to the responsibility of companies in terms of their approach to ecology. Also, research conducted on a group of 500 hotel guests, 94% of whom declared that ecology is important to them, confirms that consumers attach more and more importance to their choices [8]. It is therefore worth looking for solutions that will give a competitive advantage. It is important to find a balance between solutions that reduce water and energy consumption while providing comfort and a positive guest experience. Huge energy consumption in hotel facilities has a negative impact on the environment, as much as 60% of the hotel's carbon footprint comes from energy consumption [3]. Energy efficiency is a key element of the hotel's environmental policy and every stakeholder must actively participate in the hotel's efforts to promote a more sustainable environment and business. Given the significant increase in energy prices, measures to reduce energy consumption are very important. On average, heating, ventilation, and air conditioning account for 61% of its consumption[5]. If you want to improve the energy efficiency of the facility, it is worth starting with a thorough analysis of energy consumption and finding the weakest points in the field of energy management, which enables a reliable energy audit.

Sustainable development in its assumptions consists in sustainable improvement of the quality of life of the present and future generations by shaping appropriate proportions between three types of capital: economic, human and natural [4]. The particular importance of quality of life in sustainable development has given rise to the concept of sustainable consumption. In the natural area, over-consumption has obvious consequences in terms of the use of natural resources used in the production and distribution of consumer goods. At the same time, increased production, driven by growing demand, generates an increasing stream of waste, which is as serious a problem as the dwindling supply of natural resources.

The didactic purpose of the module is to provide information on taking action to mitigate climate change, which is extremely important nowadays, also in the tourism industry. Hotels, as an important sub-sector of tourism, should therefore take measures to reduce the negative impact on the natural environment. There are many concrete solutions that can be implemented to ensure the sustainability of hotels in areas such as heating, cooling, lighting, and water use. It is necessary to use ecological solutions and good practices for staff and guests. The bottom line is that hotels that use modern and energy-saving technologies will ultimately be more profitable and better adapted to the ever-changing market and guest needs. Tourism also has great educational potential in terms of shaping consumer attitudes that underlie sustainable consumption.

The target group of the module that most needs this type of knowledge is the broadly understood tourism industry and in particular the owners and employees of this sector.

2.1. Climate change mitigation

Why climate change mitigation in the tourism sector is so important?

Tourism is a constantly growing sector, with the constantly increasing number of tourists travelling around the world. For instance, in 1950 it was around 25 million, while in 2015, the tourism market grew to approximately 1.2 billion people. According to the forecasts of the UN World Tourism Organization, in 2030 this number will increase to approximately 1.8 billion. But tourism growth has a significant effect on the natural environment. Estimations show that 5 percent of the global CO_2 emission can be associated with the tourism branch activity, out of which 20 percent is released by hotels and other accommodation sites [11]. Average power consumption varies, depending on the type of an object (Tab. 1).

Table 1. Average power consumption vs. emissions of accommodation sites [20]

Type of accommodation	Energy use per guest night (MJ)	Emissions per guest night (kg CO_2)
Hotels	130	20.6
Self-catering	120	19.0
Holiday villages	90	14,3
Holiday housing	100	15,9
Campsites	50	7,9
Guesthouses	25	4,0

Climate is a key asset for tourism, thus environmental changes and resulting extreme weather phenomena (e.g. heat waves, heavy rain falls, typhoons, hurricanes) may have a negative effect on the tourism sector, including hotels. This in turn can even make it impossible to operate [20] (Tab. 2).

Table 2. Negative impact of climate changes on the tourism sector [20]

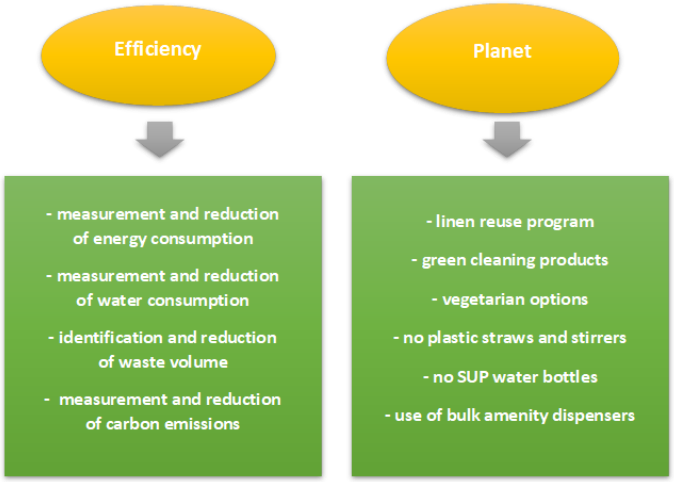
Weather conditions	Implications for tourism
Higher temperatures	- altered seasonality - heat stress for tourists - higher cooling costs
Increasing frequency and intensity of extreme storms	- risk for tourism facilities - increased insurance costs/loss of insurability - business interruption costs
Reduced precipitation and increased evaporation in some regions	- water shortages - competition over water between tourism and other sectors - risk of wildfires and damage of infrastructure and lower demand
Increased frequency of heavy precipitation in some regions	- altered seasonality - damage to tourism infrastructure
Decreasing snow cover and shrinking glaciers	- shorter winter sports seasons - lack of snow in winter sport destinations - increased snow-making costs
More frequent forest fires	- damage to tourism infrastructure - increased flooding risk

Among the towns that are most vulnerable to environmental changes resulting from climate changes are those located in mountain and seaside regions, and also on islands [20]. One of the examples of the negative effect of weather conditions is the New Honeymoon hotel in Pakistan, located on the bank of the River Swat. On 26 Aug 2022, it was hit by a huge flood wave and collapsed. It all happened due to the eighth monsoon period that caused floods in Pakistan. The Pakistani climate minister, Sheryy Rehman, mentioned climate changes as one of the reasons of that situation [19].

What can be done at hotels and other accommodation establishments to mitigate the climate changes?

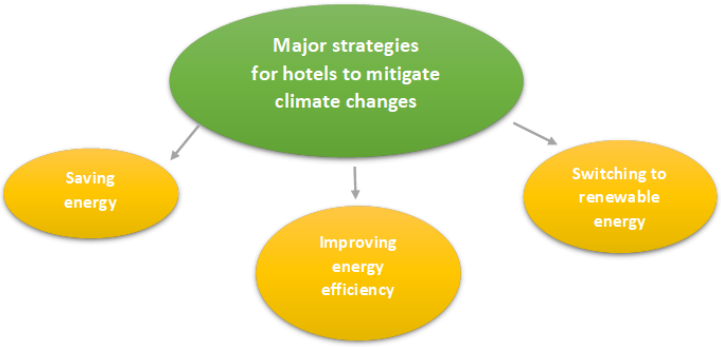
In 2022, the World Travel and Tourism Council (WTTC) issued the Hotel Sustainability Basics. It is a set of sustainability indicators, recognised worldwide, including 12 actions vital for hotel sustainability. These 12 actions cover three major areas: Efficiency, Planet and People. Two of them are relevant in terms of climate changes mitigation: Efficiency and Planet (Fig. 1).

Figure 1. Actions proposed by the WTTC that can help hotels reduce their negative environmental effect and mitigate climate changes [17]



In this area, accommodation establishments should mainly focus on three strategies: saving energy, improving energy efficiency and switching to renewable energy (Fig. 2).

Figure 2. Major strategies for tourist accommodation establishments to mitigate climate changes [own study]



The first step for hotels to reduce power consumption should be drafting a history of power consumption, focusing on how the energy is used at a given facility and what costs are generated.

Power consumption in the accommodation sector is most frequently related with heating and cooling, specifically central heating, use of refrigerators and freezers, hot water supply, air conditioning and lighting. The following solution should help in reducing the problem:

- *Temperature inside the rooms should be kept between 20-25oC (Hilton Seychelles hotel conducted an experiment which has shown that guests approved the temperature of 25oC without any complaints).*
- *Hotels should be designed taking into account the best possible location (e.g. possibility to plant or keeping already existing greenery around the buildings in tropical or very hot regions, to provide shade and lower temperature inside) and natural ventilation (e.g. through the windows), or insulation, etc.*
- *Air conditioning and heating systems should be properly located to prevent inefficient use or hot air flow to cooler areas.*
- *Thermostats could be used for heating or cooling systems, which would allow activation just before the arrival of guests.*
- *Air conditioning or heating systems could operate in shifts at lounges.*
- *Filters and coils of HVAC units must be properly maintained (London Marriot County Hall in UK managed to reduce power consumption in hotel rooms by 37% thanks to proper cleaning of air conditioning units).*

Restaurants vs. cooling (food storage)

Hotel restaurants may implement some of the listed solutions, and additionally:

- *Menu could be modified to offer meals made of local products, which would allow to reduce emissions related with delivery of products from distant places.*
- *Dishes made of ecologically certified products could be considered, as their production has smaller negative impact on the environment.*
- *Reducing meat dishes in the menu is a good practice as their production entails higher emissions than vegetable meals [Climate 2008, p. 173].*
- *Fridge temperature should be set to 4-7oC.*
- *Freezer temperature should be set between -18oC and -15oC.*
- *Space should be left between items kept in the fridge (avoid overfilling) because air flow increases cooling efficiency.*
- *Freezers should be defrosted regularly because built-up ice reduces freezing efficiency.*
- *Condensers, fans and compressors must be checked and cleaned regularly.*

Showers, pools and laundry

Hotel showers, pools and laundry may generate around 50% of the costs of energy. In order to reduce power consumption in these areas:

- *Water temperature setting should not exceed 60oC (which allows reducing energy needed to heat water).*
- *Low-flow shower heads could be installed.*
- *Energy saving equipment should be used (e.g. washing machines).*

- *Solar water heating systems can be used.*
- *Boiler economisers or heat exchangers can be used (YHA Wellington Hostel in New Zealand reduced the costs of hot showers by 50%).*
- *Hotel pools could use solar water heaters or covers.*
- *Heat pumps could be also used for pools, which would reduce the power consumption to approx. 53%.*

Lighting

- *Hotels should be designed taking into account the best possible use of daylight.*
- *Energy saving lighting should be used, e.g. energy saving bulbs and LED lamps.*
- *Motion sensors could be used in common parts of the hotel and also in hotel rooms to avoid constant use of lighting.*
- *Cards could be considered to let guests turn off light and other equipment when they leave the room [20].*

Other actions to be implemented in hotels and other accommodation establishments to mitigate climate changes

- *Bus riding to neighbouring ski lifts in the accommodation price (ski resorts) [18].*
- *Run a hotel bike rental (to reduce individual car transport).*
- *Encouraging guests or employees to present their ideas on how the hotel can reduce the negative effect on the natural environment (e.g. using a box placed at the reception or on the hotel website).*
- *Encouraging guests to save water and energy by voluntary resignation from daily hotel service (instead, guests may receive coupons of small value for snacks and beverages to be used in a hotel restaurant) [18].*
- *Closed pool water cycle.*
- *Encouraging tourists to spend time on site, to reduce carbon footprint.*
- *Organising video conferences (business tourism).*
- *Implementing an environmental management system as ISO 14001 or EMAS.*

Using renewable sources of energy is also worth considering. A number of renewable sources of energy can be applied in the tourism sector, including photovoltaics, wind energy, geothermal energy, solar panels, biomass and waste.

Summary

Taking action to mitigate climate change is extremely important nowadays, also in the tourism sector. Climate change results in extreme weather conditions that can be very dangerous for the tourism sector, hindering or preventing its activities. Hotels, as an important sub-sector of tourism, should therefore take steps to reduce their negative impact on the natural environment. The activities of hotels should focus primarily on reducing CO2 emissions, which can be achieved by reducing energy consumption, improving energy efficiency, and using renewable energy sources. There are many specific solutions that range from expensive and time-consuming tasks to less complex and financially demanding activities. The starting point for implementing such solutions in a hotel should be a preliminary analysis of energy consumption, areas related to higher energy consumption, and solutions that can be implemented, taking into account the time and financial capabilities of the hotel.

Questions for reflection:

What are the major strategies for hotels to mitigate climate change?

Lİst the efficiency actions proposed by the WTC?

2.2. Energy – saving solutions and devices

In many hotels energy consumption is highly inefficient, mainly due to high heat losses through poorly insulated walls, roofs, windows and heating pipes, poor lighting management and systems that require excessive energy consumption for both heating and cooling. Improving energy efficiency in these areas depends on the investment possibilities of the owners of the objects and the type of structure and technical condition of the building, which determine the scope of possible modernization works.

Electronic equipment, household appliances and lighting

Energy-saving devices are a wise, long-term investment for owners of hotels. The energy class of a device is a parameter that determines its energy efficiency. It is determined by how much electricity, water or other resources the equipment consumes. In the new energy classes, in force from 2021, the "pluses" (used in energy efficiency class A in the existing labels) have been abandoned. Currently, the highest energy class is A, and the lowest - G class.

According to EU guidelines, light sources should also be equipped with an energy label which includes information on the energy efficiency class, luminous flux in lumens, electricity consumption of lamps in watts and average life expectancy in hours.

By installing LED lighting, one can significantly reduce electricity costs, but can save even more by investing in an intelligent LED lighting system that has automatic sensors to detect the lighting needs of each area of the building.

The Hotel Corinthia in Lisbon is a special place. With 521 guest rooms, it is the largest five-star hotel in Portugal and the best example of providing luxurious hotel services at the highest level. In places where lighting effects play an important role, such as rooms, corridors and the reception area, 6,330 LED lamps have been installed (Fig. 3). Lower electricity bills are not the only benefit that has been achieved. As the new LED lamps can be connected directly to the 230 V mains, the need for transformers has disappeared. Thanks to the new luminaires, the amount of light produced has increased and energy costs have been reduced by 80%. As a result, the investment returned after 9 months [24].

Figure 3. Arrangement of lighting with LED lamps in the interiors of the Corinthia Hotel

A significant cost of energy in many hotels is the consumption of electricity by the so-called "energy vampires". Also known as standby power, it refers to the way electricity is consumed by electronic and electrical devices when they are turned off (but are designed to take some energy) or in the standby mode. Typical devices, such as: TV, video, DVD, scanner, printer, desktop computer, charger, modem, etc. in stand-by mode use 5 to 20 W [29]. Automatic-shutdown sockets may be the solution.

Building insulation

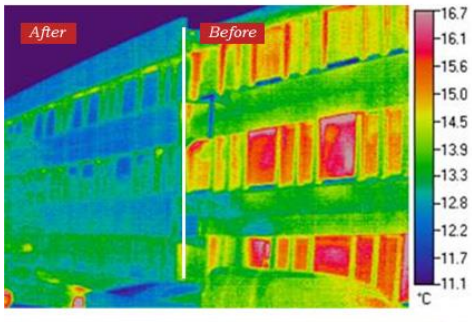
In the era of constantly increasing energy costs, it is important to minimize heat losses from external partitions. Architecture causes the occurrence of numerous thermal bridges, through which a lot of heat escapes to the outside during the heating season. It is very well visible in the photos from the research of the object with a thermal imaging camera. On their basis, it is possible to locate the places of the greatest heat losses and take measures to eliminate them.

Thermal modernization is the best way to improve the energy efficiency of existing buildings and insulating the building includes the following activities:

- *Insulation of external partitions – laying an insulation layer that will prevent cooling down or overheating of the interior of the building,*
- *Replacement of doors and windows – selection of appropriate models with high insulation properties that will avoid thermal bridges,*
- *Roof insulation – a well-chosen roof allows one to reduce heat losses by up to several dozen percent.*

An excellent example of such activities is the thermal modernization of one of the buildings of Stirling University [29]. The old building was thermally ineffective and a series of thermal imaging studies was commissioned. They were made before and after construction works increasing the insulation of external partitions. The "Before" thermogram shows higher wall and window temperatures. "After" indicates much lower temperatures, which means that less heat is escaping through the partitions than before (Fig. 4).

Figure 4. Thermogram before and after thermal modernization of the building



Heating system and hot water system

The second stage of thermal modernization is the assessment of the efficiency of the heat source in the building and its possible replacement, as well as the improvement of the efficiency of devices and fittings cooperating with the source. The most effective heat sources are gas boilers or heat pumps. It is especially worth considering condensing boilers which, apart from the combustion energy, also use the heat contained in the water vapor from the flue gas. In a traditional boiler, exhaust fumes with a temperature in excess of 300°C are often released. The condensing boiler uses a larger or additional heat exchanger to reduce this heat to just around 50°C. For example, Sea Power Horyzont in Jastrzębia Góra – an implementation in 2022 or Maxymilian *** Unique Hotel in Kołobrzeg - an implementation in 2022.

Replacing old plumbing fixtures and devices that often consume a lot of energy also significantly reduce energy costs. This action was taken at the InterContinental Hotel in

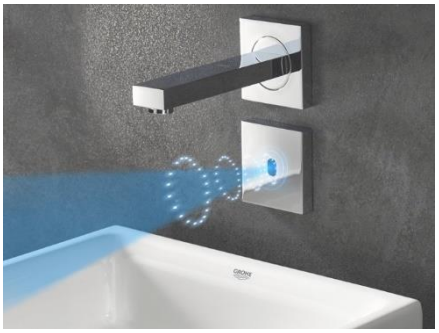
Madrid, which reduced energy consumption by 445,000 kWh per year [21]. The applied solution allowed reducing energy consumption by up to 40%. The 475,000 kWh that the object saves annually translates into a USD 37,000 lower electricity bill. It also means a return on investment in less than two years. The hotel's CO2 emissions also decreased by 253,000 kilograms per year [21].

To ensure maximum energy savings in the building, the operation of the entire heating system should be automated. Many companies offer accommodation owners ecological energy management tools. These types of systems include wireless thermostats that monitor and control the temperature in the room (Fig. 5).

Figure 5. Control panel in the room

Specific control settings where guests can only select temperatures within a certain range is another way to cut costs. As the seasons change, so do guests' temperature needs. A simpler solution than fully automatic control systems are thermostats with the possibility of time management through the attached timer. The programmer is designed to automatically switch the thermostat from day mode to night mode, which in practice means lowering the set temperature by 4°C. If we have a set temperature of 21°C, then at night we will get 17°C, which is not only healthier for the body, but can also result in significant savings. Lowering the temperature even by 1°C results in energy savings of up to 6% [7].

Figure 6. Touchless faucet [9]



Water heating is one of the main loads of hotels. Specialized overhead showers and taps are the main areas where inexpensive modernization can be made. Faucets and shower heads with low water flow are a good solution. Faucet aerators are a simpler solution. A more expensive solution is the installation of contactless washbasin faucets with infrared sensors (Fig. 6), which turn on only when hand movements are detected.

Renewable energy sources

The use of renewable energy sources is becoming a basic requirement of modern energy and environmental policy in most countries in the world.

When buildings are equipped with photovoltaic panels, they can maximize natural energy on days with clear skies and even sell excess energy to the grid. Energy costs will continue to rise, making savings in resorts and hotels with solar panels grow year by year. For example, in a 94-room Hampton Inn hotel in Southern California, a 102 kW photovoltaic panel system was installed (Fig. 7). The solar panels at this hotel produce over 13,000 kWh per month, which cuts energy bills by 35-45% depending on the season. They are currently saving between $ 7,400 and $ 8,800 a month and expect to fully recover their investment in just 7.75 years [2].

Figure 7. Hotel Hampton Inn in California with photovoltaic installation

Heat pumps are other devices that can be used to heat a building and prepare hot water. They use renewable energy accumulated in soil, water or air. It is clean energy available without limitations. Thanks to cooperation with recuperation and photovoltaic installation, heat pumps form a compatible heating system with high efficiency.

Summary

Energy consumption is a universal cost of running a business, whether it is producing products or providing services. In the world of uncertain energy costs and access to fossil fuels, and growing environmental concerns among businesses, energy consumption in hotels has become a major concern. In order to ensure the sustainability of the hotel in areas such as heating, cooling, lighting and water consumption, it is necessary to apply ecological solutions and good practices of staff and guests. As shown in the above materials, for hotels there is no shortage of opportunities to reduce energy costs, which is also confirmed by the described examples of such objects. The possibilities of using individual technologies in a hotel will largely depend on its location, technical conditions and financial issues. The bottom line is that hotels that use modern and energy-efficient technologies will ultimately be more cost-effective and better suited to the ever-changing market and guest needs.

Questions for reflection:

How thermal energy modernization helps to reduce cost?

Give an example for ecological solutions in tourism industry?

2.3. Sustainable consumption

Selected barriers to the popularization of sustainable consumption

Modern civilization is shaping a one-dimensional and specialized man, serving the growth of industrial production [22]. Manufacturers are keen to reduce the useful life of their products. Appliances are breaking down more and more quickly after the warranty period has expired, so the service life of appliances is becoming shorter and shorter, and the European Union is also concerned about this [6].

Planned obsolescence, or in other words the planned shortening of a product's lifetime, involves planning, from the start of the manufacturing process, and inserting into a product an element, component or solution that will cause it to age or fail more quickly [1]. Thus, the actions of manufacturers run counter to the principles of sustainable consumption [26]. It is worth emphasizing that most marketing methods of creating consumer attitudes involve manipulation leading to the shaping of a person's behavior without making him or her aware of this fact [32]. Therefore, in light of the principles of sustainable development, where the aim is the well-being of society, particular attention should be paid to educating the public to be resistant to manipulation and to disseminating tools that provide reliable and independent data.

Sustainable consumption is supposed to be a set of rational purchasing choices geared towards meeting consumer needs, but also towards achieving sustainable development goals. The idea is that consumption choices should not cause other consumers to be disadvantaged, especially with regard to the satisfaction of fundamental needs. At the same time, current consumption choices should not limit future consumption, especially with regard to the consumption choices of future generations. This is the implementation of the principle of intra- and intergenerational equity. This means that a key factor in the realisation of sustainable consumption is the consumer choices made by individual consumers, as well as the social patterns in which these consumers function.

Environmental balance sheet as a source of data to shape sustainable consumption

In order to create environmental attitudes, it is essential to make consumers aware of the environmental impact of their consumption and engaged technologies [23]. A tool delivering information for it is the ecological balance sheet (Eco balance).

The Eco balance allows a quantitative and qualitative comparison of the input of a given balancing entity (system, plant, process, etc.) with its output, covering the environmental impact of this entity. The results of an environmental balance sheet allow an objective quantitative and qualitative assessment of the sum of the negative environmental impacts of a product over its entire life cycle ("from cradle to grave"). The environmental balance sheet makes it possible to create so-called environmental profiles of materials or products with comparable functions. With this data, it is possible to select products, processes, equipment, and technologies with less negative environmental impact.

Using the results of an environmental balance sheet, it is possible to reliably examine the environmental impact of various consumer goods and to create truly green consumer attitudes within the framework of sustainable consumption. The foundation of such an action is a clear distinction between ecology, whose aim is to preserve high environmental quality, and exaltation, whose objectives are often incoherent or non-transparent.

Summary

Sustainable consumption is therefore highly dependent on the attitude and axiological sphere of consumers, but also on economic factors and the socio-cultural environment. The tourism industry, like any industry, is geared towards making an economic profit. However, tourism has considerable educative potential for forming consumer attitudes that underpin sustainable consumption.

Questions for reflection:

What is the impact of ecological balance sheet?

How eco balance help sustainable consumption?

2.4. Case studies

Case study 1. Zero Energy Hotels (neZEH)

As it has already been mentioned, one of the key goals of tourist accommodation establishments is to take actions to reduce power consumption, improve energy efficiency and increase the use of renewable sources of energy. neZEH hotels can act as an example in this field, as they reach very high energy efficiency. They cover a large portion of their energy demand from renewable sources, including renewable energy produced on site or in the nearest area. This allows significant (up to 70 percent) reduction of energy consumption. One of these hotels is the Best Western Hotel Ajaccio Amiraute in France [15].

Hotel description

Best Western Hotel Ajaccio Amiraute is a four star hotel with a 4-storey building and 68 rooms. It offers spa, heated pool, sunbathing deck, private roofed garage, WiFi access, conference halls, reception, business lounge, restaurant and snacks available 24 hours a day. It is located in a convenient area, with a harbour view, close to the sea, city centre and airport. From the beginning of its operation it has been assumed that the environmental impact of the hotel should be as small as possible. In 2013, this hotel became the first in Corsica to receive the EU Ecolabel mark. It confirms that the hotel performs various actions to reduce its negative effect on the natural environment. As it is emphasised (e.g. in hotel brochures), it saves energy and natural resources and also prevents climate changes [13,14].

Implemented solutions

Taking actions to improve energy efficiency of the hotel was a continuation of its environmental initiative from 2013. The first step to implement the changes was an energy audit. As a result, environmental issues have been identified and analysed, and possible corrective actions have been proposed. The actions implemented by the hotel included:

- *Installation of a double flow controlled mechanical ventilation.*
- *Installation of balancing valves within the heating system.*
- *Installation of a balancing valve within the domestic hot water system,*
- *External insulation.*
- *Wall insulation in unheated corridors.*
- *Replacement of inefficient lighting with LED systems.*
- *Replacement of old glazing with 4/16/4 glasses with solar control.*
- *Installation a double-flow HVAC system with a heat exchanger.*
- *Installation of a solar thermal system and a heat recovery equipment within the greywater system.*
- *Installation of a Building Energy Management System.*
- *Installation of pressure control valves on taps and showers.*
- *Staff training.*
- *Encouraging hotel guests to change their behaviour, e.g. by issuing leaflets describing the actions taken to improve hotel energy efficiency and containing guidelines that tell them what they can do.*

Advice given to hotel guests included:

- *A request to turn off heating or air conditioning when the window is open.*
- *A request to turn off the TV standby mode at night.*
- *Information on bedding replacement every 3 days or upon request.*
- *Information that an average bath requires three times as much water as a shower.*
- *A request to throw cans, glass/plastic bottles and newspapers to a bedroom bin, while other waste to the bathroom bin [13].*

Benefits of described solutions

The hotel indicated benefits both for guests and for the environment (Tab. 3).

Table 3. Examples of benefits achieved at the Best Western Hotel Ajaccio Amiraute [13]

Benefits for guests	Benefits for the environment
high standards of indoor environmental quality	**332 MWh of energy saved per year**
improved air-ventilation system	**emission of 35 tCO_2e/year avoided**
temperature fluctuations minimised	**58.4 MWh of energy from renewable sources produced per year**

Case study 2. The role of tourism in educating for sustainable consumption

The promotion of sustainable consumption requires the shaping of specific social attitudes. Generating and satisfying needs resulting in limiting the volume of consumption and choosing goods produced with respect for the environment requires from consumers firstly awareness and secondly involvement in the process of broadly understood nature protection. Today's consumption patterns are not at all conducive to sustainable consumption, as they are based on the satisfaction of all needs, often voiced unreflectively. At the same time, the satisfaction of these needs is supposed to be immediate and not require any effort from the consumer. In this way, attitudes of demandingness are intensified, consumerism develops, and social bonds are eroded. Satisfying growing consumer needs involves the problem of indebtedness, with the consequent loss of freedom and the development of a modern form of slavery.

Tourism has considerable educative potential. Depending on the form of tourism, a tourism product can serve the needs of consumerism, providing a quick and easy recordable experience. However, it can have a different character. A tourism product can lead to the levelling of negative attitudes, education and the shaping of positive character traits of tourists. Since man, evolutionarily, is adapted to exertion, physical activity is necessary for proper development and functioning. For the proper development of children, it is necessary to make physical effort, take up challenges, and enjoy achieving a certain fitness, especially when the effort is made in a peer group. Hence, initiatives are being developed that comprehensively provide opportunities to shape socially desirable attitudes.

Case study 3. Wislok River Gorges, Ambitious Tourism Basin

Through careful observation and analysis of the tourism market, social changes, the needs of the population and the leisure business, a group of people-initiated activities to create a comprehensive, specific tourist offer. The venture was named Ambitious Tourism Basin (pol. Zagłębie Ambitnej Turystyki) and is being implemented in the area of Beskid Niski (Municipalities: Besko, Bukowsko, Dębowiec, Dukla, Iwonicz-Zdrój, Jaśliska, Krempna, Komańcza, Nowy Żmigród, Osiek Jasielski, Rymanów, Zarszyn). The initiative is intended to be multidimensional. On the one hand, it is a commercial venture, bringing together entities from the tourism industry to offer a comprehensive tourism product during the so-called high season. On the other hand, during the low season it is to focus on providing tourism services aimed at schoolchildren and focus on educational issues.

The creators of the Ambitious Tourism Basin refer to the need to create an "educational industry" to form young people, shaping their characters in accordance with the so-called "civilisation of life". The characteristics of this civilisation are: activity, commitment, love, friendship, generosity, gratitude, sustainability, fidelity, efficiency, sacrifice, victory, perseverance, bravery, teamwork, joy. All these qualities stand in opposition to the so-called civilisation of death, the foundation of which is consumerism.

A tourism product that is supposed to shape the positive characteristics of tourists, should require them to moving through an attractive tourist area using muscle power. Thus, it should be hiking, cycling, horse riding, canoeing, skiing, etc. In the municipalities participating in the agreement, points are to be created that offer accommodation, hire tourist equipment and provide comprehensive information on the sporting as well as cultural offer. The offer is presented on the website PrzełomyWisłoka.pl [10]

The activities of the Ambitious Tourism Basin include many initiatives, the common denominator of which is the development of tourism to promote the tourist values of the Low Beskids, making a high-quality tourist product available to people of different material status and educating young people to develop socially desirable qualities. These activities include efforts to create and develop Multi-Purpose Tourist Roads (greenways). These are routes serving non-motorised users and are laid out along natural nature corridors, historic trade routes or railways [30]. Multifunctional Tourist Routes designed in the Ambitious Tourism Basin are intended to serve both local transport, the purposes of the timber industry, for example, but also tourism.

Ambitious Tourism Basin also carries out activities promoting historical and cultural tourism. Selected Polish communes of the Beskid Niski in agreement with the Presov Region in Slovakia created an agreement to create and promote tourist attractions based on the natural values of the Wisłok Gorges, rich history and cultural heritage, on the basis of the Slovakian experience from the Snina region. In the cultural-historical area it is planned to carry out a reconstruction of the World War I battle in Mymoń [16]. The emerging national-historical map is to consider the specificity of cycling tourism and contain a rich layer of historical and natural information.

The effects of the project's activities focus on shaping young people's attitudes as: activity, commitment, love, friendship, generosity, gratitude, persistence, fidelity, efficiency, sacrifice, persistence, bravery, teamwork and joy.

2.5. Quiz

1. **The most energy in hotels is spent on:**
   a. Lighting
   b. Food preparation
   c. Heating, air conditioning and ventilation
   d. Preparing hot water
2. **What are the so-called "energy vampires"?**
   a. Electronic and electrical devices which consume some energy even when switched off or when put in standby mode
   b. The type of devices limiting the consumption of electricity
   c. Devices improving the energy efficiency of lighting
   d. Electronic devices increasing the efficiency of the heating installation
3. **What are the most effective and low-emission heat sources?**
   a. Gas boilers and heat pumps
   b. Coal boilers
   c. Oil boilers
   d. Electric boilers
4. **What is the best way to reduce energy consumption in a hotel room?**
   a. Installation of a thermostat with a timer or wireless thermostat
   b. Installation of a hotel switch with a card
   c. Installation of led lighting
   d. All answers are correct
5. **What is the main principle of sustainable consumption?**
   a. They are consumer choices geared towards economic rationality
   b. They are consumer choices that ensure intra- and inter-generational equity
   c. They are consumer choices that are satisfied easily and quickly
   d. All answer options are correct
6. **What is the environmental balance sheet?**
   a) It is a fundamental tool for creating advertising campaigns.
   b) It is a structural element of sustainable consumption required for the certification of sustainable development practitioners.
   c) It is a source of reliable information on the complex of environmental impacts of a sustainable entity throughout its life cycle.
   d) All answer options are correct.

2.6. References

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2.7. Tables

2.8. Figures

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