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# Approaching the Sustainable Development Practices in Mountain Tourism in the Romanian Carpathians

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**Abstract:** The article aims to identify the degree to which tourism managers who work in Romania in the area of the Carpathian Mountains have implemented sustainable development practices. It also assesses the quantification of their availability to be informed and to apply voluntary tools of sustainable development. Qualitative research based on the method of semi-structured in-depth interviews was conducted, with 34 managers who work in the accommodation units in the Romanian Carpathians. Results show that most managers are concerned with issues linked to sustainable evolution of the accommodation unit they manage. The researchers have noticed a low interest in sustainable evolution negatively correlated with the comfort level of the accommodation unit and competitiveness. Based on these results the authors recommend the adoption of measures that may allow sustainable development, and for the Romanian authorities to encourage the increase in the number of tourism units that can use sustainable management systems. This can be done through accessible rules, development of networks that may offer information about good practices and codes of conduct, as well as the possibility to participate in exchange programs.

**Keywords:** sustainable development; mountain tourism; Romanian Carpathians; qualitative research; managers of tourism accommodation units

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## 1. Introduction

The development of tourism has several positive influences on the economic evolution of a region, on the use of local labor, on the increase of revenue and quality of life. All these cumulated elements help create psychological stability among residents [1]. Equally, increasing the density of tourists at holiday destinations affects the balance of visited areas. The negative effects are seen in different fields: environmental degradation [2]; landscape changes [3]; the hostile attitude of residents toward tourists [4,5]; or degradation of cultural and historical values [6,7]. However, it was recently acknowledge that “progress towards sustainable development has been slow, indicating the need for more concrete guidance that will allow businesses to act strategically and successfully in a sustainable way” [8] (p. 81).

Sustainable development in tourism is a dynamic concept, with direct effects on competitiveness [9], and the principles of sustainable development focus on three essential issues, such as the environment, the economy, and sociocultural development. Sustainable development is a new topic for the future evolution of tourism at a global level. The United Nations launched in 2015 the 2030 Agenda for sustainable development and, among the 17 objectives set, tourism is targeted directly by three of them [10]. Also, the United Nations 70th General Assembly has designated 2017 as the International Year of Sustainable Tourism for Development [11].

Mountains and mountain scenery offer inexhaustible aesthetic experiences, representing fundamental resources for the development of local communities and the tourism industry [3]. Tourism, together with agriculture and animal breeding, is one of the population's main activities in mountain areas. It has, however, been proven that excessive development of mountain tourism contributes to environmental degradation and affects biodiversity [12]. Globally, it has been found that individual and disparate measures for sustainable development are not sufficient [13]. The involvement of specialized authorities through legislative measures and a national vision to support sustainable development in mountain areas is essential. In the absence of these actions, measures for sustainable development are useless [12,14], with irreversible consequences for the degradation of mountain areas and a potentially perspective of "losing the mountain paradise" [15].

In Romania, tourism in general and mountain tourism in particular have seen strong development. In the past 10 years (2007–2016), the number of accommodation spaces in the mountainous regions of the Romanian Carpathian increased by 82% and the number of tourist arrivals in mountain areas in the same interval doubled (98%) [16]. However, travel and tourism's direct contribution to gross domestic product (GDP) continues to be low, namely, 2.5% in 2016, but the potential is vast. Compared to iconic countries for mountain tourism like Austria (21.8% of GDP) and Switzerland (15.7% of GDP), and geographically close countries like Greece (17% of GDP), Poland (8.5% of GDP), Croatia (5.4% of GDP), Czech Republic (4.9% of GDP) and Slovakia (2.2% of GDP) [17], there is a clear gap. In terms of sustainable development measures, Romania registers a gap compared to other areas of the Carpathian Mountains (Slovakia and Poland) or other countries with famous mountain areas like the Alps in France [18,19].

This gap can be reduced especially through sustainable investments without harming the environment, which is necessary for enhancing the chances of Romanian mountain tourism development and promotion. The sustainable development of mountain tourism is ensured through ecological practices that allow the conservation of mountain areas, conceptually in contradiction with the opportunity of infrastructure development. Unfortunately, Romania does not have at the moment an environmentally friendly infrastructure in accordance with the legislation which protects the mountain reservations from Romanian Carpathians [20].

Achieving the goals of sustainable development implies the involvement of a significant number of stakeholders from different areas of society. This article highlights the role of the managers in the accommodation establishments in the Romanian Carpathians, considering that they are the decision-makers on the application of sustainable development principles and measures. At the same time, managers' actions can influence the behavior and may favor the education of tourists. Also, managers exert influences on national and local institutions, primarily through professional associations to which they adhere.

Tourism in Romania faces several realities with important influences on management activities. Many of the tourism managers do not have a high level of specialized training, even if the specific legislation requires them to hold a Tourism Certification [21]. This leads to reluctance for implementing and applying modern management tools. Thus, many measures are implemented without being based on feasibility studies, statistical analyses, or specialized reports [22]. With the accession of Romania to the European Union (EU), the government imposed measures aimed to environmental protection, but the implementation is chaotic, as it lacks an integrated governmental approach to encourage and support the increase of competitiveness and sustainable development [19]. Most managers in the Romanian mountain tourism do not realize the impact on the business of introducing measures for sustainable development. However, if they do introduce such measures, managers fail to efficiently monitor the results [23]. On the other hand, tourists in the Romanian Carpathians area are usually close to the values of modern ecology and impose a proper conduct for managers in the field [24].

Sustainable development is carried out on two distinct, independent but at the same time interconnected levels: (a) the level of planning and management of specific objectives; and (b) a level that targets concrete actions and practical measures [25]. The article examines the second managerial

level and the aim of the article is to identify the degree to which managers of accommodation units located in mountain areas from the Romanian Carpathians have implemented measures for sustainable development.

The authors carried out the present research about managers of the Romanian mountain tourism because they believed that through the information obtained they would identify the optimal measures that the Romanian government should take in order to quickly improve the existing situation. Researchers acknowledge that, in Romania, tourism managers, through their professional associations, have the necessary leverage to influence government policies in the field. Therefore, in-depth interviews were directed towards managers in order to obtain representative marketing data that would allow a correct analysis of the situation in Romanian mountain tourism.

After reviewing the literature for the sustainable development of tourism in mountain areas, aspects of the sustainable development in the accommodation units are targeted. The research methodology is further highlighted, followed by the analysis of results. The article ends with a series of relevant conclusions and proposals addressed to Romanian authorities and managers from mountain tourism areas.

## 2. Sustainable Development of Tourism in Mountain Areas

The Carpathians are the youngest and easternmost-located mountain range from the alpine region of Europe and are arranged as a 1450 km-long bow from Slovakia to Romania [26]. On Romanian territory they have the most extensive development (approximately 28% of the country's total surface, namely 66,303 km<sup>2</sup>), occupying a central position, in a circle-like shape [27]. In Romania there are around 800 protected areas, representing 5% of the country's surface, and the Romanian Carpathians are facing several threats regarding ecological conservation, mainly due to socioeconomic development [28].

There is a rich literature assessing the necessity for sustainable development in mountain areas. Studies show the effects of tourism, transport activities, lumber exploitation, agriculture and animal breeding. Recent studies are predominantly focused on the Alps [29,30], mainly the Swiss Alps [3,31–33], Austrian Alps [7,31] and German Alps [34], the Tatra Mountains (a chain sector of the Carpathians) in Slovakia [35] and Poland [14], the Pyrenées Mountains [6], on the mountain areas of North America [2,36–38] or mountain areas less representative for practicing mountain tourism from countries such as Greece [13], Great Britain [39], Nepal [3,11], Australia [40,41], Nigeria [15] and India [42].

According to this analysis, increased CO<sub>2</sub> emissions are an important threat to sustainable development in mountain areas. The main factors explaining the increase in these emissions are related to heating and expanding transport activities as a result of increased tourist arrivals. CO<sub>2</sub> emissions are produced due to the extended use of non-renewable fuels, mainly fossil fuels [36,43–46]. Assessments made at the international level have shown that 21% of world CO<sub>2</sub> emissions are attributed to tourism accommodation activities [47]. The energy consumption in mountain tourist destinations is significantly higher in comparison to communities with the same size [36]. This is due to the wide use of high consumption technologies in hotel tourist services [46,48]. The main activities with high energy consumption are the construction field, transport of goods and tourists, activities for cooking, heating, air conditioning, lighting, laundry, refrigeration, swimming pools and other leisure facilities [43,46,49,50]. In addition, the age of the buildings influences CO<sub>2</sub> emissions, because the energy loss for buildings built before 1990 is higher. In Canada (Whistler, British Columbia—one of the largest mountain resorts in North America), tourism contributes approximately 65% of the total emissions due to energy and gas consumption [36]. The accommodation units' comfort level is an element that influences the energy expenditures and at international level this indicator lies within large limits, between 2.9% and 21.8% [51]. Studies conducted in China, in Heilongjiang province, highlighted that tourism contributes to 48.5% of the economic development of the province, but at the same time, is responsible for 47.9% of the negative impact on the environment [45]. In Eastern Europe

(Bulgaria, Croatia, Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia and Hungary), an increase of 1% of visitors' arrivals determines a 0.124% economic growth but also a 0.122% increase in CO<sub>2</sub> emissions [44]. In EU countries from Western Europe, the increase of 1% of tourists' arrivals determines a 0.505% economic growth and a 0.115% decrease of CO<sub>2</sub> emissions [44]. These figures show the significant gap in applying the policies of sustainable tourism development between the two groups of countries.

Starting in 1990, in tourism accommodation, there were management concerns related to sustainable development [52], and among the measures adopted the most relevant are the application of programs for reducing energy and water consumption and waste management [36,43–46,49,50,53,54]. In other papers, the barriers that may appear in the process of applying these measures are highlighted [55,56], as well as the incentives granted for their implementation [30].

Research on this subject has identified several solutions to mitigate negative effects. Thus, the use of renewable energy sources favors not only an emission reduction, but also a reduction of energy costs. The use of solar energy with photovoltaic installations, the use of wood for heating and as a construction material are attractive options in this respect [33]. Also, due to the use of wood, CO<sub>2</sub> emissions are halved, and as for producing other construction materials the energy consumption is very high. It is important to underline that the wide use of wood also has negative effects, but through implementation of necessary measures the natural balance can be restored. At the same time, experts acknowledge that initiation and application of such measures depend, to a high extent, on economic advantages, financial or tax reductions granted to tourism companies by national and local authorities [33].

The operation of accommodation units significantly influences water consumption. Specialists estimate that until 2020 the total contribution of tourism to water consumption will increase and there are important differences between countries, especially regarding water recycling capacity and the use of recycled water [53]. Tourism is considered an activity with high dependence on water resources for food and accommodation activities, maintenance of swimming pools and green spaces, production of artificial snow, and others. Currently, water consumption in accommodation units is affected by the frequency of towel changes, the use of toilets and the maintenance of leisure facilities. In a hotel, on average, laundry makes up 5% of water consumption, cleaning uses 5%, and the restaurant represents 15% [53]. The use of water recycling systems can lead to savings of up to 23% [57]. In previous analysis, it was shown that the most efficient way to save water is to suggest an extensive use of towels (in 71.6% of accommodation units) and the use of efficient batteries (in 61.8% of accommodation units) [58].

Tourism accommodation sector is dominated by small and medium-sized enterprises (SMEs). In the European economy SMEs are the real economic "giants", being responsible for 70% of the environment's pollution [59]. In the hotel industry in Romania, in 2015, the percentage of SMEs was 93.6% [60]. This is of particular importance, as managers of economic units in this category have a distinct sustainable management behavior. SME managers' behavior on the implementation of sustainable development measures is marked by the lack of resources, resistance towards the application of these measures, ignorance and skepticism [61]. In this context, there is obvious no wish to change current practices. This downfall may be overcome by developing managers' information systems and dissemination of experiences in the field in order to convince them that there are solutions for each tourism operator, regardless of size or comfort category [62]. SMEs, in general, invest insufficiently in research and development for innovation purposes, including information acquisition and lack the internal capabilities and resources necessary to monitor environmental issues [63] (p. 419). Therefore, internal expertise and means to increase competitive advantages are based on external sources of information [64]. Managers of tourism enterprises prefer to acquire information on sustainable management especially from industry-related sources, specific brochures and magazines, the internet and face-to-face channels. Communication with organizations within the industry is of utmost importance [63]. A recent study confirms that SMEs from tourism have extremely different motivations in application of sustainable development methods [65]. The main factors that

influence the management behavior are economic, personal and altruistic factors, and three distinct groups of managers are identified as “Business”, “Legitimization” and “Lifestyle”. The decision elements on sustainable development of the “Business” category type of managers are obtaining a favorable competitive position and an increase in profit [66]. For the “Legitimization” group important factors are the stakeholders’ influences and the improvement of personal image by adapting to social norms [67]. The third category of managers, the “Lifestyle” group, has a sustainable altruistic behavior as an expression of routine due to their customs and lifestyle [68].

Accommodation unit owners have a partial level of understanding of the concept of sustainable development, but are aware of the negative impact of their companies on the environment [69] (p. 210). The role of managers in implementing sustainable development practices is important. Managers who are aware of the harmful effects of economic activities on the environment have a positive attitude towards finding solutions to mitigate them [70] and, at the same time, have the ability to convey to employees the values of sustainable development, encouraging them to develop, in turn, specific behaviors to protect the environment at work [71,72]. The main reasons to implement sustainable practices are the following: reduction of operating costs; customers’ requirements and marketing objectives [58]; as well as improvement of activity’s efficiency, unit’s image and competitive position [68,73]. From the customers’ point of view, the most appreciated sustainable measures are the extended programs of recycling (water, other materials, waste, etc.), the use of locally produced food, and also measures to save energy and water [74].

The sustainable behavior of hotels is materialized in various ways, such as the voluntary eco-certification [69], the adoption of specific codes of conduct [75], the application of environment protection measures and implementation of environment management systems (EU Eco-Management and Audit Scheme (EMAS), ISO 14001) or the use of ecological performance indicators (ETIS-European Tourism Indicators System for sustainable destination management) [20,76]. It is important to notice that voluntary adoption of eco-labels assumes payment of high taxes and within the evaluation criteria the ecological performances are ignored to a high extent [75,77]. EMAS, the EU Eco-Management and Audit Scheme, is a voluntary premium environmental management instrument developed by the European Commission aiming to evaluate, report, and improve companies’ environmental performance [78]. It is used worldwide by companies and organizations of all sizes and types and the main outcomes are enhanced performance, credibility and transparency in environmental protection. EMAS distinctive features are: (a) the environmental indicators which measure and monitor environmental performance against set targets which create multi-annual comparability within and between organizations; (b) employee’s engagement and motivation in environmental protection activities; (c) tools to develop and improve stakeholders’ involvement [78]. ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system [79]. Use of ISO 14001 standards brings important benefits, such as improving company reputation and the confidence of stakeholders, providing a competitive and financial advantage, increasing leadership involvement and engagement of employees, and others [80]. ETIS is a system of indicators developed by the European Commission for sustainable destination management. The authors of the article carried out a national research project, DIMAST, between 2013 and 2017, being the Romanian promoters for ETIS appliance and testing through an innovative management information system [20]. Green buildings’ rating system is also a means to improve sustainable development of tourism enterprises, especially accommodation units, the LEED system (Leadership in Energy and Environmental Design) being the most widely used in the world [81]. As a response to the European Directive on the energy performance of buildings, the neZEH (Nearly Zero Energy Hotels) project aims to accelerate the rate of large scale renovations of existing hotels, and three Romanian hotels, among 16 hotels in Europe, have been engaged as neZEH pilot hotels to follow large-scale renovation plans [82]. However, once the accommodation units apply sustainable development measures, they fail to inform their customers, thus reducing the effects of management efforts in this direction [77].

Several studies conducted in mountain areas also underline that altering the environment's quality will change tourist behavior, especially through the reduction of visiting frequency [35,37,38,83]. Tourists declared that they appreciate the environment protection actions to the detriment of those regarding the continuous development of tourism [35] and they are willing to pay more for tourist services that include sustainable development measures [31].

### 3. Materials and Method

The authors have conducted a marketing research which aimed to identify the degree to which managers in the mountain tourism from Romanian Carpathians area have implemented measures of sustainable development and to quantify their availability to be informed and apply voluntary tools for sustainable development. The authors limited the themes to the analysis of environmental aspects. EU Sustainable Development Strategy states that overall objectives and concrete actions are predominantly environmental [84]. At the same time, the EU Ecolabel for tourist accommodations includes only environmental criteria [85], the same being valid for the LEED system and neZEH project. The authors were also aware, from previous research, that Romanian managers have a defensive behavior towards the economic aspects of their activity, thus the economic component of the sustainable development was avoided. Simultaneously, the socio-cultural aspects were not included in the interview guide, based on the fact that the accommodation units included in the sample are located in very different Romanian regions in terms of social development, the discrepancies being large and the average results irrelevant. It is important to highlight that most of the interviewed managers coordinate accommodation units located in Romanian mountain rural areas where self-sufficiency and preserving local traditions are constant elements for the activity.

The research method chosen is part of qualitative research tools. Quantitative research would have involved the creation of a very large sample and the access to subjects would have been possible only in the online environment. In the online environment a non-random sampling method would have been used and it would also not allow the extrapolation of results.

From the variety of techniques specific to qualitative research, the method of in-depth semi-structured interview was chosen [86]. This method allows through face-to-face discussion, to obtain a greater amount of information compared to the classic questionnaire, which is fixed and impersonal. The main hypotheses on which the qualitative research was designed are:

- (1) The managers of accommodation units from Romanian Carpathians implemented measures of sustainable development, but do not follow the results of these initiatives.
- (2) The managers of accommodation units from Romanian Carpathians implemented measures of sustainable development in order to reduce costs, but not for having a reduced negative impact on the environment.
- (3) The managers of accommodation units from Romanian Carpathians are interested in being informed and in applying measures related to the sustainable development of the units they run.
- (4) The managers of accommodation units from Romanian Carpathians know to a low extent the voluntary tools for sustainable development (EMAS system, ISO 14001 standard or the environmental performance indicators ETIS) but do not apply them voluntarily.
- (5) Most pressure to introduce ecological practices comes from customers, and the main barriers to apply these practices are lack of money and knowledge.

For the research, guided sampling was chosen using the allowance quota sampling method, which proved to be appropriate in previous qualitative research [87]. The main issues considered in the sample were the size and structure of the sample [87,88]. On the other hand, the complex concept of "power of information" [89] was considered appropriate to achieve the purpose and objectives of the research. As a qualitative research, the sample is not representative.

In Romania there are 41 certified tourist resorts of national interest and 48 local interest tourist resorts [90]. Among them, there are 31 tourism resorts in mountain areas, of which 12 are national

interest resorts and 19 local interest resorts [90,91]. All the 31 mountain tourism resorts were selected for the subsequent identification of managers included in the sample. A list of all accommodation units operating at these mountain resorts was completed, and in this respect information was taken from the Ministry of Tourism from Romania's website [92]. From this extensive list, the authors considered only accommodation units which are representative for the Romanian mountain tourism, that is, hotels, guest houses and chalets, regardless of size or comfort level. In terms of size (number of rooms) the smallest accommodation unit had eight rooms and the largest 200 rooms, while in terms of comfort level the list comprised a wide range of coverage, with 2 to 5 stars/daisies. The Romanian national classification system for accommodation units uses two different ways to express the comfort level. For guest houses the classification uses "daisies" (or flowers, from 1 to 5), and for the other types of accommodation units the comfort is expressed with a number of stars (from 1 to 5) [93]. After this, the managers of selected accommodation units were contacted by e-mail and those willing to participate in the research were included in the sample. It is important to mention that these managers operate accommodation units in the SME category, because in the Romanian Carpathians there are no hotel groups to be considered as large companies. The SMEs criteria in Romania are similar to all EU countries, that is, enterprises that employ fewer than 250 persons and either have an annual turnover that does not exceed EUR 50 million, or an annual balance sheet not exceeding EUR 43 million [94]. The interviewed managers were mainly hired managers, but for the small accommodation units included in the sample, the managers were also owners. The final sample was composed of 37 managers of accommodation units, 24 from national interest resorts and 13 from local interest resorts, grouped as follows:

- (1) 25 hotels: one 5-star hotel; 13 4-star hotels; 11 3-star hotels
- (2) 11 guest houses: two 4-daisy; seven 3-daisy; two 2-daisy guest houses
- (3) One 3-star chalet.

In order to fulfill the proposed objectives for this research, in accordance with the requirements imposed by the theory and practice, a selection questionnaire for potential participants and an interview guide were developed [95]. The selection questionnaire had a factual question about the accommodation unit's age on the market, so out of 37 interviews conducted, three could not enter in the database because the age on the market did not exceed one year. Finally, a sample of 34 managers was analyzed. Managers selected for the interview are found in Appendix A. A map presenting the location of the accommodation units is found in Appendix B. The interviews were conducted directly by the authors, the duration of each interview being between 45 and 60 min. The same interview guide was used for interviewing all the subjects. The interviews were recorded, and the transcripts of each record were created and, based on them, the authors have processed and analyzed the collected information. The pillars that were the base of the interview guide are: nominating indicators of sustainable development [51,61,69,75,96–99] and their implication in the process of planning and adopting decision policies [100]. The semi-structured in-depth interview was undertaken at the accommodation units' headquarters between January and May 2017.

Regarding the interview guide, the approached topics were:

- (1) Implementation of sustainable development measures by managers of the accommodation units in the Romanian Carpathians: energy parameters; water consumption, and; waste collection.
- (2) Managers' information, know-how and awareness—a starting point for the development of sustainable development strategies for the efficiency of accommodation units.
- (3) Applying the principles for sustainable development to tourism accommodation units.
- (4) Use of voluntary sustainable development tools by managers of accommodation establishments in the Romanian Carpathians.
- (5) Pressures and barriers for introducing sustainable practices.

#### 4. Results and Discussion

The in-depth interviews conducted were analyzed under two aspects:

- (1) The vertical analysis, by individual approach of each interview, namely the opinions of each manager, showing the attention granted to the topics contained in the sub-themes of the in-depth interview.
- (2) The horizontal analysis, through the synthesis of the approach of each topic and subtopic subject to analysis by all 34 managers [101].

The interview guide contained factual questions in a 90% proportion, vertical and horizontal analysis being considered the most appropriate method to assess the responses. Next, the results of analysis results are provided according to the hypothesis stated above.

##### *4.1. Implementation of Sustainable Development Measures by Managers of the Accommodation Units in the Romanian Carpathians: Energy Parameters, Water Consumption, and Waste Collection*

The first research direction took the form of factual questions divided into the following categories: energy parameters, water consumption, waste collection, environmental behavior and the return on investments in sustainable measures.

The analysis concluded that all managers use electric energy from the network, a situation also found in other countries [102]. Out of all accommodation units analyzed only two large hotels with high comfort level (over 50 rooms of 4 and 5 stars) have energy backup systems (diesel generators).

In order to produce the thermal agent necessary for central heating and hot water, managers use gas from the network, solar panels, wood heating systems or wood material (pellets). The heating systems on wood or wood material were mentioned by small accommodation units with a capacity up to 20 rooms which are family businesses.

The solar panels were mentioned by guest houses that started activity after 2010, financed by European funds. Only one hotel uses air conditioning to heat the events room. Concerning renewable energy sources, approximately 35% of guest houses and around 25% of hotels have solar panels. All of these accommodation units were small (up to 50 rooms). Studies have shown that solar panels can reduce energy consumption of accommodation units by 25% [57]. Large hotels have mentioned the high initial prices for projects' implementation and investments needed for the building's structure as main barriers. It was noticed that none of the managers have thought of anything else than solar panels.

The percentage of energy expenditures in total expenditures is between 15% and 40%. The analysis has shown that the higher energy expenditures are found in hotels with at least 3 stars (between 30% and 40%), and the lowest expenses are found in family business and guest houses (between 15% and 25%). Also, the research has found that 29.4% of managers do not remember this information or do not have such analysis. A similar situation was also found in the share of energy expenditures in total revenues, ranging from 10 to 15%. Compared to Poland, where 85% of the analyzed accommodation units monitor their energy costs [14], the gap is huge. Nevertheless, it is important to mention that tracking bills is a priority for managers mainly from the costs point of view, the ecological aspect being often neglected [51]. In Romania, electricity and gas prices have increased. Managers can be divided into two categories depending on the measures taken for reducing the negative effects of the price increase: managers who took proactive measures (have bought equipment that has lower energy consumption, use alternative heating methods such as air conditioning, etc.), and; managers with defensive measures (temporarily shut down the heating system, redirecting tourists to one building, etc.). Among proactive measures implemented by managers are: illumination sensors for common areas (yard, halls, stairs—79%); led bulbs (41%); card system for rooms (20%); ergonomic boilers (79%); thermostats (94%); smart heating systems (8.8%).

The research found that most of the interviewed managers implemented equipment for water consumption reduction, such as: batteries with water timer; WC basins with sensors in common spaces; own water well (one large hotel); separate hot and cold water meter in the common area and in the rooms or outsourcing the laundry service (56% of accommodation units).

Although hotel legislation does not foresee selective waste recycling [21], about half of the interviewed managers do this on the properties they manage. The authors did not identify a specific type of accommodation unit with such a behavior, which means that it all depends on managers. Sustainable development measures consist of not throwing the organic waste but saving it for individuals and companies as food for animals (50% of managers), reusing the soaps and toilet paper in common bathrooms and laundries or giving them away to employees (60% of the accommodation units), or replacing solid soap with liquid soap (for units with low comfort).

The ecological footprint of a business has a physical side (products) and a behavior side (services). Ecological products used in accommodation units are few, are inconsistent and denote a marginal interest from managers. High-comfort hotels (4 and 5 stars) use ecological cosmetic products and allergenic pillows. Family owned businesses use ecological food for preparing meals. Most managers have declared that the decision to acquire products is based on price, not on a product's sustainability. However, a lot have answered that at close prices, they would prefer ecological products.

Again, the ecological behavior suggested by managers to customers highlights cost reductions and not sustainability issues. As sustainable development measures, accommodation units most frequently implemented: the use of towels several times through bookmarks or written instructions, instructions sheets in several languages in which tourists are asked to turn off the heating and electricity when they leave the room.

Many managers have stated that tourists do not take into account these instructions, and one manager mentioned that in case of foreign tourists, mainly Japanese, instructions offered are obeyed. It is well known that tourists' nationality is an essential element in the energy consumption analysis [46].

The research shows that in terms of tracking the results of the investments made, 32% of the managers stated that they do not know or they were not interested to what extent cost-cutting decisions taken in the last three years determined savings. Those who made such analysis are to a higher extent small business (guest houses or hotels up to 30 rooms) or family business. Tracking down utility costs is done most of the time by the manager (50%) and the accountant (35%). Only one third of the analyzed hotels have continuous and real time assessment programs of energy consumption. Of the interviewed managers, only two-thirds are interested in constantly checking utility bills (monthly), the rest are doing sporadic checks (once every three months or annually). No manager calculates the energy costs per customer, which highlights the low interest of interviewed managers in the negative effects of tourism on the environment.

One may notice that managers of accommodation establishments in the Romanian Carpathians have implemented sustainable development measures but did not analyze the competitiveness of investments thus confirming our hypothesis.

#### *4.2. Managers' Information, Know-How, and Awareness—A Starting Point for the Development of Sustainable Development Strategies for the Efficiency of Accommodation Units*

Most managers state that they are concerned with issues related to sustainable evolution of accommodation units they manage. The authors have noticed a decreasing interest in sustainable evolution with the increase in comfort level and with the competitiveness in the area. Therefore, managers of low- and average-comfort accommodation units from areas with low competition (Alba, Sălaj, Covasna, Harghita, Hunedoara counties) were more open and enthusiasts than managers of high-comfort units and from areas with strong competition (Braşov, Prahova, Sibiu, Maramureş and Suceava counties).

Managers have shown that neither the Romanian government nor local authorities provide consistent support for informing managers about the harmful effects of the tourism activity on the environment. Only one manager declared that local authorities made available bookmarks and containers for the selective collection of waste.

Almost all managers expressed their willingness to participate personally or through a delegate to organized training sessions for improving knowledge on sustainable management of accommodation units, even with payment. The need for information is also widely recognized at an international level [65]. At the same time, managers have highlighted the usefulness of information actions among employees on the subject, among which the most commonly used are: informative materials written with procedures at reception and kitchen, messages and bookmarks at consumption points (power switch, water tap, thermostats, gas consumption places), and verbal training for new employees. The frequency of these trainings is irregular and new employees learn from the older ones, that is why there are inaccuracies in procedures and waste of utilities. Moreover, organized training mainly focuses on day-to-day activities, consumer satisfaction and cost reduction, while elements of sustainable development are collateral. But similar situations are also found in other countries [103]. The hypothesis that managers of accommodation establishments in the Romanian Carpathians implement sustainable development measures to reduce costs because they are imposed by law, not to have a low impact on the environment, is confirmed.

#### *4.3. Applying the Principles of Sustainable Development to Tourism Accommodation Units*

Managers are now up to date with the actions taken by other accommodation units for sustainable development. Managers give examples of other accommodation units close to their location (within 20 km) and always about accommodation units with higher comfort than the accommodation unit they manage.

Taking into account the effects of sustainable development measures, managers consider that implementing such actions would lead to:

- (1) the improvement of their company's image and marketing advantages, although there are managers who consider that there are few tourists that appreciate this;
- (2) decrease of operating costs, although a lot of managers cannot appreciate this right now;
- (3) collaboration with other similar businesses;
- (4) competition advantages and differentiation against competitors;
- (5) accessing funds easier for the company's development;
- (6) increase in revenues and improving customers' loyalty.

The in-depth analysis reveals that the importance of these benefits is not unitary. Thus, the accommodation units with higher comfort place improvement of the image of the company and loyalty of clients above low comfort accommodation units. Also, family-type accommodation units prioritize decreasing operational costs and having easier access to funds for development. The hypothesis that the managers of the accommodation establishments in the Romanian Carpathians are interested in the issues related to the sustainable development of the units they run, but neither they nor the Romanian government do anything about it, is confirmed.

#### *4.4. Use of Voluntary Sustainable Development Tools by Managers of Accommodation Establishments in the Romanian Carpathians*

Managers have little information about the existence of voluntary tools for sustainable development. Of the two environment management systems, the ISO 14001 standard is known to a greater extent in comparison with the EMAS system (approximately 60% versus 30% of managers). The ecological performance indicators ETIS are known to a smaller extent (approximately 25% of respondents).

None of the analyzed units are eco-labeled. On the other hand, it is known that voluntary adoption of eco-labels assumes the payment of high taxes and the criteria ignore, to a high extent, ecological performances [75,77].

Table 1 highlights the extent to which managers are aware of sustainable management standards.

**Table 1.** The extent to which managers know about sustainable development standards. EU Eco-Management and Audit Scheme (EMAS).

	ISO 14001	EMAS	ETIS
Overall	62%	29%	23%
High-comfort hotels	71%	32%	24%
Family businesses and small guest houses	55%	27%	22%
High-competition counties	65%	31%	26%
Low-competition counties	58%	26%	19%

Managers consider they have a low level of knowledge related to the tools mentioned above. The authors have not noticed any geographic grouping of more informed managers, a sign that the interest for these tools is strictly a personal decision. The managers of high comfort accommodation units (4 and 5 stars) were more reluctant, and for some of them these tools are not a priority. In descending order of frequencies, managers consider that a possible implementation of voluntary tools for sustainable development would determine an improvement of the company's image, competitive position, and the number of customers. None of the managers have answered "revenue increase", and approximately one third answered "none".

The results obtained confirm that managers of accommodation establishments in the Romanian Carpathians know little about voluntary sustainable development tools (EMAS, ISO 14001 or ETIS).

#### 4.5. Pressure and Barriers for Introducing Sustainable Practices

The managers from neither mountain tourism area feel pressure from stakeholders. Rarely, managers from high competition areas (Braşov, Prahova and Sibiu counties) mentioned some pressure from customers (5% of the customers), but they are in the category of average comfort, small and medium accommodation units. The barriers encountered by managers in applying sustainable practices are in descending order of frequencies the following: lack of money;; time;; motivation; costs increase; the inability to recover them and, also; the lack of knowledge. None of the managers answered "customers are not interested". These findings are consistent to other previous analysis [14,31,55,65,104–106]. The main barriers mentioned in these studies are the lack of funds and time, lack of knowledge, lack of know-how and technology access, lack of motivation, and so forth.

The research also highlighted the idea that sustainable development measures are appreciated by customers to a low extent. Some managers do not have the tools to collect feedback from tourist, but a lot of them want to implement them. Others get oral and obviously subjective feedback and declare that tourists did not notice changes regarding sustainability. Almost all managers said that the sustainability measures implemented were not found in price increases. This fact proves once more that managers establish prices by competition and comfort category, and sustainability measures are short and medium term decisions meant to decrease costs, not the impact on the environment. With the identification of barriers, decision-making continues, naturally, with finding the most appropriate solutions [56,100,107,108]. Collaboration between all interested stakeholders and the integration of actions undertaken by them are essential elements for the effective implementation of sustainable development measures.

One may notice from the data that most of the pressure comes from stakeholders to introduce green practices and the main barriers are lack of money and knowledge.

## 5. Conclusions and Proposals

The importance of mountain tourism was recognized at an international level in the UN forums from 1992 and 1998 because of the positive impact they have on the development of local communities and tourism industry as a whole. Also, this activity may exert negative influences on environment and biodiversity. The development of Romanian mountain tourism, especially after 1990, is characterized by the lack of a unitary vision on the long term, which determined a negative impact on physical, economic and social environment. Managers of mountain accommodation establishments have pro-environmental behavior, are open to these issues and want to gather necessary information to apply sustainable measures in the companies they run. In Romania, tourism companies are not supported enough either financially, or legally to enhance sustainable development. The present research underlines the fact that managers occasionally apply sustainable development measures, do not track or analyze the effects of these measures, apply to a small extent sustainable development tools and practices and, in essence, the sustainability of their activities is not a significant element in the managerial process. The authors also found that managers do not use strategies and policies to consider all aspects of sustainable development. The practices actually implemented are based only on economic reasons aiming to cut costs and increase profits. Expanding managerial horizons, identifying and implementing tailored instruments to each unit type, such as EMAS, ISO 14001, ecolabels, ETIS, LEED, and neZEH, are essential issues for sustainable development of accommodation units in the Romanian Carpathians. Also, the main barriers highlighted were the lack of money, time and motivation to support sustainable development. In this context, sustainable development measures require a higher attention, especially from national and local authorities.

The authors' proposals refer to several aspects revealed by this research. Sustained development of mountain tourism managers' information programs thus emerges as a starting point for achieving the sustainable development objective. Ministry of Tourism, by organizing specialized trainings, can support the efforts of tourism managers in the application of sustainable practices. The objectives of these trainings may be, on one hand, to teach the content and details of specific instruments, and on the other hand, to raise awareness of managers' role in the implementation of sustainable development strategies. Thus, trained managers may pass on the knowledge they have gained to their employees.

At the same time, the reality of the increase in operational costs due to the introduction of pro-environmental managerial strategies cannot be ignored. At government level, the application of specific incentives could help increase the number of sustainable tourism companies. To this end, managers can access programs funded by the European Union or through their own investments. Incentives for making investments can be granted by exempting companies from paying taxes and fees. In this respect, it is also necessary to simplify procedures for accessing necessary funds. Regarding programs funded by the European Union, there should be departments within the Ministry of Tourism to provide consultancy for the preparation of documentation and access to funds. Banks, along with companies selling such equipment, should work together to provide credit to businesses that want to invest in equipment, to provide them with know-how. At the same time, awareness of mountain tourism managers about the importance of analyzing economic indicators, in particular those which assess the environmental impact, is a direction to be emphasized.

Tourism companies should be encouraged to adopt sustainable development strategies through state funding of certifications in the field. An ongoing advantage of companies using environmental certification is their promotion by top priority sites such as Trip Advisor. Increasing awareness and education of tourists can also be a step further for the widespread implementation of sustainable development measures. To this end, authorities are once again the key stakeholders.

Implementation of these proposals depends, to a significant extent, on drafting these stricter regulations by competent authorities that could favor the application of sustainable measures in the mountain tourism field, ensuring financial and logistic support for carrying out sustainable activities, organizing Q&A sessions and dissemination of knowledge for the application of specific voluntary tools.

The opportunity presented by this research is its pioneering character for mountain tourism in the Romanian Carpathians. Even if the qualitative research has specific limitations, with results that cannot be extrapolated to the whole population, the authors consider it a first necessary step in studying the vast issues faced by managers currently active in Romanian mountain tourism. In spite of these limitations, the authors, however, consider that the results of the research may be of real use to mountain tourism managers in Romania in order to develop measures that will allow sustainable development. Romanian authorities need to encourage the increase of the number of units in the tourism sector that will apply for sustainable management systems, through accessible regulation, the opportunity to participate in exchanges programs, and the development of viable networks providing information, details of good practices, and codes of conduct in the field.

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## Appendix A

Table A1. The identification data of interviewed managers.

Interview Subject	The age of the Accommodation Unit on the Market	Star/Daisy	Rooms	The Mountain Resort Where It Functions	Resort Type (National or Local Interest Resort)	Mountain Area
Manager 1	7 years	4	30	Azuga	Mountain resort of national interest	Southern Carpathians
Manager 2	9 years	4	45	Băile Tuşnad	Mountain resort of national interest	Eastern Carpathians
Manager 3	11 years	4	28	Buşteni	Mountain resort of national interest	Southern Carpathians
Manager 4	4 years	3	56	Câmpulung Moldovenesc	Mountain resort of national interest	Eastern Carpathians
Manager 5	Under 1 year	3	34	Gura Humorului	Mountain resort of national interest	Eastern Carpathians
Manager 6	14 years	5	200	Poiana Braşov	Mountain resort of national interest	Southern Carpathians
Manager 7	17 years	4	76	Predeal	Mountain resort of national interest	Southern Carpathians
Manager 8	42 years	4	152	Sinaia	Mountain resort of national interest	Southern Carpathians
Manager 9	15 years	3	48	Sovata	Mountain resort of national interest	Eastern Carpathians
Manager 10	21 years	4	34	Vatra Dornei	Mountain resort of national interest	Eastern Carpathians
Manager 11	3 years	3	16	Petroşani-Parâng	Mountain resort of national interest	Southern Carpathians
Manager 12	9 years	3	22	Râşnov	Mountain resort of national interest	Southern Carpathians
Manager 13	12 years	3	42	Azuga	Mountain resort of national interest	Southern Carpathians
Manager 14	8 years	3	105	Băile Tuşnad	Mountain resort of national interest	Eastern Carpathians
Manager 15	18 years	4	34	Buşteni	Mountain resort of national interest	Southern Carpathians
Manager 16	14 years	3	28	Câmpulung Moldovenesc	Mountain resort of national interest	Eastern Carpathians
Manager 17	12 years	3	30	Gura Humorului	Mountain resort of national interest	Eastern Carpathians
Manager 18	15 years	4	38	Poiana Braşov	Mountain resort of national interest	Southern Carpathians
Manager 19	20 years	3	52	Predeal	Mountain resort of national interest	Southern Carpathians
Manager 20	9 years	4	47	Sinaia	Mountain resort of national interest	Southern Carpathians
Manager 21	12 years	4	40	Sovata	Mountain resort of national interest	Eastern Carpathians
Manager 22	7 years	3	18	Vatra Dornei	Mountain resort of national interest	Eastern Carpathians
Manager 23	8 years	3	30	Petroşani-Parâng	Mountain resort of national interest	Southern Carpathians
Manager 24	6 years	3	28	Râşnov	Mountain resort of national interest	Southern Carpathians
Manager 25	16 years	3	44	Borşa	Mountain resort of local interest	Eastern Carpathians
Manager 26	17 years	4	16	Bran	Mountain resort of local interest	Southern Carpathians
Manager 27	11 years	4	18	Durău	Mountain resort of local interest	Eastern Carpathians
Manager 28	15 years	4	14	Praid	Mountain resort of local interest	Eastern Carpathians
Manager 29	7 years	3	28	Stâna de Vale	Mountain resort of local interest	Western Carpathians
Manager 30	Under 1 year	2	12	Băile Homorod	Mountain resort of local interest	Eastern Carpathians
Manager 31	5 years	3	16	Zona Muntele Băişorii	Mountain resort of local interest	Western Carpathians
Manager 32	16 years	4	52	Păltiniş	Mountain resort of local interest	Southern Carpathians
Manager 33	Under 1 year	2	10	Straja	Mountain resort of local interest	Southern Carpathians
Manager 34	4 years	3	15	Timişu de Sus	Mountain resort of local interest	Southern Carpathians
Manager 35	9 years	1	8	Moieciu	Mountain resort of local interest	Southern Carpathians
Manager 36	11 years	4	24	Semenic	Mountain resort of local interest	Southern Carpathians
Manager 37	14 years	3	26	Cheia	Mountain resort of local interest	Eastern Carpathians

The names of the interviewed managers were not mentioned in order to keep their identity confidential.

## Appendix B

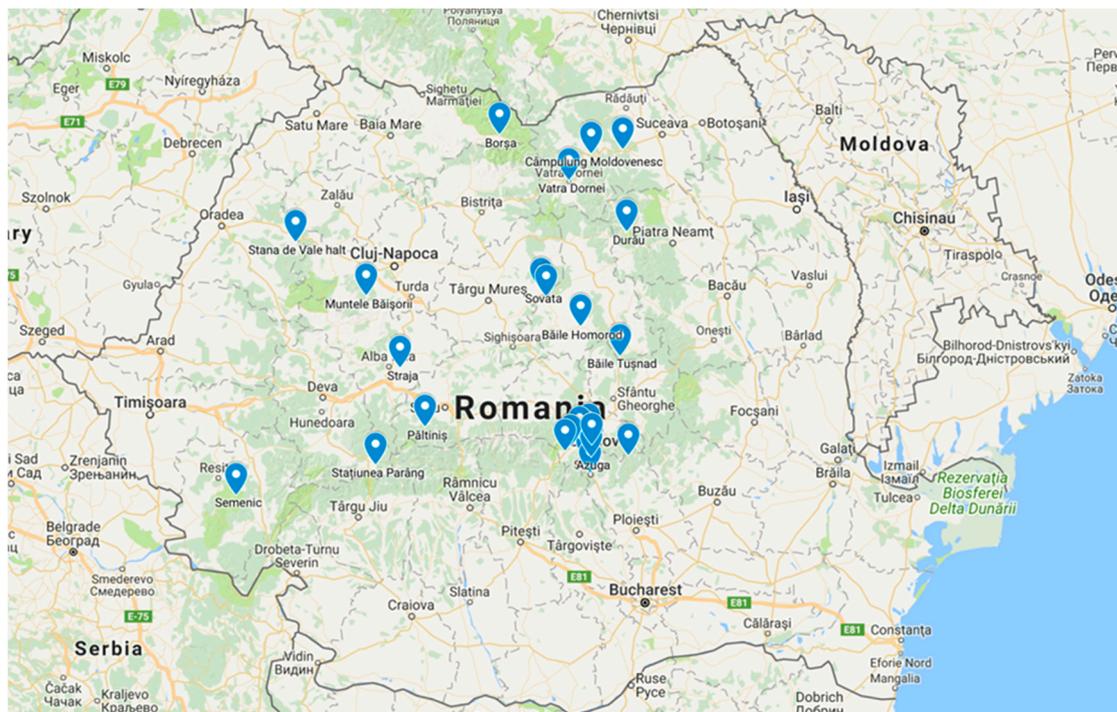


Figure A1. The map with the accommodation units' location.

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