

Environmental management in the Greek Hotel industry

Survey in the hotels of the Dodecanese islands

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Abstract

The relation between tourism and environment is complex and many tourism activities can have adverse environmental effects. Studies have shown that a significant percentage of tourists support those hotel units which indicate their commitment to protect the environment, and also to take environmental friendly measures.

The aim of the present research is to explore the attitudes of the executive directors in large hotel units (of 5 and 4 stars) related to the environmental management issue of hotels and the prospect of further development of "green" hotels in Greece. For this case study the region of the Dodecanese Islands was chosen; this area constitutes the insular complex of Greece in Southeastern Aegean and represents one of the major tourist destinations in Greece.

Based on the preliminary findings of our primary research, environmental awareness is developed to a sufficient degree among executives of the tourism industry. With the exception of a limited number of hotels, which implement voluntary environmental management system, the majority of hotel units have not yet implemented any such systems. The unwillingness of hoteliers and managers to implement environmental management programs is due rather to the fact that they are not yet convinced by the value (significance) of such interventions. Another reason for this situation can be the lack of reliable information. However the benefits resulting from such actions are not only obvious, but also widely proven.

It is worth mentioning here, that the implementation of environmental management systems and the adoption of eco-labels, could gradually lead the hotels in Greece to increase their competitiveness at international level.

Keywords: Green Tourism, Green hotels, Environmental management, Eco - labels, Dodecanese islands, Greece

JEL classifications:

L83 - Sports; Gambling; Recreation; Tourism

O13 - Agriculture; Natural Resources; Energy; Environment; Other

Primary Products

Tourism and Environment

Introduction

The quality of the environment is essential to tourism. On the other hand, the relationship of tourism with the environment is complex and many activities can have adverse environmental effects. Many of these impacts are linked to the construction of general infrastructure and to the tourism facilities as well as the operation of the tourism industry. The negative impacts of tourism development can gradually destroy the environmental resources on which it depends (Velissariou E. 1991).

In the last 20 years initiatives have been taken for sustainable development and sustainable tourism, around the globe. For example, the United Nations in 1992, in the Earth Summit Conference, held in Rio de Janeiro, set up the AGENDA 21, (WTO, WTTC, 1996), and launched an initiative to creatively develop sustainable tourism as a force of poverty elimination in the world. (The World Summit for Sustainable Development 2002, Johannesburg, South Africa. United Nations 2002).

Recently, in the International Conference for the "Climate Change and Tourism" in Davos (Davos Deklaration, 2007), measures were adopted for the tourism sector including the integration of tourist activity on the commitments of the Convention on Climate Change, the Kyoto Protocol and the post Kyoto era. Furthermore it promoted investments in energy-saving programmes in tourism and the use of renewable energy sources in order to reduce the energy consumption of tourism activity.

In the Conference for the "Mediterranean Climate Change Initiative" that took place in October 2010 in Athens, it was agreed to promote policies and actions in addressing the impacts of climate change and the transition to a sustainable growth model. The impact of climate change on the environment in the Mediterranean was also discussed in the conference. This initiative aims to become the inaugural action for the signing of the Declaration of cooperation among Mediterranean countries on climate change (MCCI, 2010).

Traditional tourist markets such as Greece, which promotes tourism characteristics like sun, sea and sandy beaches, have reach a level of conservative growth path. On the other hand, tourism forms based on eco-tourism, the nature, the heritage, the tradition, the cultural events, the rural tourism, are expected to grow faster than the traditional tourist markets for the next twenty years. For example, the World Travel and Tourism Council report indicated that "eco tourism," with its many similarities to adventure travel, contributed \$154 billion in worldwide receipts in 2000 and is growing at 20% annually (WTTC, 2002).

According to a survey of Trip Advisor, a company which provides tourism services via the Internet, 38% of tourists stated that one of the factors which contributed seriously to choices made, was the provision of environmentally friendly tourism, 38% have stayed at a hotel offering environmentally-friendly practices, and 34% were willing to pay more to stay at an eco-friendly hotel. Furthermore, over the years, other research has shown that the majority of international tourists is interested in the social, cultural and environmental events in accordance with their destinations and would

have supported hotels evidencing their commitment to protect the environment. In addition environmental and social responsibility is considered as an obligation of the tourist and hotel industry (TripAdvisor, 2007). Similar results have been reached by a large number of studies, which have shown that consumers are becoming more interested in sustainable forms of tourism (Dodds, Rachel & Joppe, Marion, 2008).

Green Tourism and Green Hotels

A result of these developments is the presence of new names in the tourism economy, such as "green tourism", "green tourist", "green hotels" etc., aiming to indicate an eco-friendly approach to tourism. Green tourism is defined as the tourism that upgrades the local natural and cultural elements, operating under the control of local communities by providing employment and maintaining the economic benefits within these societies (Bramwell, 1990).

The World Tourism Organization has defined Ecotourism as "tourism that involves travelling to relatively undisturbed natural areas with the specified objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural aspects (both past and present) found in these areas". The term "green tourism" is used by the tourism industry as a message to the tourist, in terms of energy saving issues, pollution prevention, etc. Green tourism is increasingly gaining ground worldwide. It currently, represents only 8%-10% of holiday traveling throughout the world, while in Greece estimates indicate that the informed "Green" tourists should reach 4%-5% of the total.

According to figures of the UN program for the environment about 800.000.000 people travel each year on vacation. "Yet, tourism accounts for 5 per cent of global CO2 emissions, and projections show that, if we take no action now, emissions could triple by 2035." (UNEP, 2011). That is why the UN program for the environment recently created a "Green Passport", an online guide for everyone who wants to travel with minimal disruption to the environment and the local population of the region being visited.

The "Green" tourists come mainly from the middle and upper social classes, while according to figures published on the 5th RED Business Forum held in the year 2010 in Athens, approximately 43 million tourists globally were self-defined as "eco-tourists", choosing "green" hotels and "green" accommodations (RED Business Forum, 2010).

Experts of the hotel market estimate that implementation technologies of Renewable Energy sources for the energy covering the units, like solar and geothermal systems, not only contribute to significant savings, but make it more attractive to the hotels 'environmentally sensitive' tourists.

"Green" hotels are identified as those hotels that apply environmental policy. Any hotel unit can become greener by taking simple steps, with do not necessarily require expensive investments or undermine the well-being of the customer. For example more and more hotels have used for their construction, natural materials such as wood, clay, marble and cork, instead of cement and plastic colors. However, this is not enough for a hotel to become an eco-Hotel. The whole operation of the enterprise should be in an eco-friendly concept. Thus, the "green" or

"eco-friendly" hotels use non-toxic natural cleaning detergents such as pure soap and vinegar, as well as towels and bed linen made of 100% organic cotton. Many hotels also offer organic meals based on organic ingredients, such as milk, yoghurt, cheese, honey, and meat from local farmers.

Environmental management in the Greek Hotel Industry

Energy consumption in the Greek hotel industry

The tourist development in Greece is based on its specific natural landscape and rich cultural heritage. Recent tourism policy is directed towards the preservation of these characteristics. The assessment of environmental effects is used in the evaluation of tourism infrastructure development plans, and permits to operate the hotel enterprises include conditions relating to environmental management.

The tourist activity in Greece, due to its seasonal character that climaxes in the summer, has the result of the increased use of air conditioning and the proportional increase in consumption of electricity. Given the fact, that most hotels are located on the Islands, which are interconnected with the central, continental, electricity transmission network, hazards of collapsing the local networks and interrupting the power supply are generated. This occurs because the energy capacity of local stations is insufficient to cover the level of amounts needed. (Mavrotas et al, 2000).

Hotels in Greece consume thermal and electrical energy for the various operations and in particular for heating, cooling, lighting, operation of various appliances in the kitchen and laundry, and elsewhere. An average hotel in Greece consumes approximately 273 kWh/(m²*a) while commercial offices need 187 kWh/(m²*a), commercial buildings, 152 kWh/(m²*a) and school buildings 92 kWh/(m²*a) (Santamouris et al, 1996). Energy consumption respectively in hotels in Italy amounts to 215 kWh/(m²*a), in Spain in 287 kWh/(m²*a), in France to 420 kWh/(m²*a) (Karagiorgas et al, 2006). According to another survey, energy consumption in hotel units in Cyprus amounts to 272,6 kWh/(m²*a) in Portugal to 296,4 kWh/(m²*a), and in Italy to 364,4 kWh/(m²*a) (Bohdanowicz et al, 2010). These consumptions are far lower than those of Asian hotels that average in Hong Kong to 564 kWh/(m²*a) (Deng & Burnett, 1998).

Energy consumption in Greek hotels, according to the Greek Hotel Chamber is 22% for heating, 15% for cooling, 36% for the production of hot water, 6% for lighting, 9% for the Kitchen and laundry and 12% for other uses. The analysis of energy consumption in a typical hotel according to the International Energy Agency, allocated to Heating and Air conditioning at a rate of 48%, to Hot water at 13%, 7% to Lighting, 25% to the Kitchen and 7% to the other uses (Tsilingiridis et al, 2010). These percentages vary for the same hotel, depending on the season and the completeness as well as for different units. Remarkable is the fact that 45% of the total energy consumed covers fixed needs of hotel units. There are also cases where the fixed amount of the energy consumed for the Heating of the premises is greater than the corresponding variable amount (Karagiorgas et al, 2006).

Energy cost at a hotel represents only 3-9% of total operating costs, so that the hotel management does not consider the reduction of it as an important priority. A survey for measuring the degree of interest and information level about the new legislation, the renewable energy sources and the energy saving methods in buildings in the tertiary sector, carried out in early 2011, at 109 (of a total of 2883) hotels, in the "B" climate zone (the climatic zones in Greece are four, with "A" in southern Greece, where it recorded the highest average temperatures and "D" in Northern and Mountain Greece, with lower temperatures), showed that knowledge in the majority of the policymakers indifferent to these issues and those who have some knowledge is incomplete. Therefore, continuous update of the executives and technicians responsible for the specific issues is required. Equally essential is the responsibility of the State, in providing integrated and specific program information for hotel managers. (Kokkinis, 2011).

The most frequent certificates of environmental management in the Greek Hotel Industry

In May 2008 the Act No. 3661 was voted in Greece, aimed at the harmonization of Greek legislation with the European Directive 2002/91/EK. The law provides:

- Drafting regulations for the energy performance of buildings, which will specify the minimum energy performance requirements for all new and old buildings with surface of more than 1,000 m², in cases where major restorations are implemented and the cost exceeds the 25% of the value of the building.
- A Certificate in energy efficiency for all new buildings that have a surface of more than 50 square meters with effect of ten years.
- Submission to the urban authority of a construction study for the feasibility of alternative energy sources in new buildings that are more than 1,000 m² surfaces.
- Regular inspections of boilers and air-conditioning of buildings in order to reduce energy consumption and reducing carbon dioxide emissions.
- Fines in the event of non-compliance.

Apart from the application of the legislation, the hotels have the opportunity of environmental certification and related measures. The most common are the following:

The Eco-Management and Audit Scheme (EMAS)

The EU Eco-Management and Audit Scheme (EMAS) is a management tool for companies and other organizations to evaluate report and improve their environmental performance. The scheme has been available for participation by companies since 1995 and was originally restricted to companies in industrial sectors. Since 2001 EMAS has been open to all economic sectors including public and private services. In 2009 the EMAS Regulation was revised and modified for the second time (European Commission, 2012). Especially the Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 based on the voluntary participation by organizations in a Community was published on 22 December 2009 and entered into force on 11 January 2010. Objectives of EMAS are:

- To promote continual improvements in the environmental performance of all agencies located in Europe, public and private
- The recognition of those organizations that have adopted environmental management systems and have nurtured the external certification
- Disclosure of environmental progress of these agencies in the wider public both to reward them for their own and to encourage others to follow the same path. Participation in EMAS is confirmed by the use of the EMAS logo.

Environmental audits are planned, with the stated aim of promoting continuous improvement in the environmental performance of enterprises. The Inspection for the time being is a voluntary activity by businesses. Therefore, it is important that there are incentives for participation. Such a motive is the exploitation of environmental monitoring for commercial purposes (J. Finsinger; J.F. Marx, 2009).

Iso 14001

ISO 14001 is an international standard for the implementation of an environmental management system. ISO 14001 specifies the requirements of an environmental management system, so each company can manage to reduce environmental impact and to continuously improve environmental performance. The model identifies business processes which have a detrimental effect on the environment, and lays down the necessary procedure, which will contribute to environmentally friendly business (Zeng, S.X., Tian, P. Shi, Jonathan J., 2005).

Green Globe

The Green Globe is a worldwide program to update and manage environmental problems for the tourism industry. It was founded by the World Travel and Tourism Council (WTTC) and is open to every tourist enterprise regardless of type, size, and geographic location. The purpose of the program is the updating of the environmental actions in tourism and the transfer of know-how on issues such as: environment and operational strategy, environmental impact assessment, environmental policy and marketing advantages, sensitization and activation of the staff (Green Globe, 1994).

Eco - labeling

The tourism sector has several signs or labels showing respect for either the tourist accommodation or/and tourist destinations to the environment, such as for example the blue flag for beaches. These labels are awarded by independent entities, primarily because of the satisfaction of specific ecological criteria (UNEP, 1998). The existence of several environmental labels, some of which are of dubious origin and with that, the tourist accommodation shall demonstrate the increased environmental performance, creates confusion in the tourist customer and reduces the reliability of environmental certification.

By its Decision 2003/287/EC, the European Commission established the criteria for the award of the European eco-label (Eco-label scheme) to providers of tourist accommodations and has as its purpose to guide the customer who searches for tourist services, with certified environmental performance which demonstrates respect for the environment. The European Eco-label for tourist accommodation services is targeted to owners of hotel chains, luxury hotels, mountain hostels, boarding houses or rural tourism accommodation, who are

invited to join the eco-label scheme, as long as they satisfy the specific ecological criteria. With the approval of ecological criteria, the tourist accommodation succeeds in reducing environmental impacts of its operation (while reducing the operating costs), and in particular:

- Reduction in consumption of electricity power, water and chemicals,
- Reduction of waste and environmental information of visitors
- Good general management of operation and maintenance of tourist accommodation.

From the perspective of the tourist/consumer, the eco-labels are tools to support decision-making in relation to environmental preferences (Thogersen, John; Haugaard, Pernille; Olesen, Anja., 2010).

Green flags

The European project titled Green Flags for Greener Hotels ENV/F-338 aims to establish a System for the award of an "Eco label" in hotel units which meet specific environmental protection requirements. These requirements relate to the full range of environmental pressures/effects of the operation of hotels, such as heat, waste (liquid, solid), pollution etc. Environmental protection measures include the implementation of management methods and saving energy and water, recycling of materials and waste, food products, eco-feed installation apparatus and equipment, small energy consumption etc.

Green key

The "Green key" is an international program that awards a mark of ecological quality (eco-label). This program acts as a stimulus for converting any tourist unit, small or large, into "green". It is an important institution in the tourism industry as it sensitizes and encourages the adoption of environmentally friendly practices, ensuring protection and promoting sustainability. In Greece, it is addressed generally to tourist enterprises and mainly to hotels. The program "Green key" is coordinated by the Foundation for Environmental Education and currently operates in 17 countries worldwide.

The criteria of the program focused on environmental management of tourism and environmental education unit, which should be organized for visitors, staff, suppliers and collaborators for the unit is awarded with the Green key and cover areas related to:

- Energy consumption.
- The consumption of water.
- The management of waste.
- Use of environmentally friendly cleaning products and detergents.
- The quality of food and drinks.
- The conversion of free spaces into green areas.
- Environmental Education.

Primary research

Research scope

The aim of the research was to explore the attitudes of executive directors of large hotel units (5 and 4 stars) in relation to the issue of environmental management of hotels and the prospect of

further development of "green" hotels in Greece. This research is required to support the theoretical approach and to highlight through the responses of senior directors of large hotel units:

- The degree of awareness and information of large hotels about "green" tourism, environmental management and benefits of implementing green practices.
- The degree of commitment and implementation of green practices in large hotels.
- The administrative performance of the large hotel companies in relation to investments and expenditures relating to environmental protection and green development.

Research field and methodology

The questionnaire included 27 questions and was divided into three parts:

- Part A: Location of the hotel and general information about the person who completes the questionnaire (questions 1-4).
- Part B: Questions associated with the profile of the hotel, such as category, capacity, seasonality etc. (questions 5-9).
- Part C: Questions related to environmental issues, the implementation of green practices, the investments in "green" technologies etc. (questions 10-27).

The region of the Dodecanese Islands was chosen for the case study. The Dodecanese region constitutes the insular complex of Greece in Southeastern Aegean and represents one of the major tourist destinations in Greece. The islands of Rhodes, Kos, Karpathos, Kalymnos, Patmos and Leros are including in the insular complex. On the Dodecanese islands there are 1033 Hotel units established, with a capacity of 137.158 Betts or 18% of the hotel capacity in Greece. In the 2 international airports on Rhodes Island and Kos Island, there arrived it the year 2010 2.131.146 passengers, or 19.4% of the total air travelers in Greece.

Questionnaires were sent to 215 (5 and 4 star) hotels and 87 hotels responded (over 40% responses). Of these 64 are established on Rhodes, 19 on Kos, 3 on Karpathos, and 1 on Leros, 12 belongs to the category of 5 stars, and 75 belong to the category of 4 stars.

Of these 87 hotels, 6 (6.9%) had been operating for 1-5 years, 18 (18.7%) for 5-10 years, 27 (31%) for 10-20 years and 36 (38.7%) for more than 20 years. The majority of them (76 hotels) operate in the spring - summer season and only 11 hotels operate all year round. Finally, the average size of the researched hotels was 423.4 beds and the total capacity amount 36.839 beds, which represents 46.8% of the capacity of the region.

Table 1: Research Data.

	5 star	4 star	Sum
Hotels Dodecanese	49	166	215
Bed capacity	22224	56501	78725
Units Greece	312	1234	1546
Bed Greece	102429	196862	299291

Sample	12	75	87
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Research results

According to the research results, only 10.30% of the sample have an eco-label, 33,30% of the sample answered that they do not have an eco-label while 56,3% of respondents replied that they would like to acquire an eco-label.

The largest percentage of hotels, 88.50% has a service quality certificate (ISO 9000), while a large number of hotels (77%) also has an HACCP certificate. It is remarkable that a small percentage of the sampled hotels (14,90%) has an ISO 14000 certificate (environmental management). Finally just 1 hotel has a GREEN KEY certificate and no hotel has an EMAS certification. There is also great interest in hotels to acquire related certificates in order to improve the quality of their services.

Table 2: Quality Certifications of the researched Hotels

Answers	EMAS	ISO 9000	ISO 14000	HACCP	Green Key
Yes	0.00	88.50	14.90	77.9	1.10
No	34.50	3.40	21.80	5.8	28.70
Would like to obtain	65.50	8.00	63.20	16.3	70.10
Total	100.00	100.00	100.00	100.0	100.00

In the question "Do you agree that tourism enterprises with environmental quality labels are preferred over the ones that do not acquire such labels, by an increasingly environmentally sensitive tourist audience?" 72.40% of respondents replied that agree, 2,30% replied that they disagree, 18.40% neither agrees nor disagrees 18,40%, while 6,90% replied that they do not know if customers prefer hotels with environmental quality labels.

In the question "Do you know that green practices can help hotel enterprises save money?" the largest percentage of respondents, i.e. 67,80% replied that they know that the "green" practices can help hotel units save money, about 28,70% of respondents replied that they wanted more information on the subject, while only 3.40% of respondents replied that they do not know if "green" practices help hotel units save money.

Level of green practices adoption

According to the research results 77 out of 87 researched hotels (88,5%) apply specific measures for environmental protection. The results for each measure are presented:

1. Recycling of materials

36 out of 87 hotels (41.40%) stated that they mainly concentrate on recycling materials such as paper, ink, plastics, glass etc. and placing them in special recycle bins. Remarkable is the fact that the largest percentage of respondents (42.50%) replied that they would like to take action, while just 4.60% replied that they have taken similar measures in the past (but not on regular basis).

2. Waste management

Only 15 hotels (17.20%) take waste management measures. 4 Hotels (4.60%) have taken measures in the past, while the largest percentage of Hotels (78.2%) declared that they would like to take waste management measures.

3. Water Saving methods

44 out of 77 hotels (50.60%) take measures of water consumption savings. 2 hotels (2.30%) have taken measures in the past, while a large percentage of respondents (35.60%) indicated that they would like to take relevant measures.

4. Inform visitors about the hotel's green policy

32.20% of hotels provide information to the customers about the green policy of the hotel. 1.1% has taken measures in the past, while the largest percentage of respondents (55.20%) indicated that they would like to take measures on informing costumers about the hotel's green policy.

4. Training of personnel in the implementation of green measures

36.80% of hotels train staff in implementing green measures. 2.30% have taken personnel training measures in the past, while the largest percentage of respondents (48.30%) indicated that they would like to take relevant measures.

5. Use of Ecological cleaning materials

33.30% of the sample use ecological cleaners, 11.50% have used them in the past (but not on a regular basis), while the highest percentage (42.50%) of respondents stated that they would like to take relevant measures.

6. Use of Solar water heaters

65.50% Hotels use solar water heaters, 4.60% has used them in the past, while the 18.40% of respondents stated that they would like to take relevant measures.

7. Installation of solar systems

Only 5.70% of hotels have installed solar systems, no hotel stated that they have not installed them in the past, while the largest percentage of respondents (82.80%) indicated that they would like to take relevant measures.

8. Use of electrical devices with high energy efficiency

43.70% use high energy efficiency electrical devices, 11.50% not on a regular basis, while a large percentage (33.30) of respondents stated that they would like to take relevant measures.

9. Use of electronic devices with certified low energy consumption

A large percentage of Hotels (89.70%) make use of electrical devices with certified low energy consumption, while 10.30% of respondents stated that they would like to take relevant measures in the future.

10. Use of Energy saving lamps

65.50% make use of energy saving lamps, 2.30% not on a regular basis, while 19.50% of respondents indicated that they would like to take relevant measures.

11. Automatic handling of lights

44.80% have installed lights operating with automatic handling, 1,10% have used them in the past, while 42,50% of respondents stated that they would like to take relevant measures.

12. Use of organic products

21.80% make use of organic products, 11.50% has used them in the past (but not on regular basis), while the highest percentage (55.2%) of respondents stated that they would like to take relevant measures.

13. Biological purification systems

Only 12.60% of hotels apply biological purification systems, 4.60% have used them in the past, while the highest percentage (71.3%) of respondents stated that they would like to take relevant measures.

14. Liquid waste treatment system

12.60% have effluent treatment system, 2.30% have used them in the past, while the largest percentage (73.60%) of respondents stated that they would like to take relevant measures.

15. Leakage control

36.8% of hotels control leaking in the internal pipeline, 3,40% has controlled it in the past (but not on a regular basis), while the largest percentage (48.30%) of respondents stated that they would like to take relevant measures.

In the question *"If you have taken any of the 'Green' measures of the previous question for what reasons did you do this?"* 77 out of 87 hotels replied. According to the answers of the respondents, the main reasons that prompted the implementation of green measures were Financial (61.03% of respondents), followed by "Satisfaction of customer expectations" (55.8% of responses), for "Ecological performance" by 46.7% and "Interest for the region" by 45.4%

In the question *"If you have not taken any 'Green' measures, which are the reasons that you have not done so until now?"* 10 out of 87 researched hotels (11.5%) replied. According to the answers of the respondents, the main reasons for not having taken green measures so far was "The lack of human resources" (70%), "The lack of information on "green" benefits" (70%), the fact that "Green measures require a lot of time" (60%) and "The lack of economic resources" (60%).

In the question *"Would you accept to invest in the modernization of your enterprise, to be classed as Green"* 87 respondents replied. According to the answers of the respondents, 56 hotels (64.4%) replied positively, 10 hotels (11.5%) replied negatively, while 21 respondents (24.1%) replied that it depends on the cost of the investment.

In the question *"In the case you have responded positively to the previous question, under what circumstances would you decide to invest in 'Green' policies?"* 77 out of 87 hotels replied. According to the answers of the respondents, 53 hotels (68.8%) replied that they would like to invest only if co-financed by the State and/or by the European Union and 24 hotels (31.2%) replied that they would like to invest regardless of co-financing by the State and/or by the European Union.

In the last question *"In which "green" methods do you intend to invest in the future?"* all 87 respondents replied. The responses were many and varied. The most common was "Waste management" 16.1%, "Exploiting renewable energy" 14.9%, "Development of green policies and procedures

and integrating standards" 13.8%, "To improve the energy performance of buildings and the mechanical contracting equipment" 13.8%.

Documentation of the results

The results of the above survey yielded useful findings as to the attitude of the executive managers of large hotel units of the Dodecanese islands to the issue of environmental management and the perspectives of further development of green hotels in Greece.

- There is a lack of information of hoteliers regarding energy-saving technologies and renewable energy sources.
- There is a lack of awareness of hoteliers and executives of large hotel enterprises in relation to the issue of protection of the environment situated at an early stage, if we take into consideration, that few hotels have a Green key, or even the most prevalent environmental quality certificate of ISO 14000.
- Entrepreneurs seem not to be aware of "Green" technologies and solutions existing today, while even those who are positive to the possibility of adopting some technologies, the expenses and the lack of human resources (know-how) are negative factors.
- There is ignorance about the financial tools and incentives provided for the adoption of energy-saving practices (lighting improvement, use of energy saving lamps etc.).
- There is also ignorance about the certification systems, i.e. the certification of a hotel with special labels, which certify the satisfaction criteria for an environmentally friendly management.
- Large hotel units do not seem to show a better performance in environmental management issues in relation to the smaller hotel units, nor do they seem to take more environmental friendly measures.
- The economic parameters are the greatest obstacle for the application of environmentally friendly measures.
- The opinion that green hotels have advantage over their competitors dominates.
- The market trend is towards the development of "Green" hotels, as the growing number of visitors, mainly from abroad, request environmentally friendly hotel services.
- There is a general desire on the part of the hotel to receive environmental management and environmental quality credentials, which means they understand the benefits of good environmental policy for the enterprise, the customers and the environment.
- There is also a desire from hoteliers to be informed about the eco-labels and quality benefits. This unveils a lack of sources of information and awareness on the part of the State.

Encouraging, however, is the fact that the largest number of respondents of this survey has indicated an interest in improving the energy performance of hotels and cost savings, aiming to satisfy the customer needs, unlike other investigations where half of the participants did not show any interest in the specific matter. This can be attributed to the fact that the hotels of this investigation, in the category of 4 and 5 stars employ trained scientific staff and engineers.

Finally, according to this survey, nearly all hotels (88,5% of respondents) replied that they apply at least a simple environmental

practice (primarily energy saving), they are interested in taking environmental measures in the future, which means that they are being sensitive, even to a small extent, regarding the protection of the environment, as opposed to other surveys in small hotels showing that a very small percentage applies even the simplest green measures (i.e. LED lamps). This is due to the fact that large hotels, where operating costs are huge, perceive the benefits of adoption and implementation of green practices in contrast to small hotels.

Conclusions

Environmental management of hotels is an activity that is increasingly gathering the interest of hoteliers in recent years. The implementation of environmental management systems contributes to the reduction of operating costs and improves the overall picture of hotels, creating conditions for better financial results.

Environmental management in hotels is recognized, as an activity that can provide important social benefits. Agenda 21 for sustainable development of the tourism industry, the policy of the European Union and other international initiatives are evidence of the importance attached to the issue. In recent years another policy tool based on the market forces has come to the fore. Enterprises implementing environmental management systems can be certified (for the services or products they provide to their customers) through a program of environmental labeling. Eco-labeling programs are implemented in many countries of the world. The criteria to adopt labeling programs encourage the use of renewable energy sources, implementing energy-saving measures, the adoption of cogeneration systems and the adoption of various measures of environmental protection.

In Greece, the hotel sector is a major consumer of energy, especially during the summer months, while it exercises significant effects on the natural environment. At the same time, environmental awareness is not developed satisfactorily among executives of the tourism industry.

Many hoteliers ignore the benefits of adopting environmental management systems. Moreover, environmental consciousness is not developed to a sufficient degree among executives of the tourism industry. With the exception of a limited number of hotels, which implement voluntary environmental management systems, the majority of hotel units and other tourism businesses have not yet implemented any such systems. The unwillingness of hoteliers and managers of other tourist businesses to implement environmental management programs is due to the fact that they are not yet convinced of the value of such interventions. One reason for this situation can be a lack of reliable information. Although the benefits resulting from such actions are not only obvious, but also widely proven.

Greek tourism policy emphasizes the improvement of quality of service, in extending the tourist season and the development of alternative forms of tourism. The adaptation of Greek legislation and the contribution of European programs for the financing of modernization of tourist accommodation can promote the adoption of standards of quality and environmental management, in order for Greek hotels to be friendlier to the environment and also to attract new eco tourists.

Finally, it deserves to be noted here, that the implementation of environmental management systems and the adoption of eco-labeling,

could gradually lead the hotel units in Greece to increase their competitiveness at an international level. The integration of the environmental factor, in the decision-making process of the Greek hotels is a challenge for the future.

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