

Eco-Friendly Practices and their Effects on Hotels in the Azores

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Dina Pavlenko

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Dina Pavlenko

Supervisors:

Doctor Gualter Fernandes Martins Câmara

Professor Francisco José Ferreira Silva

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ABSTRACT

The aim of this work is to characterise eco-friendly practices and their effects on hotels and accommodation units in the Azores. In view of the growing concerns about global warming and climate change, the tourism sector has participated in gas emissions and in the growing environmental problems. The shocking rise of the tourism sector makes us realise even more clearly that the effects of this sector will rather rise with a negative impact on our planet. However, with the emerging environmental measures, environmental technology and environmental accommodation, these effects may be reduced leading to a more sustainable tourism and development for all.

While eco-friendly practices may be a solution to control the effects of the tourism sector on our planet, the practices could also serve as a means of reducing cost of management, and a differentiation for the promotion of brand. This dissertation project is carried out based on a study survey created on topics related to eco-friendly practices in accommodation units. The answers from the survey are analysed while making references to other previous works where the case applies. The author emphasises that eco-friendly practices have positive benefits to the tourism sector in the Azores, to the environment and to the hotels equally.

Keywords: Environmental accommodation facilities; Hospitality; Sustainable development; tourism.

RESUMO

O presente trabalho visa caracterizar as práticas ecológicas e os seus efeitos nos hotéis e nos estabelecimentos de alojamento dos Açores. Num contexto de preocupações com o aquecimento global e alterações climáticas, o setor do turismo tem contribuído para o aumento das emissões de gases e dos problemas ambientais. No entanto, com as medidas ambientais emergentes, tecnologia *ecofriendly* e alojamento ecológico, esses efeitos podem ser mitigados, potenciando a sustentabilidade do turismo e dos cidadãos.

As práticas ecológicas adequadas podem assumir-se como uma solução para controlar os efeitos desfavoráveis do setor turístico no planeta, além de gerar minorações nos custos operacionais e de promoção e divulgação da marca. O trabalho foi realizado com base num inquérito de elaboração própria, relacionado com as práticas ecológicas nas unidades de alojamento. As conclusões permitem concluir que as práticas ecológicas trazem benefícios para o sector do turismo nos Açores, para o meio ambiente e também para os hotéis.

Palavras-chave: alojamento ecológico, hospitalidade, desenvolvimento sustentável, turismo.

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CONTENTS

ABSTRACT	i
RESUMO	ii
ACKNOWLEDGEMENTS	iii
CONTENTS	iv
GRAPH CONTENT	vi
ABBREVIATIONS	viii
CHAPTER I - INTRODUCTION AND CONTEXTUALIZATION	1
1.1. Importance of research and justification of the choice	3
1.2. Definition of objective	4
1.3. Definition of concepts	4
Eco-tourism	4
Environmental Accommodation	5
Environmental Technology	5
Hospitality	5
Sustainable Development	5
Sustainable tourism	6
CHAPTER II - LITERATURE REVIEW	7
2.1. Emergence of eco-friendly practices and its significance	10
2.2. Eco-friendly practices	11
2.2.1. Changing of bed sheets and towels	12
2.2.2. Avoid the use of plastic water bottles and other plastics in wrapping, straws	13
2.2.3. Automatic switch –off of heating and air-conditioning of room when guest is absent	13
2.2.4. Put Water savers on taps	14
2.2.5. Provide more rubbish cans in the rooms	15
2.2.6. Mount a refillable shampoo and soap dispenser in the bathroom	16
2.2.7. Eco-friendly florescent light	17
2.2.8. Notices on prints or multimedia displays on outlets	18
2.2.9 Educate the staff	19
2.2.10. Reduce food waste	20
2.2.11. Building maintenance	22
CHAPTER III - COLLECTED SURVEY DATA ON THE RESEARCH AND ANALYSIS	24
3.1. Location of tourism unit	24
3.2. Type of tourist unit	26
3.3. Unit size	27
3.4. Duration of operation	28
3.5. Rate of quality of environment on the Azores islands	28
3.6. The rate of importance of nature tourism factors in the Azores	30
3.7. Worries about environmental impacts of your tourist unit	32
3.8. Weighing the environmental impacts of hotel activities	33
3.9. Significant impacts of hotel activities on the environment	34
3.9.1. Consumption of electricity	35
3.9.2. Water waste	36
3.9.3. Plastic recycling	36

3.10. Hotel's interests in making tourist-unit eco-friendly.....	37
3.11. Reasons for implementing environmentally friendly Practices?.....	38
i. Competitive advantages	38
ii. Customer requirement	39
iii. Survival of the tourism industry	39
iv. Cost savings and profits	40
3.12. Main barriers to the implementation of Eco-friendly practices in hotels.....	40
3.13. Do you have an environmental management program in operation?.....	42
3.14. What environmental projects are you more interested in?	43
3.15. How much are you concerned about service quality reduction because of eco-friendly practices?.....	44
3.16. Does your hotel have Eco-label or other environmental certifications?	46
3.17. Environmental policy awareness to staff in tourist unit	48
3.18. Is waste being separated? Is there a possibility to separate waste in rooms?.....	49
3.19. Does your hotel use renewable energy such as solar energy?.....	50
3.20. Have measures been taken to reduce the use of disposable products to a minimum, e.g., cups, plates, and cutlery?	51
3.21. Does the hotel in general prefer recyclable products in recyclable packaging?.....	52
3.22. Does the hotel use a key card plug-in system to cut power in case of absence?....	52
3.23. Does hotel use low energy light bulbs in public areas?.....	53
3.24. Does your hotel use refillable hair and skincare dispensers?	54
3.25. Does your hotel have a water-bottle filling station in the lobby and corridors?	55
3.26. Does your hotel use aerators in bathroom sinks to reduce water usage?	55
3.27. Does your hotel have electric vehicle charging station or a rent- a -bike service? 56	
3.28. Does your hotel have a towel and sheets reuse policy?.....	57
CHAPTER IV – METHOD: CHI-SQUARE AND CHI-SQUARE BY MONTE CARLO	59
CHAPTER V – EMPIRICAL STUDY	61
5.1. Chi-square test: investigation of relationship between hotel time of operation and does the hotel has Ecolabel or environmental certificate	61
5.2. Chi-square test by Monte Carlo method: investigation of relationship between unit size and does the hotel use a key card plug-in system.....	62
5.3. Chi-square test by Monte Carlo method: investigation of relationship between location of hotels and does the hotel use renewable energy	64
5.4. Final considerations	65
CHAPTER VI – CONCLUSION AND FINAL OBSERVATION	66
REFERENCES	68
ATTACHMENT OF QUESTIONNAIRE	73

GRAPH CONTENT

Figure 1. Sustainable development goals	8
Figure 2. Location of tourism unit.....	25
Figure 3. Type of tourist unit.....	26
Figure 4. Unit size	27
Figure 5. Duration of operation	28
Figure 6. Rate of quality of environment on the azores islands	29
Figure 7. Factors of azores tourism and their importance	31
Figure 8. Scale of tourist unit’s worry about environmental issues	32
Figure 9. Hotels that asses their environmental impact.....	33
Figure 10. Hotel impacts on the environment	34
Figure 11. Weighing interest of hotels in becoming eco-friendly.....	37
Figure 12. Resons for implementation of environmental management.....	38
Figure 13. Main barriers to the implementation of eco-friendly practices in hotels	40
Figure 14. Environmental management program in operation.....	43
Figure 15. Environmental programmes of interest to hotels	43
Figure 16. How much are you concerned about service quality reduction because of eco-friendly practices?.....	45
Figure 17. Hotels with eco-label environmental certifications.....	46
Figure 18. Environmental policy awareness to staff in tourism unit.....	48
Figure 19. Waste separation in rooms	49
Figure 20. Use of renewable energy	50
Figure 21. Have measures been taken to reduce the use of disposable products to a minimum, e.g., cups, plates, and cutlery?	51
Figure 22. Does the hotel in general prefer recyclable products in recyclable packaging	52
Figure 23. A key card plug-in system	52
Figure 24. Low energy light bulbs	53
Figure 25. Refillable hair and skincare dispensers	54
Figure 26. A water-bottle filling station	55
Figure 27. Aerators in bathroom sinks	55
Figure 28. Electric vehicle charging station or rent-a-bike service.....	56
Figure 29. Towel and sheets reuse policy.....	57

TABLES CONTENT

Table 1. Some hotels with green key eco-label certification in the azores	47
Table 2. Chi-square test - relationship between hotel time of operation and does the hotel has ecol - label or environmental certificate.....	61
Table 3. Chi-square test - relationship between hotel time of operation and does the hotel has eco-label or environmental certificate.....	62
Table 4. Chi-square test by monte carlo method - relationship between unit size and does the hotel use a key card plug-in system.....	63
Table 5. Chi-square test by monte carlo method - relationship between unit size and does the hotel use a key card plug-in system.....	63
Table 6. Chi-square test by monte carlo method - relationship between location of hotel and use of renewable energy	64
Table 7. Chi-square test by monte carlo method - relationship between location of hotel and use of renewable energy	64

ABBREVIATIONS

DFE – Design for Environment

GDP –Gross Domestic Product

SIS –Small Island States

UNWTO – United Nations World Tourism Organisation

LEED – Leadership in Energy and Environmental Design

CFL - Compact Fluorescent Light bulbs

SDG – Sustainable Development Goals

POTRAA – Plan of Tourism of the Autonomous Region of the Azores

UN – The United Nations

CHAPTER I - INTRODUCTION AND CONTEXTUALIZATION

This research study of dissertation which focuses on eco-friendly practices, aims at obtaining the academic degree of master's in international tourism management at the University of the Azores; seeking that the structure of this study reflects the objectives of the master itself, on a personal and social contribution level. The choice of the topic arises as a result of the current growing concerns about the impact of tourism on environmental crises and global warming. Also, because the tourism sector is of great importance to the Autonomous Region of the Azores, it is with great hope that this study serves of importance in highlighting eco-friendly practices in the management of the tourism sector in the Azores.

The stupendous rise of the tourism sector has been of great impact on the economies of several countries around the world. Travel and tourism are the world's largest economic sector, generating a higher income than any other economic activity. Tourism in small island states represents one of their main sources of hard currency worldwide (Briguglio et al., 1996). In Portugal for example, the Economic Bulletin of Banco de Portugal in May 2018 highlighted that Portuguese export was associated with extraordinary growth in tourism and that the government debt declined from 129.9% of GDP in 2016 to 125.7% of GDP in 2018 (Banco de Portugal, 2018).

Despite the enormous benefits of tourism to the economic sector, it is unfortunate that tourism has equally participated in posing a threat to our global climate due to the gas emissions generated from this sector. The introduction of eco-tourism, which is believed to be a more sustainable tourism that allows the tourists to visit and experience the natural environment without damaging it or disturbing its habitats at first appeared to be more eco-friendly. However, the rise in the demand for nature and eco-tourism has also made the islands and other eco-tourism destinations become targeted and experienced influx of tourists at a greater pace leading to a threat to the environment. Given that island tourism is often more reliant on air travel its tourism industry is generally more structured and less diversified than that found in mainland destinations. Air travel as we know participates in increasing gas emissions which are harmful to our environment.

The growing concerns about the issue of climate change and global warming has become a major issue of worry in many corners of our planet earth. While in the Northern European countries such as the Netherlands, and Sweden they are beginning to see the effects of climate change such as sea rising level; in other parts of the world climate change has also impacted the Palestine–Israeli conflict in the Middle east, in Africa lower rainfall is already being experienced and can lead to low productivity of crops. In the United States, sea level rise has already accelerated the incidence of daily tidal flooding in more than 25 Atlantic and Gulf Coast cities. Moreover, the Republic of Kiribati is extremely vulnerable due to climate change and sea level rise; scientist have expressed fear that one day this country may disappear. The issue of climate change has impacted every corner of the earth and consequently became a preoccupation for us all, irrespective of age group, wealth, or nationality.

Swedish teenage environmental activist, Greta Thunberg who skipped school to campaign against climate change in the front of the Swedish Parliament became a leading voice inspiring millions of people to join the protest against climate change around the world. Greta sailed from Europe in a zero-emissions boat to New York where she addressed the world leaders at the UN Climate Action Summit. Greta's use of a zero-emission sailboat is highlighted as a leading example to environmental activists and supporters of the campaign against climate change. This phenomenon is aimed at encouraging other people in order to reduce the use of air transportation. Since most of the tourism sector relies on air transportation, it becomes inevitable to witness the clash between environmental activists and these tourism activities. The tourism sector, irrespective of traditional or eco-tourism has several challenges to the environment, for example, during certain periods of the year tourists often double the island population leading to the following situation:

1. Congestion of people on the island.

There is increased pressure on the natural resources when the number of people living on an island shoots up; there will be more demand on services such as water.

2. Unwanted mass development

The construction of more buildings and infrastructure on the islands will lead to increase in the effects on the environment. Moreover, the building of industries will also lead to industrial wastes which affect the environment of the island.

3. Pollution

The natural resources such as water and air could get contaminated as a result of inflow of people, building of industries and excess use of resources

All these situations in turn, lead to impacting the island destinations negatively and affecting the customer satisfaction in relation to tourism. Briguglio *et al* (1996) highlights that these phenomena eventually lead to the quality of the tourists' experience being reduced and the island's comparative advantage being lost.

The work is organized as follows: introductory chapter, with reference to the importance of research, definition of objectives and concepts. This is followed by the literature review chapter, which includes a brief mention of works related to the topic addressed. Chapter three provides a description of the data, while chapters four and five refer to the reference to the method used and critical analysis of the data, respectively. Finally, in chapter six, the conclusion appears, followed by bibliographic references and annexes.

1.1. Importance of research and justification of the choice

As highlighted in the first paragraph of the introduction, tourism is of great importance to the Autonomous Region of the Azores. Since the islands of the Azores are part of Portugal and in the European Union territory, they are a great option of ecotourism destination for most Europeans who are interested in ecotourism. The rise in the demand for ecotourism such as agrotourism, adventure tourism or rural tourism springs from the trends among people today who believe that the more we see and experience nature we would be able to understand the value of it and learn to preserve it. While this trend has become popular among people and the demand for such destination as the Azores has risen, it is very vital that the companies in the tourism sector understand how best to manage the sector in order to keep up with the norms of the preservation of the island and our planet at large.

The results of the findings in this dissertation could be important to new companies and hotels as well as the old ones. For the new companies, it would be importance in

helping them get informed about how to get on board with green tourism. While the companies go through the collection of the eco-friendly practices compiled here, the companies will be able to know how to practice green tourism, what is necessary, and what benefits there are in embarking on these green practices. For the old companies, despite already having their eco-friendly practices, the present project will address many other eco-friendly practices which they probably have not known about. The study will also analyze the benefits of these practices to the environment as well as to the company's economy. These phenomena will enormously help in bringing success to the management of the company and the sector at large. Vlek & Micihon (1992), highlight that the success of the tourism sector depends on the companies in this area, their activities and management. Therefore, it is with great hope that this study serves of importance in highlighting eco-friendly practices in the management of the tourism sector in the Azores and that it helps to empower more hotels to embark on green tourism in the region.

1.2. Definition of objective

The objective of the present thesis is to assess the effects of the eco-friendly practices on the accommodation unit of the tourism sector. This study intents:

- (1) Investigate the eco-friendly practices carried out by these accommodation units
- (2) Study the effect of these practices on the Azores tourism sector
- (3) Analyze the benefits of the eco-friendly practices and how they can be economically important

1.3. Definition of concepts

Next, some of the main transversal concepts throughout the work are presented.

Eco-tourism

Ecotourism is considered a travel and visitation carried out in an environmentally friendly way to relatively natural and undisturbed areas in order to enjoy and appreciate nature. (Ceballos-Lascurain, 1996 as cited in Luck & Kirstges, 2003)

Environmental Accommodation

These are accommodations that are designed in an environmentally friendly manner with the aim of meeting the goals of reducing negative effects of climate change on our environment. In this project while referring to environmental accommodation we shall be mainly addressing the hotels or other local accommodation units in the Azores which practice eco-friendly traditions aiming towards a more sustainable tourism. Hence Environmental accommodation will be also known as Eco-hotel or Green hotel.

Environmental Technology

In other words, environmentally friendly technology, they are those appliances and devices that have been introduced with the aim of meeting the goals of reducing climate change effects on our environment. Another definition of Environmental technology is defined by Design for Environment (DFE): as technologies which although they may be introduced for a number of reasons by companies, have the effect of significantly reducing the environmental impacts of materials, technologies, processes, products or services throughout the economy, (Environmental technology, 1993).

Hospitality

According to Merriam Webster's Dictionary, hospitality is a "generous and friendly treatment of visitors and guests or hospitable treatment." I suggest that this is usually a generous and friendly treatment as could be offered at tourism units such as accommodation, refectory, and every other place where visitors are received. The online dictionary, Dictionary.com defines hospitality as "the friendly and generous reception and entertainment of guests, visitors, or strangers." I highlight that the keyword in all the definitions is "friendly treatment," this friendly treatment offered by the staff or crew is aimed at making the customers feel at home and leave them with a good image of the company in question.

Sustainable Development

Sustainable development is the core assumption that human development and economic goals should be met while at the same time maintaining the natural resources and ecosystem. The main aim is that living conditions and natural resources in the world continue to meet human needs without damaging the environment or natural resources.

In other words, Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable tourism

According to the UNWTO sustainable tourism can be defined as “Tourism that takes full account of its current and future economic, social, and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities. (UNWTO, 2021)

CHAPTER II - LITERATURE REVIEW

Among the social, cultural, and economic factors linked to tourism in Small Island States, environmental conservation is of great relevance (Briguglio *et al.*, 1996). Small islands are highly sensitive to environmental problems such as marine and coastal resource degradation, climate change effects, rising sea level, water resource, waste disposal, land and soil resource usage (Lohani *et al.*, 1997). They furthermore face impacts from the demands of the tourism industry, including capital development projects, hotelisation of coastal areas (Ramos *et al.*, 2009).

In order to eliminate the consequences of environmental damage, not only large finances are needed, but a lot of time, because the time required for restoration is much longer than the impact time. As a prerequisite of sustainable tourism, the island tourism industry must act in an environmentally responsible manner compatible with the norms and culture of the destination. The stewardship of the environment must be carried out in line with the conditions outlined by the authorities of the island tourism policy objectives: the development of environmentally friendly tourism products; reduction of any negative environmental impacts of current tourism activities; increased efficiency of resource use, including waste minimization; fostering of environmental awareness among the island tourism entrepreneurs, employees, residents and tourists (Goodall & Stabler, 1992 as quoted in Briguglio *et al.*, 1996).

The issue of tourism and environmental conservation was rated quite high on the agenda of the United Nations Conference on sustainable Development in Small Island Developing States, held in Barbados in April 1994 and attended by heads of government of over thirty island nations (Briguglio *et al.*, 1996). The Conference determined that sustainable development was the logical answer and adopted the Barbados program of action for Small Island Development States, which identified priority areas and indicated the specific action. It was emphasized, that the development of tourism be carefully planned, particularly in relation to compatible land uses, water management, coastal zone management and the development of parks and protected areas. Tourism, like all forms of development in the coastal zone, needs to be carefully integrated within the existing cultural and environmental constraints and opportunities present within Small Island

developing States. Eco-tourism, linking areas of high ecological value to low-impact tourism, may present important and environmentally sustainable opportunities for tourism development in Small Island developing States (United Nations, 1994).

Sustainable tourism in the Azores has its origins in the development of a plan POTRAA in 1997, considering the importance of tourism planning and its contribution to the economy of the region. The plan was launched in 2008 with main vision of archipelago like ecological destination. A lot of attention also was paid to the reconstruction of old and construction of new tourism units to meet all the needs of tourists (Silveira & Santos, 2013). The quality of tourist units should be improved considering the latest environmental standards and development must be controlled including little impact on the environment, promotion of renewable energy, water supply and sanitation (According to the report of “Tourism and hospitality strategy in the Azores”, 2011).

It is impossible not to mention 2015, which was the year of the adoption of a new sustainable development plan known as the Agenda 2030. The UN General Assembly developed 17 Sustainable Development Goals with 169 associated targets, which provide a balance of three components: economic, social, and environmental.

The tourism industry is specifically included as a target in SDG 8, 12, and 14, but through its spread and influence, can contribute directly or indirectly to all 17 SDGs (The UN website).

Figure 1. Sustainable development goals



Source: The United Nations website

The Azores embodies its strategic priorities for the implementation of the 2030 Agenda for Sustainable Development in the SDG 4, 7, 8, 10, 11, 12, 13, 14, 15, and 17 (Azores Tourism Sustainability Management Policy, 2019). Therefore, tourism development in the nine islands of the archipelago must be based on a unique ecological proposition, combined with energy sustainability and a strategy to protect natural resources.

With regard to the research already carried out, specifically on the characterization of green business in the tourism sector in the autonomous region of the Azores by Bridge, João Crispim Carvalho Lourenço Borges de Ponte (2010). In this project Ponte (2010) carried out investigations in order to identify principles of corporate culture, and to verify the types of actions and practices that are adopted in order to promote the preservation and protection of the environment. It was possible to verify that the natural characteristics of the archipelago are a factor of differentiation in international markets and that the environment is considered an important element in the socioeconomic development of the region of the Azores.

In the present dissertation, I intend to go farther than just using natural characteristics of the Azores as a differentiation factor in international market; I will address the eco-friendly practices of hotels in the Azores and their effects as another differentiation factor while characterizing this phenomenon. Ponte (2010) highlighted that “the establishment of environmental practices is mainly promoted as consequence of economic motivations, since there is a positive correlation between planned investment and the expected return”, here I intend to address this issue from a point of view implying that the growing concerns of environmental issues has made is a necessity and thus leading to the wide spread of this knowledge and practice among the tourism sector units. This phenomenon is generally vital because it guarantees the sustainability of the tourism sector. Hence the research question shall be the following,

Research Question: How have the hotels and accommodation units in the Azores region been conscious of eco-friendly practices striving for the sustainability of their tourism sector?

2.1. Emergence of eco-friendly practices and its significance

In this part of the dissertation, an insight about how eco-friendly practices in hotels came about will be introduced. The historical eruption of the environmentally friendly practices from a broad-spectrum perspective will be addressed. I shall later focus on the evolution and significance of eco-friendly practices on the tourism sector.

The use of the terminology green to represent eco-friendly practices is elucidated in Ponte (2010) as having to do with pro-environmental; Ponte (2010) highlights that green business is the introduction of environmental practices and management in the activities of a company. The idea of sustainable development emerged after it was soon realized that industrial activities and indiscriminate use of the planet resources will affect the planet later in the future; and due to these future risks, actions must be taken in other to control industrial activities on the planet. These precautions must be taken in such a way that development could still continue however should continue in a way without causing any damages to the planet now nor hinder availability of resources in the future.

As the world entered the 20th Century the development which were soon gained from the industrial revolutions continued to spread out and paying attention to the impacts of industrial activities was distracted by the Great Depression of the 1920s and World War II in the 1940s (Henry & Vesilind, 2005 as cited in Ponte, 2010). The emergence of the environmental movements in the 1960s pioneered new environmental politics for dealing with businesses. Oldenzel & Trischler (2015), highlight that the 1970s were culturally reframed as thoroughly different from earlier decades, and this time witnessed the resurrection of older practices and technologies such as cycling which were suggesting continuity from the old days (Oldenzel & Trischler, 2015). This phenomenon was aimed at recovering the notions of sustainability. Lampe & Gazda (1995), maintain that the Green Revolution gained a stronger stand with the creation of the Green Party in Germany in 1970s, and that the activities of Green Party were a utmost factor in green revolution among the European countries.

In the tourism sector specifically, the need for introducing eco-friendly hotels which are environmentally responsible became more conspicuous as the rise of the tourism

sector was blooming. At the early years there were known as eco-lodges because of their location which was mostly in the rural areas and the design of these accommodations were traditionally inspired using local or traditional building equipment's and local architecture. With time, this kind of accommodation began to be improved and despite being built in a modern way or with modern architecture in the cities, they tried to be identified by the use of non-toxic materials, eco-friendly housekeeping practices and use of renewable energy, organic soap, electricity-saving features, and recycling programs. All these phenomena are inspired by the notion of save the planet whose goal is also motivated by the aim of sustainable development.

The nature and location of the Azores region is favourable; it is located in the middle of the Atlantic Ocean with great landmarks and scenery, volcanic eruptions, waterfalls, mountains, lakes, and many other components of the natural environment. Therefore, we could say that the Azores region is a great destination for the eco-tourism lovers. Jauhari (2014) maintains that "Green has become a "buzz" colour in the hospitality business". It is in this view that we maintain that the natural components of the islands in conjunction with the rising trends of "save the planet through green practices" have motivated eco-friendly practices in accommodation units in the Azores region. This phenomenon is not only in the Azores but in the tourism business in the world at large.

In the next chapter the various eco-friendly practices will be addressed, highly recommended practices to new as well as old hotels, using these practices will be good for a better and sustainable tourism the Azores.

2.2. Eco-friendly practices

In this chapter some eco-friendly practices that are used in the hotels will be addressed. There are so many eco-friendly practices; however, I will be specifically looking at these practices which are very useful; In my opinion and based on my analysis these are important practices which hotels and accommodation units need to pay attention to for a sustainable development in the tourism sector.

2.2.1. Changing of bed sheets and towels

One of the challenges involved in changing bed sheets for every hotel is the number of resources needed in accomplishing this task. There is need to use electricity (energy), water, detergent and human resource who will ensure that this washing is carried out properly. On one hand, cleanliness is good and as such bed sheets and towels should be always replaced by washed bed sheets and towels in order to ensure cleanliness and hygiene for better health. On the other hand of the coin, in consideration of the environmental damages, replacing towels and bed sheets too often will cost so many resources and affect sustainability of tourism. It is due to excess risk of climate change that we realise that it is worth putting into consideration and understanding clearly if we really need to keep spending such resources on hygiene even when the towels and bedspreads are used by the same person within short amount of time or days.

While not changing bedspreads and towels may appear to some customers or guests as unhygienic, it is important that the hotels take the responsibility to inform them of the purpose of the introduction of these practices by writing some small notes about these and putting them in the rooms. Moreover, just as I mentioned in the beginning of this work, there are more and more people getting conscious about the environmental damages we are causing to the planet; therefore, customers will be willing to cooperate in this regard. Besides writing of small notes and hanging them in rooms to inform guests about these practices. Gursoy (2018) highlights that hotel reuse programs which recommend guests to take voluntary actions to contribute to environmental protection are a form of social marketing; “Social marketing is the use of commercial marketing concepts and tools to create voluntary behavioural change for the benefits of individuals, society or the environment” (Hall, 2014 as cited in Gursoy, 2018). Gursoy (2018) mentions the works which give credit to hotels’ use of hanging message to encourage the guest, noting that this form of appeal messages has been the most apparent ways hotel get their customers participating in the fight for environmental protection, (Goldstein *et al.*, 2008; Shang *et al.*, 2010; Dimara *et al.*, 2017 as cited in Gursoy, 2018).

2.2.2. Avoid the use of plastic water bottles and other plastics in wrapping, straws

The dangers of using plastic have been emphasised for its effects on our health besides being harmful to our environment. Morrison 2011 highlights that plastics marked 3 are polyvinyl chloride (PVC) plastics used for creating food wrap, cooking oil bottles and plumb pipes, these type of plastic contains phthalates which can be released into the food if the plastic is heated. Evidence have shown that toxic chemicals leach into food when it is heated therefore it is paramount that plastic be avoided as much as possible (Morrison, 2011). Similarly, Lourie & Smith (2010) highlight a table of a handy plastic guide which identifies that plastics numbered 1, 2, 4 and 5 are the only safer plastics that could be used.

The dangers of plastic affect not only our health, however including our planet. One of the main issues with plastics is the inability to be completely recycled, moreover its chemical contents make them even more toxic and dangerous including when they have become just particles. Carter & Carter (2019) maintains that “almost all the plastics ever produced remain on or near the surface of the earth, often degrading into tiny particles called micro plastics. In this view, while considering the dangers which will be posed to the planet and to our health, it is strongly recommended that hotels as well as people avoid the use of plastic water bottles and other plastic wrappings in solving their daily needs.

2.2.3. Automatic switch – off of heating and air-conditioning of room when guest is absent

In order to save electricity, it is advisable that accommodation units install modern environmental technology which helps to save energy. Solway (2008), highlights about buildings having automatic control system over heating and air conditioning. This modern technology is designed in a way that there is timer system for hot water and central heating. Moreover, in large office buildings there are building management systems which are managed by a computer which controls, the lights, ventilation, heating air conditioning and many other things. If hotels introduce this environmental technology, they will be able to save energy, for example if the computer heating systems are set based on booked rooms, the hotel management will avoid heating the entire hotel rooms where there are no guests. In this way the hotel will be able to save energy; the main aim of this

phenomenon is to avoid waste of resources and reduce the risk of global warming. Mulvaney (2011) notes that a key prominence in the fight against global warming is cutting down on amounts of energy used up by businesses around the world.

The technology of automatic switch-off of energy is very important in hotels and could be very useful not only in the area of saving irregularities about heating or cooling that sometimes waste electricity however, automatic switch-off of energy will save energy where some of these devices such as lights bulbs (non-sensor lights), vacuum cleaner, washing machine, radio, television or other appliances maybe connected to electricity and left unattended to by anyone. Solway (2008) highlights that the standby power mode of these devices is the principal way in which energy is wasted. Despite being on standby, it is still connected to electricity, most devices on standby use only 10-15 watts of power but since there are many of these kinds of devices, if the 10-15 watt of each device is added then they will amount to so much energy wasted.

2.2.4. Put Water savers on taps

Reducing water consumption is one of the eco-friendly practices that are paramount and commonly practiced among hotels recently. Due to the large volume of water which could be wasted, there are several ideas that have been suggested by writers; Wilkes (2010) highlights some important tips on how to reduce waste of water; water in faucet should be made to run like the size of a pencil.

The importance of saving water resources can be helpful in several ways to the hotel establishments:

1. Reduce cost for water bills

The amount of money spent on paying bills will be reduced if the water quantity used is also reduced. The water bill is among the bills which hotels have to deal with from time to time, and as a matter of fact, reducing a bill from the entire management funds will have a positive impact on the business at large

2. Reduce management resources

Since not every kind of water is drinkable, water has to go through several processes before it becomes drinkable. Water in its raw form is first of all delivered to the

water treatment plant where the main five processes of making water drinkable are carried out. These processes are chemical coagulation, flocculation, sedimentation, filtration, and disinfection. Reducing water consumption will also reduce the cost of carrying out these processes because the less water required the less these processes will be needed for making water consumable.

3. Saving the environment.

Excess use of water could lead to drought, water scarcity and other environmental issues, therefore when we reduce excess use of water, we will be saving the environment. Like already mentioned in number 2, reducing water usage will reduce the energy needed for processing water to deliver it to homes, farms, communities and businesses, and this phenomenon will in turn reduce pollution and conserve fuel.

In view of the numerous importance from reducing water consumption, it is strongly advised that hotels put water savers on tap in their hotels in order to reduce water consumption and save the planet.

2.2.5. Provide more rubbish cans in the rooms

It is very important that rubbish cans be made available outside and including in the rooms. The separation of waste is a very common and important measure for saving the planet. This is because when we separate waste, we can later recycle about 60% of the waste. This will help us avoid exploring these resources, for example,

1. Papers, books, newspapers are made from trees, by recycling these products we reduce the number of trees that will have to be cut down yearly for the necessity of creating more books, magazines, and newspapers. While we reduce the number of trees which are cut down, wildlife will also be conserved, and our environment will be protected.
2. Plastic bottles and cans could be recycled and used to create other plastic objects or containers for saving our belongings, recycling plastic will help avoid the need for creation of more plastics. Reducing the amount of plastic created will also help protect the environment which suffers from plastic waste.

3. Broken glasses or glasses in good shape could all be used again, while, the broken glasses could be used to make a glass jar, glasses in good shape could be taken back to the companies and refilled. In this way, limestone, sand, ash, and soda which are the natural resources for glass creation will be used less. Reducing the necessity for these resources will help preserve these resources and our environment at large.
4. Metals could be reused, for example, aluminum and steel could be used for packaging again. Other metals could be used for creating new appliances or building materials. Recycling metals will reduce the need for mining and extraction of natural resources like ore which are used for creating metals.

Even organic waste can be used as fertilizer and applied to the soil, the point I try to highlight here is that each and everything we use and dispose in the rubbish can could be used again. This is why it is important to separate them, without separating them, it will be hard to recycle. Therefore, it is very important to recycle, and to create opportunities for people to recycle even in the hotel rooms.

It is vital to educate the people about the importance of recycling, and how to recycle, for example, always give some common tips about recycling and the different colours for each rubbish can. Blue, Yellow, Green, and black are common rubbish can colours we see. As a result of avoiding space consumption in the rooms, when the rubbish cans are put in the room, they should be in smaller shapes, and they should maintain their usual colours in order to avoid confusion. When hotels ensure waste separation in everywhere, they will be able to benefit from this equally.

2.2.6. Mount a refillable shampoo and soap dispenser in the bathroom

A refillable shampoo or soap dispenser will also reduce cost like other measures of eco-friendly practices discussed earlier in this chapter. Before starting to analysing the benefits of a soap dispenser, I will describe the phenomenon in question. Refillable shampoo and soap dispenser are made of metal, wood or even plastic too and kept usually in the bathrooms, or places with sink for the purpose of hygiene and cleaning, the good thing about these refillable products is that you do not have to buy those plastics often

and often again. Whenever you want to replace them, you can buy shampoo or liquid soap in larger cans which can be cheaper in many cases.

This situation will have the following benefits,

1. Refillable shampoos and soap dispensers reduce the cost of managing a hotel. The shampoo and soap which are sold in the larger quantity are cheaper than those in smaller quantity. Therefore, mounting refillable shampoos and soap dispensers will reduce these costs.
2. Reduce environmental damages of having to deal with the waste from the containers or wraps of new products. If you always have to unwrap a shampoo or soap, you may be faced with the problem of separating the waste. Some shampoos and soaps are first wrapped in paper as the primary wrapping before being wrapped in the secondary wrapping which is usually plastic. Using refillable shampoos will reduce these problems which in turn help save the environment from pollution.
3. Using refillable shampoos and soap dispensers will also help reduce the need for using a bar soap which gives you trouble, for example, with a bar soap one must be careful to avoid water spilling on it when it is not in use, because if water continues to spill on it, the soap becomes softer, and it finishes faster. When your soap finishes so faster you would have to replace it by buying it over and over again. Therefore, because you are using a soap dispenser you will not face these challenges because the liquid soap is protected by the dispenser and does not wear out by contact with water. This means that you will not only save the environment but also, you will save yourself stress of preserving soap and save money.

2.2.7. Eco-friendly florescent light

Florescent lights are more eco-friendly than every other kind of lights, fluorescent lights help to reduce the amount of money we spend on the electricity. According to Energy.Gov, Fluorescent lamps use 25% - 35% of the energy used by incandescent products to provide a similar amount of light, they also last long for about 10 times longer which is 7, 000 to 24,000 hours (Energy.Gov, 2021). On this same note, Kocsis maintains that compact fluorescent light bulbs which are also known as CFLs use 25% less energy

than standard incandescent light bulbs and additionally they are made to last 10 times longer (Kocsis, 2010). Roberts maintains that the most energy efficient option for kitchen lighting is fluorescent and that they consume 2/3 less energy than incandescent lights, they also generate 70% less heat and last eight to 10 times longer, therefore it is advised that the lights to be used in the kitchen should often all be fluorescent (Roberts, 2006).

The importance of saving energy has been emphasized by several other sources due to the benefits of not only saving the environment but also the cost reduction benefits which the hotel establishments can gain while using these eco-friendly fluorescent light.

In the area of environmental benefits, Hewitt maintains that he found an interesting fact about CFLs on the website and if every household in the US replaced one light bulb with an Energy Star qualified compact fluorescent light bulbs CFL, it would prevent enough pollution to equal removing 1,000,000 cars from the road (Hewitt, 2015).

Therefore, in consideration of the economic benefits and protection of environment this project strongly advises that hotels and accommodation units should introduce the use of florescent lights within their establishments. While hotels do these they will be helping their businesses as well as helping the environment simultaneously.

2.2.8. Notices on prints or multimedia displays on outlets

Notices on prints and multimedia displays on outlets are wonderful ways of educating the general public about the dangers of environmental crisis and their impact on the world. Like I highlighted in number 2.2.5 of this section on eco-friendly practices, I emphasized the importance of educating people about the different colours of rubbish cans which are used during waste separation. Using notices on prints and displays on outlet could serve as a way for hotels to engage in spreading the word about these kinds of information.

Other means of spreading the information could be through pamphlets or setting a section in newspapers and magazines aside mainly for addressing eco-friendly information. I emphasize the importance of information because information is the key to

getting people educated about this issue, education on the other hand helps to make society function adequately.

Without the people being educated about this issue the efforts of the few people who know about eco-friendly practice will be futile, for example if five people are living in a house and they are all informed about a window which is in bad shape and must not be opened because it risks breaking in to pieces, the five people may all live without opening this window until the problem is resolved, but if two people out of the five are not informed about the situation, they are likely to open this window and the precautions which the other three people tried to avoid will be in vain.

This is similar to the environmental crisis issue, if some people are ignorant or uninformed about the dangers of their actions, it puts the efforts of those people who are taking precautions about the climate change in vain. The efforts should not be made only in regard to preserving the planet or respecting eco-friendly norms, however, more and more efforts must be made to inform the general public, to educate the people in very easy and comprehensible way so that even illiterate can understand about what they have to do, because the more people are educated about this issue the better we will be able to control the situation.

Having in mind that even the illiterate must be reached and informed, therefore I suggest that print multimedia displays could be suitable for sharing such social advertisement. Short advertisement videos could be used to pass the information.

2.2.9 Educate the staff

Educating the members of staff is very important, like it was already highlighted in number 8, here also I maintain highlighting the importance of education, and this time specifically will be focusing on the members of staff in the hotels. In order for the hotels to be able to embark on the eco-friendly practices effectively, it is vital that the members of staff be all educated on respecting all the norms. During recruitment, green hotels should pay attention to candidates who have profiles with knowledge of eco-friendly practices. This will mean that the hotel management will have less task of having to

educate the staff from the scratch of zero level. Candidates who also have experiences of having volunteered in community exercises related to preserving the environment could also be given priority because, these activities are part of the formation process of making an individual aware about his or her responsibility.

After recruitment of members of staff, it is a norm that new members are always given orientations and welcoming packages. I suggest that these activities are great options where hotels could include the education of the members of staff about eco-friendly practices. On this note writers who have written about education or training in organizational setting have said that it continues to play an important role in the organizations. Elkjaer *et al.*, (2022) highlight that while teaching will continue to be an important activity in the educational system the potential of letting go of the traditional system and instead embracing the joint ventures in collaborative learning in the organization should be investigated.

2.2.10. Reduce food waste

Reducing food waste is important for reducing global-warming and environmental crisis. This point is related to the previous point which was addressed in number 2.2.9. While in number 2.2.9, I emphasized the importance of educating the staff, here I emphasize that if the staff in restaurants of the hotel are educated about the implications of food waste they will be able to work towards reducing food waste and protecting our environment. Aschemann & Winkler (2017) maintain that about one-third of the total food produced in our world is being thrown away, the authors highlight that this represents 1.3 billion tons yearly. Pandey *et al* (2019) also maintain that one-third of food intentionally grown by humans is never consumed (Food and Agricultural Organization as cited in Pandey *et al.*, 2019). Food waste goes a long way through several stages of wastage because the food production from the farm to final consumer stages is very complex. In developing countries, there are still very few techniques of food preservation, therefore food waste in these countries even start during the production process, also during the transportation of food, food could also get wasted. After food has finally been transported to the supermarkets and stores, food still suffers wastage as a result of

1. Lack of customers,

2. Overripe food
3. Poor storing facilities
4. Poor transportation process
5. Bad Weather
6. Excess purchase of food

After food is bought from the supermarkets and taken to restaurants and cooked, there are still situations that lead to food being wasted.

1. Excess food prepared
2. Fall in demand
3. Excess ordering of food

We can see that food wastage happens in almost every part of the production line until it reaches the final consumer. This phenomenon is what leads to affecting our planet because one of the highest levels of greenhouse gas emissions comes from the food industry (Aschemann & Winkler, 2017).

There are several ways which restaurants could reduce food waste.

1. Avoid preparing so much food.

If food is prepared in large quantities, they end up not being all consumed, in this case the food becomes wasted, because the hotel or restaurant can not make money from it, this also affect the budget of the hotel or restaurant. Therefore, this project strongly suggests that care must be taken that food be made in proportion relatively to what is usually on demand.

2. Food could be made half done or half ready. If food is prepared halfway, it is faster to finish the preparation when the customers arrive, and it saves you from having left-over of already cooked food which is wasted if not all consumed.

Therefore, hotels that encourage green practices must ensure that their restaurants carry out measures leading to reducing food waste as much as possible. Reducing food waste will also lead to reducing the greenhouse gas emissions which are harmful to our environment.

2.2.11. Building maintenance

In the words of Olanrewaju & Abdul-Aziz (2014), while new buildings should be designed and operated to incorporate green initiatives the maintenance of existing buildings must be made to address green practises (Olanrewaju & Abdul-Aziz, 2014). Maintaining a building helps to sustain the building's life cycle and impact to our environment. The construction of a new building requires so many resources, for example water, land, building materials of several sources. If a building is not maintained, it usually must be reconstructed when it becomes damaged, therefore, maintaining buildings will delay their damage and reduce the necessity for building new buildings which will consume our resources. In this view, newly constructed buildings are advised to use the required features for eco-friendly buildings; these include

1. Providing room for the use of renewable energy, such as solar panels
2. Creating room for good indoor environmental quality
3. Putting in mind the environment while laying down the construction plans
4. Avoid using toxic materials in construction
5. Reduce excess use of resources
6. Reduce the use of energy during construction

With these points in mind, construction of new buildings can be assured to be following green initiatives, contributing to the preservation of the environments and lasting stronger.

In summary, this chapter addressed the importance of green practices and one of the main points I would like to recapitulate is education. I highlighted that no matter how many people are aware of eco-friendly practices, the information has to continue being spread to all the people or else the efforts of the people who are aware may be in vain if the entire people are not aware of the situation, they will risk damaging the efforts of those who know about the environmental crisis. This chapter also emphasized that eco-friendly practices were very economically healthy for the hotels which practices them for example,

1. Reducing food waste will save money from being wasted,

2. Reducing the number of times towels and bedsheets have to be replaced will save resources for cleaning
3. Using refillable shampoos and soap dispensers save money since the refillable contents are bought in larger quantities are usually cheaper than the ones in smaller quantities with different packaging.
4. Using eco-friendly florescent lights will save money because these last longer and save energy at the same time.
5. Putting water saver on tap will reduce water wastage and save money
6. Using automatic switch-off of heating system will save energy from being wasted and this is also aimed at reducing the economic costs of administration of the hotels in general.

Therefore, the two main points of the present chapter were that

1. More and more people have to be educated about environmental crisis and the need to adhere to eco-friendly practices.
2. Eco-friendly practices are more economically healthy for the businesses as well as for our environment.

In the next chapter I shall analyse the answers in the survey questions which was carried out for this project.

CHAPTER III - COLLECTED SURVEY DATA ON THE RESEARCH AND ANALYSIS

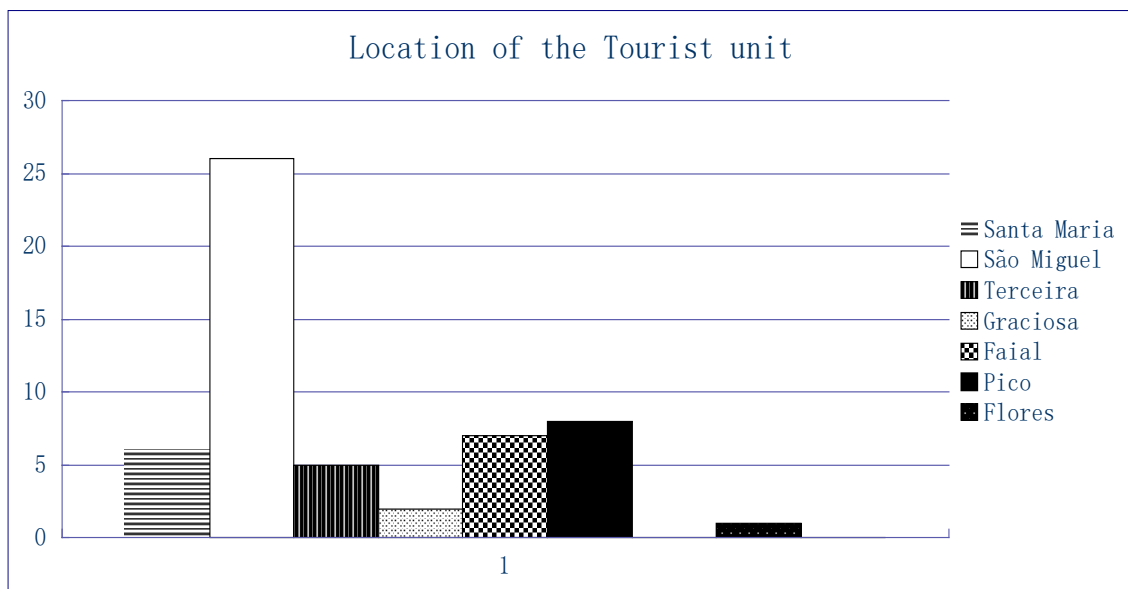
In view of the situation of corona virus crises, Covid-19, the following research was made in form of an online survey with Microsoft Forms and sent to the various tourism units, specifically accommodation units in the Azores. Once again, I restate that one of the main aim in the present dissertation is to characterise the eco-friendly practices in accommodation units in the Azores. With this motive, this survey questions have been designed in order to obtain more detailed information about this sector of tourism in the Azores. Since the Azores comprise of nine islands it has been put in mind that this survey covers the nine islands and deals with information in relation to them, such as the size of tourism units, on which island exactly the establishments are located, their capacity size and how long they have been operating. These questions and many more will be addressed in order to arrive at understanding the nature of the eco-friendly practices in the accommodation units of the tourism sector in the Azores. In total, 526 questionnaires were sent out, of which 56 responses were received, which is 10,6% of the total number of sent out questionnaires.

3.1. Location of tourism unit

The Azores region consists of nine islands of which São Miguel is the largest and most populated island in the region. Considering the population and size of São Miguel Island, tourists visiting this region will more likely choose this island, and also because of the large variety of tourist sites on this island. Therefore, it is logical that the tourist units on the Island of São Miguel will be more than tourist units on other islands in the region. The first question of the survey of which the result is represented in the graph below affirms this hypothesis that the larger the island and population the more the provision of accommodation for the tourists. I reference the hearing at the US Senate (1961) Padre Island National Seashore where it was mentioned about the Padre Island in Texas, it was highlighted that “the larger the area the more tourist it can attract”. In this view, I note that larger numbers of tourist will be drawn to São Miguel due to its size. Therefore, it is previewed that establishing a tourist unit on this island will give a business

owner more chances of getting customers. Moreover, establishing an accommodation unit should follow principles of eco-friendly practices, in this way the business owners can gain features of differentiation for their marketing and grow more successfully.

Figure 2. Location of tourism unit



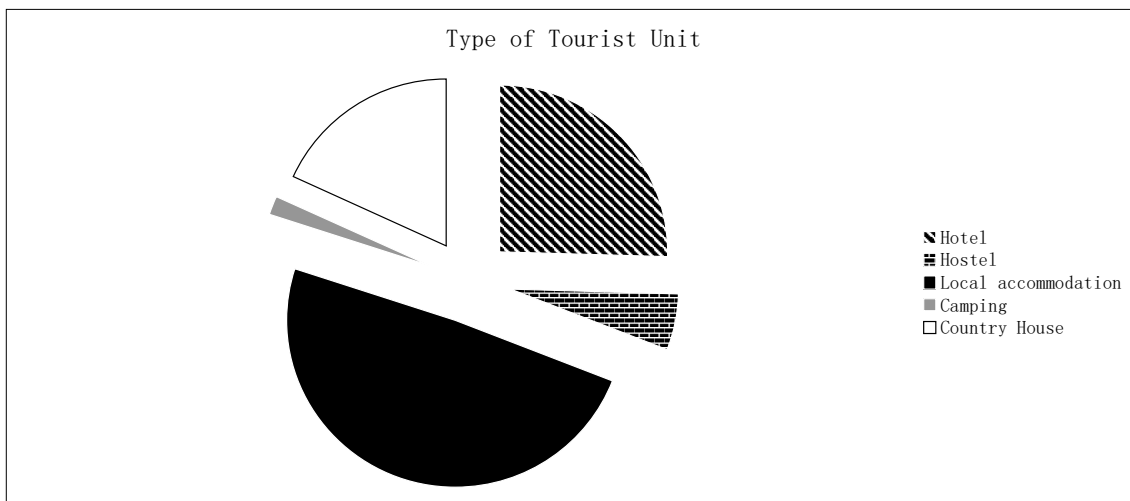
In the above graph we notice that the number of tourist units on the Island of São Miguel were 26, this number makes the island reach the highest number of tourism unit in the Region. With this number, it is understood that the capacity of the São Miguel Island hosting tourists is also high. If tourists accommodation units continue to grow on this island without precautions taken in relation to the global warming, the São Miguel Island may sooner or later be vulnerable to the effects such as overcrowding and overpopulation, these will lead to a reduced quality of nature tourism experience.

The second island with the largest tourism accommodation unit is Pico with 8 tourist units. Pico Island is said to have the highest mountain, with its 2351 meters of altitude it is the highest peak in the whole of Portugal. In the third place is the Island of Faial which has 7. Santa Maria has 6 tourist accommodation units, Terceira has 5; The Island of Graciosa has 2 units while the Island of Flores has 1. Tourism units from São Jorge and Corvo Islands unfortunately are zero, which is why they do not even appear in the graph above; however, I highlight that this survey was not answered by all the accommodation

units, therefore there may be some tourist units that did not participate in this survey but yet operate on the island.

3.2. Type of tourist unit

Figure 3. Type of tourist unit



The above chart figure 2 represents the proportion of different types of tourist units that are available in the Azores, hotels, hostels, camping, country house and local accommodation. According to the graph above the local accommodation is the highest number of tourist unit used; since this unit has the largest percentage, its portion is of 49.1% in the chart. I suggest that this is due to the nature of the Azores region and the type of tourism popularly practiced in the region. The Azores region is more popularly involved in nature tourism, Agro-tourism, and rural tourism; therefore, it is certainly convincing and logical that the local accommodation units will be highly on demand than other types of accommodations such as hotels and hostels.

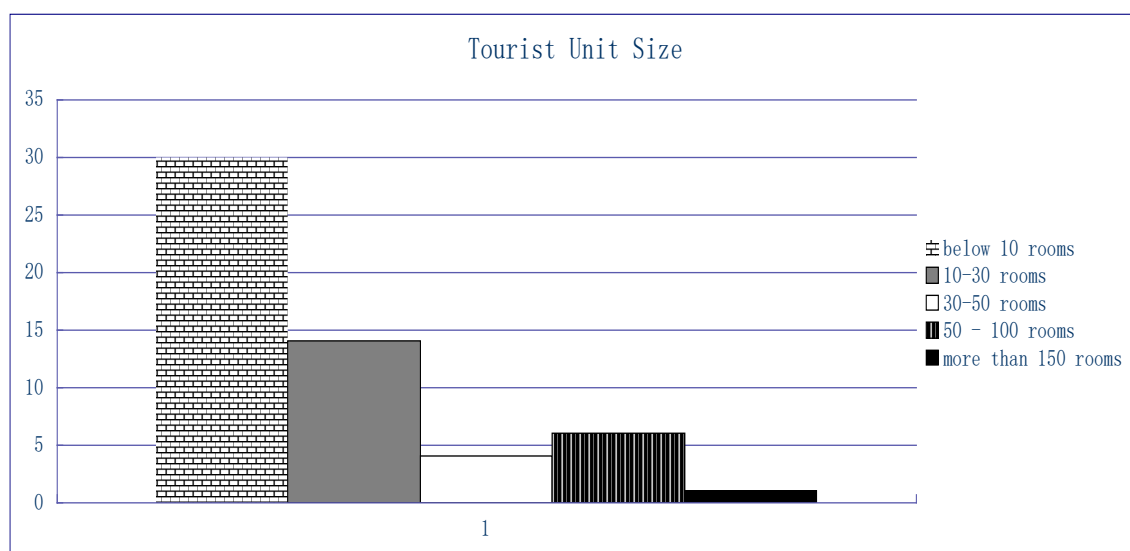
The hotels and hostels in the chart are 25.5% and 5.5% respectively. It could be noted that the country house and camping are generally parallel to local accommodations since they share the similarities like being in rural areas and the belief of having less toxic waste for the environment. Consequently, if the percentages of local accommodations, camping and country house in the chart are added, we realise that the proportion rises to 69.1%.

With this situation I interpret that the accommodation units in the region have the potential of eco-friendly practices.

3.3. Unit size

The size of the tourist accommodation unit is important when considering eco-friendly practices. This is because the more space or accommodating capacity, the more responsibility of dealing with the waste and other managements of the units. The graph below from this survey highlights that most of the accommodations have a size of less than 10 rooms. This may be interpreted as a positive advantage for the business owners since its management will not have to do with so many people. Rooms between 1 and 10 are at a scale of 30, this is followed by tourists units of rooms between 10 and 30, as the second highest number of rooms we have in the region. The rooms between 30 and 50 are in the third place and appear to be very few. Tourist units with room size between 50 and 100 fall in the fourth place. There was only one accommodation unit with more than 150 rooms.

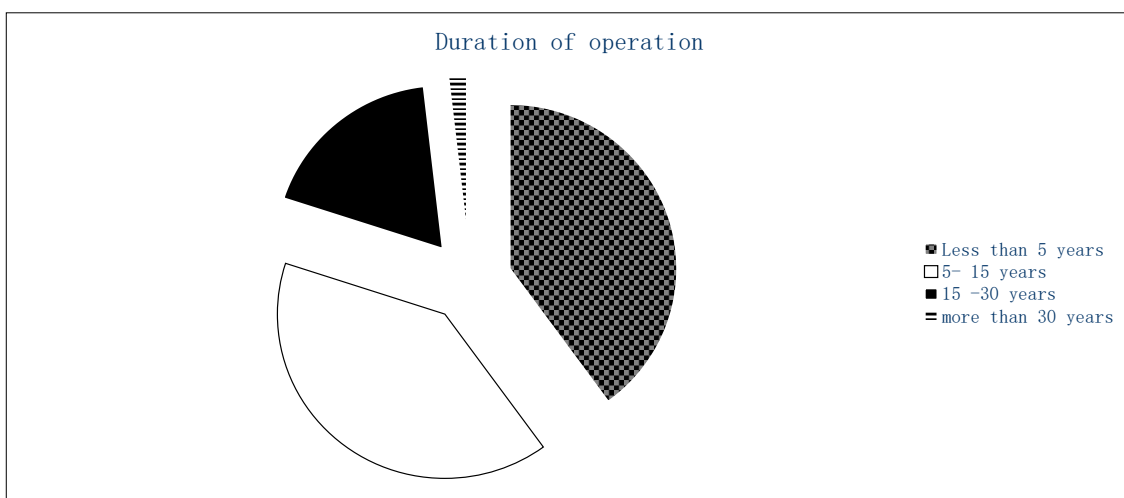
Figure 4. Unit size



3.4. Duration of operation

The duration of time accommodation units has been operating is divided in to “less than 5 years”, “5 to15 years”, “15 to 30 years” and more than 30 years. The aim of the question was in order to be able to represent the growth of new tourism industries in this region.

Figure 5. Duration of operation



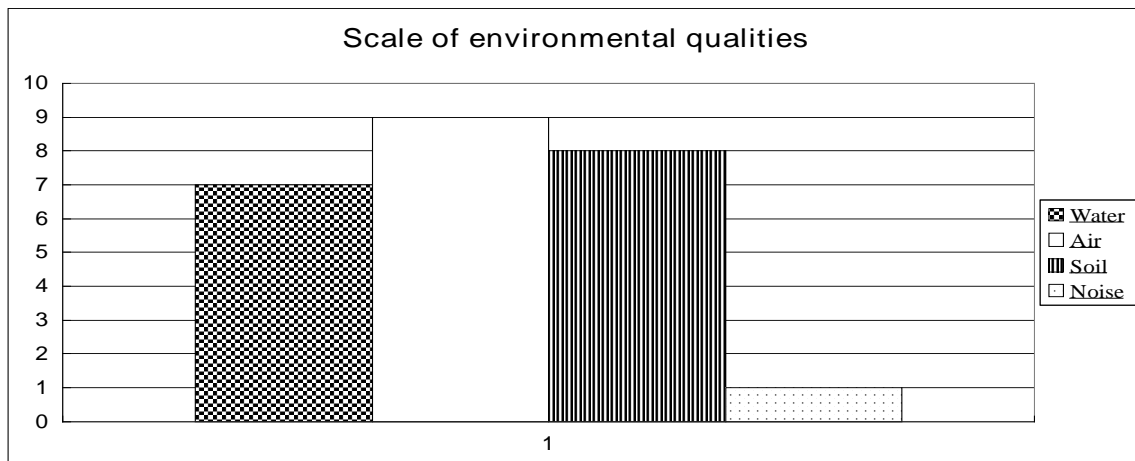
The graph above shows that there were more novel tourism companies in the Azores than older companies; for example, a larger proportion of the accommodation units responded to have been operating for less than 5 years; another large proportion responded to operating in the Azores for duration between 5 to 15 years. The last two groups just mentioned outnumber the remaining numbers of accommodation units which responded to operating 15 to 30 years and more than 30 years above. Base on this observation I suggest that the Azores region is growing at a fast velocity in the tourism sector and therefore the new companies will be more aware of eco-friendly practice since the trends for save the planets are recently high.

3.5. Rate of quality of environment on the Azores islands

The rate of the quality of factors such as water, soil, air, and noise also show a good result from the survey.

The graph shows that only a few accommodation units and hotels consider the water in the Azores to be in bad quality, most of the hotels considered that water quality in the Azores is very good.

Figure 6. Rate of quality of environment on the Azores islands



A few other hotels also considered the air to be bad however most of the hotels considered the air quality to be good and unpolluted, I support this while using as a reference the fact that air pollution is usually caused by large numbers of industries, excess car combustions (emissions), it is logical that with the low number of population on the island, the industries will be fewer, the number of cars may not necessarily be fewer but thanks to the use of green or low combustion cars there will be lower emissions in the air. All these will lead to a better atmosphere, the quality of the air will be natural and free from contamination. In the above graph representation of figure 5, air quality is most highly rated by most of the hotels. This shows how the atmosphere of the Azores is eco-friendly and natural.

Borges de F (1867) describes the Azorean soil as a soil of exceptional richness which produces all kinds of grain, potatoes, and onions, there are also orange trees and other pineapple plantation and so on... (Borges de F, 1867). The answer from the above graph reaffirms that the Azorean soil is very good. Only a very few hotels did not rate its soil quality very high. I highlight that the Azores is also known as Green Islands and that the

green vegetation is a proof of its soil fertility. This the author believes is a good attraction for lovers of nature tourism and it is a good natural factor.

In relation to “noise” I would first of all interpret its sense where it is used among the natural features. The word noise here aims to imply tranquillity or peace of the environment rather than the negative meaning of noise. The option about “noise” has the best feedback from all the hotels, this is rational. Since the population is not high it is more likely to be a peaceful environment without noise. The Azores islands are without noise or disturbances and a great place for tourists who want to take rest from the usual city life and its air pollution, noise pollution among others.

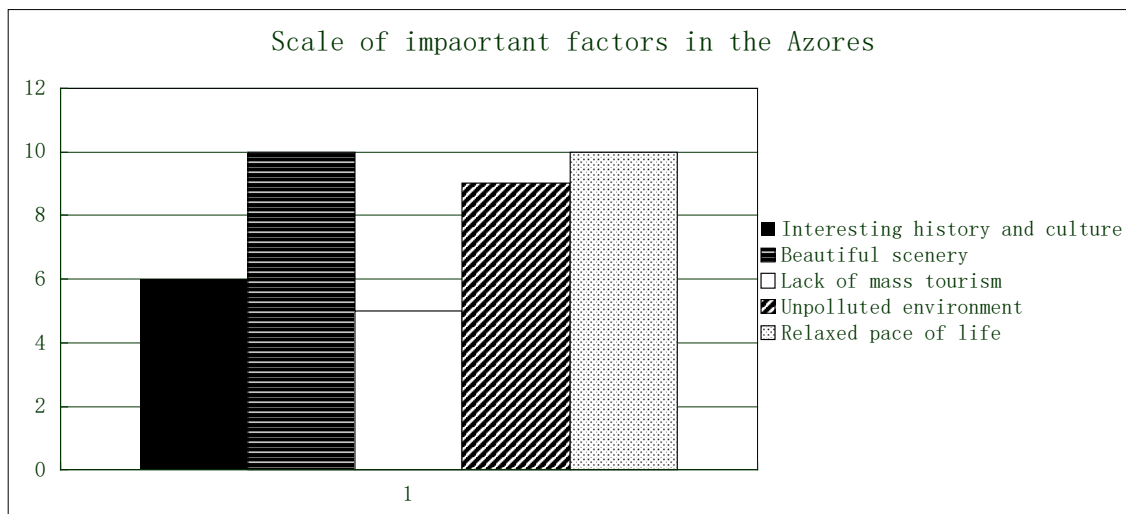
3.6. The rate of importance of nature tourism factors in the Azores

Dowling *et al* (2005) highlight that ecotourism is primarily founded on natural environment centring on its biological, cultural, and physical features. The Azores region has many of these features and they represent a great attraction for tourist. Certain factors are unfortunately not as important as others despite being eco-friendly factors.

Considering some of the natural factors in a tourism destination five factors in the case of the Azores are highlighted, these include history and culture, beautiful scenery, relaxed pace of life, unpolluted environment, lack of mass tourism among others. This result is based on the answers from the accommodation units in the Azores in our survey.

From the graph, it could be understood that the first factor “interesting history and culture” is not considered a very important factor of the tourism industry in Azores, in regard to this factor, most of the hotels chose between “not important”, and “medium importance”, this rates 6 on our scale of 1 to 10. The second factor “Beautiful scenery” is one of the strongest factors of attraction to the tourism sector in the Azores, due to the Nature of the Azores. Most of the answers indicate that this factor is of great importance to the tourism sector “very important”, hence it rates 10 out of 10. I emphasise that the beautiful scenery in the Azores is made of natural landmarks like waterfall, volcanic eruptions, mountains, and lakes. These constitute a major part of the attractions that motivate tourists to come to the Azores.

Figure 7. Factors of Azores tourism and their importance



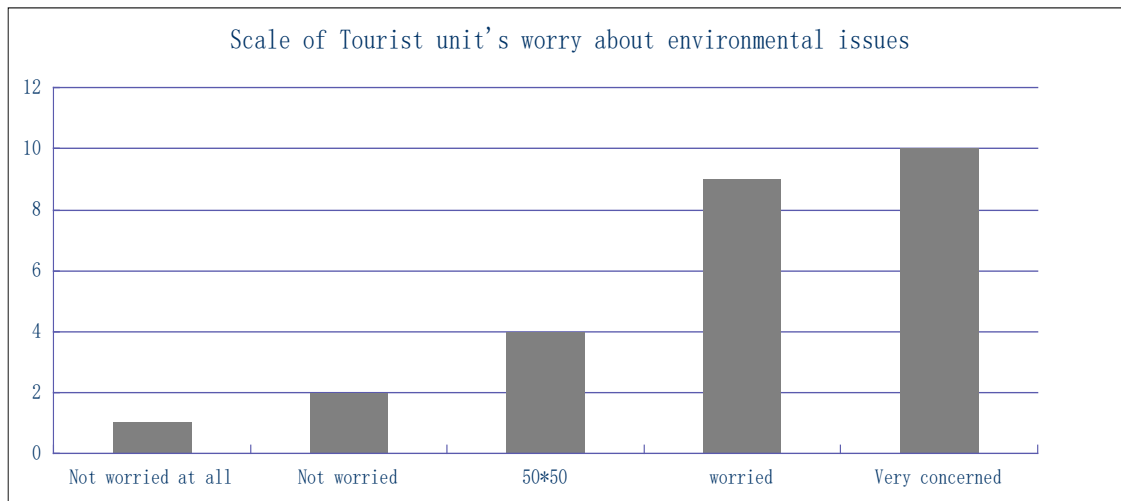
The third factor is “lack of mass tourism” or in other words “lack of congestion”. With this factor I try to emphasize the fact that the area is not overcrowded with tourists. This factor was considered of less importance to certain accommodation units; tourists do not put this factor much into consideration when choosing the Azores as a travel destination. Consequently, it is not important or of medium importance and it rates 5 on a scale of 1 to 10. The fourth factor “unpolluted environment” specifically relates to the features of nature tourism. The absence of air pollution, water pollution and noise pollution are common features in nature tourism destinations, the Azores region is not an exception. According to the answers in this survey the factor “unpolluted environment of the Azores rates 9 on a scale of 1 to 10 as a motivating factor for tourists to visit the region.

The fifth factor “Relaxed pace of life” is another factor which rates very high or very important in the tourism sector in Azores. The lack of mass tourism and unpolluted environment create room for tourists and residents to have the chance of relaxing and having peace and serenity.

In the next graph I shall address the environment from the point of view of the accommodation units and how the accommodation units impact the environment.

3.7. Worries about environmental impacts of your tourist unit

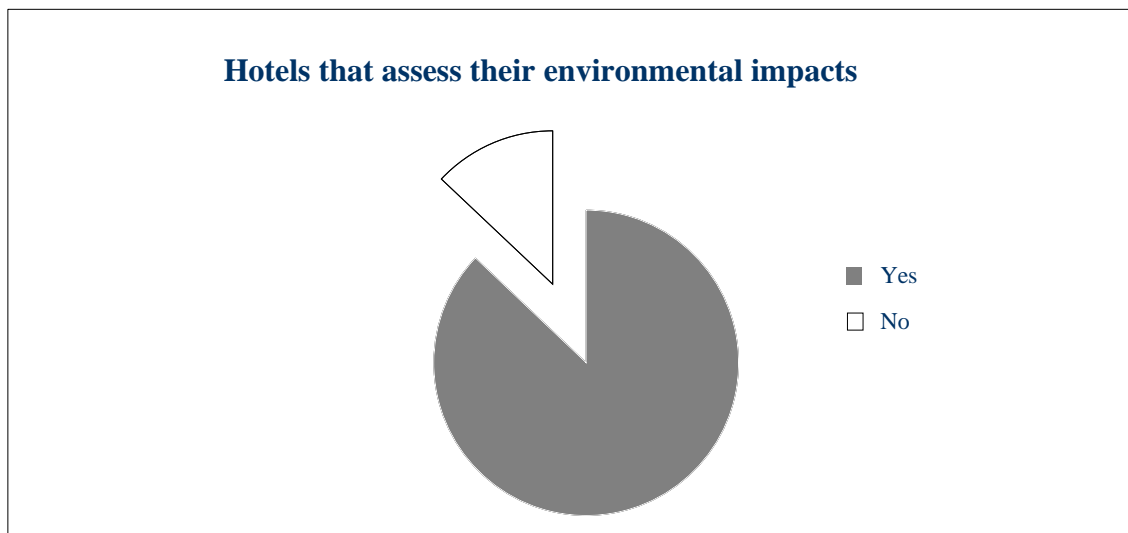
Figure 8. Scale of tourist unit's worry about environmental issues



The above graph illustrates the level of concern or worry of the accommodation unit in the Azores in relation to the issue of eco-friendly practices. It could be noticed that majority of the hotels in the Azores expressed great concern to the issues of environmental crisis. This implies that they will be taking measures towards this issue since being aware of a problem already keeps us halfway from solving it. I say this based on the fact that while not knowing about our problems we may not bother about taking steps towards solutions, however when we are aware of our problems and challenges, it is logical that we begin to address these problems by finding solutions to them. Consequently, I suggest that the level of awareness of a problem makes us more able to address it. Moreover, I reference the words of the head of innovation at General Motors which reads “a problem well-stated is a problem half-solved;” therefore, in the case of environmental issues, I note that accommodation units that are aware of the consequences and dangers of climate change are those that are more worried about this phenomenon, hence it is logical that people who are worried about a problem strive towards finding a solution. In other words, the more hotels in the Azores that express so much concern about this issue, it means that they are aware of this phenomenon, and they are closer to taking the necessary steps towards maintaining the eco-friendly practices.

3.8. Weighing the environmental impacts of hotel activities

Figure 9. Hotels that assess their environmental impact

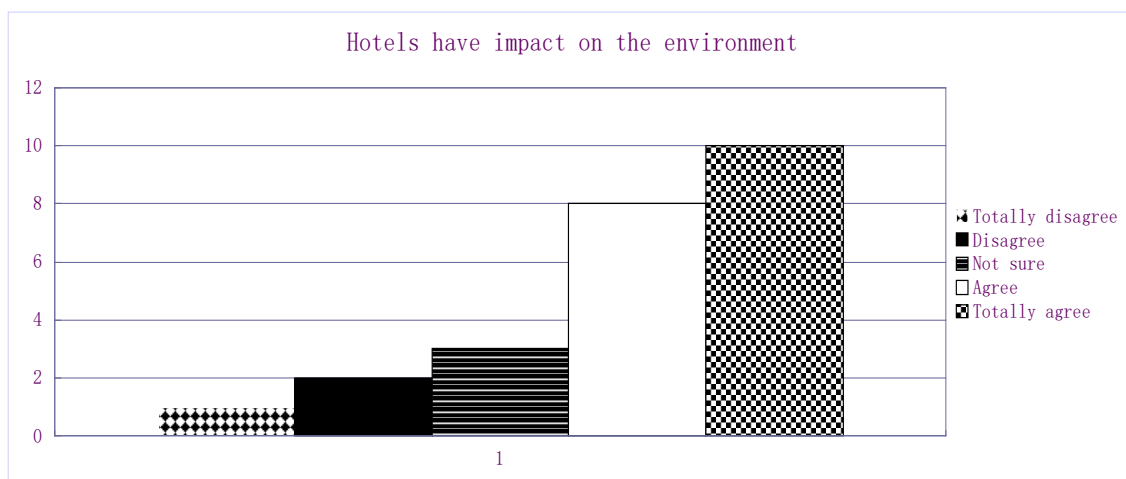


The darker part of the pie chart is representing hotels that assess the impacts of the activities and business unit on the environment. On the other hand, the lighter part represents hotels who do not weigh the impacts of their activities. Considering these representations, we identify that there are more hotels that are taking account of the impacts of their business' units on the environment in the Azores. I accentuate that this phenomenon directly concerns the research question of the present project. Like mentioned in the introduction and research question, the project seeks to find out about how the hotels and other accommodation units in the Azores region have been conscious of eco-friendly practices striving for the sustainability of the tourism sector.

Therefore, with the large number of hotels weighing the impacts of their activities on the environment, it is more convincing that the accommodation units in the tourism sector are taking steps towards a more sustainable tourism in the Azores.

3.9. Significant impacts of hotel activities on the environment

Figure 10. Hotel impacts on the environment



The ninth question of the survey assessed the knowledge of the hotels in regard to knowing the significant impacts of the hotels on the environment. There are only a few hotels that did not acknowledge the veracity of the statement about hotels' significant impact on the environment. The highest proportion of the hotels agreed to this statement while choosing "Agree" and "Totally agree" as it could be seen above. At this point I would like to draw attention to the situation of managing hotels and how they impact the environment. Kirk (1995) maintains that hotels are involved in enormous number of activities that collectively put forth considerable impact on global resource (Kirk, 1995). It is common knowledge that in managing hotels several activities are carried out; these include energy consumption, use of plastic, waste management, water conservation, among others. If these are not controlled or managed properly, they lead to excess energy consumption, excess plastic which is hard to recycle, excess waste of water. All these bring negative impacts which affect the environment leading to poor productivity and low sustainability in development.

According to Advanced Hospitality Technologies (2019), hotels are responsible for creating CO₂ emissions of an equivalent of 60 million tonnes per year; they create 1.9 billion lbs of waste every year and their spending surpasses \$7.5 billion. The hotels also use 219 billion gallons of water per year (Advanced Hospitality Technologies, 2019).

Kirk (1995) also maintains that hotels produce emissions of greenhouse gases which are released into the air CO₂ and chlorofluorocarbons. Han *et al* (2010) maintain that all commercial buildings generate greatest negative influence on the environment, with an estimation which states that an average hotel releases between 160 kg and 200kg of CO₂ per square meter of room floor area each year; and water consumption of each guest per night is between 170 and 440 litres in the average 5-star hotels.

In view of the situation of wastage which arises in hotel management and that could be caused by hotels on the environment, at this very point of the project I propose possible solutions to reduce improper usage of resources in hotel management. It is sure that proper management of resources will help reduce consumption of electricity, to waste reduction, reduced waste of water leading to a more sustainable tourism and development.

Some of the solutions I propose here may appear parallel to the eco-friendly practices addressed in chapter 3 of this dissertation, however, these are not the same topics already addressed, moreover, even the similar topics which were addressed in chapter 3 which appear again are addressed here from a different standpoint.

3.9.1. Consumption of electricity

Electricity consumption is usually high in accommodation units, in most cases lights have to be kept on in common places and corridors for security reasons. With the invention of environmental technologies, we can avoid leaving lights on in these common places and at the same time have our security. By this I mean that we could have lights only when there is someone around. This is usually possible through a motion sensor. Whenever the sensor senses that there is nobody available in the vicinity, then the lights shut down automatically. In this way the lights will not be wasted because it is would only be a waste when there is nobody using it. I recommend that accommodation units introduce the use of this technology, motion sensor lights. Having done some research on commercial sites like Amazon.com, I have found out that the prices of motion sensor lights are relatively affordable. It would really be worth using a motion sensor light and at the end of the month one will save much money than use a normal bulb and lighting system which stays on all night even when nobody is using the lights.

3.9.2. Water waste

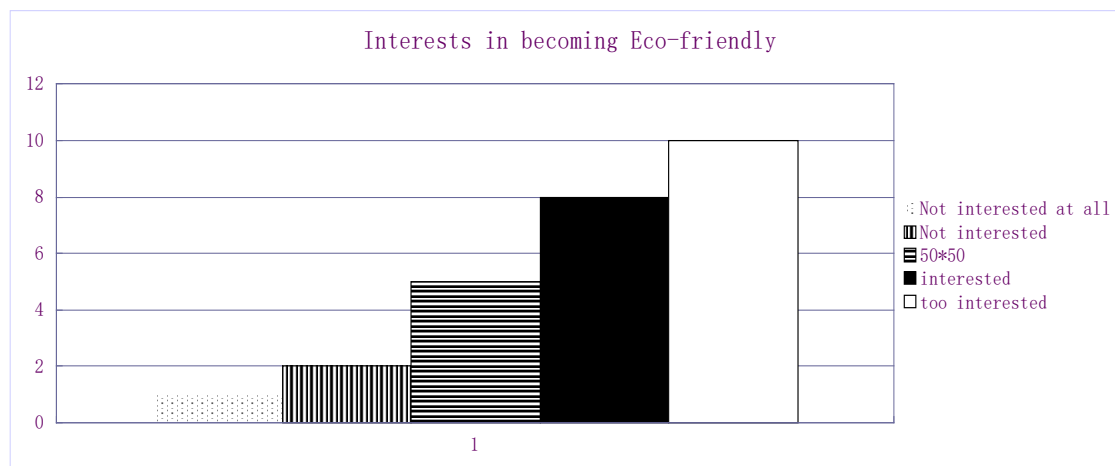
In the case of water consumption, it is relatively like the case of electricity consumption. Some people have a habit of leaving the tap on while they brush the teeth, some people forget to turn the tap off and even leave home to come back only in the evening. This situation is disagreeable because the water gets wasted and the bill will still have to be covered leading to waste of money too. The main issue I highlight here is that with such kind of comportment we will be causing much damage to our planet. Therefore, in order to avoid the situation of forgetting to turn off the tap, I propose the installation of automatic inflated sensor taps. I have also checked the price of this eco-friendly technological device on different commercial websites like Amazon.com, eBay, and Worten; the price is relatively affordable for accommodation units and most importantly, its benefit. Consequently, installing this device in an accommodation unit will avoid waste of water and money resources, it will also reduce environmental damages such as drought which could be provoked as a result of water shortage.

3.9.3. Plastic recycling

Increased burden on solid waste management is among the negative environmental effects in the hospitality sector as highlighted by Kasim (2006) in *The Need for Business for Environmental and Social Responsibility in the Tourism Industry* (Kasim, 2006). Plastic products can never disappear or dissolve even after several years, by this, we understand that the more plastic that is being produced, the more vulnerable our planet would remain. Yet plastic bags, packages and containers are still purchased by several people and used in many hotels to solve basic needs of carrying belongings, wrapping food and others. I propose that plastic products should be replaced by paper or wooden products which are more environmentally friendly. I reference the work of Mbasera *et al* (2016) which suggests that hotels have to stay away from buying plastic-based packaging which contribute to high levels of pollution and must rather use paper bags made from recycled products (Mbasera *et al.*, 2016). When hotel establishments do not buy this plastic in the first place, there will be less problem of trying to convince people to recycle by separating the plastic from organic waste.

3.10. Hotel's interests in making tourist-unit eco-friendly

Figure 11. Weighing interest of hotels in becoming eco-friendly



The graph above illustrates that most of the hotel in the Azores are interested in making their tourist-unit eco-friendly. A greater proportion of the responses of hotels in the survey chose “too interested” and “interested”.

Like mentioned in the introduction that the issue of climate change has become a preoccupation for everyone irrespective of age, gender, or nationality, I would like to underline here once again that more and more people are becoming conscious of the damages caused on our planet earth. This situation has inspired the trends and consciousness of environmentally friendly practices in hotels and other business. The logic is that the more environmentally friendly practices a business unit such as a hotel involves in, the more people will be interested in patronising the business because they are becoming more aware of the situation and would prefer a product that would not damage the planet tomorrow. The eco-friendly hotels are more appreciated by people who value the environment and are lovers of nature. These hotels will attract more customers who are environmental mindful as opposed to hotels who do not practice eco-friendly practices. As a result of this phenomenon, more and more hotels will be interested in becoming green or eco-friendly. In order to support this argument, I refer to other studies which were conducted in this regard. Han *et al* (2011) maintain that tourists are willing

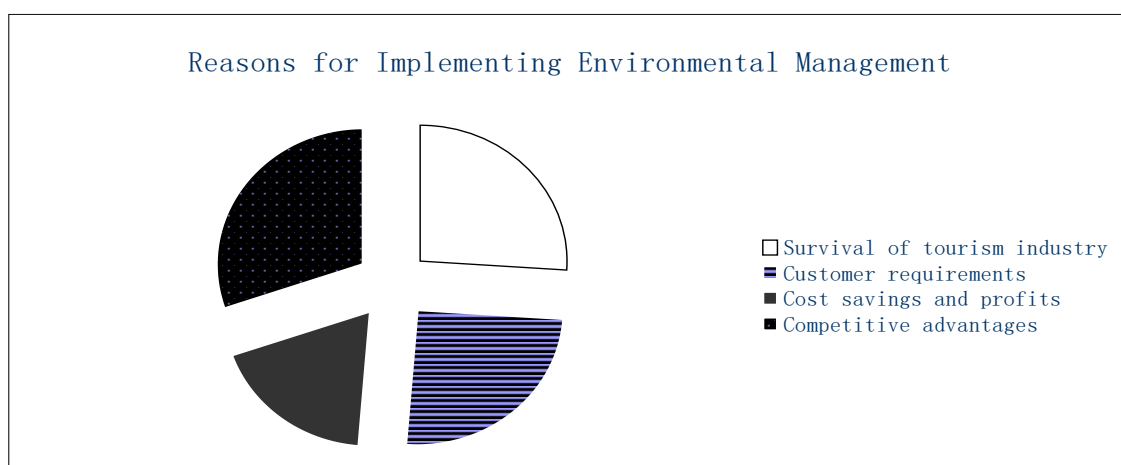
to stay at an environmentally friendly hotel; it is highlighted that the travelers are even willing to pay more for eco-friendly products.

Are there possible other reasons why the hotels want to go eco-friendly besides the reason addressed above? What exactly would make hotels want to go eco-friendly?

In order to find out more clearly the reasons for these hotels intending to go eco-friendly, the next question of survey addresses four reasons for the implementing green practices in hotels.

3.11. Reasons for implementing environmentally friendly Practices?

Figure 12. Resons for implementation of environmental management



i. Competitive advantages

From the previous question where we talked about hotels being interested in going green, I mentioned that hotels which are eco-friendly are more likely to attract people who are environmental mindful. From this point of view customers will choose to stay at a more sustainable friendly hotel than at a regular hotel. The study conducted by Mbasera *et al* (2016), *Environmentally friendly practices in hotels* clearly supports this argument, this study reveals that green management was adopted by some hotels for marketing reasons in order to retain their customers and gain a competitive advantage (Mbasera *et*

al., 2016). Hence the eco-friendly hotels have more advantages of winning customers since more and more people are becoming environmental conscious. In the graph which illustrates the answers to the present question, we can understand that 36% of the hotels in the Azores specifically choose “competitive advantage as their reason for being interested in eco-friendly practices.

ii. Customer requirement

The second highest among the four reasons which was chosen is “customer requirement”, this reason was chosen by 30% of the hotels. I highlight that this reason is once again “customer centred” that is, more focused on the customer just like in the first reason. The customers play an important role in influencing a business establishment because if businesses do not put the customers’ choice into consideration, then the customers may not get full satisfaction and if customers do not get full satisfaction they are less likely to patronise the business in question; the customers will want to find a better option. Hence, the motive of “customer requirement” is chosen by many of the hotels as a reason for wanting to be eco-friendly hotels. This implies that hotels want to meet the requirements and taste of their customers.

iii. Survival of the tourism industry

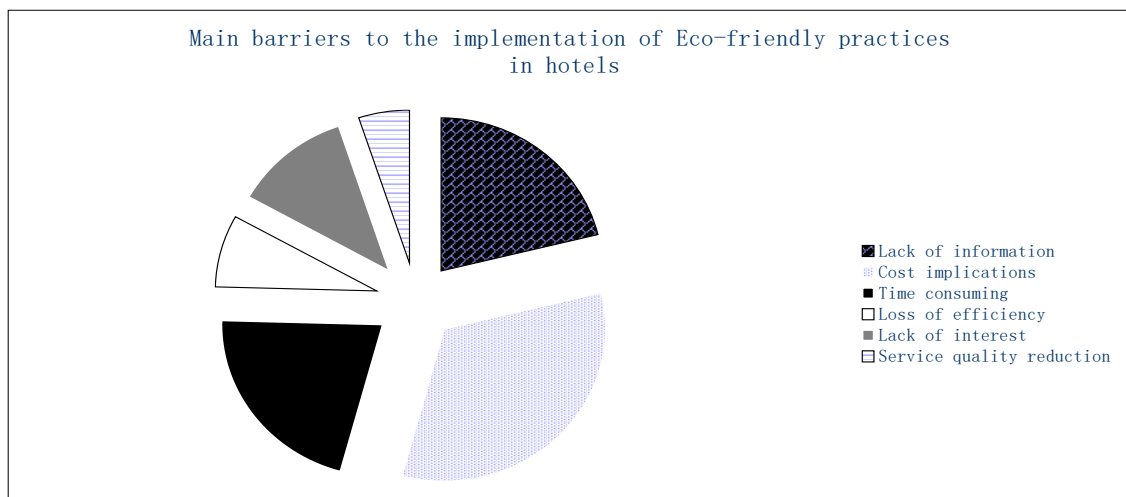
The issue of sustainability of the tourism sector is another important reason and the third most chosen reason in the present topic. If resources are not managed properly, the hotels stand the risk and will run short of these natural resources. One of the direct negative impacts of the lack of proper management of the tourism sector will be inability to have the resources to continue running the tourism sector. While in sustainable development we say that development has to be carried out in a way that there are no damages to the natural environment, in sustainable tourism likewise it is expected that the tourism activities are able to be carried out without damaging the environment and natural resources; only in this way will there be hope for continuity of the tourism sector.

iv. Cost savings and profits

Fewer number of hotels chose “Cost savings and profits” as a reason why they are interested in implementing environmentally friendly practices. I highlight the issue of cost savings and profits as one of the basic benefits of going green or eco-friendly. While practicing eco-friendly practices, for example, reduction of energy consumption, abandonment of the use of plastic bags, and recycling; companies are able to save money from the cost of management of their business establishments.

3.12. Main barriers to the implementation of Eco-friendly practices in hotels

Figure 13. Main barriers to the implementation of eco-friendly practices in hotels



The question which was asked to the hotels in the survey was “In your opinion, what are the main barriers to the implementation of Eco-friendly practices in hotels?” Among the options of barriers presented in the survey were,

1. Lack of information
2. Cost implications
3. Time consuming
4. Loss of efficiency
5. Lack of interest

6. Service quality reduction

From the above list of barriers, it might have been noticed that there are some points that may appear contradictory to what I have addressed in the previous questions; for example, “cost implications”, While I mentioned earlier in the previous question that implementing eco-friendly practices will reduce expenses in management of the business units, on the other hand I have mentioned cost implications here as one of the barriers to the implementation of the same eco-friendly practices. The reason for this is that some technology may be expensive for example installing solar energy may be quite expensive. An important online solar energy seller of rooftop solar, and energy storage known as Energy Sage which is also supported by the US Department of Energy provided an insight of the cost of solar panels in 2021 at about \$20,000 at \$2.81 for a 10-kW system (Energy Sage, 2021).

Letcher & Fthenakis (2018) maintain that although hydropower is the least pricey renewable source for initial quantities, marginal cost will arise as more of this source is used. While the Wind power is fairly more expensive than hydropower it however has a moderate increase in marginal cost. The Solar power has the most expensive initial cost however the marginal costs will contrast (Letcher & Fthenakis, 2018). From the above-mentioned findings of Letcher & Fthenakis (2018), I highlight that the decision on which energy power to use may depend on the size of the business unit in question.

In the survey answers, there are 39 hotels which referred to cost implications as a barrier of implementing eco-friendly practices. I defend that if business units are larger, it would be advisable to implement the eco-friendly energy, because despite the initial costs which may be expensive like we saw, the benefits range from customers choosing their brand for its ethics of being eco-friendly and moreover, the marginal costs will reduce along the years. This brand will also be saving the planet and helping to maintain a more sustainable tourism and development. Moreover, in regard to how to manage cost implications I suggest another way for example, hotels or business establishments could charge more premiums on eco-friendly products. Recapitulating as I cited Kang *et al* (2012) earlier under question 10 of the present work, “customers are willing to pay more for eco-friendly products,” in this view, charging premium amounts from customers will be more alleviating for the hotels and help them get more income to be able to deal with

cost implications for investing in eco-friendly practices and products. When customers pay premium for eco-friendly products, this shows their participation in striving for a more sustainable tourism and development, this consequently as Chan (2013) maintains it is unquestionably essential for the success of such sustainable hotel management.

Other barriers such as “lack of information” were referred to as a reason by 25 hotels. I highlight that more awareness creating platform, webinars and information sessions should be created on the issue of eco-friendly practices and how these could help benefit the business units in question. Internet sources could also be used as effective channel to educate guests (Chan, 2013 as cited in Jai & Yu, 2017); hotels may also make use of brochures, exhibitions, and multimedia displays on outlets to inform their guest about the importance of eco-friendly practices (Bohdanowicz, 2006 as cited in Jai & Yu, 2017).

The factor “Time consumption” was chosen by 25 hotels in the same manner as it was with “lack of information”.

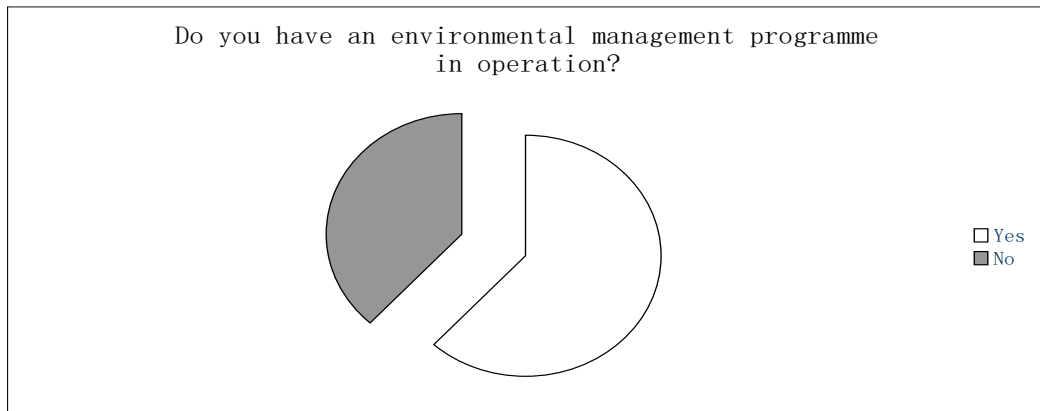
Lack of interest is referred to by 14 hotels; loss of efficiency is 9 hotels while quality service reduction was chosen by 6 hotels.

3.13. Do you have an environmental management program in operation?

This question seeks to understand the situation of hotels and accommodation units which have an environmental management program in operation. The graph below shows that there are more hotels in the Azores which have environmental management programs in operation.

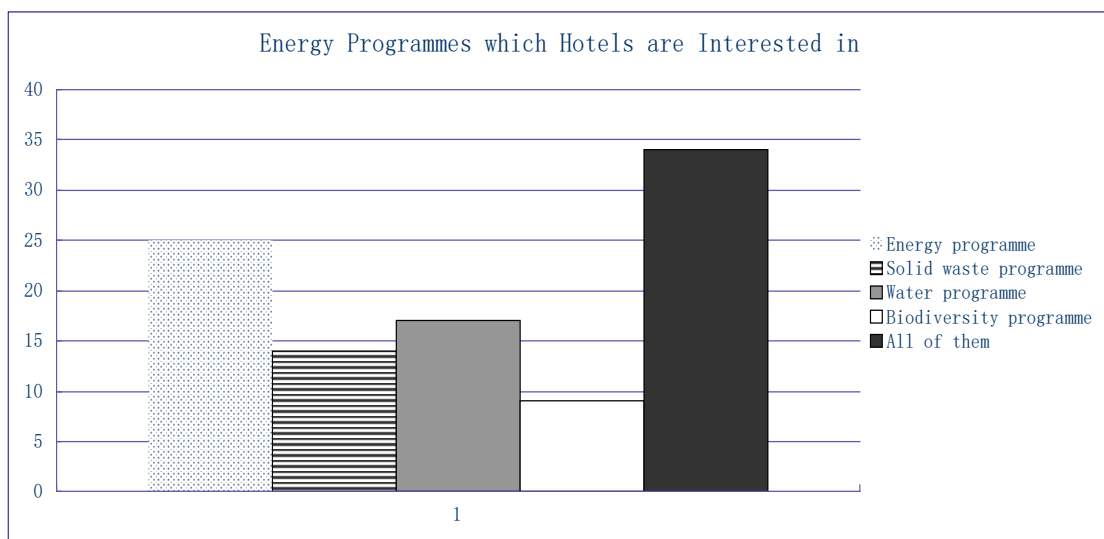
The hotels that responded “yes” are 34 in number, this number is represented by the white part of the graph, and it is evidently in greater proportion as opposed to the hotels that responded “no” with only 21. The hotels which responded with “no” are represented by the grey part of the graph.

Figure 14. Environmental management program in operation



3.14. What environmental projects are you more interested in?

Figure 15. Environmental programmes of interest to hotels



Among the options of environmental projects that were presented in the survey were,

1. Energy programme
2. Solid waste programme
3. Water programme
4. Biodiversity programme

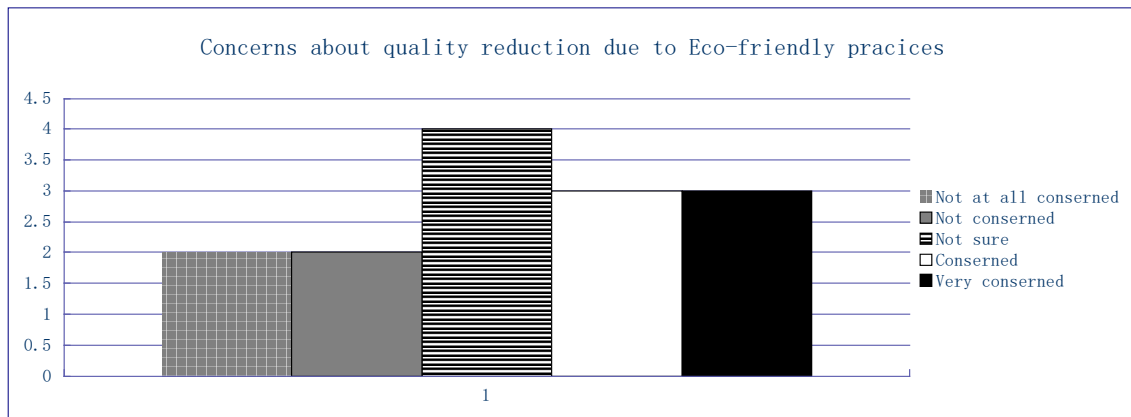
The fifth option “All of them” implies that a hotel is strongly interested in all the environmental programmes and does not see any one of them to be less important than the other. This option in the graph illustrates that most of the Hotels in the Azores are solidly interested in all the above-mentioned environmental programmes. I shall break down more clearly the list above and determine which programmes appeared to be shown more interest. The Energy programme was chosen by 25 hotels as the most interesting environmental activity, this programme is followed by “water programme” which is chosen by 17 hotels. While “solid waste program” is chosen by 14 hotels; “biodiversity” is chosen by 9 hotels. This implies that “biodiversity is of least importance to the hotels when the options of the environmental programmes are considered separately.

In this part I intend to draw attention to the importance of an accommodation unit knowing what programme is necessary for its type of establishment. If hotel managers do not understand guest expectations correctly, they may launch inappropriate green marketing campaigns or invest money in less important strategies (Chan, 2013).

3.15. How much are you concerned about service quality reduction because of eco-friendly practices?

In addressing the issue of eco-friendly practices, we saw in question 12, number 6 that “service quality reduction” is among the barriers of implementation of eco-friendly practices. In question 15 I shall specifically look at the level at which these hotels may be worried about service quality reduction which arises as a result of environmental practices.

Figure 16. How much are you concerned about service quality reduction because of Eco-friendly practices?



By the words “Service quality reduction,” I refer to some situations that customers may find not so convenient because they wish the enjoyed more. For example, if bed linens are not replaced when the customer is staying more than one night, there may be a situation like something spills on the bed linen, this will require the customer to have to call or ask for a replacement which may be complex depending on some situations like, time convenience, language barriers or privacy in the room. The issue about not having to replace the linens all nights is fine because it saves resources like water, detergent, electricity for the washing machine however there may be some inconveniences, therefore, accommodation units must be attentive in trying to make room for resolving issues like in the example mentioned above, if some problem arises urgently.

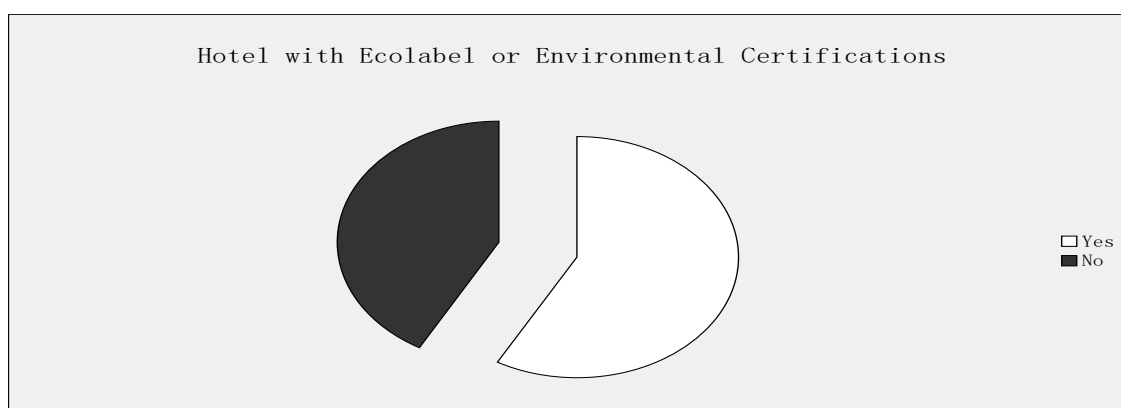
Moreover, although I have mentioned in question 10 that according to Han *et al* (2011) consumers are willing to pay more for eco-friendly products, some studies have shown that many consumers have complained about the high price of eco-products (Johri & Sahasakmontri, 1998 as cited in Chan, 2013) and questioned the truth about the ecological benefits hotels claim (Polonsky *et al.*, 1997 as cited in Chan, 2013).

Some other inconveniences are with the issue of saving electricity. In the case of the electronic key card which is also inserted for the lighting of the room. If a guest wants to a charge phone but need to get out of the room, the electricity goes out too and the phone cannot charge. While this may be helpful in the sense that it avoids excess electricity

usage, it is also very inconvenient for some customers. In these circumstances I propose that accommodation units should make provisions and inform guests about other options if they want to charge a mobile phone; for example, one socket in the room may be left out of the automatic switch off connection.

3.16. Does your hotel have Eco-label or other environmental certifications?

Figure 17. Hotels with eco-label environmental certifications



Eco-label or Environmental certifications are those credentials that officially attest that a hotel is following the rules of environmental protection managements and practicing environmentally friendly practices in order to benefit the environment; theses practices include; serving organic food in the hotel restaurants, reuse of bed linens when customer stays more than one night, putting recycle programmes in the rooms. An example of this kind of certification is the LEED Certification. Leadership in Energy and Environmental Design is a programme known worldwide; it consists of a set of rating systems for building and maintenance of eco-friendly homes and using resources responsibly.

During the survey, this question addressed the environmental certification issue and the results as shown in the above graphs illustrates that a greater proportion of the hotels in the Azores are certified as eco-friendly hotels. The number of hotels which affirmed their possession of a certification was 34, while the numbers of hotel that do not have an environmental certification were 24.

To encourage more tourist units to use environmental certification, the Miosotis award was created in 2012. This is the Azores own certification, developed with regional criteria and lack of fees. The name of the award comes from endemic plant found on all 9 islands, and the number of certification levels corresponds to the number of flower petals. Thus, there are 5 levels of certification, requirements for each level differ depending on the type of tourist unit. According to the official website of the award, 136 tourist units have been awarded, 28 of which have reached level 5. Some of the environmental practices required to achieve level 5 of award are: composting, rainwater harvesting, the maximum flow in shower does not exceed 13 litres per minute, part of the water must be heated by renewable sources (Azores government portal)

There are several other eco-label certifications which are well known and used even among local accommodation units in the Azores.

Green Key: Green Key is a voluntary eco-label awarded to more than 3200 establishments in 65 countries around the world. Their motive is to create an opportunity to look after our planet in order to avoid damages which will hinder sustainable tourism or development. According to its website, it is the leading standard for excellence in the field of environmental responsibility and sustainable operation within the tourism industry. Hotels that possess this eco-label title show that they are following the key environmental standards set by the Foundation for Environmental Education.

The following hotels in the table below are some examples of hotels in the Azores who belong to the Green Key Eco-label Certification.

Table 1. Some hotels with green key eco-label certification in the Azores

Name	Accommodation size/category	Location	Description	Website
Villa Natura	Small accommodation	Vila do Porto, Santa Maria Island	Situated in a condominium by the Regional nature reserve Figueiral-Prainha of Santa Maria Island in the Azores, the Villa Natura is a rental house with 2 rooms	https://villanaturaaazores.com/

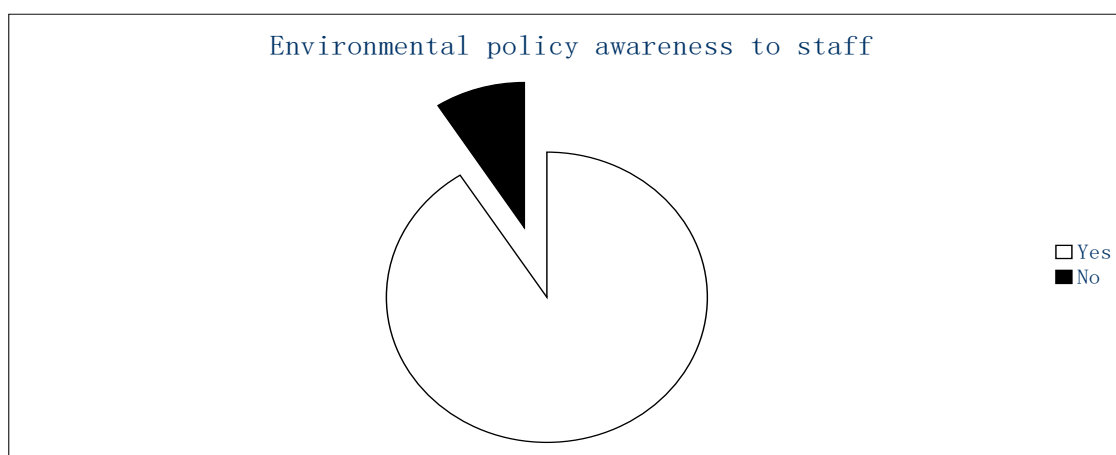
Table 1. (continued)

Praia de Santos Guesthouse	Small accommodation	São Roque	It's a brand-new accommodation in Ponta Delgada São Miguel Island, it has a view of the Atlantic Ocean	https://www.praia-de-santos-azores.com/
Volcanic Charming House	Small accommodation	Ribeira Grande São Miguel Island	Located in Ribeira Grande with Praia do Monte Verde Reachable within 600 metres, volcanic charming	Not available
Tradicampo Casa de Talha	Small accommodation	Nordeste	Located in Nordeste district in São Miguel Island, Azores and connected by road to all other parts	https://www.tradicampo.pt/
Calma do Mar	Small accommodation	Madalena do Pico	It's an Airbnb Pension located in Madalena on Pico Island, Azores	https://www.calmadomar.com/
Aldeia da Fonte	Hotel & Hostel	Lajes Do Pico	It's a hotel integrated in Pico; it has six volcanic stone houses leaning over the cliffs to the Atlantic Ocean	https://www.aldeiadafonte.com/
Quinta da MeiaEira	Small accommodation	Horta	Located in the front of the Atlantic, it has 8 rooms and 60.000 m2 of gardens and pasture organic fields reaching the sea	https://www.meiaeira.com/

Source: Own elaboration based on The Green Key award data

3.17. Environmental policy awareness to staff in tourist unit

Figure 18. Environmental policy awareness to staff in tourism unit

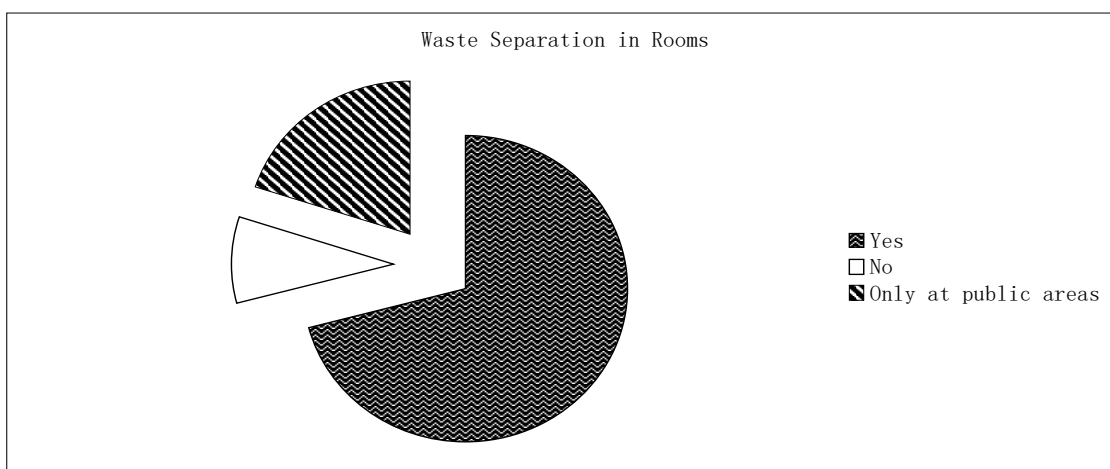


The implementation of eco-friendly practices should be the responsibility of the business owners; business owners and managers play an important role in the implementation of eco-friendly practices. One of the research that have been done in this regard is by Yilmaz *et al* (2019) where they try to find out the attitudes of managers towards eco-labelling applied in the context of sustainable tourism and evaluation of the effects of eco-labelling on accommodation enterprises. It is highlighted that “The success of a hotel in adopting green practices is directly related to the attitude of managers and employees” (Chan, 2013; Chou, 2014 as cited in Yilmaz *et al.*, 2019)

Hotel or accommodation unit owners should be responsible of ensuring that the members of staff are well informed about environmental policies and work towards achieving this goal. Hotel owners should ensure that the green hotel marketing is carried out effectively; that the team in the marketing department study to find out the expectations of the customers and their perceptions of green technology, according to Chan (2013), not being aware of these information may result to the customers perceiving the hotel to be of poor service quality (Chan, 2013)

3.18. Is waste being separated? Is there a possibility to separate waste in rooms?

Figure 19. Waste separation in rooms

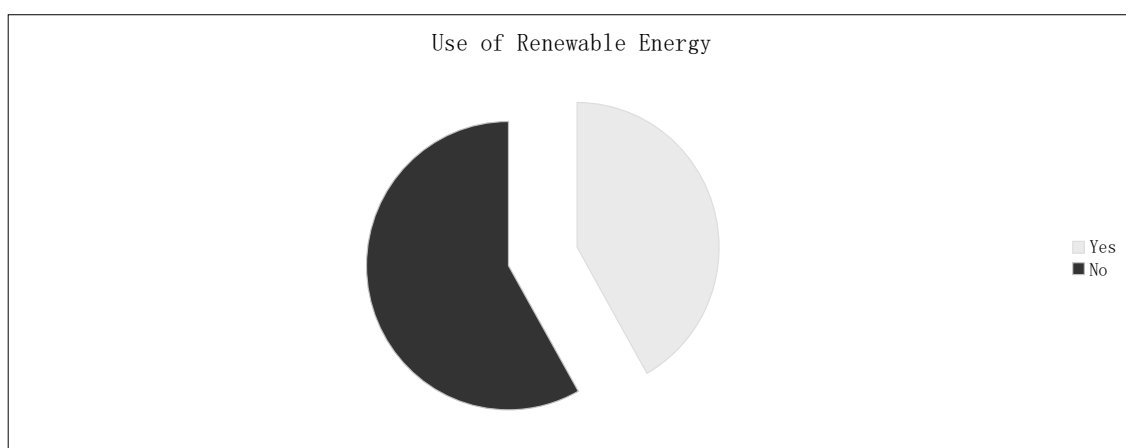


An average hotel produces about 1kg of waste per guest each night (Environmental Management for Hotels, 2008). The problem about waste separation is that most of the hotel do not make provision for the separation of waste in the rooms. In common areas there are waste bins for the separation of glass, cans, organic waste, papers, and others however in the rooms and private spaces, there is usually only one waste bin in the bathroom and one in the bedroom. This situation leads to guest having to dispose all waste such as cans, newspapers, and organic waste in the same waste bin. This will lead to the hotel being unable to recycle from this waste.

In order to address this problem, on the one hand if the hotels decided to make provisions for the separation of waste in the rooms, it is evident that this will arouse the problem of space consumption; consequently, I advise that smaller size bins for separation be made available.

3.19. Does your hotel use renewable energy such as solar energy?

Figure 20. Use of renewable energy



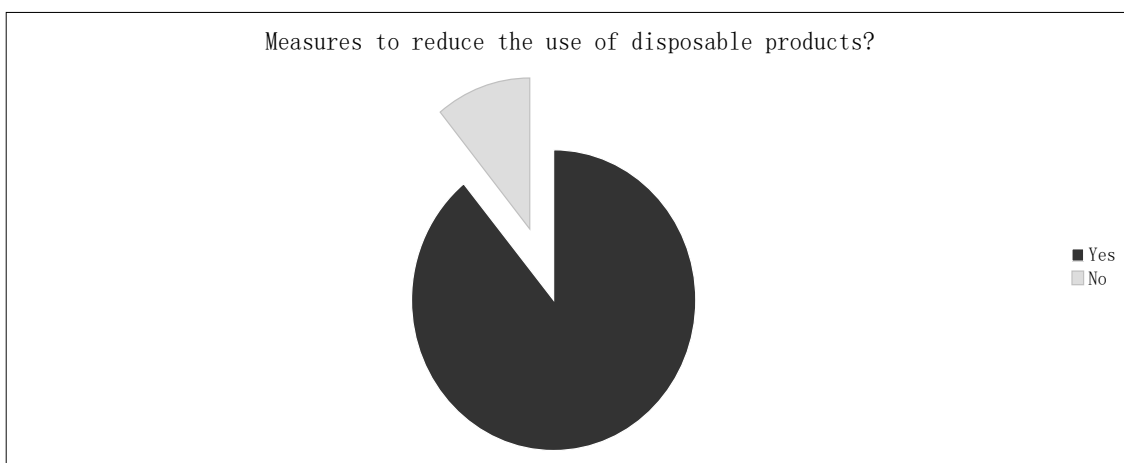
The use of renewable energy as discussed earlier may come with several challenges, especially “cost implications,” therefore depending on the size of the tourism unit it may not be wise to invest on a solar panel. The above graph shows that most of the hotels do not use the renewable energy, “solar energy” I would interpret this phenomenon to be as a result of the size of the hotels in the Azores. Since most of the accommodation units in the Azores are usually small, investing in solar energy may not yield economic benefits,

therefore this is possibly why the number of hotels that responded to using solar energy are fewer than those who do not use solar energy.

3.20. Have measures been taken to reduce the use of disposable products to a minimum, e.g., cups, plates, and cutlery?

The replacing of disposable cutleries and other eating utensils arose as a necessity to reduce the enormous use of plastic materials believed to have negative impacts on our planet. Since the rise of the go green campaign, a good number of hotels have been avoiding the use of such equipment in their hotels. Plastic plates, spoons, forks, or knives could be handy and less expensive however, they become wastes which will have to be dealt with. In many cases, the utensils are not properly recycled, people use them once and throw them away and these plastics remain on our planet generating or transmitting the chemicals which pollute the soil and environment.

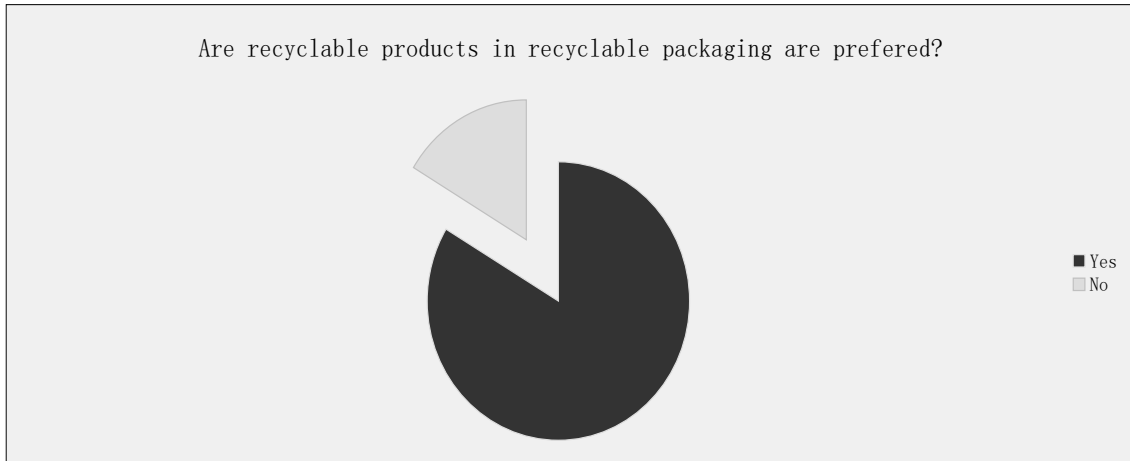
Figure 21. Have measures been taken to reduce the use of disposable products to a minimum, e.g., cups, plates, and cutlery?



The graph above which demonstrates the answers of the hotels to this question, illustrates that there are more hotels who have taken measures to reduce the use of plastic/disposable products to a minimum level. Only very few hotels in the Azores have still not taken steps towards this phenomenon.

3.21. Does the hotel in general prefer recyclable products in recyclable packaging?

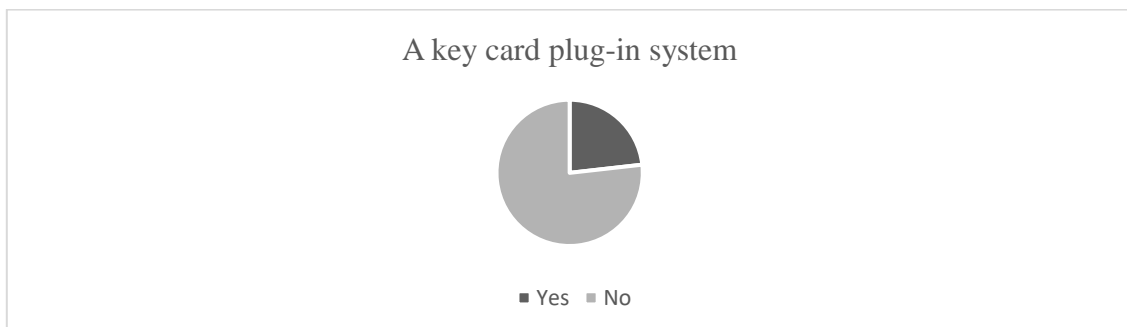
Figure 22. Does the hotel in general prefer recyclable products in recyclable packaging?



In relation to recyclable products, it could be understood from the graph above that there are more hotels that prefer recyclable packaging than the hotels that do not. Thus, this attests the information which has been defended in relation to the growing interest of going green in order to have a sustainable tourism and sustainable development at large. Just as the trends are rising among people, among the hotels too, the trends of preferring recyclable products have also risen among hotels and the answer to this question as represented in this graph defends this phenomenon.

3.22. Does the hotel use a key card plug-in system to cut power in case of absence?

Figure 23. A key card plug-in system



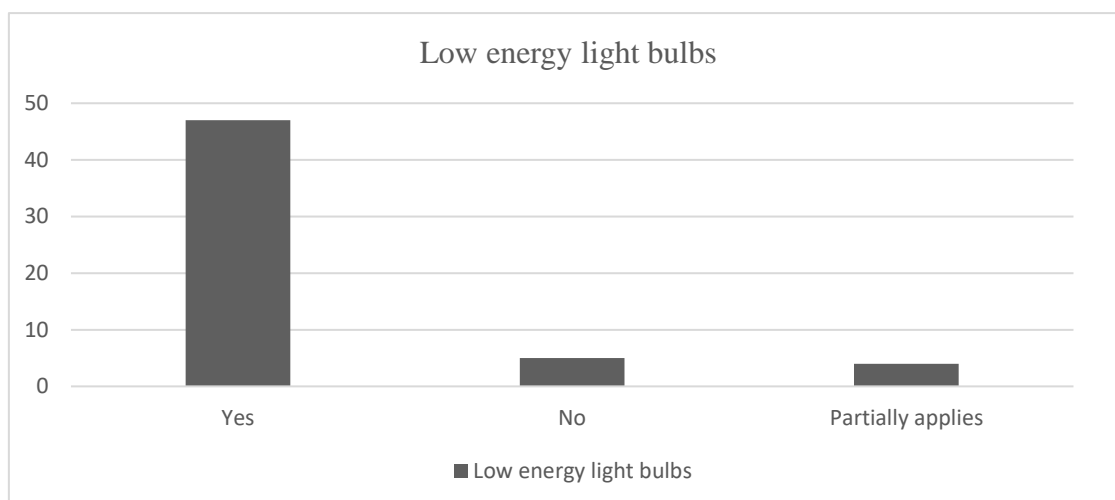
The graph above demonstrates that most of tourist units which took part in the survey do not use this system in their operation. Only 13 out of 56 respondents answered -Yes.

A key card plug-in system is specially designed for the energy-saving of hotel rooms. This system works like a room key and allows to use the lighting, TV, air conditioner, and other facilities in the room. When the guest leaves the room the total power supply of the room is automatically powered off. This system saves electricity consumption.

3.23. Does hotel use low energy light bulbs in public areas?

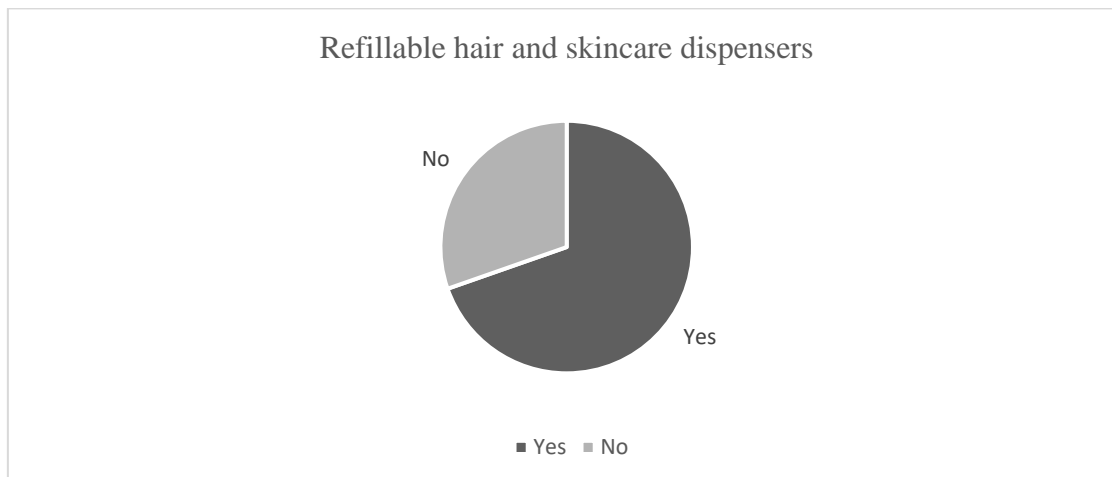
In relation to low energy light bulbs almost all participants use it in their operation. Only a few tourist units do not use them at all or use partially. The use of such lamps is the simplest solution in order to reduce electricity bill, as well as carbon footprint.

Figure 24. Low energy light bulbs



3.24. Does your hotel use refillable hair and skincare dispensers?

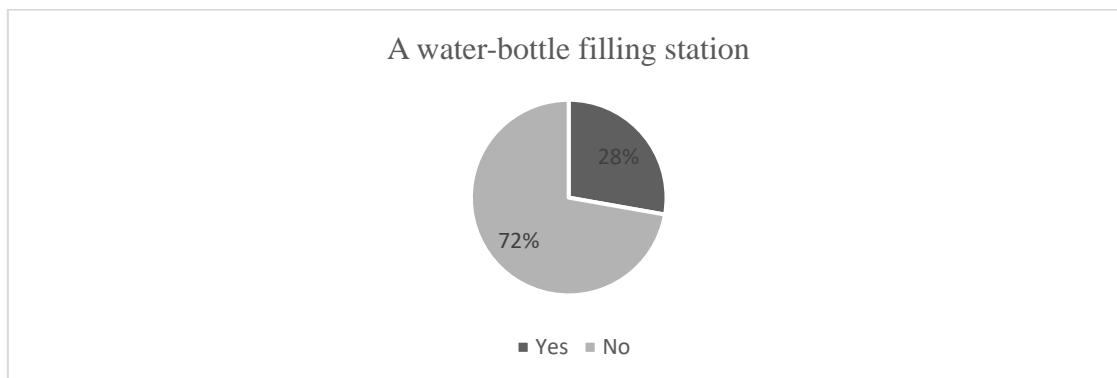
Figure 25. Refillable hair and skincare dispensers



The number of tourist units using refillable hair and skincare dispensers is increasing every day and perhaps soon customers will forget about mini amenities. As the graph above shows most of the participants have refillable dispensers in operation. Only 17 out of 56 do not have them. One of the reasons may be the fear about the decline in the level of comfort and satisfaction of guests. After all, not everyone is ready to refuse mini amenities, especially when it comes to luxury hotels. Thus, tourist units should use refillable dispensers with high quality natural cosmetics and convenient pump dispensers to encourage their guests. Another option is to encourage customers to take their partially used amenities with them.

3.25. Does your hotel have a water-bottle filling station in the lobby and corridors?

Figure 26. A water-bottle filling station

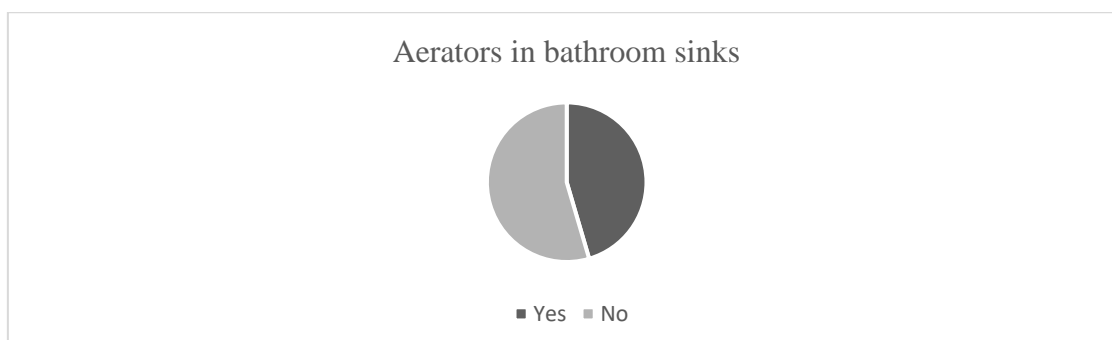


Water-bottle filling stations are a marked solution to tackling the environmental crisis of plastic pollution. It can also be a competitive advantage for tourist units, as it makes possible to enhance guest health and support their intention to act in environmentally responsible way. However, most of the participants noted the absence of this attribute. Only 15 tourist units answered yes

3.26. Does your hotel use aerators in bathroom sinks to reduce water usage?

Aerators are designed to split the stream of water into several small streams, adding air between the streams. Thus, aerators significantly reduce the volume of water flowing out of the tap.

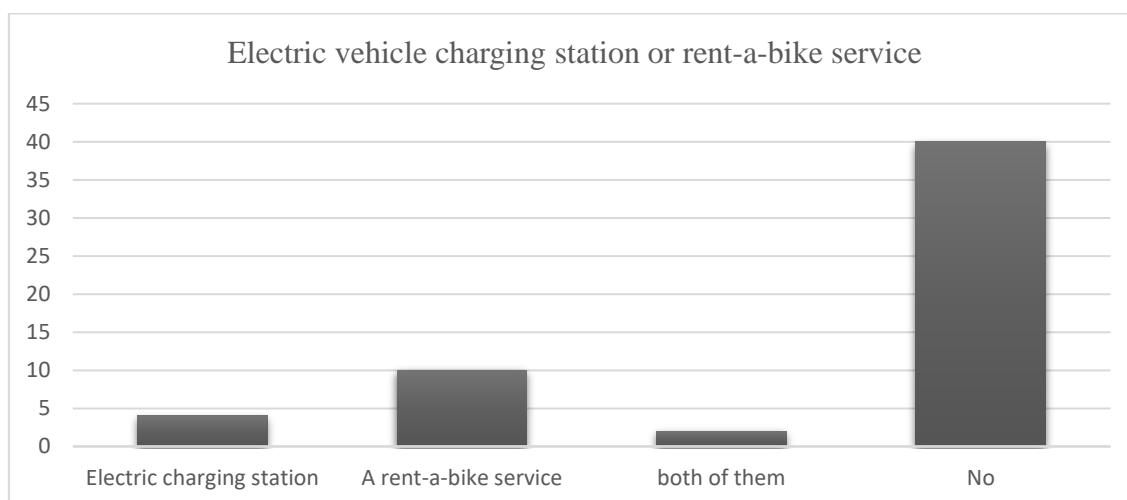
Figure 27. Aerators in bathroom sinks



The graph above illustrates that the number of non-users is actually equal to the number of users, the latter outweigh by only 5 votes.

3.27. Does your hotel have electric vehicle charging station or a rent- a -bike service?

Figure 28. Electric vehicle charging station or rent-a-bike service



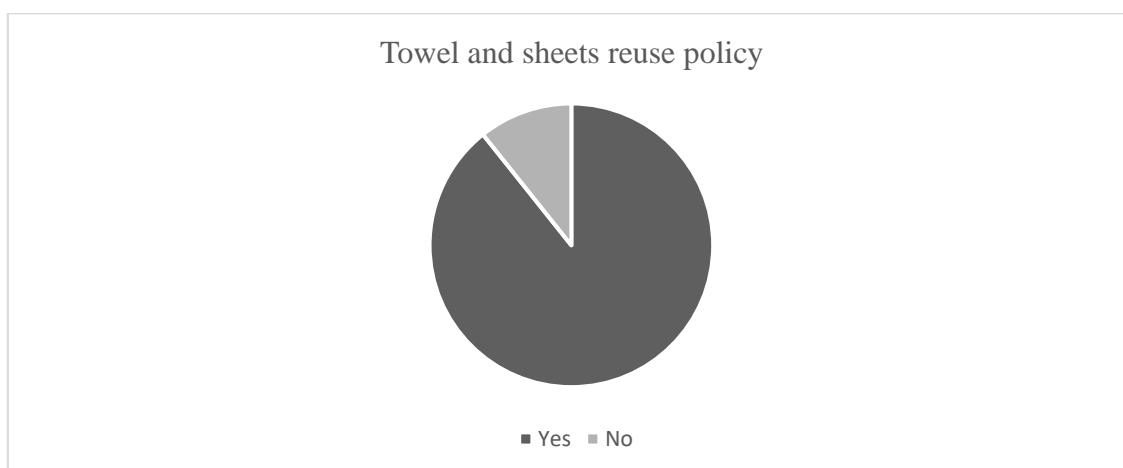
The graph above represents that huge part of the tourist units do not provide services such as rent-a-bike or charging station for electric vehicle. This can be explained by the data obtained from the survey, namely the large number of responses from local accommodations with a size below 10 rooms. Which could mean that such type of units may not have the necessary space or parking lot in the surrounding area and makes impossible to implement these environmental practices. However, popularizing the use of bicycles and electric vehicles remain a priority. Electric vehicles significantly reduce CO2 emissions and noise levels and are an important part of meeting global goals on climate change.

According to Action Plan 2019-2030 along with innovation projects of energy efficiency, raise awareness among the general public. It is noted that tourist units play a large role in conveying a message to tourists on measures taken towards sustainable development in the destination. Thus, tourist units could inform customers about those

rental offices in which there are electric vehicles, as well as provide information about charging stations. In the archipelago, a lot of attention is paid to increasing the fleet of electric vehicles and measures to maintain electromobility. By 2024, it is planned to introduce 118 charging stations, but and today the Azores are one of the Portuguese regions with more charging stations per capita. (Plano Para a Mobilidade Eléctrica nos Açores 2018-2024)

3.28. Does your hotel have a towel and sheets reuse policy?

Figure 29. Towel and sheets reuse policy



Towel and sheets reuse policy nowadays is most common Eco-practice in hotel industry. It is not surprising that tourist units in Azores are not exception. The graph above represents that almost all participants have such policy in their operation. Towel and sheets reuse policy helps tourist units to operate in a responsible manner local and global by saving water and energy consumption, as well as reducing the emission of detergent into rivers and oceans, and benefit from savings bills. At the same time, the tourist unit is only required to inform customers and give them the opportunity to take part in something more, to help preserve nature.

As for customers, they are very familiar already with this kind of Eco-practice. This practice is based on freedom of choice, which distinguishes it favourably from other practices and, as a result, does not leave a negative impact on customer satisfaction.

However, according to research based on tourist reviews from TripAdvisor Green Leaders program this practice do not have significant impact on customer satisfaction and even more if tourist units will ignore this fact, one day it could lead to unsatisfaction effect (Yixiu Yu *et al.*, 2017).

In wrapping up this chapter, I would like to highlight the major information that were addressed.

This chapter mainly addressed the answers of the survey which was made to study the accommodation units and hotels in the Azores region and their eco-friendly practices. Thanks to the survey we note that the hotels in Sao Miguel Island are more than those in other islands of the Azores region. This chapter addressed the hotels that have eco-labels and certificates display complete information of the hotels in a table.

The present chapter also addressed the rate at which hotels in the Azores are concerned about the environmental crisis and I highlighted the several practices such as the use of renewable energy, provision of rubbish cans in the private spaces and rooms, the use of recyclable products.

According to the results of the survey, I generally highlight that the hotels in the Azores are highly eco-friendly.

CHAPTER IV – METHOD: CHI-SQUARE AND CHI-SQUARE BY MONTE CARLO

The method to investigate this study will be survey developed by the author and sent via email to hotels and accommodation units on nine islands of the Autonomous Region of the Azores; after the survey has been collected from the various tourist units, there will be analyzing of data and later transcribed into the project. There shall also be a follow-up on academic literature, articles, and textbooks.

The empirical and interpretive research methods will be followed in the project. The research seeks to observe and study the eco-friendly practices in hotels; consequently, there will be need for descriptive, explanatory, and exploratory research.

The method research study gives significance to international tourism management. This research intends to explain how the eco-friendly practices are economically beneficial to the tourism units.

The thesis hypothesis and focus are on these issues:

1. The growing influence of Eco-friendly practices will have great impact on sustainable development goals.
2. Eco-friendly practices highlights sustainability in tourism

In the next section I will addresses certain terminologies important for this project.

For empirical research in this study, the SPSS program version 27 was used to investigate the association between variables such as hotel location, years of operating, unit size, and Eco-friendly practices, are they dependent or independent. For this, the Chi-square and Chi-square by Monte Carlo method were chosen.

A Chi-Square test of independence uses the following null and alternative hypothesis:

- H_0 : (null hypothesis) The two variables are independent.

- H_1 : (alternative hypothesis) The two variables are not independent. They are associated.

A Chi-square test is calculated by the formula:

$$\chi^2 = \sum_{i=1}^L \sum_{j=1}^C \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \quad (1)$$

O_{ij} – relative difference between the frequencies observed in each cell of the contingency table, E_{ij} – frequencies that one would expect to find if H_0 were valid, L – number of lines, C – number of columns.

Conditions:

$$N > 20$$

$$E_{ij} > 1$$

At least 80% of the E_{ij} are greater than or equal to 5.

In cases where the conditions are not met, the Monte Carlo simulation is applied. The Monte Carlo simulation seek to determine the likelihood of a given experimental simulation occurring using a large set of simulations based on random sampling.

CHAPTER V – EMPIRICAL STUDY

In this chapter, we intend to develop an analysis of the data, based on the methods and statistical techniques mentioned above.

5.1. Chi-square test: investigation of relationship between hotel time of operation and does the hotel has Ecolabel or environmental certificate

We will perform the Chi-square test of independence using the following hypothesis:

- H_0 : Hotel time of operation and does the hotel has Ecolabel or another environmental certificate are independent.
- H_1 : Hotel time of operation and does the hotel has Ecolabel or another environmental certificate are not independent.

Table 2. Chi-square test - relationship between hotel time of operation and does the hotel has eco - label or environmental certificate

operation_group * Does hotel has Ecolabel or other environmental certifications?					
Crosstabulation					
		Does hotel has Ecolabel or other environmental certifications?			
			No	Yes	Total
operation_group	Less than 5 years	Count	16	7	23
		Expected Count	9,4	13,6	23,0
	5-15 years	Count	7	15	22
		Expected Count	9,0	13,0	22,0
	more than 15 years	Count	0	11	11
		Expected Count	4,5	6,5	11,0
Total		Count	23	33	56
		Expected Count	23,0	33,0	56,0

Table 3. Chi-square test - relationship between hotel time of operation and does the hotel has eco-label or environmental certificate

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16,160 ^a	2	,000
Likelihood Ratio	20,048	2	,000
N of Valid Cases	56		

a. 1 cells (16,7%) have expected count less than 5. The minimum expected count is 4,52.

The association is statistically significant ($\chi^2(2) = 16,160$, $p = .000$). Since P-value is less than .05. We can reject null hypothesis. There is very strong evidence of a relationship between hotel time of operation and does the hotel has Ecolabel or environmental certificate.

5.2. Chi-square test by Monte Carlo method: investigation of relationship between unit size and does the hotel use a key card plug-in system

We will perform the Chi-square test by Monte Carlo method of independence using the following hypothesis:

- H_0 : Unit size and does the hotel use a key card plug-in system are independent.
- H_1 : Unit size and does the hotel use a key card plug-in system are not independent.

Table 4. Chi-square test by monte Carlo method - relationship between unit size and does the hotel use a key card plug-in system

unit_size_group			Does the hotel use a key card plug-in system to cut power in case of absence?		Total
			No	Yes	
unit_size_group	Below 10 rooms	Count	30	1	31
		Expected Count	23,8	7,2	31,0
	Above 10 rooms	Count	9	5	14
		Expected Count	10,8	3,3	14,0
	Above 30 rooms	Count	4	7	11
		Expected Count	8,4	2,6	11,0
Total		Count	43	13	56
		Expected Count	43,0	13,0	56,0

Table 5. Chi-square test by monte Carlo method - relationship between unit size and does the hotel use a key card plug-in system

Chi-Square Tests						
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)		
				Significance	Lower Bound	Upper Bound
Pearson Chi-Square	18,259 ^a	2	,000	,000 ^b	,000	,000
Likelihood Ratio	19,182	2	,000	,000 ^b	,000	,000
Fisher-Freeman-Halton Exact Test	18,193			,000 ^b	,000	,000
N of Valid Cases	56					

a. 2 cells (33,3%) have expected count less than 5. The minimum expected count is 2,55.

b. Based on 10000 sampled tables with starting seed 112562564.

The association is statistically significant ($\chi^2(2) = 18,259, p = .000$). Since P-value is less than .05. We can reject null hypothesis. There is very strong evidence of a relationship between unit size and does the hotel use a key card plug-in system to cut power in case of absence.

5.3. Chi-square test by Monte Carlo method: investigation of relationship between location of hotels and does the hotel use renewable energy

We will perform the Chi-square test by Monte Carlo method of independence using the following hypothesis:

- H₀: Location of hotel and does the hotel use renewable energy are independent.
- H₁: Location of hotel and does the hotel use renewable energy are not independent

Table 6. Chi-square test by monte Carlo method - relationship between location of hotel and use of renewable energy

Location_group * Does your hotel use renewable energy such as solar energy? Crosstabulation					
		Does your hotel use renewable energy such as solar energy?			
		No	Yes	Total	
Location_group	Eastern group	Count	13	19	32
		Expected Count	18,3	13,7	32,0
	Central group	Count	18	5	23
		Expected Count	13,1	9,9	23,0
	Western group	Count	1	0	1
		Expected Count	,6	,4	1,0
Total		Count	32	24	56
		Expected Count	32,0	24,0	56,0

Table 7. Chi-square test by monte Carlo method - relationship between location of hotel and use of renewable energy

Chi-Square Tests						
	Value	df	Asymptotic Significance (2-sided)	Monte Carlo Sig. (2-sided)		
				Significance	99% Confidence Interval	
				Lower Bound	Upper Bound	
Pearson Chi-Square	8,504 ^a	2	,014	,005 ^b	,004	,007
Likelihood Ratio	9,171	2	,010	,005 ^b	,004	,007
Fisher-Freeman-Halton Exact Test	8,403			,005 ^b	,004	,007
N of Valid Cases	56					

a. 2 cells (33,3%) have expected count less than 5. The minimum expected count is ,43.

b. Based on 10000 sampled tables with starting seed 1585587178.

The association is statistically significant ($\chi^2(2) = 8,504, p = .005$). Since P-value is less than .05. We can reject null hypothesis. There is evidence of a relationship between hotel location and use of renewable energy.

5.4. Final considerations

As we noted above, the purpose of this research was to find out if there is a relationship between hotel type, location, time of operation, size, and Eco-practices. For this purpose, fifty-six responses used from various tourism units of the Azores islands. The research was completed with the help of SPSS (Statistical Package for the Social Sciences) by Chi-square test and Chi-square by Monte Carlo method.

We were able to achieve a statistically significant association in three of the fourteen Eco- practices used in the questionnaire. Association which we could reached are: hotel time of operation and does the hotel has Ecolabel or another environmental certificate; unit size and does the hotel use a key card plug-in system; location of hotel and does the hotel use renewable energy.

From the above crosstabulations tables, we can observe that tourist units with an operating time of 5 to 15 years have more Eco- certificates in operating than hotels with operating time less than 5 years. Tourist units with more than 15 years of operation, all have Eco - certificates. In this way we can confirm the fact that having an Eco-certificate in operation requires significant financial and time investments. As for a key card plug-in system to cut power, the probability of meeting this practice is greater in tourist units with more than 30 rooms. Usage of renewable energy according to questionnaire reach maximum in eastern group of islands (Santa Maria, Sao Miguel).

There are not any association with hotel type and Eco-practices. Also, we did not get statistically significant associations between the descriptive characteristics of tourist units (location, time of operation, size, type) and already common Eco-practices such as: informing staff about the environmental policy; measures to reduce the use of disposable products; use of refillable hair and skincare dispensers; towel and sheets reuse policy.

CHAPTER VI – CONCLUSION AND FINAL OBSERVATION

The research focus on the main question of this dissertation: How have the hotels and accommodation units in the Azores region been conscious of eco-friendly practices striving for the sustainability of their tourism sector?

This question was well addressed in the section four where answers from the survey were addressed. In question 7 where the hotels were asked about their level of concern in relation to the impact of the activities of their hotels on the environment. The results of the survey on this question clearly showed that a greater proportion of the hotels in the Azores are greatly worried and therefore show concern about the impact of their hotel activities on the environment. I suggested that it is logical that if the hotels expressed concern about the impact of their activities on the environment, they will also be taking measures in order to address this situation.

In question 8 of the survey, the hotels were asked about weighing their environmental impacts on the environment and to this question similarly as in the previous question the answers showed that more hotels and accommodation units responded positive to weighing the environmental impacts of their activities on the environment, consequently, I arrived at the conclusion that according to these positive results, the accommodation units and hotels in the Azores are taking adequate steps towards a more sustainable development tourism.

The main points of the dissertation addressed several common green practices carried out the eco-friendly hotels. These were:

1. Reducing food waste,
2. building maintenance,
3. educating the members of staff about eco-friendly practices,
4. notices and prints or multimedia displays on outlets
5. Mounting eco-friendly florescent light
6. Providing more rubbish cans in the room
7. Putting water savers on taps

8. Automatic switch-off of heating and air-conditioning of room when guest is absent
9. Avoiding the use of plastic
10. Avoiding unnecessary changing of bedspreads and towels
11. Using refillable shampoo and soap

All the above listed practices are aimed at reducing excess consumption of resources, preservation of the environment, and increasing sustainable development in the tourism sector.

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ATTACHMENT OF QUESTIONNAIRE

1. On which island is the tourist unit located ?

Santa Maria
São Miguel
Terceira
Graciosa
Faial
Pico
São Jorge
Flores
Corvo

2. Which type of tourist unit do you belong to ?

Hotel
Hostel
Local accommodation
Camping
Country House

3. Unit size

Below 10 rooms
10-30 rooms
30-50 rooms
50-100 rooms
More than 150 rooms

4. How many years has the tourist unit been operating ?

Less than 5 years
5-15 years
15-30 years
More than 30 years

5. How do you rate the quality of the environment on your island ?

Very bad Bad Satisfactorily Good Very good

Water
Air
Soil
Noise

6. Please, rate the importance of the following factors to the Azores tourism industry

It doesn't matter at all Not important Medium importance Important Very important

Interesting history and culture

Beautiful scenery

Lack of mass tourism

Unpolluted environment

Relaxed pace of life

7. How worried are you about environmental impact of your tourism unit ?

Not worried at all

Not worried

50*50

Worried

Very concerned

8. Are you assessing the environmental impact of your activities ?

Yes

No

9. Do you agree with the statement that hotels have a significant impact on the environment ?

Totally disagree

Disagree

Not sure

Agree

Totally agree

10. How much are you interested in making your tourist unit « Eco- friendly» ?

Not interested at all

Not interested

50*50

Interested

Too interested

11. Reason for implementing an environmental management programme ?

Survival of tourism industry

Customer requirements

Cost savings and profit

Competitive advantages

12. In your opinion, the main barriers to the implementation of Eco-friendly practices in hotels are :

- Lack of information
- Cost implications
- Time consuming
- Loss of efficiency
- Lack of interest
- Service quality reduction

13. Do you have an environmental management programme in operation ?

- Yes
- No

14. What environmental project you are more interested in ?

- Energy programme
- Solid waste programme
- Water programme
- Biodiversity programm
- All of them

15. How much are you concerned about service quality reduction because of Eco-friendly practices ?

- Not at all
- Not concerned
- Not sure
- Concerned
- Very concerned

16. Does hotel has Eco-label or other environmental certifications ?

- Yes
- No

17. Do you inform your staff about the environmental policy and the rôle of staff in the implementation of this policy ?

- Yes
- No

18. Is waste being separated ? Is there a possibility to separate waste in rooms ?

- Yes

No
Only at public areas

19. Does your hotel use renewable energy such as solar energy ?

Yes
No

20. Have measures been taken to reduce the use of disposable products to a minimum, e.g. cups, plates, and cutlery ?

Yes
No

21. Does the hotel in general prefer recyclable products in recyclable packaging ?

Yes
No

22. Does the hotel use a key card plug-in system to cut power in case of absence ?

Yes
No

23. Does hotel use low energy light bulbs in public areas ?

Yes
No
Partially applies

24. No single dose ! Does your hotel use refillable hair and skincare dispensers ?

Yes
No

25. Does your hotel have a water-bottle filling station in the lobby and corridors ?

Yes
No

26. Does your hotel use aerators in bathroom sinks to reduce water usage ?

Yes
No

27. Does your hotel have electric vehicle charging station or a rent-a-bike service ?

Electric charging station
A rent-a-bike service

Both of them

No

28. Does your hotel have a towel and sheets reuse policy?

Yes

No

UNIVERSIDADE DOS AÇORES

Faculdade de Economia e Gestão

Rua da Mãe de Deus

9500-321 Ponta Delgada

Açores, Portugal