

Understanding and Enhancing Ecotourism Opportunities through Education

V. Iakovoglou, G. N. Zaimes, M. P. Arraiza Bermúdez-Cañete, J. L. García, M. C. Giménez, C. Calderón-Guerrero, F. Ioras, I. Abrudan

Abstract—A new fast growing trend in tourism is ecotourism, in which tourists visit natural ecosystems under low impact, non-consumptive and locally oriented activities. Through these activities species and habitats are maintained and typically, underdeveloped regions are emphasized. Ecotourism provides a great alternative, especially for rural and undeveloped area. At the same time, despite its many benefits, it also poses many risks for the naturally protected areas. If ecotourism is practiced improperly degradation and irreversible damages could be the unwanted result. In addition, the lack of MSc programs in the field of Ecotourism in Europe makes it a necessity to be developed. Such an MSc program is being implemented with the lead partner the Technical University of Madrid. The entire partnership has six Universities, seven SMEs and one National Park from seven different countries all over Europe. The MSc will have 10 educational modules that will be available online and will prepare professionals that will be able to implement ecotourism in a sustainable way. Only through awareness and education a sustainable ecotourism will be achieved in the protected areas of Europe.

Keywords—Sustainability, MSc program, protected areas, Erasmus.

I. INTRODUCTION

ECOTOURISM, the tourism that focuses on natural environments, is a large and growing part of the tourism industry. There are many benefits for its advancement, although at the same time, if it is implemented without a scientific basis and well-trained personnel it can have detrimental and irreversible consequences to these natural areas. Education and awareness are key factors for the sustainable implementation of ecotourism.

One of the reasons that ecotourism is growing is because of the increased number of protected areas worldwide. Lockwood et al. [1] mention that the establishment of protected areas is one of the greatest land-use transformations of the 20th century. The importance of protected areas has

V. Iakovoglou is with the Eastern Macedonia and Thrace Institute of Technology, Dept. of Forestry & Natural Environment Management, Drama, Greece (e-mail: viakovoglou@yahoo.com).

G. N. Zaimes is with the Eastern Macedonia and Thrace Institute of Technology, Dept. of Forestry & Natural Environment Management, Drama, Greece (corresponding author, phone: +30 2521060416, fax: +30 25210 60411, e-mail: zaimesgeorge@gmail.com).

M.P. Arraiza Bermúdez-Cañete, J.L. García, M.C. Giménez and C. Calderón-Guerrero are with the Universidad Politécnica de Madrid, Spain (e-mail: paz.arraiza@upm.es, josel.garcia@upm.es, martincgs@ingenieros.com and carlos.calderon@upm.es, respectively).

F. Ioras is with the Buckinghamshire New University, United Kingdom (e-mail: florin.ioras@googlemail.com).

I. Abrudan is with the Transilvania University, Romania (e-mail: abrudan@unitbv.ro).

been well-accepted worldwide and has led to the establishment of more than 100,000 sites that cover 12% of the earth terrestrial surface [1]. These areas are essential because they help sustain life on earth by protecting different types of landscapes that are rich in biodiversity levels while also providing many benefits to humans.

In the European Union the ecological network of Natura 2000 has been established (European Commission, n.d.) [2]. The purpose of the network is to conserve and protect its biodiversity, while also ensuring the sustainability of Europe's agriculture as well as its energy and transport policies [3]. Currently, the network has nearly 26,000 protected areas with a total area of more than 850,000 km² that protect 200 habitat types and over 1,000 rare and threatened animal and plant species [4]. This clearly indicates that a large portion of the EU is protected and since the purpose of the network is to maintain these areas but also advance economic development, ecotourism can provide the ideal alternative for these areas.

The purpose of the study is to present the importance, benefits and potential disadvantage of ecotourism. It is very substantial to understand these concepts since Europe is experiencing a rapid adoption of ecotourism. At the same time the development of MSc programme "Management of Sustainable and Ecological Tourism" with the acronym MEST will be presented. This is funded through the ERASMUS Life Learning Programme, specifically the European programme of Education, Audiovisual and Culture Executive Agency.

II. ECOTOURISM - A NEW ALTERNATIVE FOR PROTECTED AREAS

Ecotourism, also known as jungle tourism, nature tourism, low impact tourism, green tourism, bio-tourism, ecologically responsible tourism, is a fairly young concept that has been introduced in mid-1980s and has been rapidly grown ever since. According to [5], it is growing annually by 10–15% worldwide. In 1990, The International Ecotourism Society (TIES) provided the definition and principles of ecotourism as: "Responsible travel to natural areas that conserves the environment and improves the well-being of local people" [6]. Honey [7] describes additional characteristic of ecotourism that includes "the practice of low-impact, educational, ecologically and culturally sensitive travel that benefits local communities and host countries".

The purpose of ecotourism is to engage tourists in the ecosystems under low impact, non-consumptive and locally oriented environments in order to maintain species and habitats especially in underdeveloped regions. Further,

tourism in protected areas is originated from three main components: protected area, tourists and tourism organizations and local communities (key stakeholders) [8]. However, based on the educational background of each sector, such as environmentalists and governments, they define ecotourism differently. Environmental organizations have generally insisted that ecotourism is nature-based, sustainably managed, conservation supporting and environmentally educated practice [9], [10]. The tourist industry and governments, however, focus more on the product aspect, treating ecotourism as equivalent to any sort of tourism based in nature.

When practicing properly ecotourism, many benefits could be achieved such as traveling to natural destinations, enhance environmental awareness and respect of the local culture, as well as providing direct financial benefits to the local people and conservation purposes. In many countries ecotourism is not only aiming in the protection of biodiversity in the immediate environments, but it is also considered as a source for the national economy. National parks can be unique attraction places for touristic use [11], [12]. A characteristic example is Costa Rica that has the largest percent of protected area in the world, where 25% of the country has been characterized as a protected national park, [13], while worldwide it retains 5% of the world's biodiversity. A study that was conducted for six national parks of Germany has indicated positive impacts of ecotourism at the region [14]. At this research, it has been shown that the local populations had greater income benefits for all six national parks.

While it can contribute in a positive manner to socio-economic development and environmental protection, uncontrolled tourism growth can also cause environmental degradation, destruction of fragile ecosystems, and social and cultural conflict, undermining the basis of tourism. So it is very important to understand the benefits but also negative impacts of ecotourism.

III. ECOTOURISM - BENEFITS

There are a number of benefits for further implementing ecotourism. Following the most important are outlined:

Get acquainted with cultural heritage: Ecotourism usually involves the visitation of humans to areas where the primary attractions are the existing flora, fauna along with the local cultural heritage. It is aiming to help understand the richness of ecosystems and goods that have been graciously offered to humans. Those goods, in addition to the beauty and the relaxation that they offer to humans, also help understand how interdependent the welfare of humans is in relation to the healthy function of those ecosystems. Any human intervention negative or positive will have a direct or indirect effect on the ecosystems and the quality of human life. Being educated when visiting those areas should be the primary benefit that "ecotourism" has to offer. Thanks to ecotourism, sustainable management of natural resources, ecological processes, biodiversity and cultural integrity can be secured.

Economic benefits: Ecotourism can be seen as economic profit with the main goal to achieve greater income. Some

people use labels such as "green" or "eco-friendly" to attract tourists. Unfortunately, the desire for more money is a powerful motive that is hard to limit, especial when it deals with low income of the native population and the unpleasant thirsty careless and greedy nature of humans for more money. In order to get more money, rules for sustainable management are step aside.

Being environmentally educated: Being environmentally conscious should not only include the ecological functions but also includes how human can interfere to help protect and benefit those ecosystems through proper human behavior when it presents at those areas. That will help understand the need of sustainable management and proper maintenance of the environmental services in order to preserve the diversity of the species in association with the cultural and traditional attributes of those areas. These should help achieve a more efficient and sustainable recreational and educational tourism that should only have positive benefits as outcome through the careful interaction between humans and nature.

Enhancement of protected areas: The fact that specific ecosystems that face the threat of extinction have been under protection and preservation of further decline, ensures their welfare on a temporal and special scale. So plant and animal species are further helped to continue even after events of disturbances (ex. fires, floods). This further ensures the conservation of biodiversity as an additional result of the practice of ecotourism through the additional financial and human resources. Furthermore, in many cases, the additional actions in order to ensure a "safe" practice of ecotourism (ex. reforestation, river bank stabilization) enhance the protection of ecological processes (ex. Reduction of erosion).

IV. ECOTOURISM - NEGATIVE IMPACTS

Mismanagement: Governments often lack the commitment or capability to manage ecotourism sites effectively. The regulations for environmental protection may be vaguely defined, costly to implement, hard to enforce and uncertain in effectiveness. Mismanagement in relation to lack of regulations and laws is the main factor that initiates all other problems and results to unsustainable and failed projects for protected areas. Further, ecotourism often causes conflict and changes in land-use rights, fails to deliver promises of community-level benefits, damages environments, and has plenty of other social impacts [15]. Lack of laws enabled a few people to benefit while forcing the local population to leave their homes and lands [5].

Direct environmental impacts: Despite the fact that ecotourism is aimed to be practiced in small groups, in order to minimize the negative anthropogenic impact of increased visitation number, this is hard to avoid especially at high touristic season. This mainly results to increased necessity to greater infrastructure and amenities (landscape pollution), as well as the local people especially when the community is not able to respond to the infrastructure demand that are associated with increased ecotourism. That results to inadequate amenities, such as sanitation facilities that usually have an immediate effect on the environment. The disposal of

garbage on campsite and nearby rivers becomes common phenomena that also pollute the ground and drinking water. In addition, tourists that interact with environment inevitably disturb the flora and fauna of the area. Even low key activities such as hiking may be considered harmful to ecological activities such as bird nesting, plant and soil damage.

Environmental hazards: Ecotourism could have detrimental impact on the species diversity [16]. People that visit the sites might interfere with the species either by their eating habits (ex. leave behind seeds) or by disturbing the site. By disturbing the site the protected plant species might not be able to regenerate and dominate the site and eventually the species might get extinct from the area.

The primary factor that affects that is the extent of disturbance. Factors such as abrupt climatic alterations might also result to inability of the specific species to maintain healthy population levels. That is very evident in Mediterranean ecosystems where the water availability, especially during the summer months is very scarce. That, in conjunction with the increased levels of tourism intensifies the problem of water availability for both the flora and fauna of the protected ecosystem.

Displacement of people: One of the most powerful examples of communities being moved in order to create a park is the story of the Maasai. About 70% of national parks and game reserves in East Africa are on Maasai land [16]. The most direct negative impact was for the people of Maasai (Kenya, east Africa), where particularly local authorities utilized the ignorance of the people and they altered most of the areas to national parks and game reserves (approximately 70% of the area). This is one of the examples where "protected areas" limited the activities of grazing and hunting of the local people that was negatively affected the livelihood of the local populations with no economic benefit [16].

V. ECOTOURISM – SUSTAINABILITY

As seen previously while there are benefits from ecotourism there are also many reasons for concern with the potential negative impacts. In order to avoid the negative things the following criteria need to keep in mind that should be used in sustainable ecotourism plans: Providing sustainable area management

- Maximizing social and economic benefits for local community, minimizing negative effects
- Maximizing benefits for society, visitors and cultural heritage, minimizing negative effects
- Maximizing environmental benefits, minimizing negative effects.

Sustainable activities of tourists may include camping, canoeing, hiking, wildlife observation, and photography.

Based on sustainable management, the following steps need to be considered based on the spatial and temporal scale depending on the type of protected area that is managed.

- *Preventing*: This is the initial strategy that we should have in mind when managing those areas, because when we reach the final step that is "restoring" sometimes it might be too late.

- *Planning*: This should help us wisely prepare for the unexpected and manage time in a profitable way, both for the tourists, the natives and the surrounding ecosystem.
- *Monitoring*: Be the observer and the scientist in order to prevent any downfalls and achieve the best outcome.
- *Evaluating/Assessing*: These are necessary steps where criteria and indicators are developed. This is a not easy step to be accomplished.
- *Restoring*: The last step, if needed, in order to try to correct anything that might have gone wrong. In this case, any type of restoration should be done carefully in order to benefit the protected areas.
- *Educating*: Inform tourists properly regarding the management strategic and the possible negative or positive impact that human actions might have at the protected areas. Further, it encompasses the way people have learned to look at their environment and themselves, indicating a linkage between humans and their landscape.

VI. NECESSITY OF DEVELOPING THE MSC

There is strong evidence that Ecotourism is becoming a major issue worldwide but especially in Europe. Despite the many benefits from ecotourism there are also many negative impacts that might threaten these protected areas. In the 2012 United Nations Conference on Trade and Development, the importance of sustainable tourism was highlighted. But the key for sustainable tourism to be effective and maintained is by enhancing awareness and by improving the knowledge among already or newly trained people that are involved in the protected areas. At the same time in most European countries there is a serious shortage of staff specialized in the ecological and sustainable tourism management, while there a few (if any) specialized MSc programs in Ecotourism. This clearly indicates the need for such an MSc program.

In order to develop an MSc program that offers graduates, the best available tools to get employed after their graduation, the partnership of the project is much diversified. The partnership comprises of six higher education institutions and seven SMEs, from six EU member states (Spain, UK, Estonia, Romania, Germany, Greece), and one candidate member states (Bosnia and Herzegovina), covering a broad range of fields which ensures the interdisciplinarity of the project. The Universities are: i) Universidad Politécnica de Madrid, SPAIN - the lead partner, ii) Eastern Macedonia and Thrace Institute of Technology, Greece, iii) Buckinghamshire New University, United Kingdom, iv) Transilvania University, Romania, v) The University of Rostock, Germany and vi) The University of Sarajevo, Bosnia and Herzegovina. The SMEs involved are: i) Mirador de Babia (ecotourism company), ii) Renatur (expertise in wildlife management), iii) Ciudad Sostenible (magazine) iv) Complusoft (consulting and global services company for ITC), v) Project Abroad Ltd (company with environmental and conservation projects), vi) Greenlife Ltd (specialized in water management) vii) SC HCR SRL (stakeholder involvement). Finally, Una was also involved that is a National Park in Bosnia and Herzegovina.

The Technical University of Madrid (UPM), that is the project leader, has developed five Erasmus actions in the last years (including this) to address the new challenges appearing in the European Higher Education Area (EHEA) through the internationalization processes in higher education, society and economy. The common aim of these projects was to develop and implement study programs in order to assure strategies to modernize specific aspects of higher education in the European area. These actions should improve and protect the environmental quality of life in a sustainable and equitable manner, while adapting to changing climate in the short term and contributing to the mitigation of climate change in the future.

The goals of this MSc program are: i) to offer a quality education assembling as professorship the best experts and professionals of each one of the disciplines, ii) To obtain a multidisciplinary cloister that allows the students to obtain the maximum knowledge and practices to be able to join the labor world with the best guaranty of success and iii) To develop the capacities of the students and of those professionals and businessmen who already are owners of a tourist company, orientating and specializing his/her business towards a cultural, environmental and social identity that allows commercializing of a tourist product of competitive quality with a guarantee of sustainability that assures his/her future. Finally, another innovation of the MSc program is that it will be through distance learning. This will all be on a Virtual Learning (VLE) platform to satisfy needs of EU students that are doing voluntary work or they decided to take a gap year and they experience reduced internet connectivity.

VII. ECOTOURISM - MSc EDUCATIONAL MODULES

In order to provide the students the necessary tools required to be attractive in the job market of ecotourism ten educational web-modules were developed. The modules learning outcomes are to achieve competences and qualifications to play a leading role in the management of ecological and sustainable tourism. Its academic portfolio will be focused to promote human understanding and creativity. The modules are separated in those that will provide profound competences – knowledge related to the most important fields of ecotourism (Modules I - VI) and those that lead to acquire competences to achieve a position of expert or manager in ecotourism organizations and assessment projects (Modules VII - X). Following are brief description of each module.

- i. *Concept and Importance of Ecotourism and Sustainable Tourism*: It will provide a comprehensive understanding of the key terminology, principles, concepts and theory underpinning ecotourism and be able to identify the experiential, environmental, socio-cultural and economic impacts of ecotourism and critically discuss their management, understand the fundamental concepts and principles associated with ecotourism planning.
- ii. *Natural Heritage and Biodiversity*: It will provide general information on biomes to help understand the significance of biodiversity levels with particular emphasis on flora species and get acquainted with the types and the features

of the protected areas.

- iii. *Cultural Heritage*: It will provide the ability to identify heritage destinations in your own country and understand the professional and ethical responsibility in terms of cultural heritage.
- iv. *Environmental Management and Quality*. Certifications. Understand the principles of Environmental Management and its involvement in sustainable and ecological Tourism
- v. In addition gain basic understanding for single water technology layouts and solid waste management.
- vi. *Ecotourism Products*: Through this module students will be able to recognize different species in situ. In addition to identify, formulate and solve problems related to species conservation and recognize a product of nature as an ecotourism product.
- vii. *Green Building*: Sustainable architecture. Models of energy and energy efficiency applied to tourism projects. This module outlines the principles of ecological design, identifies the key issues to be addressed when developing an ecological design and evaluates the ecological design solutions.
- viii. *Geographic Information Systems (GIS)*: Practical applications in tourism projects. Route design and cartographic production students will learn how to apply basic principles of Geographic Information Systems to understand basic principles of cartography, to be able to combine science, aesthetics, and GIS technique to build maps for the effective management of sustainable and ecological tourism.
- ix. *Marketing of Ecological and Sustainable Tourism Destinations*: Students will be able to identify the major types of tourism marketing activities and practices of destination management and marketing organizations.
- x. *Economic Resources and Financial Management of Funds*: This module will provide knowledge on how to identify, formulate and solve problems about economic resources and practical financial management of sustainable ecotourism.
- xi. *Social Responsibility and Environmental Best Practices: Land Stewardship*: Through this module students will learn fundamental EU environmental legislation and policy practices and provide advises towards their compliance and will be able to propose habitat restoration and environmental enhancement processes.

VIII. CONCLUSION

Ecotourism is a new type of tourism that is gaining more and more acceptance. When properly implemented its main benefits can be twofold; i) maintaining and enhancing the biodiversity of the protected areas while ii) providing an additional income for the population of rural and undeveloped areas. At the same time ecotourism can present major risks when mismanaged that could cause major problems to these protected areas. With proper management and activities the benefits of ecotourism can be maximized in a sustainable way. One of the keys to sustainable ecotourism is education and awareness. With the lack of MSc programs in Europe focusing

on ecotourism there is a major need for the development of such programs. This is the objective of a partnership that includes universities, SMEs and national parks that are developing an MSc program that is called "Management of Sustainable and Ecological Tourism." The MSc will have 10 education modules that will be available online. Through these modules professionals will be trained on different aspects of ecotourism that will be able to implement sustainable ecotourism throughout Europe helping in maintaining and enhancing its protected areas.

ACKNOWLEDGMENT

This work is part of the project entitled "MSc Degree on Management of Sustainable and Ecological Tourism" with the acronym "MEST" that is funded by the European Union ERASMUS Lifelong Learning under the "Education, Audiovisual & Cultural Executive Agency"

REFERENCES

- [1] M. Lockwood, G. L. Worboysand, A. Kothari "Managing Protected Areas: A Global Guide. London", (eds.) UK: The Cromwell Press Group, 2006.
- [2] European Commission. n.d. "Natura 2000 network" Available at: <http://ec.europa.eu/environment/nature/natura2000>
- [3] European Commission: "Nature & Diversity", 2007. Available at: http://ec.europa.eu/environment/nature/index_en.htm.
- [4] European Commission: Natura 2000. "Factsheet. E.U. Publishing offices", 2009. Available at: http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000/factsheet_en.pdf.
- [5] G.T. Miller, "Living in the Environment: Principles, Connections and Solutions" (5th ed.) Thomson Learning, New York Press, 2007.
- [6] TIES (The International Ecotourism Society), "Definition and ecotourism principles" Washington, DC, 2004.
- [7] M. Honey, "Ecotourism and Sustainable Development: Who Owns Paradise?" (2d ed.). Washington, DC: Island Press, pp. 29–31, 2008. ISBN 1-59726-125-4 ISBN 978-1597261258.
- [8] J.K., Strickland-Munro, H.E. Allison, S.A. Moore, "Using resilience concepts to investigate the impacts of protected area tourism on communities", *Annals of Tourism Research*, Vol. 37(2), pp. 499-519, 2010.
- [9] R. Buckley, "Research Note, a framework for ecotourism", *Annals of Tourism Research*, Vol. 21(3), pp. 661–669, 1994.
- [10] A. Tuohino, A. Hynonen, "Ecotourism—imagery and reality. Reflections on concepts and practices in Finnish rural tourism", *Nordia Geographical Publications*, Vol. 30(4), pp.21–34, 2001.
- [11] R. Bushell, P.F.J. "Eagles, Tourism and Protected Areas. Benefits Beyond Boundaries", (Eds.), CABI, Wallingford and Cambridge, UK. 2007.
- [12] R. S. Wall, P. Fredman, "Protected areas as attractions", *Ann. Tourism Res.*, Vol 34, (4), pp. 839–854, 2007. doi:10.1016/j.annals.2007.03.011.
- [13] Earth Trends. "Biodiversity and Protected Areas—Costa Rica", World Resources Institute, 2003. Retrieved 2008-06-08.
- [14] M. Mayer, M. Möller, M. Woltering, J. Arnegger, J. Hubert, "The economic impact of tourism in six German national parks", *Landscape and Urban Planning*, Vol. 97, pp.73-82, 2010.
- [15] P. West, "Conservation is our government now: The politics of ecology in Papua, New Guinea", Durham, NC: Duke University Press. 2006.
- [16] O. Kamuaro, "Ecotourism: Suicide or Development?", *East African Business Week*. 2007. Retrieved from <http://www.rightsandresources.org/blog.php?id=69>