INVESTIGATION OF ACHIEVING SUSTAINABLE DEVELOPMENT OF AGRITOURISM - ECOTOURISM IN THE WIDER AREA OF LAKE KARLA

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Abstract
This work concerns the investigation of the opinions of visitors and residents, for the possibility of mild alternative forms of development (agritourism - ecotourism) in the wider area of Lake Karla. A total of 507 questionnaires were completed (257 visitors and 250 local residents).

Research questions were examined concerning the prevailing (current) situation in the wider area of Lake Karla, the measures deemed necessary for the improvement (and restoration) of the ecological situation of the area, the conditions for participatory cooperation between local authorities and local society, for the development of alternative forms of tourism (agritourism - ecotourism) in the region for sustainable development.

From the statistical analysis of the questionnaires, important results and conclusions emerged that show a positive response of the respondents, for the mild alternative tourism as well as for the sustainable development of the lakeside rural areas and the environmental awareness of the residents and visitors.

The majority of respondents state the necessity of taking bold measures and incentives (financial, social, etc.), both from the Local Government and the State, with the aim of containing the migration of the rural population and young people to the urban centers . The wider area of Lake Karla, can serve as an attractive destination for visitors and a place for environmental education, while also connecting Lake Karla with the biodiversity of the

mountainous arc of Kissavos - Mavrovouni - Pelion, upgrading the area ecologically and culturally, while contributing to its sustainable development.

Key words: *Agrotourism, ecotourism, Sustainability, Environmental Education*

Introduction

Agritourismis an important development strategy, which contributes in many ways to the social, economic, environmental and cultural development of the population (Moira, 2004), while at the same time, it promotes the model of sustainable tourism development, strengthening the local economy, creating new jobs without altering the cultural, social and environmental characteristics, which highlight the uniqueness of the place (Dionysopoulou, 2020). At the same time, the educational and recreational value of the natural environment is closely linked to the sustainable development of local societies (Martinis, 2020, Trakala, 2023).

Agritourism has also emerged as a field capable of encompassing a range of recreation (Brandth& Haugen, 2011; Koutsouris, 2014; Koutsouris et al., 2014; Koutsouris and Zarokosta, 2021), entertainment, education, as well as activities related to hospitality, indicating its flexibility to adapt to possible changes in the agricultural context or the needs of visitors (Xu, 2014) and is an important part of the sustainable development and outlook of the country's rural areas. Additionally, it is mentioned as a way of revitalizing local communities, both for farmers and for rural populations in general, through a sustainable development strategy. It is, in other words, a complex object of study with different definitions in tourism practice (Dubois & Schmitz, 2013; Potočnik-Slavič& Schmitz, 2013) and is influenced by the socioeconomic characteristics of each destination (Broccardo, Culasso, & Truant, 2017).

A well-organized plan on the part of agricultural enterprises for the organization of sports activities, events, and agricultural occupations, can provide special interest for agritourism visitors (Galluzo, 2015; Lupi et al., 2017), while also cultural resources of the region, such as historical elements, important rural landscapes, as well as local customs and folk traditions, significantly motivate the interest of agro-tourists (Kizos et al., 2007; McGehee, 2007; Yang, 2012; Tew& Barbieri , 2012; Barbieri, 2013; Ainley, 2014; LaPan& Barbieri, 2014).

Additionally, among other criteria, location, availability of infrastructure (Garrod et al., 2006; Stanovˇci´c et al., 2018), sustainable transport and various rural activities provided to visitors, on the one hand constitute a destination selection criterion , on the other hand, determine the income levels of farmers from their involvement in agritourism (Bhatta and Ohe, 2020).

Of course, for the proper functioning of the system, it is necessary to adopt policies to promote sustainability, gentle tourism development and respect for our cultural and national identity (Trakala, 2023).

Another aspect that clearly emerges is that, agritourism also contributes to the sustainability of local heritage and to the preservation and promotion of intangible and material elements of rural heritage (Barbieri, 2008; Mastronardi et al., 2015; Addinsall et al., 2017; Farsani et al., 2019), while it can contribute to the creation of sustainable value, from an ecological, social and economic point of view (Broccardo et al., 2017).

Thus, agritourism can be considered as an innovative diversification strategy for farms, including multiple activities, but also leisure for tourists (Brandth& Haugen 2011; Koutsouris, 2014; Koutsouris&Zarokosta, 2021), with many economic and non-benefits for farmers, visitors and communities (Tew& Barbieri, 2012; Bhatta and Ohe, 2020).

Given that, agritourism is an important and valuable tool for sustainable development in many rural areas (Scaglione&Mendola, 2017) and contributes positively to the culture of local communities that receive visitors (Lane, 1994), while raising awareness among communities in terms of the cultural and economic value of the landscape and their habitats, it is undoubtedly considered, as a powerful tool to diversify activities in rural areas, providing a sustainable alternative proposal (World Tourism Organization, 2009, 2015).

Another form of alternative tourism that is strongly promoted today is **ecotourism.** As a field of expression, ecotourism has also been described as travel to natural areas, with environmentally friendly actions and improving the well-being of local residents (Weaver, 2001; Kiper, 2013). It focuses on the natural beauty, geology, flora and fauna of a particular area, together with the other indigenous cultural elements that coexist (Weaver, 2001, 2004; Fennel, 2002, 2014) and provides beneficial active socio-economic participation of local people (Perkins & Debra, 2009; Sayyed et al., 2013; Demir et al., 2016).

Ecotourism seems to have arisen, on the one hand, from the need for environmental protection and on the other, from the desire of the people of large urban centers for nature (Fennell, 2008). It also concerns the local community as a whole (Belissariou, 2000) and is offered as an alternative solution with rapid development, against mass tourism (Weaver, 2001; Fennel, 2008, 2014).

Ecotourism seems to strike a balance between the conservation of natural resources, but also development on the other hand, creating synergistic relationships between natural landscapes, local residents and the tourism industry (Zacarias& Loyola, 2017). It also offers opportunities for local people to develop products that can contribute to socio-economic development, improve local living conditions and visitor experience, while preserving local culture, environmental health, biodiversity and ecosystem services. (Christ et al., 2003; ECA, 2011; Admasu, 2020).

The importance of connecting people with nature is very important, because nature offers experiences and knowledge to visitors, while at the same time, the sustainable development of local societies is promoted (Manning, 2001). Also, the involvement of local communities, in the planning and decision-making processes for determining the way resources are managed, is considered essential (Tsiaras&Tsiroukis, 2023).

Ecotourism also promotes the awareness and education of citizens (visitors and locals) on issues of environmental conservation and sustainability. Environmental education is the tool that can be used, so that the new generation (students) receive proper environmental education, in order to adopt new attitudes and behaviors (Martinis, 2012; Martinis et al., 2017) ; Martinis, 2020), as "environmentally literate citizens" (Paraskevopoulos, 2009). Thus, the younger children are in contact with the natural environment, the more friendly behavior they develop towards it, in contrast to those who do not have similar experiences (Ting & Cheng, 2017). Also, the pursuit of citizen awareness through modern educational tools and methods can strengthen the local population, providing incentives to achieve a sustainable development and strengthening the role of younger generations in shaping alternative development policy (Folmer et al., 2002; Minotou et al., 2011).

Based on the above, agrotourism - ecotourism seems to be a model of sustainable development and perspective for the wider area of Lake Karla - Montenegro and should be taken seriously in supporting decision-making at the level of administration and management (Local Government Organizations , central Government, Public Bodies) of the countryside, natural resources and human resources, as a case study, in the evaluation of the possibilities of the evolution of part of the agricultural activities, around the ecosystem of Lake Karla, into agro-tourism - ecotourism (Trakala, 2023).

Finally, the promotion of Lake Karla, as a Metropolitan hub, for the interconnection of the mountainous arc of Kissavos - Mavrovouni - Pelion, with the creation of certified

environmental and cultural paths, is a well-founded hope and expectation of the local residents, which will lead to the achievement of sustainable development and it will ecologically and culturally upgrade the wider area (Trakala et al., 2023a; Trakala et al., 2023b; Trakala, 2023). In addition, the exploitation of the flora, birdlife and fish fauna will become a pole of attraction and the subject of multiple topics for environmental education, but also for alternative tourism, which has been widely recognized as a key tool for regional sustainable development (Trakala et al., 2021).

Objectives of the research

The main purpose of this work concerns the investigation and evaluation of the opinions of residents and visitors of the area of interest on the possibility of developing agritourism - ecotourism in the wider area and integration of the results at the level of administration and management by the local authorities, the central government and public bodies .

Also, through the research, the SWOT analysis of the area was supported and also, the recording of the existing situation, in order to take measures to improve the ecological situation, while other important parameters were investigated, such as the role of the local government, the collective bodies, the civil society, as well as the contribution of environmental education to achieving sustainable development.

Methodology, Study Area and Research

In particular, the research area is delimited by the catchment area of Lake Karlas, (Thessaly, Greece). It consists of most of the Thessalian plain, the main agricultural area in Greece, as well as natural areas mainly in the eastern part of Lake Karla.

Within the watershed there are five sites of the Natura 2000 network: one Site of Community Importance (SCI), i.e., "KARLA - MAVROVOUNI - KEFALOVRYSO VELESTINOU - NEOHORI" (GR1420004) and four (4) Special Protection Areas (SPAs), i. "MOUNT MAVROVOUNI" (GR1420006), "THESSALIC PLAIN AREA" (GR1420011), "FORMER LAKE KARLAS DEPOSITORS AREA" (GR1430007) and "MOUNT PELIOS" (GR1430008). In Figure 1, the survey area is presented providing information on the major cities (i.e. Larissa and Volos) as well as the boundaries of the Natura 2000 network sites.

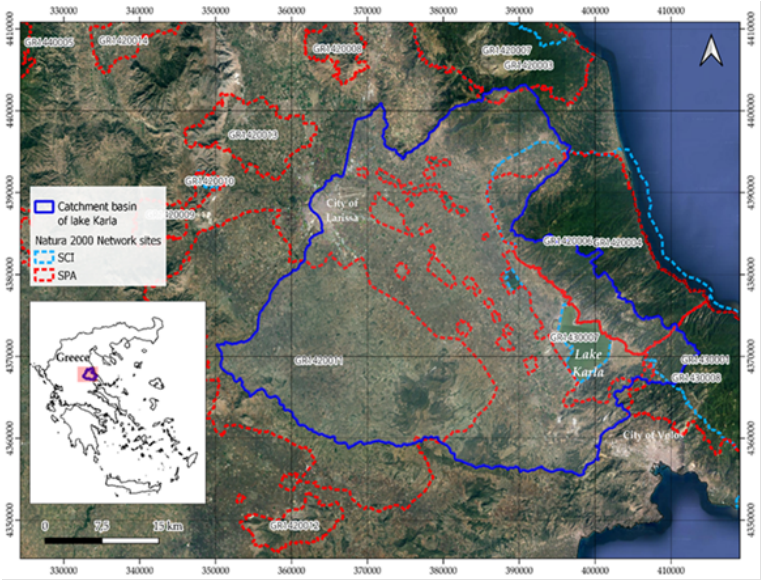

Figure 1. Research Area

The catchment area of Lake Karla, (Thessaly, Greece). The catchment area of Lake Karlasis depicted in blue outline. Sites of Natura 2000 network of protected areas in the region, i.e. Sites of Community Importance (SC) and Special Protection Areas (SPAs) are also presented. Cartographic background: Google Earth, (2023). Source of boundaries of Natura 2000 areas and watershed: (https://geodata.gov.gr).

For the implementation of the present research, the survey research was chosen as a research strategy, which is suitable for collecting data from a large number of subjects (Marinopoulos, 2021), while the questionnaire was used to collect the research data, which is considered the most appropriate way of data collection in the case of survey surveys (Bryman, 2016). In addition, data can be relatively easily classified and processed (Cohen &Manion, 1997).

The research part includes a statistical analysis with 2 questionnaires (visitors – residents), i.e., a quantitative analysis carried out with the main objective of investigating the opinions of visitors and residents, on the possibility of developing agritourism - ecotourism in the wider area of Lake Karla, in context of the preparation of a related Doctoral Dissertation of the first author, as to whether it is possible to contribute to sustainable development.

A total of 507 questionnaires were collected, namely 257 of the visitors and 250 of the residents of the wider area of Lake Karlas, which constitute the representative research sample. The participants expressed their opinions by completing the questionnaire, in the time from June 2021 to August 2022, with the aim of covering visitors in all seasons of the year, in electronic format (Google forms). The questionnaire included questions on a five-point scale (Likert), that is, they were asked to indicate the degree to which they agree with each proposition/statement of the questions, per research question.

The research questions of our research were the following: a) What is the prevailing (current) situation in the wider area of Lake Karlas? (b) What measures are deemed necessary to improve (and restore) the ecological situation of the area? (c) Under what conditions, the participatory cooperation of the political bodies, the human resources of the local government and the local society, can contribute to the achievement of sustainable development of agritourism - ecotourism in the region? (d) Can environmental education contribute to solving local environmental issues by educating citizens for active and effective participation in sustainable development? (e) Are there differences in the preferences of both residents and visitors, depending on their gender, age, monthly income and educational level? Further questions investigated are the reason for visiting the area, as well as the degree of environmental interest of the participants. Data analysis was carried out using the SPSS 27.0 statistical package.

Results

Quantitative analysis

The demographic data analyzed referred to the research question: "Are there differences in the preferences of both residents and visitors, depending on their gender, age, monthly income and educational level?" In addition, the questions regarding the "fate of the inhabitants of the rural rural villages" were explored and also their desire, for the young people of the rural countryside, to stay in the near future.

The indices of internal consistency and reliability (Cronbach a) of the two questionnaires (visitors and residents) for all the factors investigated, in terms of the main part of the analysis, as well as overall, proved to be very high and in particular, (a=0.901 for the visitors and a=0.860 for residents). According to Chihla (2016), reliability coefficients of the order of 0.90 are considered "ideal", coefficients of the order of 0.80 are "very good", while values close to

0.70 are "adequate" (Kline, 2010). Ensuring high levels of validity and reliability builds confidence in the quality of research data as it minimizes measurement error (Field, 2009; Hair et al., 2010).

The profile of visitors and residents, by gender

Regarding the profile of visitors according to gender, men account for 55,64% and women for 44,36%, while for residents, it is 52,80% for men and 47,20% for women (Table 1).

Table 1. Distribution of interviewed visitors - residents, of the Lake Karlas area, according to gender.

PROFIL	GENTER	PERCENT %	N	GENTER	PERCENT %	N
VISITORS (n=257)	MEN	55,64	143	WOMEN	44,36	114
RESIDENTS (n=250)	MEN	52,80	132	WOMEN	47,20	118

Distribution of visitors and residents by age groups

In terms of visitor age, the dominant group consisted of 41-50 year olds, making up 28,02% of the total sample, followed by the 21-30 group with 23,74%. Regarding the participating residents, the dominant group is 31-40 with a percentage of 22,00%, followed by the group of 41-50 with a percentage of 19,60%. The detailed age distribution is shown in (Table 2).

Table 2.Distribution of interviewed visitors - residents, of the Lake Karlas area, according to age.

AGE CLASSES	VISITORS %	NUMPER N	RESIDENTS %	NUMPER N
<of 20	11,28	29	10,80	27
21-30	23,74	61	17,60	44
31-40	20,62	53	22,00	55
41-50	28,02	72	19,60	49
51-60	6,61	17	13,20	33
>of 60	9,73	25	16,80	42
TOTAL	**100 %**	**257**	**100 %**	**250**

The monthly income of participating visitors and residents, respectively

Regarding income, the present distribution (Table 3), reflects the difficult financial situation of all (visitors and residents), with incomes ranging between the first 3 classes, that is, from: <600 Euros, up to 1200. It should be noted that the local residents face more difficulties, given that incomes over 1500 Euros represent only (2.80%).

Table 3. Distribution of interviewed visitors - residents, of the Lake Karlas area, according to income.

CLASSES INCOMES (EURO)	VISITORS %	NUMBER N	RESIDENTS %	NUMPER N
< of 600	29,96	77	26,00	65
601-900	18,29	47	43,20	108
901-1200	20,23	52	21,60	54
1201-1500	14,40	37	6,40	16
>of 1500	17,12	44	2,80	7
TOTAL	**100 %**	**257**	**100 %**	**250**

The educational level of participating visitors and residents

The distribution is significant (Table 4), depending on the educational level, which in the case of visitors is characterized by the high percentages of participants who have finished University (44.75%) and Postgraduate studies (31.52%), while in the case of residents, the 1st place is occupied by High School graduates (41.20%) and the 2nd by University Graduates with (26%). This suggests that many children, after High School or even University, will try to work in agriculture, where there is a relevant agricultural infrastructure, as their employment prospects in the State no longer exist. This parameter must be taken seriously by policy makers in order to develop conditions for the sustainable development of our young people in the rural countryside and also by investigating the activities towards tourism.

Table 4. Distribution of surveyed visitors - residents, of the Lake Karlas area, according to educational level.

EDUCATIONAL LEVEL.	VISITORS %	NUMPER N	RESIDENTS %	NUMPER N
Primaryschool	0,39	1	7,60	19
High school	2,72	7	19,20	48
High school	20,62	53	41,20	103
University	44,75	115	26,00	65
Postgraduate studies	31,52	81	6,00	15
TOTAL	100 %	257	100 %	250

The findings of (Table 5), express a "cry of anguish", the statement that the "villages will be deserted" in the highest percentage (90.80%), while they see and at the same time expect that the only hope for the region is tourism and indeed alternative sustainable tourism, i.e. Agritourism and Ecotourism.

Table 5. Distribution of interviewed residents of the Lake Karlas area, regarding whether they believe that the villages in the area will be deserted

Do you think the villages in the area will be deserted?	RESIDENTS %	NUMPER N	Tourism is the only hope for the region;	RESIDENTS %	NUMPER N
YES	**90,80**	**227**	**YES**	**76,00**	**190**
NO	9,20	23	**NO**	24,00	60
TOTAL	100	250	**TOTAL**	100	250

Conclusions

From the analysis of the questionnaires and the statements "I agree and strongly agree", the following emerged:

- ecotourism - agrotourism development can significantly contribute to the economic stimulation of the local community in the area (49,2 and 46,4%),
- ecotourism - agrotourism can never harm the environment in the area (55,6 and 28,0%),
- ecotourism-agritourism can never harm the local community (51,2 and 32,4%),
- they would like the new children in the area to work in the field of ecotourism - agrotourism (51,6 and 25,6%),
- ecotourism - agrotourism, benefits the majority of the residents of the area (64,4 and 18,8%),
- the benefits from ecotourism - agrotourism can increase significantly (67,2 and 29,2%).

At the same time, the majority of participating residents believe that:

- the villages of the area will be deserted in a few years (90,8%),
- tourism (agritourism - ecotourism), is the only hope of the region (76,0%)
- protecting the environment is more important than employment (83,2%).

male participants, compared to women, agree more that:

- "Biodiversity (flora, fauna, ecosystems) is sufficiently protected in the area" (Mann-Whitney U=5342,500 Wilcoxon W=11897,500 Z=-4,995 Sig.=,000),
- "The restoration of Lake Karlas will have positive effects on the climate of the area" (Mann-Whitney U=5803,000 Wilcoxon W=12358,000 Z=-4,381 Sig.=,000),
- "Environmental protection always conflicts with economic development" (Mann-Whitney U=7029,000 Wilcoxon W=13584,000 Z=-1,992 Sig.=,046),
- "Ecotourism promotes the protection of the environment" (Mann-Whitney U=6484,500 Wilcoxon W=13039,500 Z=-3,252 Sig.=,001),
- "Ecotourism contributes to the preservation of the social fabric and cultural environment" (Mann-Whitney U=7057,000 Wilcoxon W=13612,000 Z=-2,087 Sig.=,037),
- "Ecotourism-agritourism in the area should increase" (Mann-Whitney U=6553,000 Wilcoxon W=13108,000 Z=-3,120 Sig.=,002),
- "The sustainable ecotourism-agritourism development can significantly contribute to the economic stimulation of the local society" (Mann-Whitney U=7101,500 Wilcoxon W=13656,500 Z=-2,059 Sig.=,040),
- "Ecotourism-agritourism can never harm the environment in the area" (Mann-Whitney U=5915,000 Wilcoxon W=12470,000 Z=-3,937 Sig.=,000),

- "Ecotourism-agritourism can never harm the local community" (Mann-Whitney U=5991,500 Wilcoxon W=12546,500 Z=-3,816 Sig.=,000),
- "The region of Karlas - Montenegro offers recreational opportunities through a local network of excellently organized trails" (Mann-Whitney U=5720,000 Wilcoxon W=12275,000 Z=-4,433 Sig.=,000),
- "The implementation of protection, management and promotion projects of the area will contribute to the attraction of visitors" (Mann-Whitney U=7020,500 Wilcoxon W=13575,500 Z=-2,191 Sig.=,028),
- "The promotion of Lake Karlas as a Metropolitan hub will ecologically and culturally upgrade the wider area" (Mann-Whitney U=6713,000 Wilcoxon W=13268,000 Z=-2,786 Sig.=,005).

On the contrary, the participating women, in a greater proportion than men, state that:

- "The local community, the tourism industry and the government sector are involved in the sustainable development of ecotourism" (men: Mean Rank=127.74 Sum of Ranks=18267.00 women: Mean Rank=130.58 Sum of Ranks=14886, 00).

Also, a statistically significant difference between the two sexes is recorded in the question:

- "The establishment of Environmental education can contribute to the achievement of sustainable (sustainable) development" (Mann-Whitney U=7047,000 Wilcoxon W=13602,000 Z=-2,069 Sig.=,039).

More specifically, men, to a higher degree than women, state that:

- "The establishment of Environmental education can contribute to the achievement of sustainable (sustainable) development" (men: Mean Rank=136.72 Sum of Ranks=19551.00 women: Mean Rank=119.32 Sum of Ranks=13602,000).

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