IS THERE A NEED FOR LOCAL ENVIRONMENTAL POLICY CREATION REGARDING TOURISM IMPACTS?

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Abstract

The main purpose of this paper is to determine the local residents' attitude differences and to segment them into diverse groups regarding their consciousness of environmental tourism impacts in order to define the need for creation of local environmental policy. The empirical research was conducted in the period from May 1st 2015 to May 1st 2016 on a convenient sample of 1, 339 local residents living in the City of Dubrovnik (The Republic of Croatia). Cluster analysis and ANOVA were used for data analysis. The findings indicate the existence of three different segments based on local residents´ attitudes toward environmental tourism impacts. Also, education as a socio-demographic variable, together with spatial and temporal ones has been found statistically significant. Outcomes of this paper show the general absence of environmental consciousness which implies the necessity for environmental policy creation through the process of increasing local residents' level of awareness toward environmental tourism

impacts. Local residents and their passive and active involvement in environmental policy making are an important factor of quality and sustainable tourism development.

Key words: *local residents, segmentation, cluster analysis, environmental policy*

INTRODUCTION

Due to the fact that negative impacts of tourism development are intensifying, tourism policy must be, in its concepts, plans and strategies, focused on sustainable tourism development principles. Mass, uncontrolled and unplanned tourism development has caused degradation of natural resources. As natural resources and environment are mostly primary attractors to tourism destination, monitoring and researching tourism impacts are essential and crucial. Local residents' attitudes towards environmental tourism impacts and their consciousness of environmental degradation are important inputs for sustainable tourism development and for creation of adequate environmental policy. "The attitude of host community should be monitored on a frequent basis and incorporated into tourism policies" [Jackson, 2008: 253]. So, it can be seen that local residents' attitudes towards tourism impacts are essential for the successful tourism and also environmental policy in their community. The importance of local residents' attitudes is even more important in the area of environmental tourism impacts.

According to Zhong, Deng, Song, and Ding (2011) tourism, besides positive impacts, also causes negative impacts on the biophysical environment (water pollution, air pollution, ecosystem degradation) and social/cultural environment (i.e. loss of the traditional culture). Environmental consequences caused by rapid tourism growth can no longer be ignored [Gőssling, Hansson, Hőrstmeier, & Saggel 2002]. In this paper environment covers biophysical environment, namely water pollution, air pollution, raise of waste and uncontrolled use of ecosystem and its degradation. Tourism impacts have been extensively examined in developed and developing countries and have also became the main research topic among Croatian researches in tourism field in the last ten years [Marušić, Horak, & Tomljenović, 2008; Logar 2010; Carić 2011; Pranić, Petrić, & Cetinić 2012; Pavlić, Portolan, & Puh 2017].

The main goal of this paper is, by analysing local residents' attitudes of tourism impacts on natural resources and environment, to define different segments of residents considering their socio-demographics, spatial and temporal characteristics as well their support for current or sustainable tourism development. By defining consistent segments, a basis for modifying local residents´ attitudes towards tourism environmental impacts will be established which the foundation for creating environmental policy is. Since, in the Republic of Croatia there are no papers researching environmental tourism impacts from local community perspective by applying cluster analysis, this paper will try to fill in that gap.

1. THEORETICAL BACKGROUND

1.1. Environmental tourism impacts

Tourism development does not occur in isolation; it occurs within specific environment and community. Among those specificities, residents' support is a key factor in sustainable tourism development [Almeida, Peláez, Balbuena, & Cortés 2016]. Residents' attitudes toward tourism impacts have been a topic of research for more than 40 years, so analysing all the studies in their entirety would be a difficult task if not impossible [Sharpley 2014]. In the beginning, due to the economic dimension of tourism, only positive impacts of tourism development have been pointed out and later the attention was drawn on exploring local residents' attitudes on various impacts of tourism [Pavlić, Portolan, & Puh 2017]. The results of studies have indicated that tourism influences local residents through three parts, namely, environmental, economic and socio-cultural [Gursoy, Jurowski, & Uysal 2002]. Most studies have identified these impacts in two possible aspects, positive and negative [Almeida, Balbuena, & Cortés 2015].

Researching environmental tourism impacts is very important due to the fact that tourism is often developed in attractive but sensitive environment and can cause significant environmental damage [Andereck, Valentine, Knopf, &Vogt 2005]. Also, local residents prefer to support tourism development putting its advantages ahead of natural resources and environmental damage [Almeida et al. 2015], and local development policy becomes focused on meeting the needs of travellers often without regards for the environment [Andereck et al. 2005]. According to exchange theory numerous scientists have concluded that those residents who benefit from tourism perceive less environmental impacts from tourism [Perdue, Long & Allen 1987; Lankford & Howard 1994; McGegee & Andereck 2004]. But the question has to be raised "do environmental costs of tourism development outweigh economic benefits?" The identification of environmental tourism impacts, both positive and negative, is essential but it has to be emphasized that negative consequences have to be minimized and eliminated. If local residents support mass, uncontrolled and unsustainable tourism development underlining only positive tourism impacts, harmful consequences could arise, especially on natural resources and environment that are key contributors and main attractors to tourist destination.

Different potential environmental consequences have been summarized, namely air pollution (emissions from vehicles and airplanes], water pollution [waste water discharge), wildlife destruction (results of hunting, trapping, fishing, disruption of natural habitant), plant destruction and deforestation, forest fires, trampling of vegetation, destruction of wet lands, soil and beaches, and what is also very important, environmental consequences that disturb humans (large buildings that disturb views, noise pollution from planes, cars and tourists, vandalism, graffiti) [Liu, Sheldon, & Var 1987; Andereck et al. 2005]. At the same time, only few positive environmental impacts of tourism have been identified, namely preservation, protection and recovery of natural resources and environment and environmental consciousness [Liu et al. 1987; Jurowski & Gursoy 2004; Andereck et al. 2005; Bagri & Kala 2016]. It can be concluded that there are more negative tourism environmental impacts than positive ones.

By suggesting how to minimize negative environmental consequences outcome from tourism development, Cook (1982) recommended that tourism planning in total should be based on the goals and priorities of residents and that local attractions need to be promoted only when endorsed by residents. Considering her opinion

local residents attitudes towards tourism development and environmental tourism impacts need to be priority in planning sustainable and long term tourism development. In 1986 Liu and Var have researched resident attitudes toward tourism impacts in Hawaii and have concluded that respondents strongly agree that tourism provides many economic and cultural benefits but are ambivalent about environmental ones. Amuquandoh (2010) had similar conclusions. Based on his research he concluded that residents perceived both positive and negative environmental impacts of tourism, but were more inclined to the positive side.
Despite the existence of numerous negative environmental tourism impacts there is lack of local residents' awareness towards the consequences of tourism development on natural resources and environment.

1.2. Local residents' segmentation

Market segmentation is one of the most important and used strategies in marketing. Its main role is to identify homogeneous groups of consumers with similarities in an effort to satisfy their needs and increase marketing effectiveness [Tsiotsou 2006]. The best and most used tools for local residents' segmentation based on their attitudes towards tourism impacts is cluster analyses. This approach is used because residents' attitudes consist of both positive and negative attitudes about economic, socio-cultural and environmental tourism impacts. The non-homogeneity of attitudes within residents suggests that representations are shared by various societal groups as a result of the consensus of community perceptions. Segmentation of residents based on the attitudes have resulted in findings that any host community is not homogenous but comprises a number of groupings of like-minded individuals [Andriotis & Vaughan 2003].
Table 1 presents review of researches that have used cluster analysis as a tool for local residents' segmentation based on their attitudes of tourism impacts. There are number of segments according to the degree of positivity in local residents' attitudes, ranking from lovers to haters.

Table 1. Researches of local residents' attitudes applying cluster analysis

Authors	Number and names of clusters
Davis et al. (1988)	Haters, In-Betweeners, Cautious Romantics, Love them for a Reason, Lovers
Evans (1993)	Haters, Controlled, Selfish, Lovers
Ryan & Montgomery (1994)	Somewhat Irritated, Middle of the Roaders, Enthusiast
Madrigal (1995)	Haters, Realistics, Lovers
Ryan et al. (1998)	Cautious Supporters, Moderate Enthusiastics, Extreme Enthusiastics
Fredline & Faulkner (2000)	Haters, Concerned for a Reason, Realistics, Ambivalent Supporters, Lovers
Weaver & Lawton (2001)	Opponents, Neutrals, Supporters
Williams and Lawson (2001)	Cynics, Innocents, Taxpayers, Lovers
Andriotis & Vaughan (2003)	Economic Skeptics, Socially and Environmentally Concerned, Advocates
Perez & Nadal (2005)	Development Supporters, Prudent Developers, Ambivalent and Cautions, Protectionists
Barquet, Brida & Osti (2010)	Ambivalent, Protectionists, Development Supporters, Environmental Supporters
Vareiro et al. (2013)	Skeptics, Moderately Optimistics, Enthusiasts
Degree of positivity	High (+) → Low (-)

Source: Author´s research

In order to define a profile of each segment scholars have used different variables. Faulkner and Tideswell (1997) have identified two groups of those variables, namely extrinsic and intrinsic variables. According to their opinion extrinsic variables are related to the location characteristics with respect to its role as a tourist destination, and intrinsic variables to characteristics of members of the host community. The major extrinsic variables, linked with local residents' attitudes found in the literature, are degree or stage of the host destination's tourism development, type of tourists/travellers' and seasonality. Intrinsic variables are the living distance from the centre of tourist activities, length of residence, economic and/or employment dependency of tourism and socio-demographic characteristics.
Variables used in this paper to define a profile of each segment of local residents are namely socio-demographic (gender, age, education, occupation personal monthly income) as intrinsic one, temporal (length of residence as intrinsic and period of research as extrinsic variable) and spatial (distance from the centre of tourist activities) as intrinsic variables, support for current or sustainable tourism development.

2. METHODOLOGY

2.1. Area of research

Dubrovnik-Neretva County is the southernmost county of the Republic of Croatia. Territorially it is organized into 22 units of local government and self-government (17 municipalities and five cities). The research area of this paper is the city of Dubrovnik that has a corporate status as well as local government, and covers 17 settlements. It is situated on the Croatian southern coast of the Adriatic Sea, is the centre of Dubrovnik-Neretva County and has 42,615 inhabitants (Croatian Bureau of Statistics, 2018).
Tourism is a priority in Dubrovnik's economy. It is estimated that tourism provides approximately four-fifths of Dubrovnik's gross domestic product, jobs and government revenues. In 2017 the number of tourists and visitors from cruise ships exceeded 1.9 million that results with about 1:45 resident-traveller ratio (Croatian Bureau of Statistics, 2018; Port of Dubrovnik, 2018). The number of excursionists visiting Dubrovnik is not included due to the data inexistence but it should be emphasized that this number would increase a total number of travellers and the resident-traveller ratio. The city of Dubrovnik has been chosen for this research because it is a mature seaside destination with unsustainable, uncontrolled and unplanned tourism development. In 2017, it has generated more than 8% of total tourists' arrivals and 4.85% of total tourists' overnights in the Republic of Croatia, and it was on the first place in the whole country in tourists' overnights and in tourists' arrivals (Croatian Bureau of Statistics, 2018). Despite the great tourism results it should be questioned whether natural resources and environment are capable, in the years coming, to handle and carry out that pressure of tourism development without consequences.

2.2. Sampling and questionnaire design

The empirical research was conducted in the period from May 1st 2015 to May 1st 2016 on a convenient sample of local residents living in the City of Dubrovnik (The Republic of Croatia). Of the initial sample, 1,339 questionnaires were correctly

fulfilled. This research is a part of a broader research of local residents' attitudes towards tourism impacts in the city of Dubrovnik, so only one part of the questionnaire (focused on the environmental impacts of tourism) was used for the purpose of this particular analysis. Data were collected through a questionnaire consisting of structured questions based on the literature review and previous research in the field [Liu & Var 1986; Perdue, Long, & Allen 1987; Kuvan & Akan 2005; Gursoy et al. 2002; Bujosa & Roselló 2007; Amuquandoh 2009]. The questionnaire included statements of environmental tourism impacts on which respondents had to express their level of agreement using a five-point Likert scale (1=totally disagree, 5=totally agree). The second part included statements about support for current or sustainable tourism development also on a 5 point Likert scale. The last part of the questionnaire included questions about socio-demographic such as gender, age, level of education, occupation and personal monthly income level together with spatial information – living distance from the main tourism activities and temporal ones – the length of residence and the period of research.

2.3. Analytical procedure

For the main aim of the research, statistical procedures were applied using the Statistical Package for the Social Sciences (SPSS, version 23.0). In order to segment local residents according to their environmental awareness cluster analysis was used. It is a technique of segmentation that minimizes the distance between members of each cluster but maximizes the distance between the cluster centres' [Weaver and Lawton, 2001: 445]. This method offers explicit evidence that the respondents and their opinions are not homogeneous [Aguiló & Rosello, 2005: 931]. In K-means cluster analysis, the number of clusters is chosen by the researcher. K-means cluster analysis has been used in accordance with previous researches [Andriotis & Vaughan 2003; Aguiló & Rosello 2005; Inbakaran & Jackson 2006; Barquet, Brida & Osti 2010; Vareiro, Remoaldo & Cadima Ribeiro 2013]. Kaiser-Meyer-Olkin test (KMO) of sampling adequacy was used to test the validity of the data. Besides, Cronbach's alpha coefficient was applied to test the reliability of the scale. In the beginning, univariate statistics were calculated for questionnaire items. Then, in order to divide residents into segments, K-means cluster analysis was carried out where two, three and four segments solutions were obtained. Three segments solution was chosen because it described data variability the best. In the end, once clusters were identified, key socio-demographic characteristics and items that describe their support toward different ways of further tourism development were examined using ANOVA and t-test.

3. RESULTS

Table 2 presents the local residents' socio-demographic profile. Female share in the sample was 57.1% and 42.9% were male. The age groups were represented as follows: 51.7% from 18-34, 25.7% from 35-49, 18.0% from 50-64, 4.6% from 65 years old. Therefore, 77.3% were young and middle-aged people (18 to 50 years old). The education structure showed that more than 47% of respondents are undergraduate and graduate residents followed by those who finished high school (38.7%). The smallest group of local residents are those with only

elementary school. 27.1% of residents are students, while 22.6% work in the private sector. One fifth of the local residents work in the public sector. The majority of the respondents, 80.9%, had monthly incomes under 6,001 HRK.

Table 2. Respondents' profiles

Demographic characteristics	Frequency	Percentage [%]
Age		
18-34	691	51.7
35-49	344	25.7
50-64	241	18.0
65 and over	63	4.6
Gender		
Male	764	42.9
Female	575	57.1
Education		
Elementary school	47	3.5
Secondary school	518	38.7
Undergraduate and graduate	635	47.4
Postgraduate	139	10.4
Occupation		
Public sector	277	20.7
Private sector	303	22.6
Private businessman	106	7.9
Housekeeper	64	4.8
Student	363	27.1
Retired	87	6.5
Unemployed	124	9.3
Other	15	1.1
Monthly income in HRK*		
under 3.000	540	40.4
3.001-4.000	215	16.0
4.001-6.000	327	24.5
6.001-8.000	168	12.6
8.001-10.000	58	4.3
10.001-	31	2.2

*1 HRK = 0.13 €

Source: Authors' research

Table 3 shows the results in the relation to the responses to 5 attitudinal statements associated with the level of agreement of local residents towards environmental tourism impacts. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.820, indicating that the number of variables and the sample size was appropriate. The value of Cronbach's alpha coefficient was 0.817 suggesting satisfactory internal consistency and reliability of the scale.

Table 3. Overall responses of local residents' environmental awareness [in %]

	1	2	3	4	5	Mean	Std. Deviation
Tourism affects sea pollution	33.4	36	22.3	6.6	1.7	3.37	1.003
Tourism affects air pollution	27	34.4	25.9	9.4	3.3.	3.93	.985
Tourism increases waste production	37	39.1	17.8	4.6	1.5	3.72	1.061
Tourism destroys local ecosystem	22.5	34.1	30.6	10.2	2.7	4.05	.930
Tourism causes the uncontrolled use of resources	11.7	36.2	33.6	14.3	4.3	3.63	1.023

Source: Authors' research

According to Table 4 and Graph 1, it can be concluded that three different segments (clusters) of local residents were isolated.

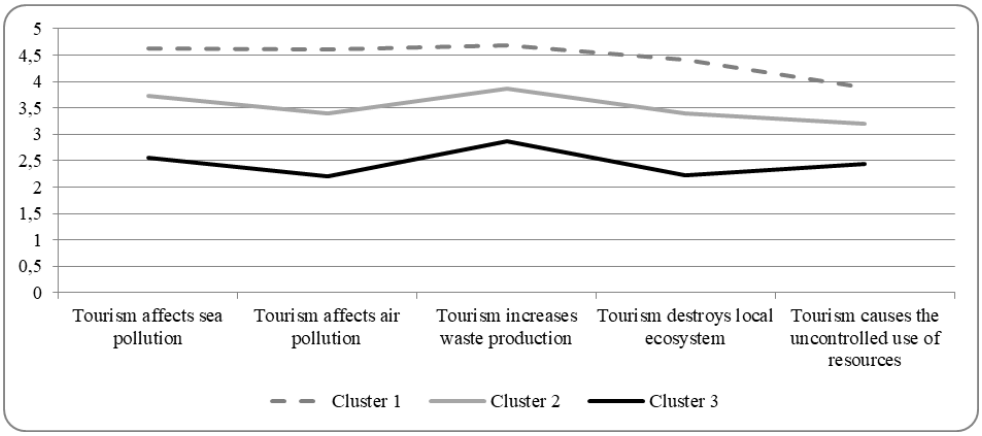
Table 4. Mean scores of clusters according to the local residents' level of agreement and ANOVA

Statements	Cluster 1	Cluster 2	Cluster 3	F ratio*	p
Tourism affects sea pollution	4.63	3.73	2.55	724.952	.000
Tourism affects air pollution	4.60	3.40	2.21	1114.631	.000
Tourism increases waste production	4.68	3.87	2.86	537.038	.000
Tourism destroys local ecosystem	4.41	3.39	2.22	802.258	.000
Tourism causes the uncontrolled use of resources	3.88	3.20	2.43	219.011	.000

Source: Authors' research

As it can be seen, local residents express different attitudes regarding environmental tourism impacts (Graph 1). On the one hand, Cluster 1 includes local residents who have higher scores on statements regarding environmental tourism impacts. On the other hand, local residents belonging to Cluster 3 have opposite opinions compared with those in Cluster 1, whilst residents being part of Cluster 2 seem to be rather indifferent.

Graph 1. Plot of means for each cluster



Source: Authors' research

Table 5. ANOVA and t-test results for individual variables by segments

	Cluster 1	Cluster 2	Cluster 3	p
Age	1.77	1.75	1.75	.766
Gender	1.42	1.42	1.48	.373
Education	3.69	2.64	2.27	**.001**
Occupation	4.17	3.91	4.12	.311
Personal monthly income	2.30	2.30	2.38	.564
Living distance from the main tourism activities	3.27	2.58	2.32	**.049**
Length of residence	2.68	1.35	1.72	**.082***
Period of research	2.60	2.70	2.72	.222
Support for current tourism development	2.23	2.88	3.09	**.002**
Support for sustainable tourism development	3.71	3.26	2.16	**.000**

*p<0.1

Source: Authors' research

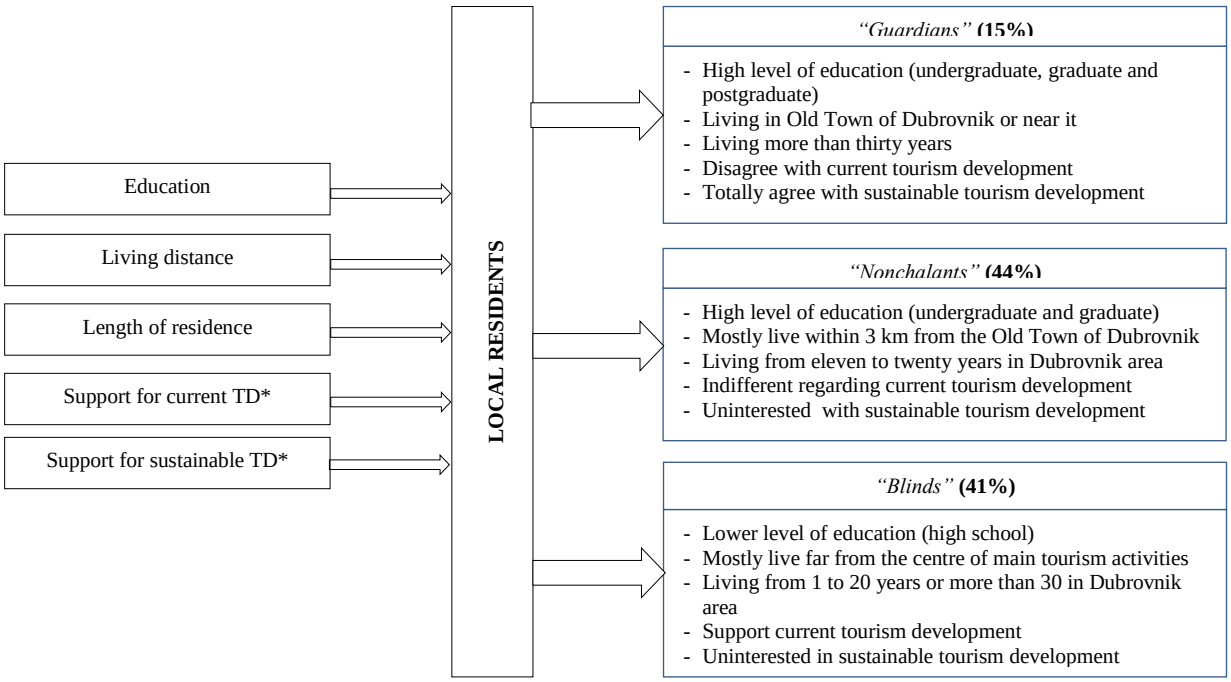
As it can be observed from Table 5, variables age, gender, occupation, personal monthly income and period of research are not statistically significant. Thus, they will be excluded from further analysis. Three isolated segments are named as follows: Environmental carers, Environmental indifferent and Environmental unconcerned (Graph 2).

Cluster one is called "*Guardians*" and includes 198 local residents or 15% of respondents. These residents have high scores on the statements regarding the environmental impacts of tourism which means that they agree that tourism has negative environmental impacts on tourism destination. So, they totally agree that tourism affects sea and air pollution and that it increases waste production, destroys the local ecosystem and causes the uncontrolled use of resources. 60% of them have a high level of education (undergraduate, graduate and postgraduate level), have longer length of residence in Dubrovnik (more than 30 years – 37.2%), live in the Old town of Dubrovnik or near it (59.9%) and disagree with a current tourism development (42.9%). They totally agree that tourism should be sustainably developed (62.8%).

"*Nonchalants*" is the name of the second cluster. This cluster includes 44% local residents (587 local inhabitants). These residents have middle scores on statements meaning that they are indifferent regarding environmental tourism impacts. They are mostly undergraduate and graduate educated residents (50.08%), live between 11 and 20 years in Dubrovnik (32.4%), mostly live within 3 km from the Old Town (43.6%), are indifferent regarding current (41.9%) and sustainable tourism development (36.7%).

Cluster three is given the label "*Blinds*". It includes 41% of respondents. These residents have low scores on given statements meaning they do not agree that tourism impacts on destination environment. They are lower educated residents (high school – 47.5%), live mostly from 1 to 20 years or more than 30 years in the Dubrovnik area but far away from the centre of tourism activities (more than 3 km from the centre of Dubrovnik) – 44.9%. They support current tourism development (73.3%), but just 36% of them support sustainable tourism development.

Graph 2. Empirical model



*TD=Tourism development

Source: Authors' research

CONCLUSION

Tourism destination attractiveness is highly dependent on natural resources. Due to uncontrolled, unsustainable tourism development, these resources are becoming more endangered which raises the question of monitoring and researching tourism impacts imposed on them. The main purpose of this paper was, by analysing local residents' attitudes of tourism impacts on natural resources and environment, to define different segments of residents considering their socio-demographics, spatial and temporal characteristics as well their support for current or sustainable tourism development which can serve as a foundation for environmental policy making.

The findings show the existence of three different segments, namely, "*Guardiands*", "*Nonchalants*" and "*Blinds*" therefore several points have to be outlined. First, the research has stressed the heterogeneity of local residents based on their attitudes towards environmental tourism impacts. Second, the paper developed a local residents' typology taking into account their socio-demographics (level of education), living distance from the main tourism activities, length of residence, support for current or sustainable tourism development. Segment of local residents who are aware of negative environmental impacts and do not support current tourism development but sustainable tourism development ("*Guardiands*") are minority (15%). That indicates that 85% of local residents are unaware or indifferent regarding negative tourism impacts on natural resources ("*Nonchalants*"-44% and "*Blinds*"-41%).

In the light of this, the outcomes indicate the absence of local environmental policy. Modification of local residents' attitudes towards tourism environmental impacts in order to save and protect natural resources and to maintain the level of destination attractiveness will be realised through the creation of an adequate local environmental policy. The findings provide the basis for local authorities to take into account current situation and to take adequate actions such as environmental education for"*Nonchalants*" and "*Blinds*"(85% of respondents) to achieve long-term sustainable tourism development. Also, the cluster of "*Guardians*" should not be ignored. They have to be further motivated and encouraged to participate passively and actively in the process of environmental policy creation.

However, the findings should be considered in the light of their limitations. The main limitation of this paper is the fact that this study was a part of a broader research so questions about sustainability in tourism and environmental tourism impacts were limited. Further, due to the use of convenience sampling results are not generalizable and should be taken as indicative ones. Future researches should pay more attention to broad the number of statements regarding environmental impacts of tourism and also try to use some of the probability sampling techniques in order to be able to generalize obtained results.

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