

UNIVERSITY OF DEBRECEN
Centre of Agricultural Sciences
Faculty of Agricultural Sciences
Department of Agricultural Engineering

INTERDISCIPLINARY AGRICULTURAL SCIENCES DOCTORAL SCHOOL

Head of Doctoral School:
Prof. dr. János Nagy
doctor of HAS

Consultants:
Dr. Gábor Grasselli CSc.
Dr. János Kovács CSc.

SOCIO-CULTURAL IMPACTS OF TOURISM AT LAKE TISZA

Prepared by:
Gábor Hevessy

Debrecen
2007

1. INTRODUCTION. OBJECTIVES.

Tourism is one of the biggest and most quickly developing industrial branches of the world. Many people do not like using the expression “industry” in the field of tourism because the most important factors are people and their contacts. Meanwhile it is obvious that tourism is an increasing source of income, employment and economy. Nowadays, international tourism results higher export incomes than any other industrial branch of the world. Hungary maintains safely its distinguished position concerning the number of tourists visiting the country. Our EU-integration and the settlement of third-class airlines may give a further impulse, which can be measured by means of all touristical and related economic index numbers. If tourism is assessed only from economic perspective, it is a generally accepted opinion that tourism goes with economic profit together for the given touristical destination. However, this is only one side of the coin. On the other side, negative impacts can be found which may lead to the destruction of the environment, negative social and cultural impacts. The main task for stakeholders of the tourism development is to take into account dispositions of the Manila Declaration, such as: „In the field of tourism non-financial aspects are more important than financial ones. These are essentially as follows: the self-fulfilment and self-accomplishment of the human, [...], reciprocal recognition of different cultures and respect for heritages of different nations”. Development of tourism should meet present requirements without compromising future generations’. This concept leads to the sustainable development idea, which became determinant not only in the field of tourism but also in many other fields of everyday life in the last period. If requirements, interests and limits of the local population are taken into account in the development process of tourism, this will increase the value of tourism for the community and it will promote the sustainable development. The impacts of tourism (economic, environmental and socio-cultural) should be assessed during the whole process of the development in order to achieve sustainable development. This assessment includes not only the phase of planning and implementation, but also the monitoring, i.e. the permanent measuring and observation of impacts. In the last years, the survey of tourism impacts was not so stressed in Hungary, although the life quality of the population and its improvement depends also on the above-mentioned environmental and socio-cultural impacts besides positive economic impacts.

In autumn of 1999, we in collaboration with a partnership began to survey commercial and private accommodations as well as programme possibilities at Lake Tisza and then, we arranged the information into a database and made them accessible on Internet. We have carried out the permanent update of these data. During the data collection we have observed changes that made necessary this survey and other similar ones.

The objective of my survey is to analyse the perceptions of the inhabitants of communities next to Lake Tisza in terms of socio-cultural impacts of tourism. Lake Tisza (behind Lake Balaton) is the second biggest water surface of the country due its area of 127 km². Abádszalók has the most guests and Sarud the longest average stay of guests among lake-shore communities. In those five communities, which I have analysed, all inhabitants percept the impacts of tourism in a certain way. The results of my research may represent a starting-point for further analyses. The touristical development of Lake Tisza is in its beginning phase and so, my survey may represent a basis for a similar surveys, which will offer the possibility of comparison concerning the passed time and completed developments. Thus, my main objective is to reveal and to analyse socio-cultural impacts of tourism in the reception area, in order to assist decisions making concerning the potential intervention.

2. MATERIAL AND METHOD

2.1. Presentation of the area involved into the analysis

In terms of hydrography Lake Tisza includes the section of river Tisza between Tiszabábolna (440 stream km) and Dam of Kisköre (404 stream km) as well as storage area belonging to this river section. Lake Tisza is touristically the most developed and perhaps the most visited area of the whole section of river Tisza in Hungary. Lake Tisza is a storage-lake made by swelling the river and it includes several water types. Geographically, Lake Tisza can be divided to the following main units:

- Bay of Abádszalók
- Bay of Sarud
- Bay of Poroszló
- Bay of Tiszafüred

The bay of Tiszafüred lies North-East of the main road No.33 and it is a nature reserve, the so-called Birds' Nature Reserve of Tiszafüred, here the entry is limited in time and space.

The Bays of Sarud and Poroszló are the most important areas of angling- and eco-tourism; here are some traffic limits, such as tourists can not enter by vehicles having internal combustion engine in several places and other areas, can be entered only by vehicles having an internal combustion engine with less than 4 kW capacity. The Bay of Abádszalók is the main area of powerboat and noisy tourism connected to shore and bath. The impacts of the flow regime of the river Tisza are different ways in Lake Tisza section than in upper sections and in lower ones. Floods do not manifest themselves in the increase of water level, but more in cloudy water.

In the area of Lake Tisza, the permanent realignment of the importance of different branches of water tourism can be observed. While previously the angling tourism and classic water tourism (based on hand-powered folding-boats and canoes) were dominant, nowadays yacht- and eco-tourism are the dominant ones. Recently, a new branch occurred: the sailing; it is the characteristic mainly to the Bay of Abádszalók.

Communities of Lake Tisza on the right side downwards and the left side upwards are as follows:

Tiszabólna, Tiszavalk, Poroszló, Újlőrincfalva, Sarud, Tiszanána, Kisköre, Abádszalók, Tiszaderzs, Tiszaszőlös, Tiszafüred.

2.2. Presentation of the empiric research

The appropriate method should be chosen for data collection and analysis in order to meet the information requirement of any research or study. There are two main approaches, namely qualitative and quantitative. In my dissertation, I have chosen the quantitative approach to analyse the socio-cultural impacts of tourism.

In my survey, I have applied primary and secondary research methods. The primary survey meant data collection by means of questionnaires and it involved the cooperation of local inhabitants. The survey aimed inhabitants' attitudes toward tourism, resp. their perception concerning tourism.

Secondary research meant the processing of data of the Central Office of Statistics, studies and literature; most of it is in English language. There are relatively few survey results in the Hungarian literature.

I have carried out the statistical analysis of data by means of following softwares: Statistical Package for the Social Sciences (SPSS) 13, Microsoft Excel and Adobe Photoshop (professional picture editor software). My research is based on methods which are described and applied successfully in the international literature. Surveys carried out

in Hungary deal mainly with economic and environmental impacts – in accordance with international surveys, – meanwhile the socio-cultural impacts are neglected. My survey is not an objective measuring of impacts, but a subjective survey based on the perceptions of the population. Perceptions of the population have an important influence on their attitude towards tourism and their behaviour regarding tourism; these factors play an important role in the sustainable development of tourism. The sample involved into the present analysis is not suitable for showing the differences between communities. The reason of the relatively low number of samples (enough for statistical processing) is first of all of financial character. I could have chosen a cheaper alternative of survey offering a higher quantity of samples (e.g. on the basis of address list), but in this case it would have been more difficult to ensure the representativity and I would also have had to give up valuable background information revealed on the occasions of this survey. The survey was carried out by interviewers in five communities at Lake Tisza. Communities involved into my analysis are main sites of lake-shore tourism. Mainly closed questions were on the questionnaires; so they can be processed easily. The questionnaire contained an enumeration of 40 variables, to which tourism may have impact. Respondents could evaluate this on a 5-grade scale. Mainly those variables have been used for the analysis, which had also occurred in other surveys analysing socio-cultural impacts of tourism. Among variables there also have been socio-cultural factors.

The sample consisted of 203 persons, which was 0.77% of the population. (The planned size of sample would have been 200 persons, but due to round off this number has increased a bit). Several internationally recognised survey was carried out with a similar sample size concerning the impacts of tourism perceived by the local population.

I have taken into account two factors concerning the distribution (among five communities), i.e. on the one hand the number of residents of the communities, and on the other hand the proportion between tourists and residents in the communities. This latter proportion (concentration of tourists) is more important than the absolute number of tourists from the tourism impact perspective. Inside the communities, taking of samples took place according to the rules of quota system. The basis of the determination of quotas was the distribution of the population according to sex and age and I lent on data of the Central Office of Statistics. The sample included only inhabitants above 18. I also have read an age limit of 14 years in the literature but I consider that some of the questions can not be correctly interpreted by 14-year-old respondents. The rate of answers was 100 % due to the individual interviews.

3. RESULTS AND ESTABLISHMENT.

Two-third of the population has lived for more than 21 years in the community and 94 % of them has lived there for at least 5 years; this means that the majority of inhabitants must have conceived the changes taken place due to the development of tourism and its impacts. However, this does not mean that impacts perceived by inhabitants correspond to the effective changes and impacts. The socio-cultural impacts of tourism can be “real” and “perceived” impacts. Both should be easily measurable. The “real” impacts can be measured with objective data. Such an impact is for instance the status of transport, which can be expressed with numbers; although, the cause of crowdedness is not easy to establish in an individual situation. Meanwhile, the “perceived” impact means the personal opinion of a certain individuals regarding defined impacts. According to the literature, the attitude of respondents towards tourism is more positive, if their existence depends on tourism than if their existence does not depend on it. Therefore, I have analysed whether the existence of respondent depends on tourism or not.

The income of 41.9% of respondents depends on tourism, while that of the majority, 58.1 % is not dependent. This proportion allows me to analyse: whether the perceptions of those respondents who economically depend on tourism, is more positive or it is not.

3.1. Relationship between the population and tourists

On the basis of the literature, it can be supposed that the relationship between guests and receiving population also influences the perception of the impacts of tourism (Fredline, 2001)¹.

1. Fredline, L. (2001). Social impacts of tourism on the Gold Coast: Host community perceptions of the impacts of tourism on the Gold Coast. Griffith University, Gold Coast, QLD: CRC for Sustainable Tourism

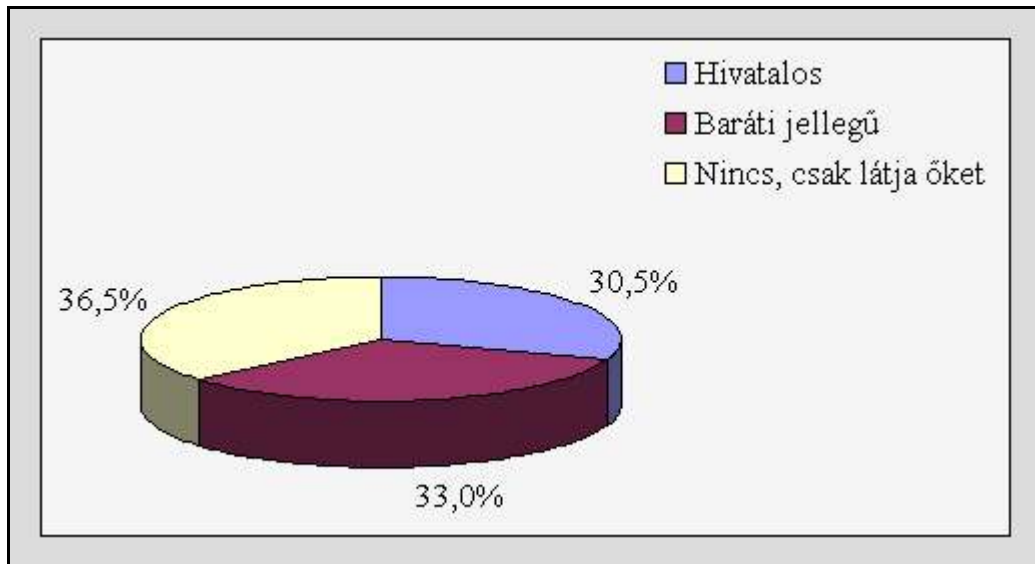


Fig 1. Distribution of relationship types between the local population and tourists.(Source: own source) **Official (Hivatalos) / Friendly relationship (Baráti jellegű) / No contact, he/she only observes them (Nincs, csak látja őket)**

More than half of the total respondents, those who do not only observe tourists (63.5%) has a friendly relationship with tourists (Fig. 1). This friendly relationship can be attributed to the meaningful tourist traffic of private accommodations (rural tourism and paying guests' reception). Approximately 15% of guests comes from foreign countries and 85% is Hungarian. More than 28% of nights are passed by tourists coming from foreign countries to the analysed communities.

The following question of the questionnaire is related to the differences perceived by respondents between themselves and tourists. The result is shown in Fig. 2.

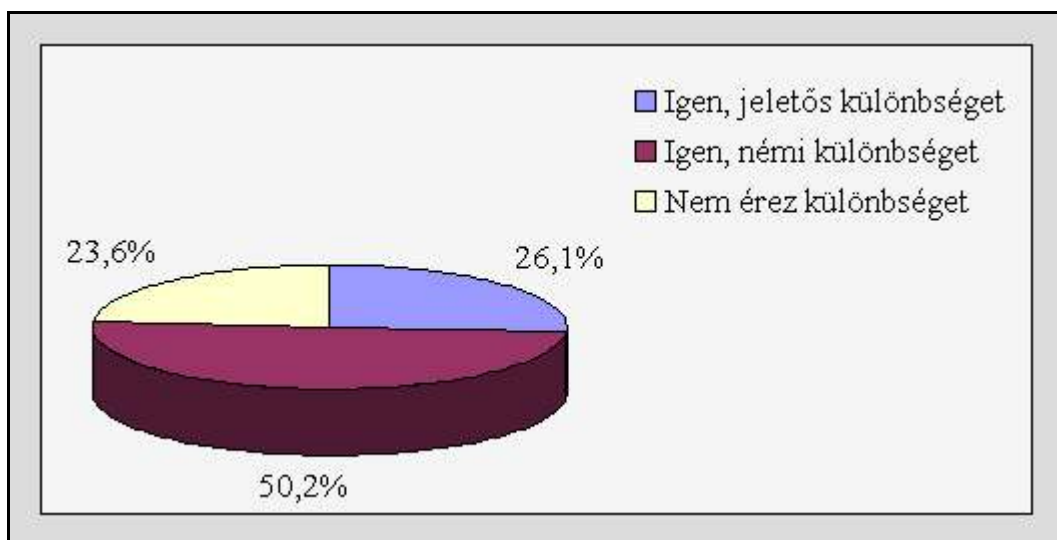


Fig. 2. Does the local population perceive differences between themselves and tourists? (Source: own source) **Yes, a meaningful difference (Igen, jeletős**

különbséget) / Yes, some difference (Igen, némi különbséget) / No difference (Nem érez különbséget)

More than three-quarters of respondents perceives differences between themselves and tourists (totally 76.3%; 26.1% of them perceives an important difference, 50,2% of them perceives some difference), while in the opinion of 23.6% there is no difference.

I have asked those respondents, who perceived difference between themselves and tourists, to define this difference. The distribution of answers is shown in Fig. 3.

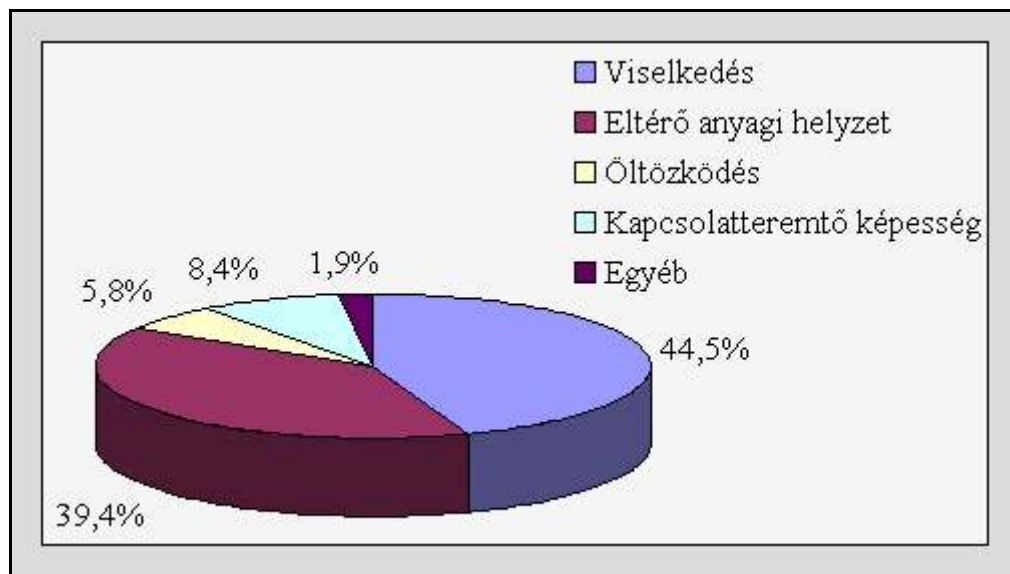


Fig. 3. The manifestation of the difference between the local population and tourists. (Source: own source) Behaviour (Viselkedés) / Financial status (Eltérő anyagi helyzet) / Dressing (Öltözködés) / Ability of communication (Kapcsolatteremtő képesség) / Other (Egyéb)

Local inhabitants perceive mainly two factors as source of difference between them and tourists, namely behaviour (44.5%) and financial status (39.4%). The rest of respondents (16.1%) mentioned dressing (5.8%), ability of communication (8.4%) and other factors (1.9%).

3.2. The support of tourism

The majority of respondents think that the community needs tourism (82.8%) (Fig. 4).

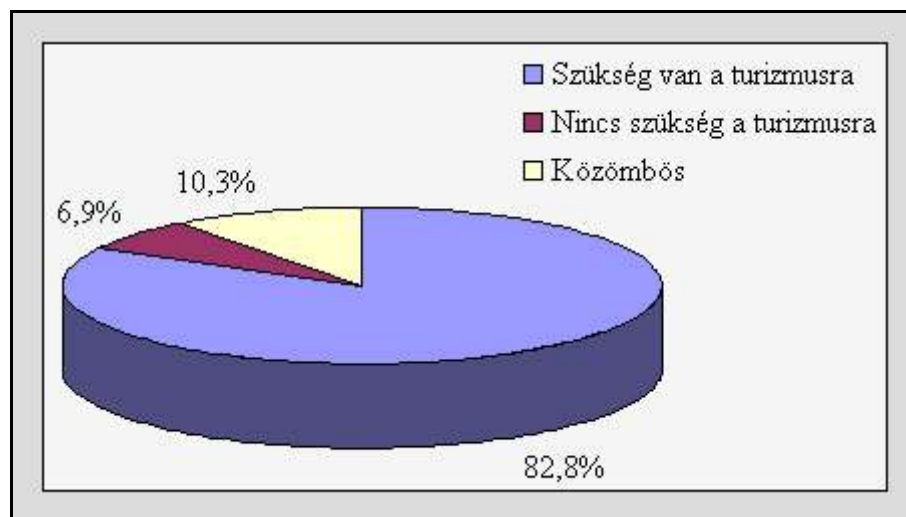


Fig. 4. Support of tourism among respondents. (Source: own source)

Tourism is necessary (Szükség van a turizmusra) / It is not necessary (Nincs szükség a turizmusra) / Indifferent (Közömbös)

The opponents of tourism (6.9%) and persons indifferent to tourism (10,3%) represent a small proportion of respondents. The opinion concerning the number of tourists visiting the community is in accordance with the established data (Fig. 5).

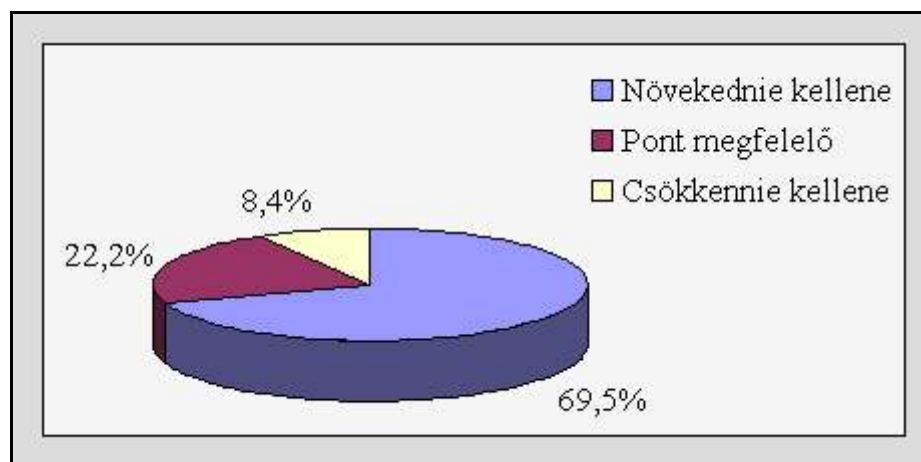


Fig. 5. The distribution of the opinion concerning the number of tourists.

(Source: own source) The number should increase (Növekednie kellene) / Just appropriate (Pont megfelelő) / The number should decrease (Csökkennie kellene)

The proportion of opponents of tourism (6.9%) approximately corresponds to that of persons (8.4%) who want the number of tourists to decrease. While, the proportion of persons who want the number of tourists to increase (69.5%) resp. to stagnate (22.2%) are equal to the sum of supporters of tourism (82.8%) and that of persons indifferent to tourism (10,3%). The income of 41.9% depends on tourism, meanwhile in the opinion of 82.8% tourism is necessary and the number of tourists should increase in the opinion of 69.5% of respondents. Consequently, we can establish that tourism is also supported

remarkably by persons who has no monetary interest in it, but may enjoy the larger and larger scale of infrastructural developments, possibilities of spending spare time and cultural programmes.

In the following question, I have analysed whether respondents are disturbed by tourists in any activity or not. The result is shown in Fig. 6.

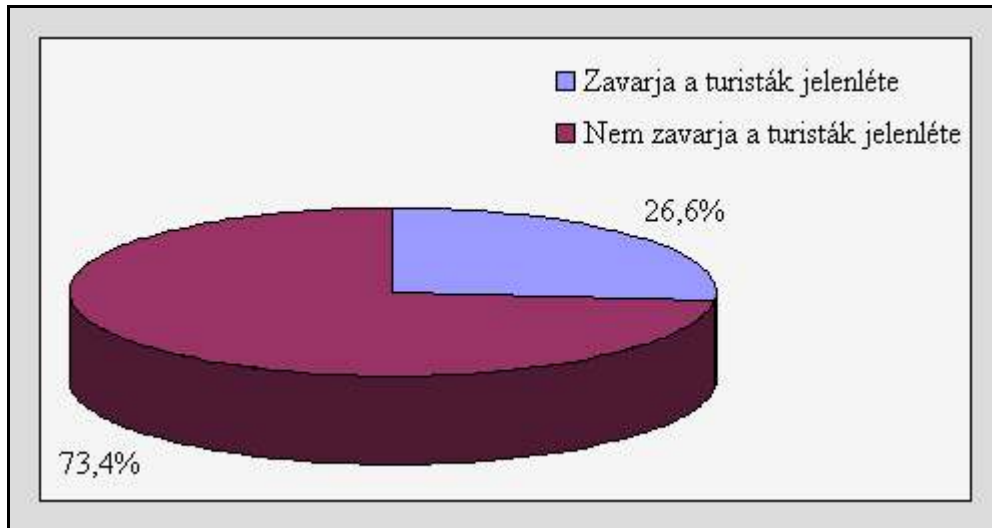


Fig 6. Opinion of respondents concerning the presence of tourists. (Source: own source) Disturbed by the presence of tourists (Zavarja a turisták jelenléte) / Not disturbed by the presence of tourists (Nem zavarja a turisták jelenléte)

For approximately three-quarter of respondents (73.4%) the presence of tourists is not disturbing, while about a quarter of them is of the contrary opinion (26.6%). I have asked them to indicate the causes why the presence of tourists was disturbing for them (Fig. 7).

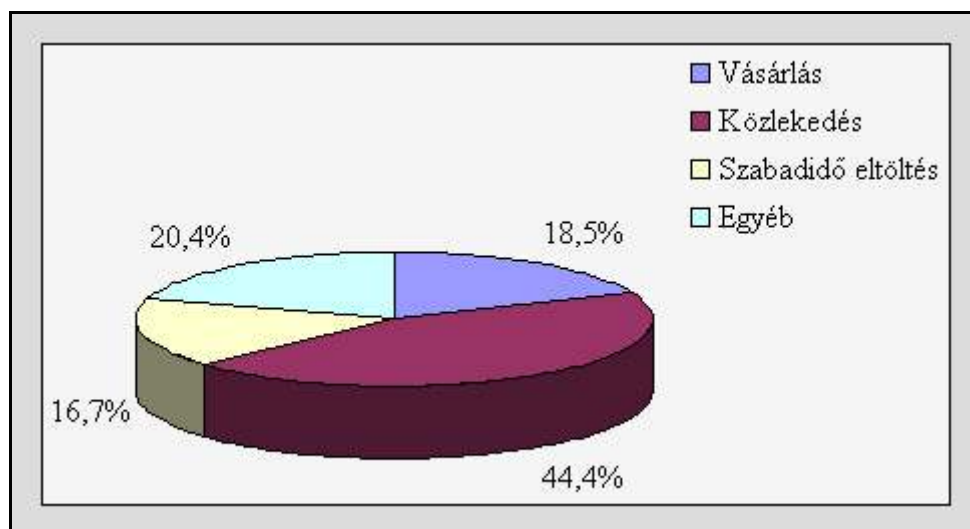


Fig. 7. Activities in which tourists disturb respondents. (Source: own source) Shopping (Vásárlás) / Traffic (Közlekedés) / Spending of spare time (Szabadidő eltöltés) / Other (Egyéb)

Traffic was indicated in the highest proportion (44.4%), but approximately in the same proportion (18.5%, resp. 16.7%) inhabitants are disturbed by tourists in shopping and spending their spare time. Other activities were also indicated in 20.4% by respondents.

3.3. Impacts of tourism to analysed factors

During the inquiry, respondents had to reply regarding 40 factors concerning the impact of tourism to the given factor (e.g. noise) in the given community. Respondents could indicate this on a 5-grade scale. Grades of the scale were the following: (1) remarkably increases, (2) increases a bit, (3) does no influence, (4) decreases a bit, (5) remarkably decreases. In terms of statistical data processing, we got to an essential point. The type of obtained data is crucial in case of perceptions expressed with numbers (1,2,3,4,5) namely the type of data, determines the mathematical operations to be carried out with data. I have carried out the analyses in such a manner that I regarded the scale as an interval scale, and secondly I have treated the scale as an ordinal scale. I have had the possibility to compare the data obtained during the two different types of analysis.

3.3.1. Analysis of impacts of tourism by regarding the scale as interval scale

If the above mentioned supposition is accepted, then average and standard deviation of collected data can be calculated. On the basis of calculated average values, it can be established whether tourism has a positive, negative or indifferent impact to the given factor. I will mention the analysed 40 factors as variables, because in statistical procedures this denomination is used (Table 1.).

Table 1. Impacts of tourism to analysed factors (variables). Possible replies: 1-remarkably increases, 2-increases a bit, 3-does not influence, 4-decreases a bit, 5-remarkably increases.

Variable	Average	Standard deviation	Positive	Negative	Indifferent
income and standard of living	1.96	0.70	+		
public safety	3.18	0.97		-	o
crowdedness	2.13	0.72		-	
price level of goods and services	2.34	0.79		-	
hospitality to tourists	2.48	0,83	+		
noise	1.97	0.83		-	
traffic difficulties	2.25	0.76		-	
quality of restaurants	2.43	1.00	+		
sport facilities	2.70	0.94	+		o
possibilities of spending the spare time	2.35	1.03	+		
possibilities of shopping	2.51	0.91	+		
general infrastructure	2.04	0.74	+		
use of engined water vehicle	1.93	1.11	+	(-)	
scatter rubbish	1.74	0.86		-	
tolerance against different social groups	2.89	0.60	+		o
run riot	2.22	0.84		-	
drug consumption	2.23	0.92		-	
moral	3.38	0.87		-	
politeness and good manners	2.93	0.87			o
students' work (age under 18)	2.33	0.97	+	(-)	
honesty	3.07	0.73			o
health risk	2.33	0.80		-	
prostitution	2.21	0.80		-	
cultural identity	2.49	0.93	+		
study of foreign languages	2.00	0.59	+		
cultural services	2.63	0.96	+		
keeping of traditions	2.25	0.91	+		
possibility to get acquainted with other nations	2.00	0.81	+		
religious life	3.07	0.71			o
taking over the behaviour style of visitors	2.63	0.69		-	
inflow of foreignisms into our mother tongue	2.11	0.70		-	
possibility to work	2.05	0.78	+		
stress on financial aspects	2.29	0.81		-	
mutual confidence between people	2,96	0,91			o
pride of local inhabitants to their community	2,50	0,97	+		
life quality	2,28	0,66	+		
possibility to purchase arable lands and real estate	2,96	1,00	(+)	(-)	o
work morale (attitude)	2,65	0,74			o
unemployment	3,37	0,85	+		
maintenance of old buildings	2,54	0,98	+		

Answers of local inhabitants show that they perceive both positive and negative impacts of tourism. Signs (+,-,o) of the table show the direction of the calculated average value of the impact to the analysed factor. In some cases several signs may occur in one line. The reason for this is that in a given case impacts in both direction can be perceived,

which is also indicated by the high value of standard deviations. If the average value was about 3 then many respondents said that tourism did not influence the given factor. On the basis of the table, it can be established that concerning several factors respondents consider that tourism had no impact to the given factor, such as „politeness and good manners”, „honesty”, „religious life”, „mutual confidence between people” and „work morale”.

The respondents perceived as most positive the impacts of tourism on „income and standard of living”, „possibility to learn foreign languages”, „possibility to get acquainted with other nations”, „increase of work possibilities” and at the same time to „decrease of the rate of unemployment”.

However, respondents perceived as most negative the impacts to the increase of „crowdedness”, „noise”, „traffic difficulties”, „making a mess”, as well as deviant behaviours such as “run riot”, „drug consumption and „prostitution”. In accordance with these, the negative impact to the “morale” is also perceived in the analysed area. Such an impact is also “health risk” which can be observed through the increase of numbers of diseases, epidemics and accidents. Respondents also perceived the „stress of financial aspects” as a negative impact.

3.3.1.1. Opinion about the impacts of tourism on the basis of economic dependence on tourism

I have divided respondents into two groups. The first group is formed by those respondents, whose income does not depend on tourism (118 persons) and the other group includes persons whose income depends on tourism (a bit or remarkably, altogether 85 persons).

In order to compare perceptions of inhabitants economically depending and non depending on tourism I have carried out a statistical test which proved a significant difference between the two groups.

For example, in case of „income and standard of living” persons economically depending on tourism perceived a higher increase as the impact of tourism than persons not depending on tourism, the average values are $1,5765 < 2,2373$. In case of a value lower than 3, the difference of increase can be interpreted as smaller or higher, while in the case of values higher than 3 they can be interpreted as differences of decrease. Analysing variables one by one, we can see that there are 6 variables, in which persons economically depending and not depending on tourism are of the same opinion. As I

have already mentioned (concerning the impacts to “students’ work” and “use of engined water vehicles”) the result could also indicate negative impacts and positive ones for the other 34 variables. Many variables, 26 out of the evidently judgeable 32 variables were positively judged by persons whose income depends on tourism; concerning the other 6 variables a negative impact was perceived, 4 of these 6 variables belong to those variables which have cultural impact (cultural services, keeping of traditions, possibility to get acquainted with other nations, religious life). The other 2 more negatively judged factors are „prostitution”, and the „price level of goods and services”.

Here can be established, that respondents whose income depends on tourism really judged more positively the impacts of tourism than respondents whose income was independent. The proportion of factors judged positively, negatively and indifferently is as follows: 68.4%-15.8%-15.8%. The negative perceptions occur mainly connected to cultural impacts. Results are in accordance with the result of the literature, with the note that I have not found any reference to negative perceptions concerning cultural impacts in the literature. It would be worth analysing this question more detailed on a later occasion.

3.3.1.2. The judgement of impacts of tourism in the youngest and oldest age-groups

Concerning the perceptions of impacts of tourism by different age-groups according to the results of Rátz (1999) at Lake Balaton, there is no significant difference between the perceived impacts. She analysed 45 factors on the basis of age and there was a significant difference in opinions only in case of 2 factors. I also have carried out the analysis in five communities near Lake Tisza. The biggest difference between opinions (apart from their senses) can be observed between the youngest and the oldest age-groups.

Carrying out the analysis of data, it can be established that there is no factor, in which both age-groups have the same opinion. The impacts of tourism concerning spare time activities and services are much more positively judged by younger people than the oldest age-group involved in the analysis. The situation is similar concerning the impact of tourism to deviant behaviour forms, because young respondents perceive a lower increase in this field. We can also say that young people are less pessimistic than older ones, although young persons also perceive these negative impacts.

With the exception of – not evidently judgeable – two factors concerning students’ work and use of engined water vehicles, 10 out of the rest 38 variables are more negatively perceived by young people, while in case of the other 28 factors their

perceptions are more positive. The more negative perceptions related to taking over of strange things (taking over of the behaviour style, use of foreignisms), public safety, crowdedness, general infrastructure, religious life, as well as purchase of arable land and real estate.

For supporting the correctness of my above mentioned establishments, I have analysed in relation with all factors with Chi cube test whether there is any significant difference between opinion on the basis of ages.

It can be established on the basis of the analysis that the difference is significant and the youngest age-group evaluates more positively the impacts of tourism than the oldest age-group. The proportion of factors evaluated more positively and negatively is as follows: 73,7%-26,3%. This result make necessary the carrying out of further analyses in this field.

3.3.1.3. Analysis of the structure of the 40 variables

For analysing more detailed the perceptions of the population concerning tourism the system of variables consisting of 40 elements should be analysed in its details. On the basis of the condition approved earlier (interval scale) I have carried out the standard factor analysis of the variable system, resp. its special variant, the principal component analysis. This procedure is suitable for characterising the mass consisting originally of p variables (in this case 40) by $k \ll p$ (i.e. fewer) variables (components). As a result of the principal component analysis new complex ("latent") variables (components) can be created, which are not in correlation with each other but are in correlation with original data and so, their content can be identified. The method is essentially a dimension decreasing procedure.

On the basis of previous test, the system of variables can be used for the principal component analysis. It is proposed to apply a rotation to facilitate the interpretation. By rotating the principal components' axes (rotation) the variance can be maximalised (VARIMAX rotation). I have used this procedure for my analysis.

I have managed to separate altogether 12 components, the eigenvalue of which was above 1. This explained 68.09% of the whole variance. I could interpret 10 components explaining the approximately 60% (59.75%) of the variance and consisting of altogether 24 variables. The identified components are as follows (Table 2.):

Table 2. Components identified on the basis of perceptions of the population concerning the impacts of tourism regarding the interval scale. (Source: own source)

Components	Weighting	Variance explained (%)	Eigen-value
1. Spare time activities and services		16,12	8,87
sport facility	0.780		
possibilities to pass the spare time	0.810		
possibilities of shopping	0.592		
use of engined water vehicles	0.772		
cultural services	0.612		
2. Deviant behaviour and factors connected with it		11.09	4.73
run riot	0.796		
drug consumption	0.707		
scatter rubbish	0.713		
prostitution	0.520		
noise	0.683		
3. Human values		5.54	2.01
tolerance against different social groups	0.515		
mutual confidence between people	0.589		
work morale (attitude)	0.660		
maintenance of old buildings	0.461		
4. Taking over of strange things		4.89	1.57
taking over of behaviour style of visitors	0.778		
inflow of foreignisms to our mother language	0.711		
5. Factors disturbing everyday life		4.18	1.42
crowdedness	0,667		
traffic difficulties	0,730		
6. Development of the community		4.05	1.37
general infrastructure	0.793		
life quality	0.645		
7. Income and living standard		3.91	1.19
income and living standard	0.745		
8. Price level of goods and services		3.49	1.123
price level of goods and services	0.788		
9. Possibilities to work		3.35	1.1
possibility to work	0.851		
10. Unemployment		3.13	1.05
unemployment	0.872		

The component of „Spare time activities and services” include factors, in connection with which the perceptions of the population were positive. The remarkable extension of possibilities of these activities is attributed to an important impact of

tourism. Perhaps it is interesting that the use of engine water vehicles was not judged by inhabitants on the basis of noise and damage to environment, but as an alternative of passing the spare time. In Table 1., I have put a sign (-) between brackets referring to the impact of noise and damage to environment. However, according to the analysis, the local inhabitants perceive more advantageous.

The component of „Deviant behaviour and factors connected with it” also includes making waste and noise besides the well-known deviant behaviour forms (run riot, drug consumption, prostitution). “Scutter rubbish” is ranked by the local population as deviant behaviour form. Noise is also a concomitant of run riot, drinking and loud parties. This also means that respondents do not conceive traffic or other factors as the source of noise, but they consider deviant behaviours as source of noise.

The component of „Human values” includes some factors, a part of which has interpersonal values. Such factors are tolerance against different social groups as well as mutual confidence between people. Maintenance of old buildings can also be interpreted as an expression of tolerance, because care and maintenance of inherited values often involves additional work and sacrifice of our own ideas and plans.

The component „Taking over of strange things” means that local inhabitants take over the behaviour forms and expressions of tourists. Here, not only foreign tourists can be mentioned, (although socio-cultural differences are obviously more remarkable between local inhabitants and foreign tourists) but also Hungarian tourists.

The component of „Factors disturbing everyday life” includes crowdedness and traffic difficulties, which were identified by respondents as negative impacts of tourism. These factors also have remarkable influence on the everyday life of local population, because everyone must take part in traffic day by day, and everybody is confronted with crowdedness.

The component „Development of the community” includes two factors, the general infrastructure and life quality. The general infrastructure influences the development of a community very much, and the life quality is also connected with it. For achieving a higher life quality, a more developed community is necessary. The National Development Plan also includes this objective.

Each of the other four components include one variable, which are in order of importance as follows: income and living standard, price level of goods and services, possibilities to work and unemployment.

I also have carried out the analysis by leaving out variables not included in components, but the analysis did not result a remarkably differing structure from the above one.

3.3.1.4. Factors having impact to the opinion concerning the number of tourists (regarding the scale as interval scale)

One of the most important index-number of the development of tourism is the number of tourists visiting the given destination. In what follows, I have analysed which perceived impacts of tourism could mainly influence respondents whether they would like the number of tourists to increase or not. For the analysis, I have used linear regression analysis. The primary condition of linear regression analysis is the linear separateness of independent variables (the impact of which I have analysed). The 40 conditions set forth in the questionnaire do not meet this condition, because they are correlated with each other. However, the 10 components resulted by the principal component analysis are linearly separated. I have carried out the linear regression analysis by considering components as independent variables and the opinion of the population concerning the number of tourists as dependent variables.

During the interpretation of results, I have regarded the variables (now they are the components) significant, if $\text{Sig.}t < 0,05$ on the basis of the t-test. On the basis of these, the opinion of the population at Lake Tisza is influenced by the following factors:

- Spare time activities and services
- Deviant behaviour and factors connect with it
- Human values
- Taking over of strange things
- Income and living standard

The coefficients of the variables „Spare time activities and services”, „Human values” and „Income and living standard” are positive and so they change in the same direction as the claim to the increase of the number of tourists, but this is influenced by the factors „Deviant behaviour and factors connected with it” as well as „Taking over of strange things” in contrary direction. This also means, for instance, that the perception of the impact of deviant behaviour decreases the claim to the increase of the number of

tourists; while the positive impact to income and living standard increases the claim concerning the increase of the number of tourists.

3.3.2. Analysis of the impacts of tourism regarding the scale an ordinal scale

In this subchapter, I do not accept the basic supposition that on the ordinal scale from 1 to 5 (expressing opinions from “remarkably increases” to “remarkably decreases”) distances are equal. In first approach, the possibilities of the analysis seemed to be more reduced than at the time of the acceptance of the supposition. In the Statistical Software Packet SPSS 13, there is a procedure that attaches a concrete numerical value to all categories of the ordinal scale in the case of all variables. The distances will not be necessarily equal, but their value is well determined and concerning their types are suitable for carrying out the principal component analysis.

3.3.2.2. Optimal scaling and principal component analysis

The module was developed to the Statistical Software Packet SPSS 13 by Sociological and Behaviour Sciences' Faculty of Leiden University (Netherlands); it can quantify the symbolic numerical values (1,2,3,4,5) attached to categories of ordinal scales. This also means that in case of transformed variables the distances between categories can be determined. There are transformed variables, the categories of which got the same numerical value. On the basis of this, distinction can not be made, for instance, in the case of the variable “Sport facilities” between the categories “remarkably increases” and “increases a bit”. In case of values, attached to transformed variables the Kaiser-Meyer-Olkin value is 0.839 and Cronbach's alpha value is 0.745. Thus, analysis can be carried out by involving also the new transformed variables. Now, I have also carried out the analysis by applying VARIMAX rotation procedure. The identified components are as follows (Table 3.):

Table 3. Components identified on the basis of the perceptions of the population (regarding the scale as ordinal scale). (Source: own source)

Components	Weighting	Variance explained (%)	Eigen-value
1. Spare time activities and services		28.77	11.51
sport facility	0.884		
possibilities to pass the spare time	0.810		
possibilities of shopping	0.763		
use of engined water vehicles	0.807		
quality of restaurants	0.822		
cultural services	0.842		
2. Deviant behaviour and other negative factors		11.79	4.715
run riot	0.676		
drug consumption	0.676		
scatter rubbish	0.720		
prostitution	0.523		
Crowdedness	0.734		
Noise	0,719		
3. Human values		6,13	2.453
tolerance against different social groups	0.814		
Honesty	0.750		
mutual confidence between people	0.579		
4. Livelihood		3.89	1.556
income and living standard	0.829		
possibility to work	0.799		
5. Possibility to get acquainted with other cultures		3,03	1.213
learning of foreign languages	0.869		
possibility to get acquainted with other nations	0.438		
6. Price level of goods and services		2.92	1.167
price level of goods and services	0.689		
7. Development of the community		2.76	1.104
general infrastructure	0.813		
life quality	0.573		

Now, I could separate 10 components, the eigenvalue of which was over 1. These components explained 69.35% of the variance. I could interpret 7 components (out of 10). These 7 components explained 60% (59.29%) of the variance and they contain 22 variables. The first two of identified components, i.e. „Spare time activities and services”, as well as “Deviant behaviour and other negative impacts” almost completely corresponds to the components described in subchapter 3.3.1.3. The same issue can be said about following components: “Human values”, „Price level of goods and services” and “Development of the community”. Variables, forming the here appearing component „Livelihood”, correspond to the variables of the components described in the recently mentioned subchapter. The only real difference between the two results is that the component “Taking over of strange things” is here substituted by the component „Possibility to get acquainted with other cultures”.

3.3.2.3. Factors having impact on the opinion concerning the number of tourists (regarding the scale as ordinal scale)

By applying the components created in the previous subchapter, the linear regression analysis can also be carried out now. In case of independent variables, I have also taken into account the opinion of the population concerning number of tourists, while in case of independent variants the previously mention components were used.

In the interpretation of obtained results, I have regarded variables (components) significant if $\text{Sig.}t < 0,05$ on the basis of the t-test. The opinion of local inhabitants is influenced by the following factors on the basis of this analysis:

- Spare time activities and services
- Deviant behaviour and other negative factors
- Human values
- Livelihood
- Price level of goods and services

The coefficients of the components „ Spare time activities and services”, „ Human values”, „Livelihood” and „Price level of goods and services” are positive and so they change in the direction as the claim to the increase of the number of tourists, while „Deviant behaviour and other negative factors” influences it in contrary sense.

3.3.2.4. Opinions of the population in the youngest and oldest age-groups

I have analysed the opinion of the youngest and oldest age-group, between these two groups there was a remarkable difference in this field. Results are shown in Table 4. and Fig. 8.

Table 4. Opinions concerning the number of tourists. (Source: own source)

Age-group	persons	should increase		just appropriate		should decrease	
		absolute frequency	relative frequency	absolute frequency	relative frequency	absolute frequency	relative frequency
18-30 years	44	39	88.6%	4	9.1%	1	2.3%
61- év	56	29	51.8%	16	28.6%	11	19.6%

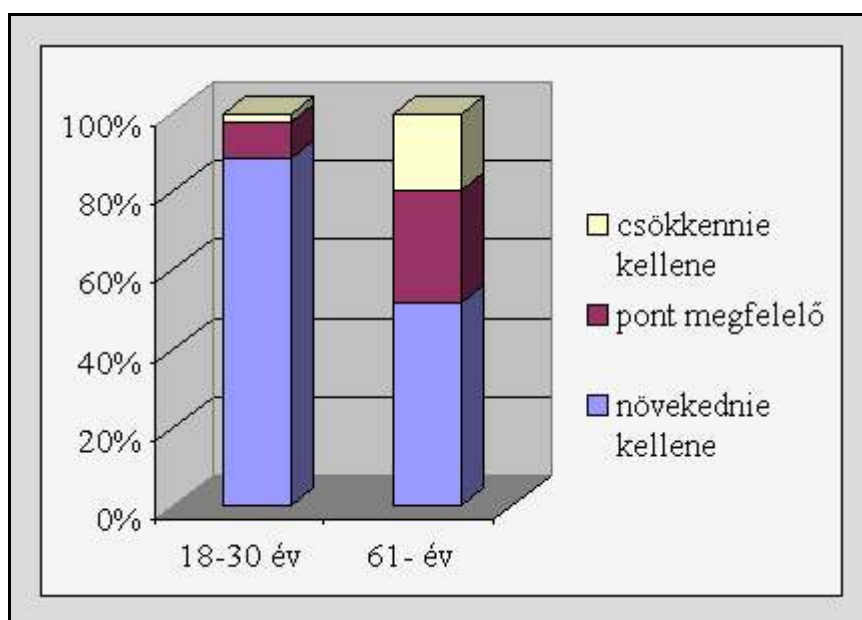


Fig. 8. Opinions concerning the number of tourists in the analysed age-group. (Source: own source) Should decrease (csökkennie kellene) / Is appropriate (pont megfelelő) / Should increase (növekednie kellene)

There is a remarkable difference between the youngest and oldest age-group concerning their opinion whether the number of tourists should increase in the community or not. 88.69% of the youngest age-group would like to increase the number of tourists, while this proportion in case of the oldest age-group is 51.8%. The most remarkable difference is between those respondents, who would like to decrease the number of tourists. In the youngest age-group, this proportion is only 2.3%, while in the oldest age-group eight times higher, i.e. 19.6%. There are much more those old respondents, in whose opinion the number of tourists is appropriate (28.6%-9.1%).

4. NEW SCIENTIFIC RESULTS

1. The positive impact of tourism to the income and living standard of inhabitants demonstrated by making numerical their perceptions was demonstrated in the area of Lake Tisza for the first time.
2. In the tourism high season (summer months) the increase of crowdedness and noise as well as the appearance of deviant behaviour forms can already be observed near Lake Tisza as well.
3. The assessed youngest age-group (18 to 30 years) has formed a more positive opinion about the impacts of tourism than the oldest age-group (over 61 years). Eight times more people of the oldest age-group would like the number of tourists to decrease than the part of the youngest age-group being of a similar opinion. Most of respondents of the youngest age-group (88.6 %) would like the number of tourists to increase while a little over the half of the oldest respondents, precisely 51.8 % is of the same opinion.
4. By carrying out a principal component analysis the perceptions of the population concerning the socio-economic impacts of tourism could be explained by means of fewer than 40 factors. According to the analysis the two most important factors are the opinions concerning “spare time activities and services”, which are followed by perceptions concerning “deviant behaviour forms and other factors connected with this”.
5. By carrying out a linear regression analysis five components could be determined, which have effect on the opinions concerning the number of tourists. Three of them are assessed in the effect analyses carried out with both of these methods. These are “spare time activities and services” as well as “human worthies”.

5. PUBLICATIONS

1. Bogdány Zsolt - Domsa György - Gönczi Zsuzsanna - **Hevessy Gábor** - Jónás Jenő - Karika Gyula - Lantos Ildikó - Orosz Emília - Seregi Gábor - Szabó Gyula: DACUM táblázat, a szállodai portás képzés tananyagkorszerűsítési projektjében, Oktatási Minisztérium, Ifjúsági Szakképzés Korszerűsítése Világbanki Projekt, Esztergom 1999. http://poszfi.nsz.hu/_ujinfor/general/dacum_ht/szallp_d.htm
2. **Hevessy Gábor**: Biohajtóanyag előállítás és felhasználás c. jegyzet fejezet, Természeti erőforrások c, egyetemi jegyzet, szerkesztette: Kovács János, Debreceni Egyetem ATC, 2005.
3. **Hevessy Gábor**: Biomassza mint energiaforrás – növényi eredetű szilárd energiahordozók c. jegyzet fejezet, Természeti erőforrások c, egyetemi jegyzet, szerkesztette: Kovács János, Debreceni Egyetem ATC, 2005.
4. **Hevessy Gábor**: Megújuló energiaforrások hasznosítása a vidéki háztartásokban c. jegyzet fejezet, Természeti erőforrások c, egyetemi jegyzet, szerkesztette: Kovács János, Debreceni Egyetem ATC, 2005.
5. **Hevessy Gábor**: A biogáz, az állattenyésztés, az állattartás, mint energia, erőforrás c. jegyzet fejezet, Természeti erőforrások c, egyetemi jegyzet, szerkesztette: Kovács János, Debreceni Egyetem ATC, 2005.
6. Wachtler István – **Hevessy Gábor** – Kovács János: A mezőgazdasághoz igazodó vidéki lakás- és életkörülmények, továbbá a kiegészítő tevékenységek (falusi turizmus) műszaki fejlesztési kérdései, Agrárműszaki jövőkép és szakemberképzés, Szerkesztők: Csizmazia Zoltán, Kovács János. Debreceni Egyetem ATC, 2006.
7. Lakatos László – **Hevessy Gábor** – Kovács János: Via Futuri Conference, Sustainable Development, Advantages and disadvantages, i.e. way of use of solar energy and wind-power, megjelenés alatt, Pécs, 2007.
8. **Hevessy Gábor** – Lakatos László: Falusi turizmus és műszaki fejlesztés a falusi otthonokban, Agroinform, XVI. évf., 2007. január
9. Incze Réka – **Hevessy Gábor**: Viszonyunk a lóhoz - A lovasturizmusban rejlő lehetőségek, Agroinform, XVI. évf., 2007. február
10. **Hevessy Gábor**: A turizmus hatásai két Tisza-tó parti faluban, megjelenés alatt, A falu, XXII. évf. 1 sz., 2007.

11. **Hevessy Gábor** – Incze Réka: A falusi turizmus és gyökerei, Agroinform, XVI. évf. 3. különszám, 2007 február
12. Lakatos László – **Hevessy Gábor** – Kovács János: Via Futuri Konferencia, A fenntartható fejlődésről, előadás, Előnyök és hátrányok, avagy hogyan hasznosítsuk a nap és a szél energiáját, Pécs, 2006.
13. Incze Réka – **Hevessy Gábor**: A lovasturizmus helyzete és lehetőségei az Észak-alföldi régióban, előadás, Agrárgazdaság, Vidékfejlesztés és Agrárinformatika Nemzetközi Konferencia, Debrecen, 2007.
14. Incze Réka – **Hevessy Gábor**: A lovasturizmus helyzete és lehetőségei az Észak-alföldi régióban, Agrárgazdaság, Vidékfejlesztés és Agrárinformatika Nemzetközi Konferencia, Debrecen, 2007. Konferenciaanyag.
15. Incze Réka – **Hevessy Gábor**: Riding Tourism in the Northern Great Plain Region (Hungary): Status and Potential. Joint International Conference on Long-term Experiments, Agricultural Research and Natural Resources. Debrecen, 2007. Befogadás alatt.
16. Hevessy Gábor: A turizmus hatásai a Tisza-tónál. HVTK (Határmenti Vidékfejlesztő Tanácsadó Központ) Konferencia, előadás, Debrecen, 2007.
17. **Hevessy Gábor**: A turizmus hatásai a Tisza-tónál. HVTK (Határmenti Vidékfejlesztő Tanácsadó Központ) Konferencia, Debrecen, 2007. Konferenciaanyag.