

ENVIRONMENTAL ATTITUDES AND BEHAVIORAL PATTERNS OF CONSUMERS IN THE SOUTHERN CATCHMENT AREA OF LAKE BALATON

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ABSTRACT

It is not by chance that environmental consciousness is a popular and current topic. Due to the various processes of globalization and consumerism, mankind causes seemingly irreversible damages to the Earth. Our research aims at exploring the environmental attitude of residents living in the key settlements within the southern catchment area of Lake Balaton¹. Results indicate that respondents show above average interest in environmental issues, but consider their own responsibility insignificant (or at least less significant). Further, the number of those who believe that their actions can efficiently contribute to the preservation of the environment is even smaller. The higher one's level of education is, the more likely one will show environmental responsibility, impressions of "effective contribution" and bias towards ecofriendly products - although the popularity of these latter is not significant yet among the residents of the southern catchment area of Lake Balaton, since only 17.4% of the consumers look for these instead of the more traditional product lines. The most wide-spread preservation actions among the residents are the selective management of waste and power saving.

Keywords: ecofriendly, sustainability, environmentally conscious consumer attitude, selective waste management, power saving

INTRODUCTION

It is not by chance that sustainability is a popular and current topic. Due to the various processes of globalization, consumerism, the new ever-faster lifestyles and the rapid world population growth rate, mankind causes seemingly irreversible damages to the Earth. In order to sustain our current lifestyle we would need a new Earth with a size 50% larger than our present one, and without taking substantial steps by 2050, even two Earths will not be to enough satisfy our needs (Kitzes, 2009).

The value of several indicators multiplied over a short period of time, which fundamentally changed mankind's relation to the environment. Carbon output around the world multiplied by 7, power consumption by 10 and we withdraw 9 times as much water as our ancestors did (Gyulai, 2012).

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Further, world economy has to face a novel issue ever-increasing in significance. The continuous increment of the demand curve is associated with the decrement of the supply curve: our resources at hand are not sufficient to satisfy the demands of people (László, 2009). Advancement, however, can only occur if resources that are indispensable to the existence of the system (e.g., energy, knowledge, etc.) are growing proportionately or ever more rapidly than the economy itself. Otherwise, a downturn may begin or - in the worst case - collapse might occur (Lányi, 2011). The essence of the issue is that the human brain can only deal with stimuli in its perceptual field; therefore, we are not able to react to ecological changes, as these are not happening fast enough. We only perceive the effect of these vaguely; we do not consider the escalating situation threatening enough, since problems in their initial phase are only present at microscopic, general levels (Goleman, 2009).

Therefore, it is essential for sustainability to valorize the role of systems built on local knowledge and working culture, while strengthening the role of local communities and valorizing food autonomy (Lányi, 2011).

AIMS

The aim of the present study is to survey the environmental attitudes and behavioural patterns of the residents in the southern catchment area of Lake Balaton. The study presents part of the results obtained from the questionnaire-based analysis of various actors and stakeholders of the southern catchment area of Lake Balaton, where further aspects and the role of these actors are analysed by researchers (Csonka *et al.*, 2013; Horvátbné and Nagy, 2014). We would like to measure whether residents are inclining towards an environmentally conscious lifestyle, and which types of ecofriendly behaviour characterize these best. The study summarizes the channels through which they obtain their information, and reviews those factors that block residents from maintaining an environmentally conscious lifestyle.

MATERIALS AND METHODS

The results were obtained through a questionnaire survey which was conducted with 500 participants during the summer of 2013. All of the participants were residents of the settlements within the southern catchment area of Lake Balaton. The survey was carried out in 23 major settlements within the southern catchment area, in the form of personal interviews. Sampling in settlements was weighted by settlement size and distance from the shore.

Gathered data were processed using the SPSS 16.0 statistical software package and Microsoft Excel spreadsheet application. The questionnaire contained 12 questions. Closed-ended questions were evaluated based on the percentage share of results, while the interpretation of scalar questions happened on the basis of averages with the standard 95% confidence interval (and a 5% margin of error). In order to establish target groups and to segment the sample accordingly, scalar questions were assessed using factor and cluster analysis. Results obtained are illustrated in tables.

RESULTS AND DISCUSSION

Based on the answers for the first question of the survey, we found that respondents' inclination towards environmental issues is about the same at both the global and local levels. As it is visible from *Table 1*, respondents' interest in environmental issues is above average.

Table 1

Respondents' degree of interest in the condition of the environment at the global and local levels

| Statement | Average | Standard deviation | N |
|--|---------|--------------------|-----|
| Issues concerning your local environment | 3.66 | 1.08 | 498 |
| Issues concerning global environment | 3.60 | 1.11 | 499 |

Residents of Somogyvár were the least interested in local environmental issues, the average of their answers is 2.867, while residents of Karád displayed the greatest interest, the average of their answers is 4.47. The residents of the two settlements are also those who displayed the lowest and the most robust levels of interest regarding issues concerning global environment (average values of 2.73 and 4.5, respectively; $p < 0.00$).

Based on the answers, it is plausible to state that while a relatively large portion of the residents are concerned about environmental issues, they seem to consider their own responsibility less significant (to the question they replied with an average value of 3.34), and the number of those who believe that their own actions can effectively contribute to the solution of environmental challenges is even lower—the average value assigned to the statement is 3.03 ($p < 0.00$).

The sense of responsibility is increasing proportionately with one's level of education ($p = 0.037$) and the same correlation is found when establishing the significance of environmental actions ($p = 0.014$).

The assessment of responsibility is also peaking in the aforementioned two settlements: while residents of Karád graded the importance of the issue with an average value of 4.13, Somogyvár residents responded to the question with an average value of 2.0 ($p < 0.00$).

Residents judged that at the moment they perform below average in solving environmental issues. Using the same Likert scale, they judged their performance with an average value of 2.95 ($p < 0.00$). The number of occasions on which the state of the environment is considered in decision making is also increasing proportionately with one's level of education ($p < 0.00$).

The fact that the majority of respondents, i.e., 74%, would take part in solving environmental issues, and only 25% of the residents wouldn't can give rise to positive expectations.

Significant correlation was found between individuals' willingness to participate and one's level of education; the higher the resident's level of education, the higher the displayed inclination towards the protection of environment is ($p=0.026$).

We also sought an answer to the question, what are those activities that participants would be willing to do in order to preserve/improve the condition of their environment? The majority of the residents replied that they would primarily contribute to the preservation of the environment with more throughout (‘thorough’) power saving (42.2%) and selective waste management (41.2%). In another comparison, we were interested in those actions that residents of the settlements would be ready to commit to preserve their environment. As regards selective waste management, more than half of the residents in 8 settlements would contribute to the issue this way. This solution is most popular in Mezőcsokonya, where nearly 87% of the respondents would reduce environmental pollution by recycling waste, but more than 50% of the residents in Somogyjád, Szántód, Siófok, Balatonföldvár, Balatonboglár, Balatonkeresztúr and Mesztegyő also replied positively. Power saving is important for the residents of 9 settlements. More than half of the locals in Somogyjád, Szántód, Kereki, Balatonkeresztúr, Balatonföldvár, Mesztegyő, Mezőcsokonya, Marcali and Siófok would like to pay more attention to power saving in their homes.

Voluntary work was also popular among residents (35.4%). It is noteworthy that a group of surveyed locals does not want to voice their opinion regarding the preservation of the environment (8.6%), and notifying the authorities is unpopular among individuals (16%). Actions requiring financial investment are also unpopular (10.6%).

Voluntary work attracts a larger portion of men than women. 42.3% of males, while only 30.3% of female respondents would improve the condition of environment this way ($p=0.004$). A higher level of education fosters positive results in this respect too. In addition, the higher one's level of education is, the more likely one will voice an opinion ($p=0.02$ and $p < 0.00$).

Buying ecofriendly products is also unpopular: only 17.4% of participants would change traditional products to green ones, although a higher level of education seems to increase commitment to ecofriendly products, too.

Ecofriendly means of transportation are primarily popular among women. Nearly three times as many women would pay more attention to use ecofriendly means of transportation ($p=0.001$).

The survey revealed which are those pull factors that respondents consider the most harmful for the proliferation of environmentally friendly behavior. *Table 2* summarizes the results.

The majority of respondents cited financial obstacles; based on the results, financial factors are the most serious problems that prevent residents from solving environmental issues. The second most cited cause also leads back to the respondents' insufficient level of income. Surveyed locals find traditional products cheaper than their ecofriendly counterparts, and, accordingly, they cite their insufficient incomes as the obstacle preventing them from buying these.

Table 3 sums up the primary media through which residents obtain news related to the environment.

Table 2

Factors inhibiting the proliferation of environmentally friendly behavior

| Statements | Percentage |
|--|------------|
| I lack sufficient income. | 40.6% |
| Traditional products are cheaper than ecofriendly ones. | 32.8% |
| It is hard to change proven, everyday habits. | 20.6% |
| We are in need of proper infrastructure. | 11.8% |
| Other residents are not interested in the preservation of environment. | 6.2% |
| It is too time and energy consuming. | 3.0% |
| It requires a lot of effort and returns little benefit. | 1.4% |

Table 3

Obtaining news about environmental pollution

| Media | Percentage |
|--|------------|
| Television | 90.2% |
| Printed press | 28.6% |
| Radio broadcasts | 26.2% |
| Internet | 25.8% |
| Personal conversations | 13.4% |
| Municipal notifications | 6.2% |
| Educational lectures | 3.4% |
| Technical textbooks, scientific journals, academic conferences | 3.0% |

More than 90% of the respondents use television as the primary source of orientation about environmental pollution, while nearly 30% prefer printed press, radio broadcasts or the internet for obtaining information.

The usage of media like technical textbooks, scientific journals and academic conferences are increasing in proportion with one's level of education, though its audience makes up less than 10% of the degree holding residents.

One of the sections of the questionnaire consisted of 15 scalar questions and each of these captured attitudes towards different ecofriendly actions. Respondents were required to assess how often they perform the actions in question using Likert scales. In order to reduce the number of variables to a more manageable level and to reveal their interrelations, we used factor and then cluster analysis. Relying on Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) criterion, we examined whether the data are adequate to undergo analysis. *Table 4* summarizes the results.

Results of Bartlett's test show that the level of significance is lower than 0.05, thus, we reject the null hypothesis; there are correlations between the initial variables, therefore, obtained data are suitable to undergo factor analysis (*Sajtos and Mitev, 2007*). The value of the KMO measure is 0.779, which indicates a good result, so obtained data are suitable to undergo analysis.

Table 4

Results of the KMO measure and Bartlett's test

| | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | | 0.779 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1774.516 |
| | df | 78 |
| | Sig. | 0.000 |

Based on our research, we set up 4 factors. The established 4 factors explain 62.04% of the results.

The first factor is named *“Demand for ecofriendly food products”*. This way of thinking indicates environmentally conscious food consumption behavior. The primary concern is the ecofriendly labelling of the product and its organic farming origin. Preference is given to refill packs and products with less packaging. The way of thinking underlying the second factor rather considers aspects like cutting down on water and energy consumption over ecofriendly food products, therefore, it is named *“Economical consumption”*. The factor group associated with this thinking also emphasizes selective waste management. The third factor is characterized by its stressed aspect, i.e., *“Energy saving”*. The fourth factor group is named *“Recycling”*. The associated way of thinking prefers composting and beverage carton recycling. Using Ward’s method and subsequently the K-means method, we established that the ideal cluster number is 4. After excluding missing data, in the course of analysis the program processed 489 answers given by respondents.

Cluster “A” grouped 25.77% of the respondents, Cluster “B” 31.70% of them, “C” 22.70%, while the group named “D” contained 19.83% of the surveyed locals. Respondents in cluster “A” and “B” are those who signal ecofriendly behavior, while groups “C” and “D” are primarily motivated by financial factors in their decision making.

The behavior of cluster “A” members are the most likely to display ecofriendly inclinations. They try to contribute to the preservation of the environment by using less energy and water. They only use lights on purpose, they rather take a shower than a bath, they turn off electronic devices if nobody is engaged with them, and they also aim at saving on heating bills. The members of the group also manage their waste selectively, but to reduce pollution they lay their key emphasis on the purchasing of refill packages. Purchasing available bio products and looking for green labeling was only typical in this cluster. On the other hand, they are not taking part in beverage carton collecting campaigns and they are not composting their food waste. Residents of Siófok, Szántód and Balatonboglár are the most environmentally conscious, as 55%, 48.6% and 47.4% of the surveyed locals in these settlements (respectively) are members of the first cluster.

Cluster “B” is still ecofriendly, but compared to members of the first cluster, inclination here is declining. They seek to use energy and water economically, and they seek to cut down on the heating bill. The fact that, as opposed to the previous group, cluster “B” respondents try to recycle organic household waste by

composting is an environmentally positive result. Even though they are more likely to participate in beverage carton collecting programs, frequent participation is not typical. In addition, they are not paying attention to buying products with ecofriendly properties. They are not buying products with less packaging consciously and they are not refusing shopping bags either. Around 60% of the surveyed locals in Balatonföldvár, Somogyvár and Somogyjád, 57.1% in Kereki and 53.3% of the Mezőcsokonya respondents are members of this cluster.

In Cluster “C” and “D” it is much less frequent that surveyed people pay conscious attention to the ecofriendly nature of their actions. Members of cluster “C” try to be economical with the energy and water usage by washing up with less water, not washing up with running water, turning off the television if nobody is watching it, as well as switching off lights in empty rooms. Besides these, commitments to other environmental actions are not typical. 77.8% of Mésztegyő residents and 56% of surveyed Lengyeltóti participants are the members of this cluster.

Cluster “D” is the less environmentally conscious group. Although they seek to save water and energy, their inclination is the least significant. Fonyód locals are presented with the highest proportion in the group, in their case 53.3% of the respondents are members of cluster “D”.

Basically, the members of all four clusters voiced a positive opinion when asked about their willingness to participate in the solution of environmental issues. Although in all four cases the proportion of those who are ready to act is above 65%, the aforementioned tendency is present here too: 84.7% of cluster “A” members, while only 65% of the members of cluster “C” would actively participate in solving such issues ($p=0.01$).

53.8% of those who would donate money are members of cluster “A”, and one third of cluster “A” and “B” members would do voluntary work ($p<0.00$; 0.025). Cluster “A” members are the most likely to notify the authorities when encountering environment polluting activity, although even in this group only half of the members would seek such cure ($p<0.00$). Ecofriendly transportation is also the most popular among the members of cluster “A”, approximately 60% of them would use public transportation, for instance ($p<0.00$).

Nearly 30% of the members of cluster “C” and “D” cited the lack of infrastructure when they had to name causes preventing the proliferation of ecofriendly behaviour ($p<0.00$).

CONCLUSIONS

In this section we will sum up the most important insights obtained through the interpretation of the answers.

Based on the results, for the majority of the surveyed locals the changes of the environment are important issues and they are seeking information about these. Most of them are aware of their own responsibility in the pollution of the environment, and this ratio is increasing proportionately with one’s level of education. Few of the respondents feel that their actions can effectively contribute

to the preservation of the environment, and it is likely that this is why so little is being done at the moment, and also why in most of the cases ecofriendly behaviour is only present as an intention. Clearly, the most wide-spread preservation actions among the locals near Lake Balaton are selective management of waste and power saving. It is noteworthy that a group of surveyed locals does not want to voice their opinion regarding the preservation of the environment, and respondents are generally not willing to complain to the authorities, either.

Actions requiring financial resources are also unpopular and most respondents cited their insufficient income as the factor preventing them from living an environmentally conscious life. The most popular type of media is equivocally television: more than 90% of the respondents use this medium to gather information about environmental pollution. Last, but not least; ecofriendly products and organic food are not widespread yet among the residents of the southern catchment area of Lake Balaton.

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