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Environment conscious consumers' opinion on selective waste management

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Abstract

Consumers have become environment conscious, they are keen on energy efficiency and the increasing importance of the environmental values in general have made this research relevant. We analyze the special elements of eco marketing so that to see which are the tools, marketing activities which might help in forming the ecoconscious attitude and behavior. We have realized it was not enough to inform people about different types of ecological problems globally and locally, but they also need to be motivated to become really active. The ecoconscious consumer behavior was surveyed through the attitude towards selective waste collection. A standardized questionnaire based survey was carried out to analyze the consumers' selective waste collection habits. At the end of the research we made recommendations concerning the methods, the promotion tools and the motivation on becoming more eco-committed.

Keywords: Environment conscious consumers, selective waste management

1. Overview of literature

1.1. *Eco-consciousness, energy related aspects, ecomarketing*

Sustainability has become a fundamental requirement at the most varied fields of the society and the business life. (see e.g.. „green banks”: Kék M. et al 1998, companies: Tóth 2002-2006, macroeconomics, „new economics”: Tóth 2009, 2013); we also need to have a scientific look at the trends of the ecoconscious consumer behaviour¹.

Having a look at the statistics on investments, we can also conclude that the environment protection related projects have taken a more significant place recently (Csiszárík-Kocsir, 2015). One of the reasons of the changing ecoconscious consumer trends is that the safety of the energy sources has become a significantly more important issue in the European Union and in Hungary, too. The European continent is import dependent; besides the inadequate domestic supply, the imported energy comes from far and always further destinations. By now it has become evident

¹ Never forget to mention tourism when dealing with ecoconsciousness and sustainability (Szabó, 2014).

for the decision makers as well, that besides the economic development, sustainability is also a fundamentally important issue. (Szigeti, 2013).

Energy consumption globally shows an increasing tendency, while the easy to excavate types of energy resource deposits are shrinking. The different countries are competing, sometimes fighting for the resources, and the other rich ones also use their favourable situation for other purposes. We globally are more and more energy savvy; use the sources as the following:

- 34% oil
- 24% coal
- 20% gas
- 6% nuclear energy
- 6% a biomass (only 33% for replacement)
- 10% water, wind and solar energy.

It is interesting to see that the global energy demand is covered by the fossil sources in 78%, like oil, coal and gas. Energy can only be created with burning, which means that we need to add oxygen. The consequence of burning the fossils is CO₂ emission. This CO₂ emission is responsible for 50% of the greenhouse effect. Analysing the tendencies of using alternative energy sources in Hungary, we can conclude that on GDP parity it is two times higher than in other European countries.

In 2004, in the European Union the share of the renewable sources was 5,7%; the plan for 2012 was 12%, but according to the latest EU reports, the realistic performance is around 10%. Hungary declared that by 2010 the share of the renewable energy will reach 3,6%. The traditional sources are expected to be enough only for a couple of decades from now on, which assumes that 60% of the Hungarian energy demand should be covered by green sources. We are about at the end of the 300 years long history of the fossil energy resources. The reasons are varied: restricted sources, increasing demand, the low although increasing efficiency of the currently available renewable technologies, but most of all the high level of environment pollution and the imbalanced status of the ecosystem. Many scientist teams claim that the tendency is irreversible and they can only be slowed down with the positive possible earning that the political and economic risks, harms and losses can be reduced, too. Due to the outstanding importance of the energy sources, our economy is often referred as *energeconomy*.

In case of Hungary, insufficient in energy sources and in capital as well, the strategic export dependence is multiplied. When we talk about the end of the oil era and about its strategic risks, we need to declare that improving the domestic alternative energy industry is a must. Among the alternative energy resources we should concentrate on biomass as we are in a very favourable situation. Although it means that significant operative, technical and technological innovations and developments should be done, but if it succeeds, the Hungarian agriculture will benefit a lot from the new structure and what is probably even more important it could reduce the unfavourable side effects of the new paradigm.

The new paradigm will mean an unpredictably long period of time in the economy, where at the beginning, the green energy sources will be in minority and later due to the changing cost

structures the fossil ones will take this minority position. This is expected to be the 7th big jump of the mankind which will be a transition to a more sustainable era. (Szigeti - Tóth, 2014; Tóth – Szigeti, 2013).

Besides biomass, there are some other alternative possibilities, such as water, wind and solar energy. We need to point out that their availability is unbalanced as far as time and place are concerned. Geothermic energy is concentrated and being so available at certain places only.

1.2. *Creating the ecomarketing industry*

In Hungary, biomass could be the basis of the ecomarketing industry. At the moment some elements of the system already exist, but there are further actions to be done to be able to gain the different types of energy sources and to produce some secondary side-products. The third benefit could be the improvement of the standards of living in the countryside and the interiorisation of the positive externalities. Founding of the ecomarketing industry should take place as a complex issue, including environment protection, the implementation of new innovative technologies, to solve and popularize composting, which if managed can contribute to the energy supply, but if neglected, polluting.

1.3. *Special marketing activities: the role of ecomarketing in the environment conscious energy management*

In this context we talk about *ecoenergetics* and not only about the energy related benefits of biomass. If we consider an *ecoenergetics* project as a complex entity, then we need to think in the following 12 module puzzle-like system, where every part should fit and work properly, otherwise the whole project will fail. If we follow the traditional 4Ps model, ecomarketing means the following:

Product = wide variety of ecomarketing products, such like: *Raw materials*, which can derive from natural resources like energy grass or organic waste or from modified sources like in case of corn or sunflower seed. All of them are suitable for creating green energy, and similar to the traditional agricultural products used in the food industry, they also have their well prospering markets. *Tools, equipments, technologies, "know-how"*: these are the tools which help to create, store and forward renewable energy. The market is saturated, and the competition is fierce. Wind mills, solar collector panels and biogas, bioethanol vehicles belong to this group. There are two additional elements to make the situation more complicated: the vertically overlapping system (e.g. grain – bio ethanol – side product of the alcohol industry), where the anyway individually accepted and sold products can be here understood as part of the complex system. The other one is that it is difficult to understand and measure quality and as a consequence, to differentiate the products.

Price = there is nothing special when creating the prices in the ecomarketing context. The basis can be: cost, value or competition. But if the basis was cost, then be informed is required on the possible available supports, funding and expected future tendencies on "green energy" as there are rapid and radical changes all the time. The value based method depends on the size of the environment conscious and committed segment size and also on the value order of the producers. Competition based prices might mean a special new type of risk difficult to manage, due to the new innovative solutions.

Place = far the biggest question mark at the moment in the marketing mix as the classical energy distribution systems, representing a huge value as far as their capital need is concerned, are the results of a cca. 100 years long business, while the "green energy", the brand new one should be distributed in the same system. It raises the question of counter interest and creates a very complex and complicated strategic decision from every partner (e.g. petrol station- gas-, electricity network).

„Promotion” = the tools and the methods of ecomarketing are the same as far as promotion is concerned, but they are significantly different if we concern marketing communication. There is a need for intensive marketing communication including every stakeholder so that we could inform and convince as many interest groups as possible. That is the reason that the target groups are not only the consumers, but the governments, local councils, the media, the financial institutions and the wide public as well. Besides the financial and technological investments, the renewal energy projects also need the support and the acceptance of the local communities. Borzán et al (2008) concluded in the 2008 survey that the economy's (self) development could only be maintained with external support mainly, so, without the more efficient cooperation and support of the local public bodies and NGOs, the domestic and the European Union financial resources are impossible to gain. Various experiences and the experts also reinforce that in case of such investments there is a need for a knowledge-cluster, which is ready and able to make the required relationship with the different stakeholder groups of the society and on the other hand is able to provide the adequate information concerning both its quality and reliability.

The usage of the green energy is highly dependent on the attitude of the local citizens. Borzán et al (2009) pointed out in the SWOT analysis of his 2009 survey that in Békés County every regional development stakeholder considered the renewable energy based projects an outstanding possibility. They all agreed that this type of projects needed the support of the self conscious, well organized community. One of the key elements of these types of projects is that it should serve the needs of the local community or furthermore, the local stakeholders should also be involved in the preparation and planning process. That is the reason why these types of projects have a special status. The society oriented, ecomarketing approach is inevitably important for these types of investments. Consequently the basis of the strategy should be that special attitude, which tries to improve the well-being of the society besides gaining its goals. It tries to maintain the balance between the consumers' interest and the long-term well-being of the society.

There is a wide variety of tools as many green energy experts have realized that the transaction oriented marketing concept cannot be used efficiently any longer. These days we need to consider the aspects of the Public Opinion, so the trends and changes of the society and the consumer groups. These trends should be integrated into the strategy. To reach these goals we are convinced that besides the classical McCarthy's 4Ps there is a need for 4Es: Environment, Education, Empathy and Ethics. We believe that for the successful implementation and integration of the strategic tasks and marketing decisions, the Public's or with other words the society's, the stakeholders' opinion should be learned. As marketing communication plays a very important role in social education and in forming the public attitude, we believe that it is essential to get to know the attitude and the opinion of our target group.

1.4. *Secondary review, the summary of prior, relevant studies*

The results of the 2009 Northern Hungary region qualitative and quantitative survey show (Domán et al, 2006., 2009.), that the majority of the participants had heard about solar, wind and water energy; but they had no or a lot less knowledge about the more alternative or more complicated, specialised alternative resources like *photo electronic energy or energy grass or energy wood*. It turned out that most of the respondents *rather heard about the different sources, but they did not have complex knowledge*.

It means that the communication policy was efficient enough at that time as well, although we also need to conclude that consciousness, giving specific information and convincing the participants had further possibilities to improve and be corrected. The results also showed that most of the information was successfully received from the classical ATL tools. In both cases it was seen that the preferred communication mix consisted exclusively of the wide publicity, traditional tools. According to the analysis of the two surveys the researchers concluded that the role and the efficiency of the social and personal channels were not significant among the participants.

The associative survey showed which phrases and expressions were connoted to the renewable energy sources. The general conclusion was that the majority was positive, such like environment protection, local energy and cheap energy².

It was also analysed how the respondents consider the possible future usage of the alternative energy sources in Hungary. In 2009 the majority thought that solar, wind and water energy were found to be the most likely to be used in the near future and the energy wood had the lowest likelihood.

2. **Primary research on selective waste collection**

2.1. *Methodology*

Standardized questionnaire, quantitative. Sample size: N=1512. Data process: we used SPSS; the analysis was done with descriptive statistical figures, such as frequency, distribution, etc.

2.2. *Results*

First we wanted to see if the respondents knew what selective waste collection was. The majority said it meant that they put the different types of garbage into different sacks. Only a small group (altogether 14%) said that this was the process when they took the paper to the special paper container. A similar proportion thought that being selective means that one collects the different types of garbage into different sacks and finally put together into the same container. The same results can be seen in the next table, too.

² Collected and selected waste might be suitable to cover the long-term electric and heat energy demand of the regional plants in a clean and cost efficient way, staying within the health regulation requirements.. (Bándy, 2010:13)

Table 1: Knowing what selective garbage collection means

Answer possibilities	absolute frequency (N)
Selective waste collection when I take the selectively collected paper to the special paper collective community container.	217
Selective waste collection is that I put the paper, metal, plastic and glass waste and put them together into the same container	220
Selective waste collection is that I put the different types into different sacks and the different types are put into the different special containers of the selective island.	1075

Source: Own survey, 2015. N=1500

The next question aimed to find out what kind of waste people knew at all which were suitable for selective collection. The majority chose "all of them" – paper, plastic, glass and metal.

Some also voted on paper, plastic and glass only as being suitable for selective collection.

Only a very small part of the sample (9%) said that only paper could be collected in a selective way and an even smaller group had no knowledge at all.

Table 2: What can be collected in a selective way?

Type of waste	N	%
Paper	130	9
Paper and plastic	111	8
Paper, plastic and glass	447	30
Paper, plastic, glass and metal	801	51
I do not know	39	2

Source: Own survey, 2015. N=1500

The majority of the respondents (43%) collect everything selective in their households. There were only a few respondents who do not collect waste in a selective way at all. There is a significant group of respondents (21%) who collect plastic separated only. The reason might be the consumption of PET bottled water and other beverages. The smallest group was which collects metal selectively only. The explanation might be that this type of material is very rarely used in the households.

Table 3: Selective waste collection in the household

Answers	N	%
Yes, everything (paper, plastic, metal and glass) is collected selectively and taken to the "selective island"	713	43
We collect paper separated only	303	18
Only plastic bottles are collected separated	357	21
Only metal collected separated	52	3
Only glass is collected selectively	103	6
We do not collect anything selectively	143	9

Source: Own survey, 2015. N=1500

The biggest group of the respondents visits the "selective islands" once a week. The second biggest group members visit these islands 2-3 times a week, which can be considered as a positive change in the consumers' attitude as far as the ethical issues and the environment friendly consumer attitude are concerned.

Table 4: The frequency of visiting the "selective islands"

Frequency	N
2-3 times/week	365
Once a week	426
2-3 times/month	239
Once a month	208
Less than once a month	137

Source: Own survey, 2015. N=1500

It is an important issue to discover the most active member of the family as far as selective waste collection is concerned. The lowest activity level is typical for the children what is not a real surprise concerning that this type of household duty is not typically dedicated to that age group. According to the answers of our sample, it is rather the parents (our) responsibility and duty. We also need to mention that both genders take their part regularly.

Table 5: The duty of visiting the "selective islands" within the household

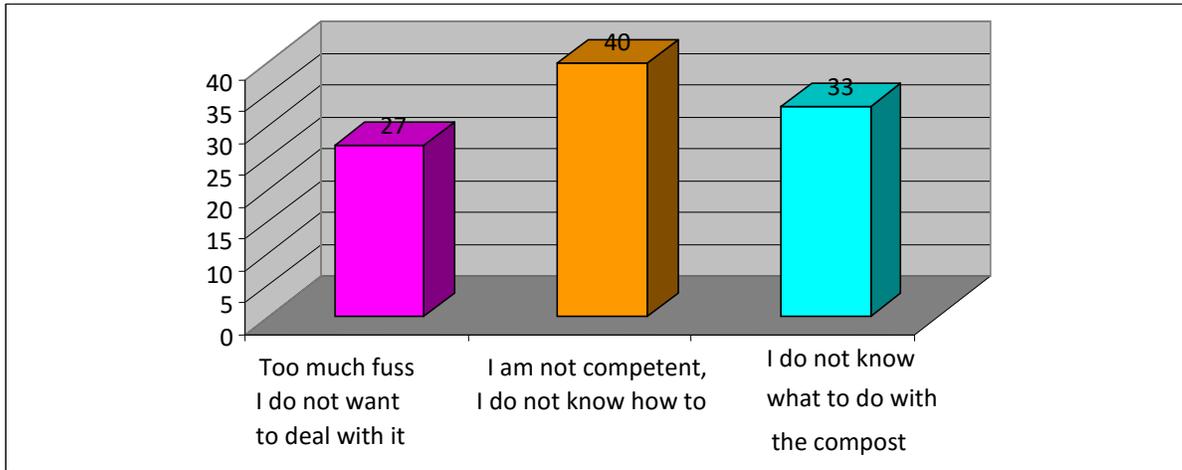
Who takes the selected waste to the "selective island"?	N
Child/children	108
Usually my duty	502
Both my partner and me	689
We do not collect in a selective way	138

Source: Own survey, 2015. N=1500

It is an important waste management issue to see who and how much are active concerning creating compost. Only a smaller group (25%) is convinced about its importance and who are active as well. One of their characteristic features is higher knowledge and they are more sensitive to the topic, too. This point might be a very important one as this might be a solid basis for an efficient marketing communication campaign. However, the majority, 75% said that they do not compost.

Although the group rejecting composting is not one of our target groups, but it would be useful to target them from the marketing communication point of view, as their opinion and rejecting behaviour might contain some important pieces of information. This group of the respondents also belongs to the extended marketing communication target group. It might and will be an important task to convince and make them active. Rejecting composting was mainly explained with the lack of competence. An other big group of the respondents said they did not want to deal with it as it was complicated and time consuming.

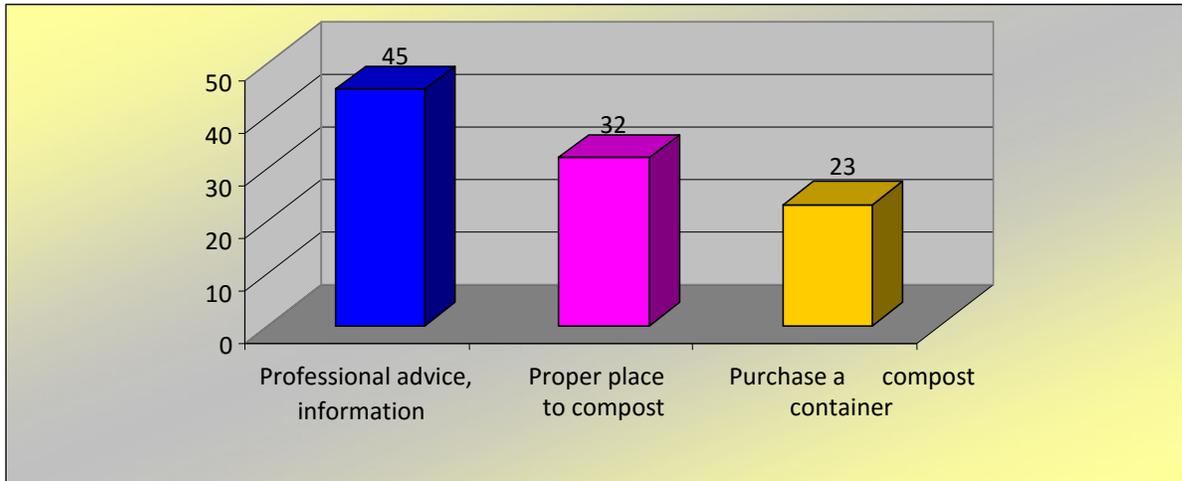
Figure 1: Reasons for not to compost



Source: Own survey, 2015. N=1500

We also wanted to find what could motivate them to compost at home. The majority of the respondents said they needed professional advice and a proper place to compost.

Figure 2: Type of help to compost at home



Source: Own survey, 2015. N=1500

Finally we wanted to get to know how waste would be treated if the respondent was the decision maker. The majority voted on creating new products and there were many respondents who put the emphasis on prevention. A lot smaller group thought on legal regulations such like the implementation of a special tax on products.

Table 6: How would you treat waste if you were the decision maker?

Answers	N	%
Recycling is the best way, so I would make new products	666	41
If you are a conscious customer you can prevent it with less consumption	403	25
I would implement legal regulations such like the ban on beer cans and nylon bags	206	13
The best is to burn waste	82	5
I would motivate people to recycle and to implement special taxes on products and to use refund	253	16
We have more important duties than waste management	0	0

Source: Own survey, 2015. N=1500

2.3. The typical features of the two segments on the type of the selectively collected waste

We segmented the respondents upon the type of the selectively collected waste and saw how frequently the different groups used the selective containers. Upon the results of the CHI square (Person correlation variable sig=0,000) there is a statistically relevant interrelationship between the type of the selectively collected waste and the frequency of visiting the "selective islands". We can conclude that those selecting everything in a selective way, the ratio of those

visiting the "selective islands" more times a week are significantly higher. Those who collect paper only, usually once a month or even less frequently visit these islands.

Table 7: The relationship between the type of the selectively collected waste and the frequency of visiting the "selective islands"

Using the "selective islands"	Type of selectively collected waste			
	Everything collected selectively (N)	Everything collected selectively (%)	Paper only (N)	Paper only (%)
More times/week	330	72	19	9
More times/month	55	12	74	33
Once a month	59	13	67	30
Less than once a month	11	3	63	28
	455	100	223	100

Source: own survey, 2015. Chi-square trial: Pearson correlation variable=sig=0,000

We surveyed what collected selectively that group of the respondents who have already tried to compost at home. We also had a look at the person in charge in the household concerning selective waste collection. There was no statistically proven relationship between trying to compost at home and the type of the selectively collected waste. (Pearson correlation variable was higher than 0,005), but from the distribution it is clearly seen (cross-tab) that there is a different ratio among the answers. It is typical for those who have already tried to compost that they collect everything in a selective way and typically visit the "selective island" once a week.

Table 8: The features of the ones already tried to compost at home

Tried to compost		N	%
Type of selected waste	Everything is collected in a selective way	211	76
	Paper only	65	24
Tried to compost		N	%
Frequency of visiting the "selective island"	More times/week	95	27
	Once a week	120	35
	More times/month	46	13
	Once a month	72	20
	Less frequently	15	5

Source: own survey, 2015. Chi-square trial: Pearson correlation variable sig=0,06

2.4. The features of those who have not tried to compost at home yet

We made the same data analysis for those respondents who have not tried to compost at home yet. (Cross-tab and correlation analysis). The Pearson significance level did not show statistically proven interrelationship between the surveyed components (significance level higher than 0,005), but it was worth analysing the cross-tabs, because we could draw some relevant consequences. The group which has not tried to compost at home also typically collect every type of waste in a selective way and they also visit the "collective islands" at least once a week. This result also proves that the reason of not to compost is not the negative consumer attitude; it is not true that these respondents are not open to selective waste management or they could not accept the selective concept. As it already turned out from the previous results, the main reasons of not to compost are the circumstances and not the negative attitude of the consumers. So, professional consulting on the compost management could initiate the change of activities in this segment.

Table 9: The features of those who have not tried to compost at home yet - 1

Have not tried to compost yet		N	%
Type of selective waste	Everything is selective	501	67
	Paper only	236	32
Have not tried to compost yet		N	%
Frequency of visiting the "selective island"	More times/week	268	26
	Once a week	304	30
	More times/month	193	19
	Once a month	136	14
	Less than once a month	122	11

Source: own survey, 2015. Chi-square trial: Pearson correlation variable sig=0,56

We also surveyed this segment, too concerning the person in charge for waste management in the household. The results reflected the whole sample's decision, so both adults take care.

Table 10: The features of those who have not tried to compost at home yet - 2

		Have not tried to compost (N)
Person in charge	child	44
	me	126
	My partner and me	187

Source: own survey, 2015. Chi-square trial: Pearson correlation variable sig=0,42

3. Summary and conclusions

The results of the survey show that ecoconscious and preventive attitude is typical for our respondents. The majority put a great emphasize on selective waste management and they have a solid knowledge on the basic terms and activities. The only exemption where the sample turned out to be inactive was composting. It is our delight that from the marketing and consumer behaviour aspect we could see the positive attitude and we cannot talk about cognitive dissonance. So there is no contradiction between the cognitive (knowledge, the level of being informed); the conative (activity) and affective (emotional) attitude elements. As the consequence of these findings, there is a further need to keep the informative and tutorial messages to keep the current level of knowledge, but emphasize should also be put on the emotional content too, which might help to show the responsibility of the individuals for their environment and reasons why it was essential to keep a balanced status. Upon the results of our survey we recommend to change the AIDA model to the DAGMAR. The AIDA is recommended if we want to make desire. The focus point of the strategy is that the sender of the message draws the attention, keeps the level of interest, makes desire and finally provokes action. Concerning that the results proved a positive level and structure of knowledge, to our opinion the DAGMAR model could rather serve the implementation of a successful communication campaign, which does not want to convince, but guides the decision-making process of the target audience. This model, compared to AIDA is a lot more rational, focusing on cognitive and specific motivations. In our case it is essential to explain why it was beneficial for the target audience member to collect waste in a selective way. It is not enough to inform the citizens in general, but we need to implement target group oriented messages; we need to mention facts which might help us to make them understand the expected possible benefits of conscious waste management.

To our opinion the following chain of action should be followed in this communication process: the attention of the potential target group members' should be raised with a proper attraction management activity; then it should be explained and make the target group understand why it was beneficial for them to collect waste selectively and take care of conscious waste management. It is also important that the targeted members become convinced and motivated enough to make their decisions as a result of an interioriated drive.

Measuring the results of the efficiency of the communication campaign is an important in the future, too. Continuous feedback and conversation might help to improve the quality of the future communication process. It is also recommended to periodically follow the future changes of the consumers' attitude and preferences which is the fundamental basis of any successful campaigns.

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