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ENVIRONMENT CONSCIOUS CONSUMERS' OPINION ON SELECTIVE WASTE MANAGEMENT

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Abstract

Consumers have become environmentally conscious, they are keen on energy efficiency and the increasing importance of the environmental values in general has made this research relevant. We analyse the special elements of eco-marketing so that we can see which are the tools and marketing activities which might help in forming the eco-conscious attitude and behaviour. We have realised that it was not enough to inform people about different types of ecological problems globally and locally, but that they also need to be motivated to become really active. After completing the literature review we also considered the already available and relevant studies. The eco-conscious consumer behaviour was surveyed through the attitude towards selective waste collection. A standardized questionnaire based survey was carried out to analyse the consumers' selective waste collection habits as a primary research. The data was processed with SPSS. At the end of the research we made recommendations concerning the methods of marketing communication, the promotion tools and the motivation of citizens to become more eco-committed.

Keywords: *energy efficiency, environmental value, energy consumption, eco-marketing*

JEL Classification: *Q42, Q51, Q57*

Introduction

Sustainability has become a fundamental requirement at the most varied fields of 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 eco-conscious consumer behaviour⁴. Having a look at the statistics on investments, we can also conclude that the environmental protection related projects have taken a more significant place recently (Csiszárík-Kocsir, 2015). One of the reasons of the changing eco-conscious consumer trends is that the safety of 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 destinations that are further and further away. By now it has become evident for the decision makers as well, that besides the economic development, sustainability is also a fundamentally important issue. (Szigeti, 2013).

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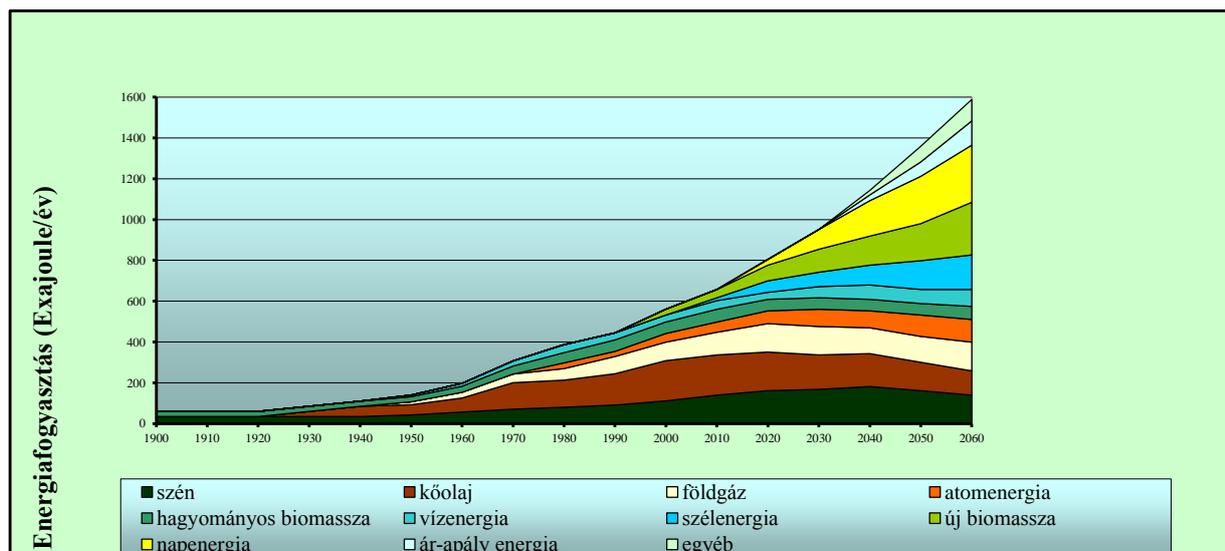
⁴ Never forget to mention tourism when dealing with ecoconsciousness and sustainability (Szabó, 2014).

Energy consumption globally shows an increasing tendency, while the ease to excavate types of energy resource deposits is dwindling. Different countries are competing, sometimes fighting for the resources, and the rich ones also use their favourable situation for other purposes. We are globally more and more energy savvy; we use the sources as follows: 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 generated through incineration, 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.

Secondary overview: eco-consciousness, energy related aspects, eco-marketing

Analysing the tendencies of using alternative energy sources in Hungary, we can conclude that on GDP parity it is twice as high as in other European countries. In 2004, the share of renewable sources in the European Union 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 renewable energy will reach 3,6%. The traditional sources are expected to be sufficient only for another couple of decades on, which assumes that 60% of 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, 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 teams of scientists 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 to as *energeconomy*.

Diagram 1. Global energy consumption till 2060



Source: Dinya L - DománSz. - Fodor M. - Tamusné 2006

In case of Hungary, the paucity of energy sources and capital augments the strategic export dependence. 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 introduced, if it succeeds, the Hungarian agriculture will benefit immensely 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 account for a lower share and later due to the changing cost structure, and the share of fossil fuels will be lower. This is expected to be the 7th major leap of 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 available at certain places only.

The consequence of the above described situation is - locally, regionally, on a domestic level and globally- the so called energy-mix, which means that the energy demand should be covered in a varied way where the most important factors are locally available. Its aggregated illustration is the next chart, which already shows a wide variety and usually a modified local-regional energy-mix, which will even be more typical in the future.

Creating the eco marketing Industry

In Hungary, biomass could be the basis for the eco marketing industry. At the moment some elements of the system already exist, but there are further actions to be carried out if we are to be able to take advantage of different types of energy sources and produce some secondary by-products. The third benefit could be the improvement of the standards of living in the countryside and the internalization of positive externalities. Establishment of the eco marketing industry should take place as a complex issue, including environmental protection, the implementation of new innovative technologies, solving and popularizing composting, which, if managed, can contribute to the energy supply, but if neglected, to pollution.

Special marketing activities: the role of eco marketing in the environment conscious energy management. In this context we talk about eco energetics rather than only about the energy related benefits of biomass. If we consider an eco energetic 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, eco marketing means the following:

Product = wide variety of eco marketing products, such as: raw materials, which can be sourced from natural resources, like energy, grass or organic waste or from modified sources as is the case with corn or sunflower seed. All of them are suitable for generation of 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 create, store and forward renewable energy. The market is saturated, and the competition is fierce. Wind mills, solar collector panels and biogas, bio ethanol vehicles belong to this group. There are two additional elements to make the situation more complicated: vertically overlapping system (e.g. grain – bio ethanol – side product of the alcohol industry), where individually accepted and sold products can anyhow be understood as part of a 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 about pricing in the eco marketing context. The basis can be: cost, value or competition. But if the basis is cost, then being informed is required for the

purposes of possible available support, funding and expected future tendencies on "green energy", as there are continuous rapid and radical changes taking place. The value based method depends on the size of the environmentally 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 new innovative solutions.

Place = by 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 tradition, while the "green energy", the brand new one should be distributed in the same system. It raises the question of opposing 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 eco marketing 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 why 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 energy renewal 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 a more efficient cooperation and support of the local public bodies and NGOs, the domestic and the European Union financial resources are impossible to reach. Various experiences and the experts also underline the conclusion 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 adequate information concerning both its quality and reliability.

The usage of green energy is highly dependent on the attitude of 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 a self aware, 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, eco marketing 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 reaching 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 can no longer be used efficiently. These days we need to consider the aspects of Public Opinion, and the trends and changes in the society and the consumer groups. These trends should be factored 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 purposes of successful implementation and integration of the strategic tasks and marketing decisions, the Public's or in other words the society, knowledge should be gained of the stakeholders' opinion should be. As marketing communication plays a very important role in social education and informing the public attitude, we believe that it is essential to get to know the attitude and the opinion of our target group.

Secondary review, the summary of prior, relevant studies

The results of the 2009 Northern Hungary region qualitative and quantitative survey (Domán, Tamusné, Fodor: Lakosságikörbenvégzettkvantitatív vizsgálat: 2006. és 2009. évfelmérések összehasonlító elemzése, 2009. Gyöngyös) show that the majority of the participants had heard about solar, wind and water energy; but they had no or they had little 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 had heard about the different sources, but they did not have complex knowledge. It means that communication policy was efficient enough at that time as well, although we also need to conclude that awareness, provision of specific information and convincing the participants could be further improved and 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 broad 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 as protection of the environment, local energy and cheap energy⁵. Analysis was also made of how the respondents consider the possible future usage of 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 from wood had the lowest likelihood.

Primary research on selective waste collection

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.

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 bags. Only a small group (altogether 14%) said that this was the process when they took the paper to special paper containers. A similar proportion thought that being selective means that one collects different types of garbage into different sacks and finally puts them together into the same container.

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

⁵Collected 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)

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
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Source: Own survey, 2015. N=1500

The next question aimed to find out what kind of waste people knew at all to be suitable for selective collection. The majority chose "all of them" – paper, plastic, glass and metal. Some also voted for paper, plastic and glass only as being suitable for selective collection. Only a very small portion 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.

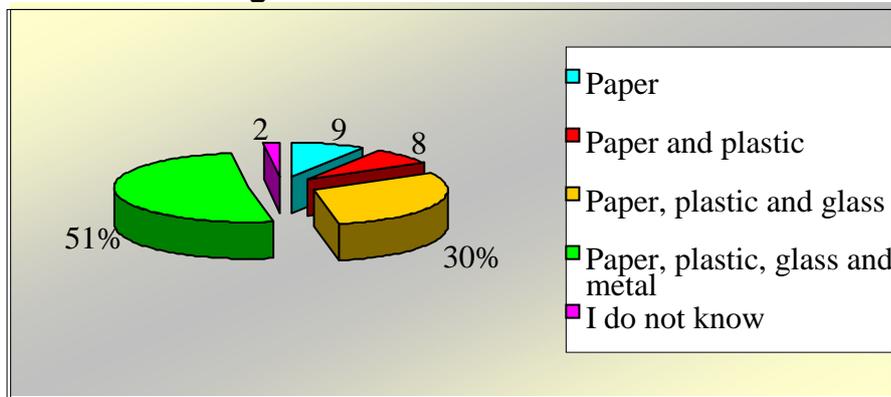
Table 2. What can be collected in a selective way?

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 absolute frequency of the same question:

Diagram 2. What can be collected in a selective way? (%)



Source: own survey, 2015. N=1500

The majority of the respondents (43%) collect everything selectively 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 separated plastic only. The reason might be the consumption of PET bottled water and other beverages. The group which collects only metal selectively was the smallest. The explanation might be that this type of material is very rarely used in households.

Table 3. Selective waste collection in households

Answers	N	%
Yes, everything (paper, plastic, metal and glass) is collected selectively and taken to the "selective island"	713	43
We collect separated paper only	303	18

Only plastic bottles are collected separately	357	21
Only metal collected separately	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.

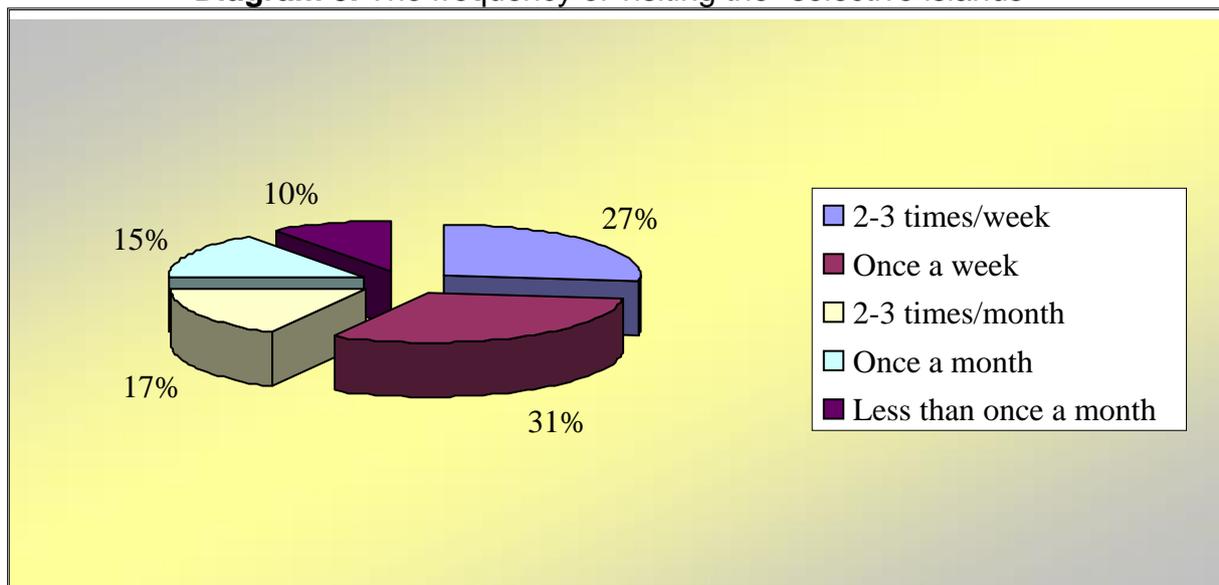
Table 4. The frequency of visiting the "selective islands"

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

The absolute frequency shown in the chart:

Diagram 3. The frequency of visiting the "selective islands"



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.

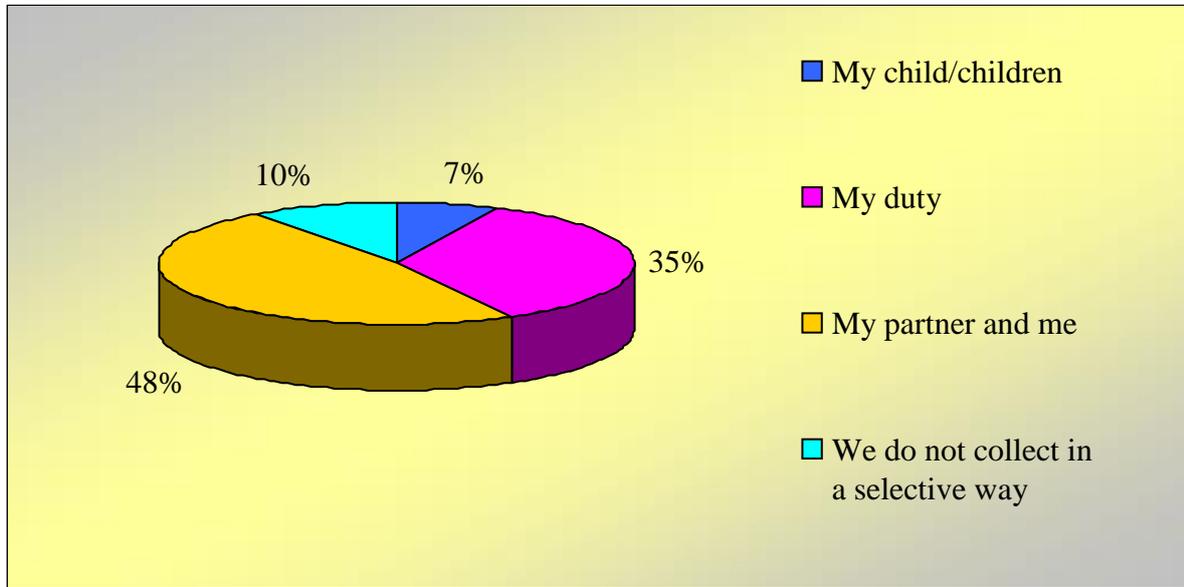
Table 5. The duty of visiting the "selective islands" within the household

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

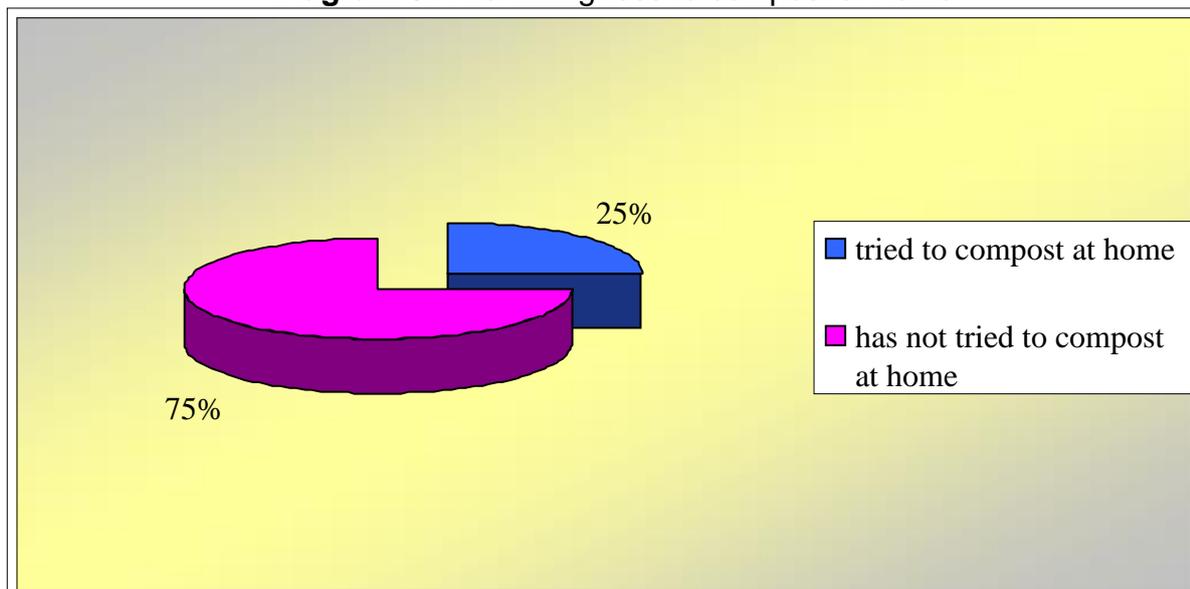
Diagram 4. The duty of visiting the "selective islands" within the household



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. They are active as well. One of their characteristic features is higher knowledge. They are more sensitive about the topic, too. This point might be a very important one as this might provide a solid basis for an efficient marketing communication campaign. However, the majority, 75% said that they do not compost.

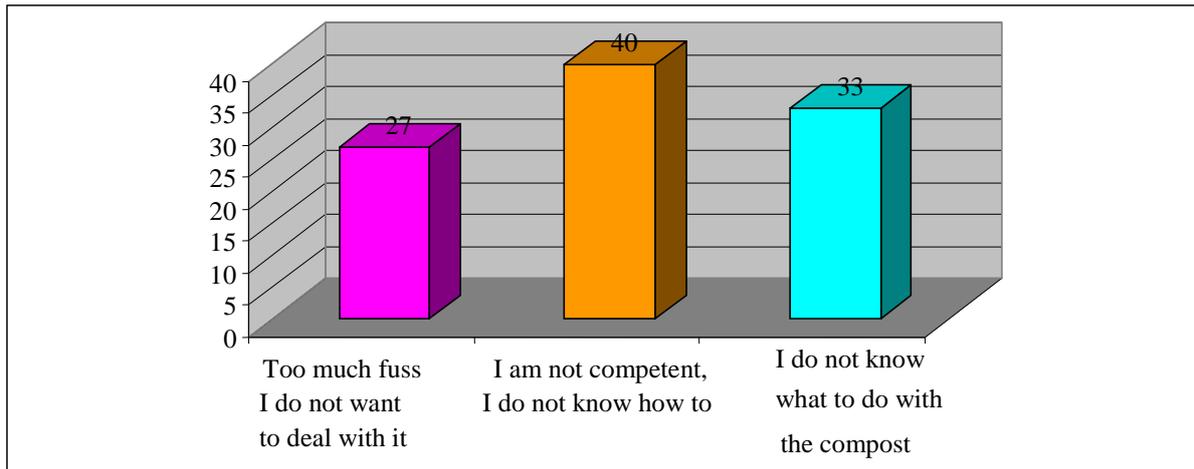
Diagram 5. The willingness to compost at home



Source: Own survey, 2015. N=1500

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

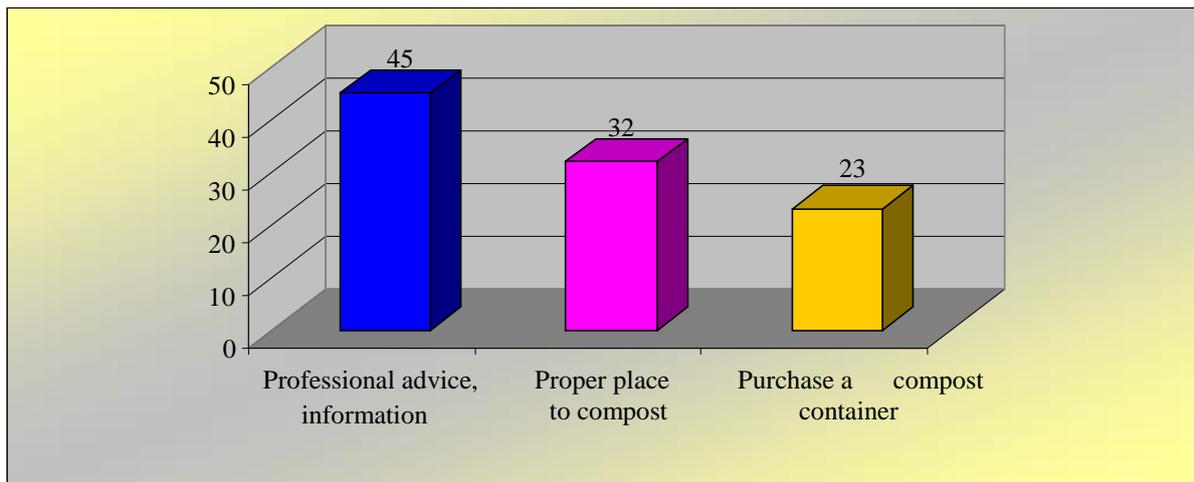
Diagram 6. Reasons for refusal to compost



Source: Own survey, 2015. N=1500

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

Diagram 7. 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 about legislation and regulation such as 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 laws and regulation such as aban on beer cans and nylon bags	206	13
The best is to incinerate waste	82	5
I would motivate people to recycle and to implement special taxes on products and use refund	253	16
We have more important duties than waste management	0	0

Source: Own survey, 2015. N=1500

Sample segmentation- interdependency analysis (Chi-square, cross-tab analysis)

The typical features of the two segments on the type of selectively collected waste: we segmented the respondents on the basis of the type of selectively collected waste and saw how frequently the different groups used the containers for selection. On the basis of the results of CHI square (Person correlation variable sig=0,000) there is a statistically relevant interrelationship between the type of 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 in a significantly higher number. Those who collect paper only, usually visit these islands once a month or even less frequently.

Table 7. The relationship between the type of 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

The features of the groups trying and not trying to compost

We surveyed the selective collection by group of 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.

The features of the ones already tried to compost at home

There was no statistically proven relationship between trying to compost at home and the type of 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 respondents who 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"	Several times/week	95	27
	Once a week	120	35
	Several 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

It is also relevant that in those households where composting was already tried, both adults are responsible for taking care of selective waste collection.

Table 9. The person in charge in the household

		Tried to compost (N)	
Be in charge for waste management issues	child	44	
	me	126	
	Both my partner and me	187	

Source: own survey, 2015. Chi-square trial: Pearson correlation variable sig=0,4

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

We made the same data analysis in respect of 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 for refusal 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 not to compost are the circumstances

rather than the negative attitude of consumers. So, professional consulting on the compost management could initiate the change of activities in this segment.

Table 10. The features of respondents who have not tried to compost at home yet

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"	Several times/week	268	26
	Once a week	304	30
	Several 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 concerning the person in charge for waste management in the household. The results reflected the whole sample decision, so both adults take care.

Table 11. The person in charge in the "not tried yet" household

		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

Conclusion

The results of the survey show that eco-conscious and preventive attitude is typical for our respondents. The majority put a great emphasis 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 in 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 emphasis should also be laid on the emotional content, which might help to show the responsibility of the individuals for their environment and the 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 focal point of the strategy is that the sender of the message draws the attention, keeps the level of interest, creates the desire and finally provokes action.

Diagram 8. The AIDA model

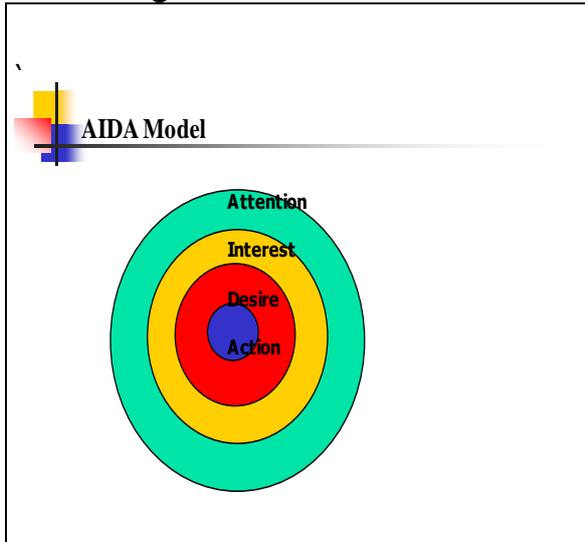
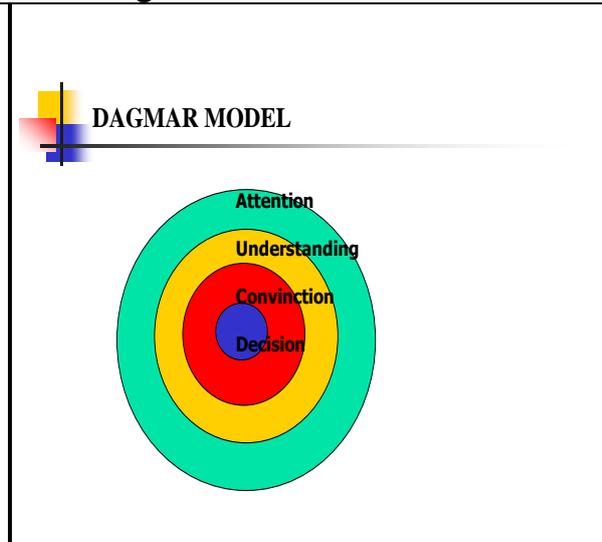


Diagram 9. The DAGMAR mode



Source: Own edition

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 motivation. 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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