# An analysis of food-economy companies' environmental behaviour in North-East Hungary

Odor, Kinga[1]

**Abstract**

After outlining environmental problems regarding food-economy[2] companies and clarifying the concept of environmental behaviour, I will present the results of my questionnaire survey which focussed on food-economy companies in the Northern Great Plain region (Region). Based on solid data, the survey was designed to evaluate the companies' commitment toward environmental protection.

Sometimes the observed value systems conformed with the results of other national surveys (e.g. environmental behaviour factors; environmental protection's rank among business aims), but at times I observed that in certain areas they truly lagged behind: for example, this held true for . the number of companies with a certified environmental-management system (EMS) and also for companies which were producing environmental reports and publishing them. It can be concluded that in the Region companies with higher revenues – and thus higher capability – do not try to do better at environmental management than companies with small or medium revenues.

**Keywords**

food-economy, environmental challenges, environmental behaviour, environmental-conscious management.

## Introduction

One of the most important conditions for companies' long-term viability and competitive position is embracing environmental-social responsibility, and, over the last three decades, this has significantly improved among numerous companies. These days the moral approach toward environmental problems is drawing increasing attention because people neglect their responsibility by destroying the environment, thus endangering their own living conditions. Companies must not try to shirk or transfer their responsibility toward their environment and the society.

Numerous company directors have realized that the world of business is not a hermetically closed area but linked to its immediate and wider environment, its society and natural environment. Everywhere, but most notably in developed countries, they have been increasingly attentive to understanding environmental protection and the field of sustainability, incorporating it and the vital practical tasks related to the subject.

Rather than only profit maximization, ecological aspects and social norms have also been incorporated, which has meant that maximum profit no longer remains the be all and end all as environmental and social responsibly are considered an equally important duty (Frederick, 1986; O'Toole, 1991; Pataki, 2000; Chikán, 2002).

Based on international surveys (Kolk et al., 2001; KPMG, 2005, Daub, 2007), we can state that environmental protection's value is now apparent among companies and a number of companies are implementing environmental measures for reasons other than their corporate image. But

[1] University of Debrecen Centre for Agricultural Sciences and Engineering, PO Box 36, 4015 Debrecen (Hungary), odor@agr.unideb.hu

[2] This includes agriculture, food industry and food-trade.

based on national Hungarian studies (Szolnokiné, 2005; Harkai et al., 2003; Nemcsicsné, 2005; Málovics – Rácz, 2005), one sees that in Hungary environmental protection and environmentally conscious management are only rare and random in Hungarian business practices.

The reasons for choosing the food-economic sector is that there are few similar studies of this field and nowadays environmental protection and a healthy lifestyle overlap, and hold special importance when it comes to food.

## Environmental problems in the food economy

Environmental protection requirements impact on business management in different ways. One way is when *the government* changes market conditions by setting legal restrictions (e.g. hazardous waste) or introducing incentives (e.g. supporting bio-production). Another major motivation for companies is the activities of *special interest groups, environmental protection groups, and green movements,* which observe and publicly evaluate the companies' environmental performance. These groups strive to know about the companies' environmental protection objectives, activities, and results. These groups' opinion impacts on the firms' market position and helps shape the company image. Through their environmentally conscious behaviour and changes in their shopping habits, *customers* directly encourage the spread of environmentally-friendly products and anti-pollution technologies. M*edia* coverage of environmental catastrophes draws attention to environmental hazards and to the importance of protection practices.

It is particularly difficult to measure the environmental effects and involvement of different sectors. The food economy needs to be handled with special care due to its remarkable consumption of raw material and energy and its role regarding global problems. (Szolnokiné, 2005) There are several ways of measuring environmental utilization. In the 90s in Switzerland experts worked out *the environmental utilization matrix* and *the ecological demand matrix*. Using the environmental utilization matrix combined with a three-grade scale (Dyllick – Belz, 1996), the environmental effects of various food-economy sector elements were evaluated; these were agriculture, the food industry, trade, and consumption. Environmental effects encompass air, water and soil pollution, as well as material and energy consumption. They also encompass the effect on the ecosystem and health, and the amount of waste produced (Szolnokiné, 1999). The study of environmental problems can be extended to the mapping of ecological demands. Based on these criteria, we can examine to what extent the exploration and elimination of environmental problems is in the interest of different social groups, meaning market players, the government, public opinion, and movements. Szolnokiné (2005) found the following:

- Agricultural production may most seriously damage water, soil, and the ecosystem. To reduce environmental damage politicians and the government are the most effective.
- In the food industry, the main problem is the demand for water and energy. In this regard, the market players make their environmental priorities clear.
- The environmental hazard related to food-consumption is significant in the area of air and water-pollution with the production of waste material constituting a growing problem. In this regard, the enforcement of environmental protection imperatives is now rather weak.

Analysis of the matrixes supports the effectiveness of confronting food-economy companies with the environmental effects of their activities, and publicising the need for fostering environmentally conscious behaviour.

## Defining "environmentally conscious behaviour"

Defining environmental consciousness and an environmentally conscious attitude is highly relevant for both individual and organization-level studies. In both cases, however, it is rendered difficult because the studied factors entail a subtle system, typical of environmental consciousness, influenced by researchers' subjective views.

Interpreting environmental consciousness is difficult without knowing the underlying attitude behind it. It is pertinent to distinguish between environmental consciousness and environmentally conscious attitude because consciousness often appears as an attitude influenced by external effects. I therefore dispute literary definitions that identify environmental consciousness with the attitude towards environmental protection.

Although a great deal of studies are concerned with business environmental consciousness (Banerjee – McKeage, 1994; Dudás, 2006; Nemcsicsné, 2008; Odor, 2008), and an exact definition is often absent. Its elements and multidimensional construction is surrounded with uncertainty, and empirical studies fail to encompass its dimensions and components.

I define *environmental consciousness* as a specific value and belief system, the manifestation of which is environmentally conscious behaviour. An organization's ecological behaviour is influenced by several components, which can be divided into individual and organizational dimensions. It can also be divided into many groups entailing an individual's environmental consciousness factors, and factors independent of the organization relating to the organization's members' behaviour. There are also factors which filter through the organization which impact on the members, and eventually on the entire organization.

We can define an *environmentally conscious attitude at the individual level* as an activity where environmental values are placed at the forefront of an individual's personal priorities.

At a company level, t*he concept of an environmentally conscious attitude* entails an environmental way of thinking that matures into concrete activities and reforms, according to which management operates an organization or a company, regardless of whether this reform was driven by a market mechanism or an administrative regulation.

## Database and methods

When I examined the environmentally conscious attitude of the Region's companies, my aim was to gather the biggest possible number of samples.

I first tested my questionnaire at the 2007. Farmer-Expo. I used the observations and advice that I got from company representatives in personal interviews to create the questionnaire's final form.

In my study the company data refer to the Northern Great Plain region's top 200 food-economy companies in terms of revenue, and the data were provided by the Central Statistics Office. After phoning the companies, I discovered that several did not meet my study's criteria (activities, number of employees**,** revenue category), and I thus undertook only 134 questionnaire surveys and 22, or 38% of the questionnaires (30 unit) were completed.

There are 29 nominal, 50 ordinal (of which 2 are group forming variables: revenue and number of people categories) and 5 scale type questions. I tested the inner reliability of the questionnaire on each group of questions with Reliability analysis. (Malhotra, 2001; Spiegel, 1995) My result for all questions was 0.895, according to which I found the samples reliable for data analysis.

In choosing the methods to evaluate the questionnaire, I indicated that there was no high level of measurement in the questionnaire, only ordinal and nominal levels; instead of parametrical attempts I chose non-parametrical tests to examine the relationships.

Throughout the analysis I applied the following methods:

1. Descriptive statistics: mean, scatter, distribution ratio;
2. Mann-Whitney (M-W) test (in other words U test or rank sum test);
3. Spearman rank correlation.

## The presentation of empirical results

Regarding the analysis of companies' distribution according to the number of employees, this sample is representative of this group's defining criterion. In the case of 46% of the companies, the number of employees falls between 20-49 while 27% employ 50-99 people, and another 27% employ over 100 workers (Figure 1).

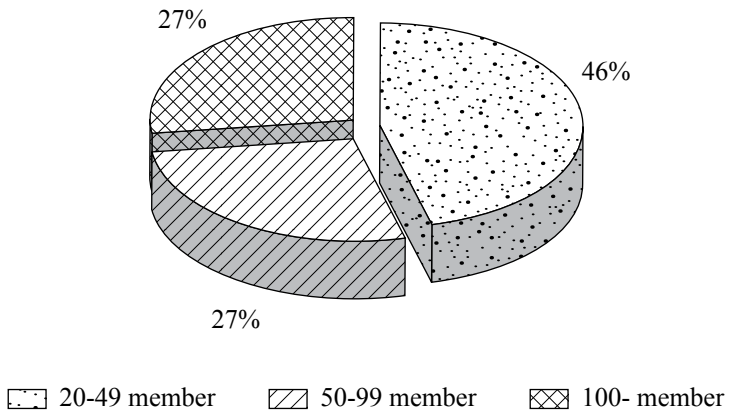


**Figure 1: The distribution of companies according to the number of employees**
Source: author's own edition

Figure 2 shows the distribution of companies according to revenue categories. 33% of the companies belong to the small revenue category; meaning their annual revenue doesn't exceed 100 million forints. 27% have revenue between 101 million and 1 billion forints and 40% of them make over 1 billion forints annually.

78% of the companies function as limited companies. 15% are joint-stock companies and 7% conduct economic activities as deposit companies.

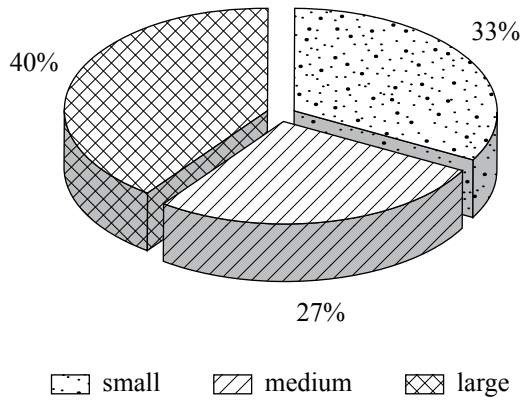


**Figure 2: The distribution of companies according to revenue categories**
Source: author's own edition

20 of the companies focus on 1 activity: 2 with agriculture, 9 with food-industry activities and 9 with food-trade. 10 companies are diverse: 2 of them with agriculture and trade, 3 with food-industry and trade, and 5 companies deal with all three activities.

In the survey I first examined how the respondent viewed the effect of environmental protection in terms of the company's success rate (Figure 3).

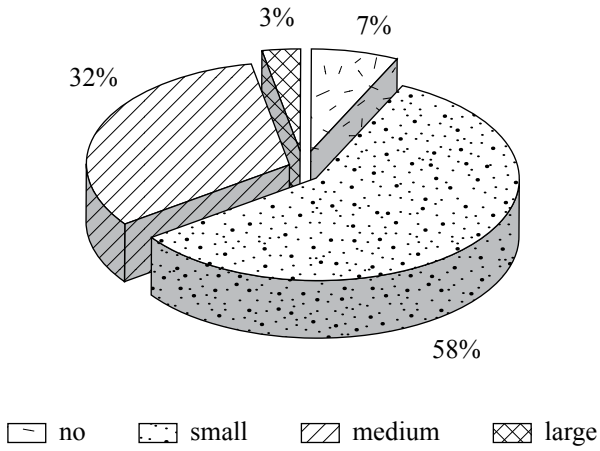


**Figure 3: Views regarding the beneficial effects environmental protection has on a company's success**
Source: author's own edition

It is significant that, according to 7% of them, environmental protection had no effect, while 58% thought it had little effect on the company's success rate. However, 35% considered this effect medium or considerable, but nobody attributed extraordinary significance to environmental protec-

tion. Nearly two-thirds of the respondents regarded environmental protection's beneficial effects as small, which is clearly reflected in the following findings.

Moreover, similar nation-wide research findings also support it (Málovics – Rácz, 2005; Nemcsicsné, 2005), and claim that around 40-50% of the company representatives from different economic sectors think that environmental protection has little impact on a company's success.

Based on a 5-grade scale (1-5), company management had to gauge *what emphasis each objective is given at the company* (Figure 4).

The figure clearly shows that most of the company's managers considered long-term profit growth the most important followed by finding new markets, then cutting down on expenses and short-term profit growth. As for environmental protection and improving the corporate image, it can be said that companies are less sensitive in this regard.

The reasons for the low values in the figure is that I transformed the data so that the Figure 4 and 5 findings could be clearly compared. Namely, in Figure 4 the evaluation scale was between 1 and 5, while in Figure 5 this scale was between -3 and +3.

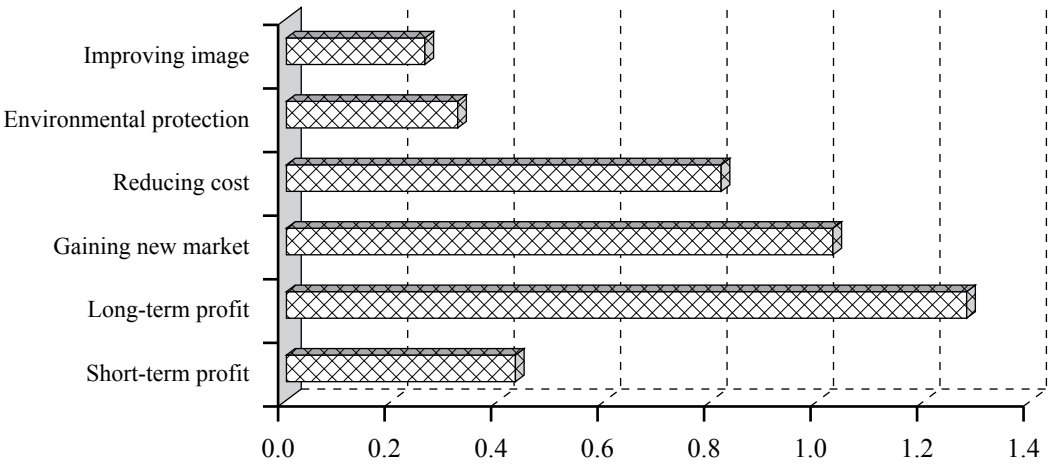


**Figure 4: Gauging the importance of various business objectives**
Source: author's own edition

The answers correspond to those in Szolnokiné's 2003 survey which was conducted in the region for food- economy companies. Then environmental protection ranked near the bottom among company priorities and we can see that companies' attitudes toward environmental protection have not changed since then.

Regarding the previous question, the respondents had to grade on a scale of 1 to 7 (-3, +3) the following matter: "*if your company paid more attention to environmental protection (decreasing emissions, developing environmental-friendly products, etc.), how would it affect your company's objectives?"* (Figure 5).

Throughout the evaluation period, it emerged that the presumed measure would firstly improve the environmental-protection conditions and the image of the company, which management did not previously rate as highly important. They contended that it would facilitate finding new

markets and long-term profit growth to a moderate extent; however, it would technically have no effect in terms of cost cutting and would adversely impact short-term profit growth.

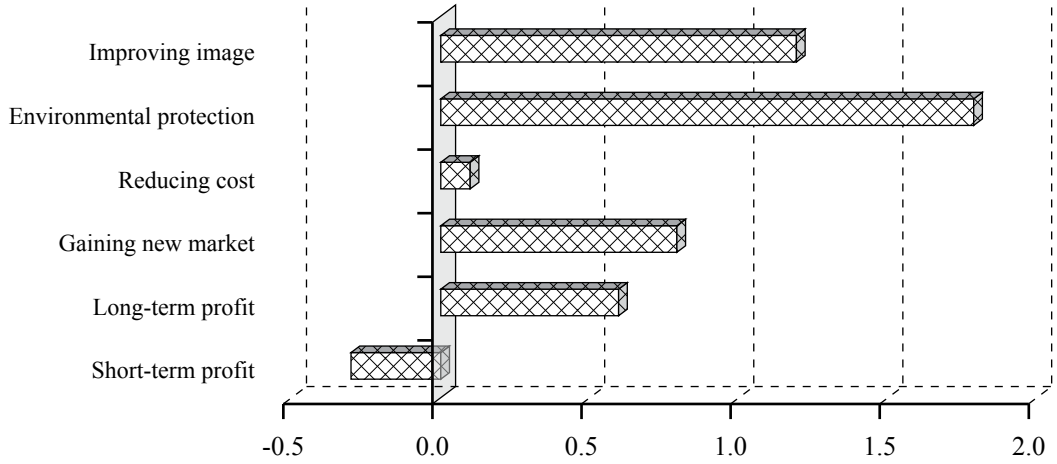


**Figure 5: The importance of business objectives regarding more restrictive environmental protection provisions**

Source: author's own edition

On the basis of revenue categories, I examined to what extent each factor prompts companies to introduce environmental management (Figure 6).

The figure clearly indicates that, when it comes to the factor related to companies' judgement, for each revenue category a significant difference only arises a in terms of the owners' and partners' expectations, while the respondents had roughly the same view for other factors.

*Low-revenue companies* are mainly motivated by owner expectations, meaning the wish to conform to formal provisions and to introduce environmentally conscious management. They probably find the above factors more important than others because through them they hope to gain new markets, new customer segments, and economic advantage, and also to corporate image improvement. They regarded the other factors about equally.

*Medium-revenue companies* highlighted tenders and the wish to conform to provisions as significant motivating factors while rating the other factors as about equally important – except for owner expectations, which are considered much less important than the others.

*High-revenue companies* are motivated mainly by tenders and the wish to conform to provisions when it comes to introducing environmental management probably because they are multinational companies, and have a business model linked to their international connections and the custom-system of their foreign partners. Foreign countries with stricter regulations and more developed environmental consciousness expect the same from their partner companies, mirroring their own commitment towards the public. In Hungary such processes only appear among companies with international relations.

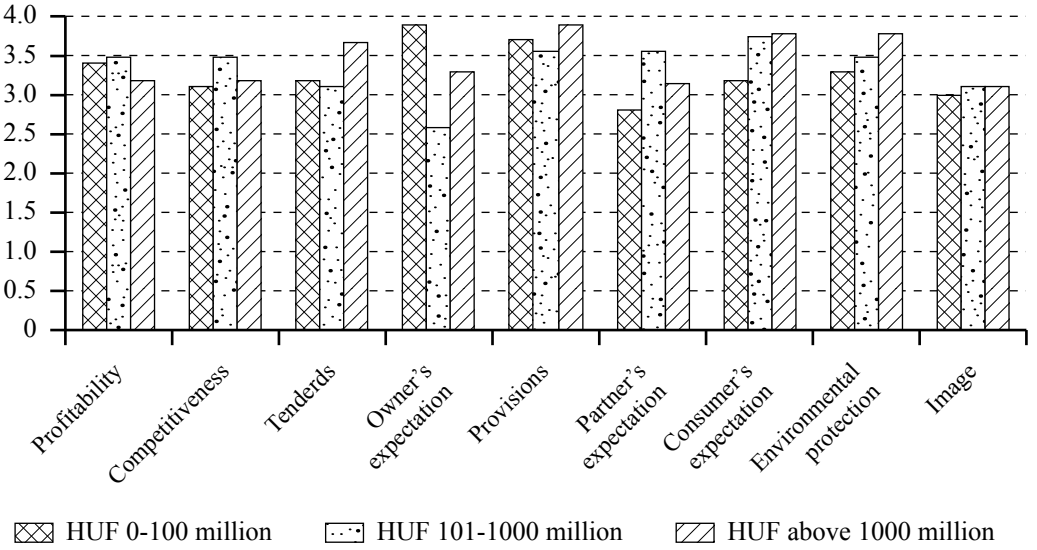


**Figure 6: The rate of environmental business management factors in revenue categories**
Source: author's own composition

My results only partially correspond with the results of the *In Competition with the World* (Harkai et al., 2003) national research program, which says that companies are mainly motivated to introduce EMS by strict regulations and the partners' and the customers' expectations. In her 2005 PhD dissertation, Nemcsicsné uses her national survey as a basis to assert that stricter governmental intervention and improving corporate image are motivating factors. In Málovics – Rácz's 2005 national survey, interviewed companies rated as most important corporate image, partners' expectations, and tenders.

Evaluating the companies' factor judgement was rendered more difficult because, in the survey, there were not only single-profile companies and because companies' activities are not identical in certain revenue-categories.

Figure 7 illustrates to what extent certain factors motivate companies to introduce environmental-friendly management., using as a basis 18 food-industry and food-trade single-profile companies.

The figure clearly shows that *food-trade companies* rate all factors – except for tenders – as more significant than food-industry companies, and it appears clear that the mostly multinational food-trade companies place greater stress on environmentalism as a motivating factor because of their foreign partners' expectations.

An overlap is apparent between customers' concerns for environmental protection and a healthy lifestyle, both of which have assumed greater importance, especially given that food is regarded as a vital product. If companies wish to remain competitive, it is not enough to meet existing customer needs, but also to predict and act on customer demands. They also have to satisfy more enlightened customers.

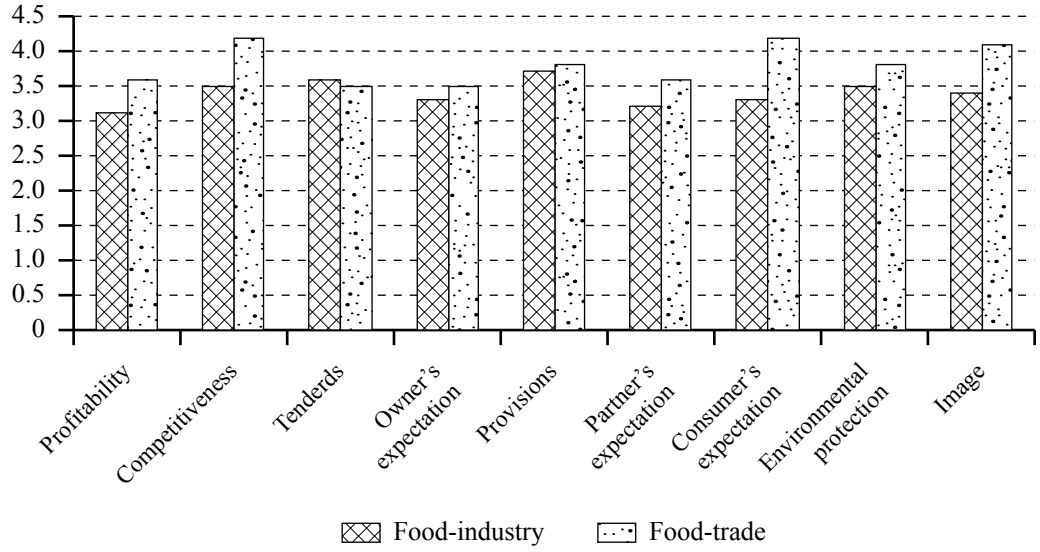


**Figure 7: The judgement of environmental attitude factors in food-industry and food-trade companies**

Source: author's own edition

The figure indicates that regulations, tenders, and environmental protection were granted an extraordinary role. I suppose that companies dedicated to environmental protection firstly use tenders to try to implement technological development, forcing them to agree to stricter and stricter regulations (1995. LVII. Law on sewage storage, 1996 and 2000 government edict on waste material storage, 2007 government edict on the introduction of Environmental Basic Registration System).

For *food-industry companies* my results partly correspond to Szolnokiné's 2003 regional results, showing that legal regulations especially influence companies, but customer expectations and competitors also serve as motivating factors.

In her 2005 study, Szolnokiné reaffirms that in the *food-industry it is mainly the market players who put environmental interests at the forefront* (Szolnokiné, 2005). Moreover, in 2008 it was also apparent that companies focus on customer and their partners' expectations.

A parallel can be found between the judgement regarding factors in food-trade and food-industry companies, as the latter also highlighted customer and partner expectations, agreement with regulations and environmental protection, which were probably due to the above mentioned reasons.

Using Spearman's rank correlation, I again examined the connection between the commitment to environmental protection and other factors for the whole sample. Based on the rank correlation co-efficient, it was concluded that commitment to environmental protection is in a weak-medium strong correlation with owners' expectations ($r = 0.495$) and correlates weakly to image ($r = 0.415$). No relation can be established between other factors.

With M-W test I was striving to discover if there is a relationship between companies whose owners are committed to environmental protection and similar attitudes in partner companies. The results showed a significant difference as $p = 0.011$ (Table 1). Companies where environmental protection is highly important for their owners also require more from their partners in this field.

Table 1

**The importance of environmental-conscious attitude at partner companies**

| Owner's expectation | Average | Group size |
|---|---|---|
| Significant (4-5 answers) | 3.78 | 8 |
| Insignificant (1-2-3 answers) | 2.88 | 22 |
| **Altogether** | 3.12 | 30 |

Source: author's own edition

Then I studied *whether companies in the survey have a formalized environmental-management system (ISO 14001, EMAS) and if they will be introduced in the near future*.

Out of the 30 companies, only 8 have a certificate and only 2 reported that the ISO 14001 system was in the process of being introduced. Among the 8 companies, 7 were concerned with food-trade and 1 with food-industry. Of the companies with ISO 14001 standard, 2 belong to the small, 1 to the medium, and 5 to the high-revenue categories. It is sobering that of the 12 companies in the high-revenue category, only 5 have a certificate and only 1 medium-revenue company is planning to introduce EMS. The answers in the questionnaire do not clearly indicate why the other companies are not concerned with establishing EMS.

Of the examined companies, none owns an EMAS certificate and none plans to establish it. If companies do not meet obligations under the ISO 14001 certificate, they are not likely to introduce an EMAS system, which subjects them to even stricter constraints.

The number of food-economy companies with EMS is also low regionally and nationally. In 2006 in Hungary about 1000 companies possessed EMS, meaning nearly 5% of agricultural sector enterprises, and about 3% of beverage, and tobacco-production companies. These rates are rather low compared to other sectors as, for example, 12-13% of companies in the service or construction-sectors have a certificate (Juhász, 2006).

In light of international and national results, it seemed relevant to examine the question of *whether companies are concerned with publishing their environmental impact and/or in other environmental data* (Figure 8).

40% of the small-revenue companies do not publish their environmental data; 20% publish them in their annual report and 40% publish a separate environmental report. 38% of the medium-revenue companies simply do not publish their environmental data; 62% of the group inform the public through their annual report. For large-revenue companies this rate is 43% and 57%.

It is noteworthy that the high-revenue multinational companies do not follow the international trend in independently publishing environmental data. Presumably small-revenue companies publish independent environmental reports to illustrate their strong commitment towards environmental protection, thus hoping to gain new markets and economic advantages. 2 are food-industry companies, 2 agriculture, food-industry and food-trade.

The results do not conform with national and international tendencies. Several studies (Kolk et al., 2001; KPMG, 2005; Daub, 2007) indicate that over the past decade the number of companies concerned with the environmental effects of their activities has increased, and they publish various reports (annual report, environmental protection statement, environmental report, sustainability report). In Hungary, based on data published in KÖVET – INEM HUNGÁRIA, one observes that,

in 2008, the number of environmental reports published has reduced, while the number of environmental statements has increased. Moreover, the number of sustainability reports shot up, then dropped slightly (KÖVET, 2008).

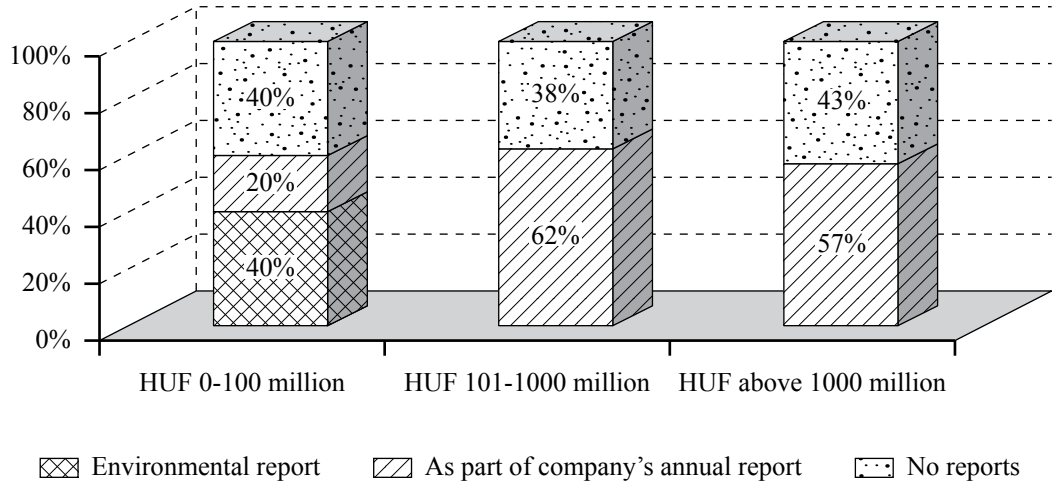


**Figure 8: The publication of the effects of business activities on the environment**

Source: author's own composition

Each area's level pertaining to environmental problems and the importance granted to environmental protection had to be assessed by the respondents on a 1-5 scale. After that I checked the correlation between the two areas. Most companies considered repair-maintenance as the cause behind major environmental problems, while transportation and distribution were in last place. (What makes companies think transportation doesn't pollute the environment?) In the other fields environmental impact is estimated at about equal levels. Environmental protection was considered most important when it came to wrapping materials and managing waste, but in all areas the significance of environmental protection was estimated to be higher than the scale of environmental problems. The rate is almost double when it comes to these areas, and is also related to the use of raw materials and energy carriers.

Using a Spearman rank correlation test, I calculated a correlation co-efficient for certain areas between the rate of environmental problems and the role of environmental protection (Figure 9). Regarding repair-maintenance processes, there was not even a weak correlation ($r < 0.3$), but for the other factors a medium ($r = 0.5$-$0.7$), or a medium-strong ($r > 0.7$) correlation were found.

The extent to which a company's management recognizes environmental challenges and its ability to implement environmental business management could be crucial to a company's future. The environmental management system may influence business management's tilt toward toward sustainability and the protection of environmental values (Kerekes – Szlávik, 1996). When it comes to publication and customers' attitude, marketing may have the most important role. Companies' environmental attitude in itself is not enough to capitalize on the competitive advantages derived from positive environmental behaviour. For this they need dynamic communication and a "greening" of their entire marketing activities

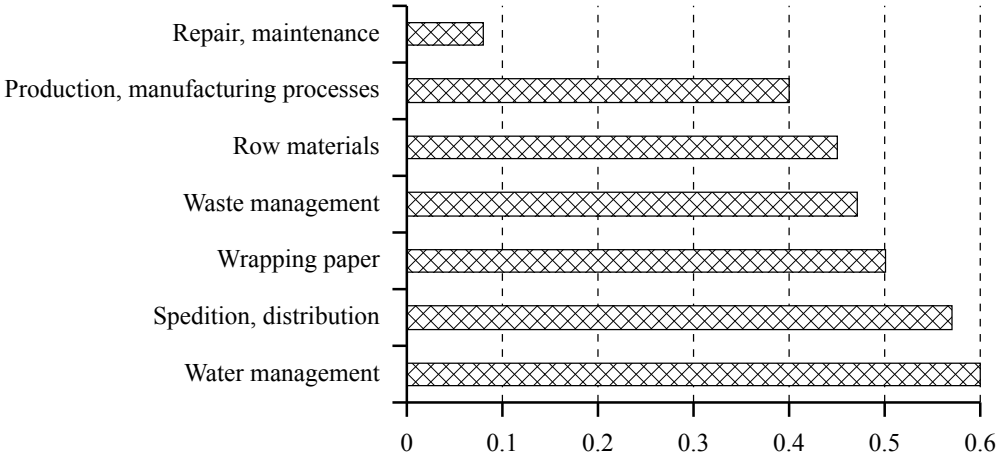


**Figure 9: Correlation co-efficient for estimating the rate of environmental problems and the importance of environmental protection in each area**

Source: author's own composition

In light of the above, a question was created regarding how the respondents estimated (1-5) potential obstacles to eco-marketing (Figure 10) and its advantages (Figure 11) in the company's life.

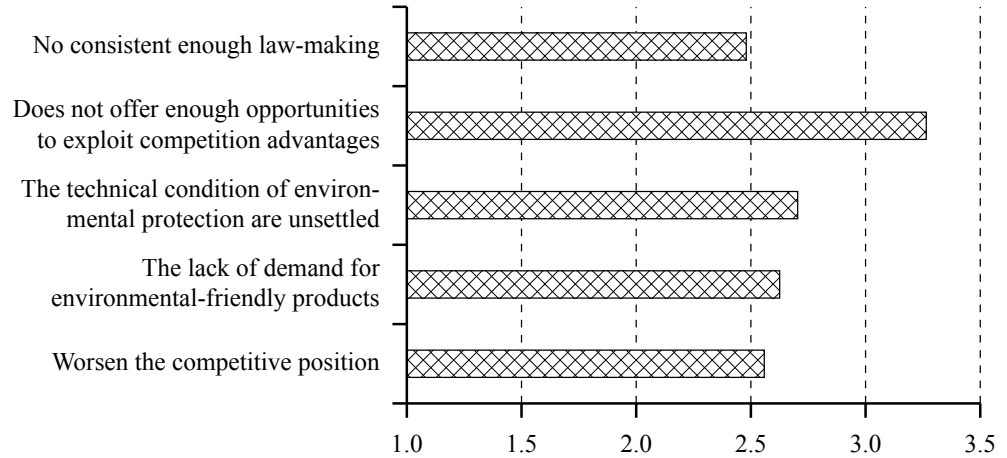


**Figure 10: Obstacles to eco-marketing**

Source: author's own composition

Respondents especially perceived obstacles to eco-marketing because it does not offer ample opportunities for exploiting competitive advantages, plus the technical conditions for environmental protection are unsettled. They considered as equally disadvantageous ambiguous government edicts and legal constraints regarding environmentally-friendly products, and unfortunately they think that introducing eco-marketing would seriously worsen their competitive position.

Respondents regarded accessing new markets and shaping business image as the greatest benefit of establishing eco-marketing. The results show that the potential for long-term profit and conquering new customer segments are not negligible.

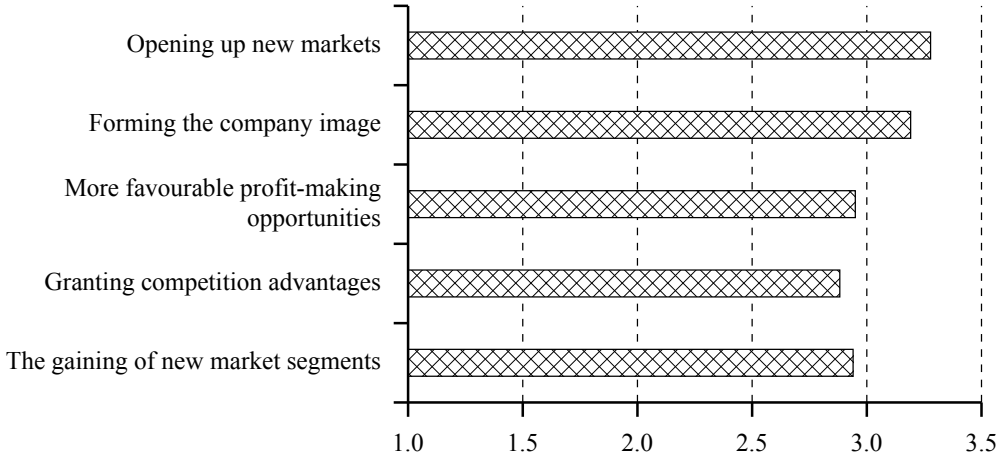


**Figure 11: The advantages of more widespread eco-marketing**
Source: author's own edition

## Conclusion

In studying the environmental behaviour of food-economy companies in the North-Plain Region, one can conclude that, because of low environmental consciousness at the management level, companies do not regard environmental-conscious management as very significant. This is partially proven true as two-thirds of the companies surveyed felt that environmental protection had very little effect on their enterprise's success. However, long-term profit growth ranks first among company objectives as do accessing new markets and reducing costs. They also think that paying more attention to environmental protection would only serve to improve their environmental protection activities and their corporate image while hindering other corporate objectives.

When comparing results in this paper with the regional results in Szolnokiné's 2003 analysis (Szolnokiné, 2005), it is clear that during the last 5 years basically no changes have occurred in company directors' attitude toward environmental protection.

My value-systems sometimes correspond to others such as national survey results gauging environmentalism factors, and the place of environmental protection in business aims. However, I observed some noticeable shortcomings in the Region (e.g.: the number of EMS certified companies, making and publishing environmental reports). Despite greater resources, it is possible to state that the higher-revenue companies do not pay more attention to achieving environmental management than small and medium-revenue companies.

In this study the most fundamental message is that it is necessary for all socio-economic players to devote more attention to enhance environmental protection. Developing environmental consciousness among customers, increasing non-governmental organizations' and movements' activities, and strengthening the state's regulating role in sustainability can only encourage company management and companies to develop their environmental consciousness, attitudes, and related activities,

## References

1. **Banerjee**, B. and **McKeage**, K. (1994): How Green is My Value: Exploring the Relationship between Environmentalism and Materialism. Advances in Consumer Research, 21(1): 147-152.
2. **Chikán**, A. (2002): Vállalatgazdaságtan (Business Economics**)**, Aula Kiadó, Budapest, pp. 25-50.
3. **Daub**, C. H. (2007): Assessing the quality of sustainability reporting: an alternative methodological approach. Journal of Cleaner Production No. 15. pp. 75-85.
4. **Dyllick**, T. and **Belz**, F. (1996): Ökologie, als Wettbewerbs-Faktor. Der Monat in Wirtschaft und Finanz 3.
5. **Dudás**, K. (2006): A környezettudatos vásárlói magatartás elemzése. ( Analysis of customers' environmental attitude) Marketing and Management, No. 5-6. pp. 106-113.
6. **Frederick**, W. C. (1986): Toward CSR: Why Ethical Analysis is Indispensable and Unavoidable in Corporate Affairs, California Management Review, 28, (2).
7. **Harkai**, A.; **Matolay**, R.; **Pataki**, Gy.; **Szántó**, R. and **Zilahy**, Gy. (2003): Vállalati környezeti menedzsment Magyarországon: az empirikus kutatások eredményei és tapasztalatai 24. (Business Environmental Management in Hungary: the results and findings of empirical research 24) Budapest
8. **Juhász**, Cs. (2006): Környezeti toxikológia, környezeti menedzsment az EU-ban és Magyarországon. (Environmental toxicology, environmental management in the EU, and in Hungary) Interreg III. A magyar-román közös program HU-RO SCG 1/329 számú Hatékony és biztonságos növényvédelem az EU-ban" című projekt, Debrecen, pp. 73-141.
9. **Kolk**, A.; **Walhin**, S. and **van de Wateringen**, S. (2001): Environmental reporting by the Fortune Global 250: exploring the influence of nationality and sector. Business Strategy and the Environment. No. 10. pp. 15-28.
10. **Kerekes**, S. and **Szlávik**, J. (1996): A környezeti menedzsment közgazdasági eszközei (Environmental management as an economic tool). Budapest: Közgazdasági és Jogi Könyvkiadó
11. **KÖVET-INEM Hungária** (2008): Környezeti, társadalmi és fenntarthatósági jelentés. (Environmental, social and sustainability report) http://www.kovet.hu/view/main/160.html
12. **KPMG** (2005): KPMG International Survey of corporate Responsibility Reporting, University of Amsterdam and KPMG Global Sustainability Services, http://ec.europa.eu/employment_social/soc-dial/csr/060403/kpmgsurvey2005_en.pdf
13. **Malhotra**, N. K. (2001): Marketing-kutatás (Marketing-research), Budapest: Műszaki Könyvkiadó
14. **Málovics**, Gy. and **Rácz**, G. (2005): A vállalati környezetvédelem hatása a versenyképességre. (The effects of business environmental protection on competitive position) Marketing and Management, No. 4-5. pp. 19-26.
15. **Nemcsicsné**, Zs. Á. (2005): Következetességek és rések a szervezet környezettudatos magatartásában. (Consistency and "Awareness Gaps" in the Environmental Behaviour of Hungarian Companies) PhD disszertáció, Budapesti Corvinus Egyetem

16. **Nemcsicsné**, Zs. Á. (2008): Consistency and "awareness gaps" in the environmental behaviour of Hungarian companies. Journal of Cleaner Production No. 16. pp. 322-329.

17. **Odor**, K. (2008): Élelmiszer-gazdasági vállalatok környezettudatos magatartásának vizsgálata. (The Study of Environmental Behaviour of Food-Economy Companies), PhD dissertation, Debrecen

18. **O'Toole**, J. (1991): Do good, do well: The Business Enterprise Trust Awards, California Management Review, 33(3): 9-24

19. **Pataki**, Gy. (2000): Az ökológiailag fenntartható vállalat. (The Ecologically Sustainable Company) PhD disszertáció, Budapesti Közgazdaságtudományi és Államigazgatási Egyetem Gazdálkodástudományi Kar Doktori Iskolája, Budapest, pp. 84-88.

20. **Pataki**, Gy. – **Radácsi**, L. (2000): Alternatív kapitalisták – Gazdálkodás az érintettek jóllétéért (Alternative capitalists – Management for the Benefit of the Those Involved). Szentendre: Új Paradigma Publishing Co., pp. 45-71.

21. **Spiegel**, M. R. (1995): Statisztika elmélet és gyakorlat SI mértékegységekkel (Statistics, theory and practice in SI units of measurement). Budapest: Schaum Books, Panem-McGraw-Hill Kiadó, Budapest

22. **Szolnoki**, Gy.né (1999): A zöld marketing és gazdasági környezete. (Green Marketing and Its Economic Environment), Budapest: Mezőgazda Kiadó – Osiris Kiadó

23. **Szolnoki**, Gy.né (2005): Az ökomarketing gyakorlati megvalósulása az élelmiszergazdaságban (2. rész) (The Practical Manifestation of Eco-Marketing in Food-Economy) (2. part). Gazdálkodás 49(6): 8-21

**Acknowledgements**

I express my special thanks to **Dr. István Kuti**, associate professor, who strongly supported me when writing this study.