APSTRACT

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Contents

Editors' welcome

Applied Studies in Agribusiness and Commerce is the official periodical of the International MBA Network in Agribusiness and Commerce for the discussion and dissemination of applied research in agricultural economics, agribusiness and commerce done within the International MBA Network. Universities belonging to International MBA Network expose students to the latest theoretical and applied knowledge about international politics, economics, sociology and law. Participants develop management skills grounded in finance, organizational behaviour, negotiation skills, project management, and strategy. Prospective managers are given the opportunity to directly apply these skills in relevant professional settings. Managers must be able to use business management knowledge and skills appropriate to the distinctive setting of their institutions.

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Applied Studies publishes high quality contributions on topics related to Agribusiness and Commerce and provides managers, researchers and teachers with a forum, where they can publish and acquire research results, case studies and reviews, which are important to the global food chain. Submitted manuscripts should have a relationship to the economics of agriculture, natural resources, environment, or rural development. Papers should have a practical orientation and demonstrate innovation in analysis, methods, or application. Topic areas include production economics and farm management, agricultural policy, agricultural environmental issues, regional planning and rural development, methodology, marketing of agricultural and food products, international trade and development. Research on a significant economic component, analyses of problems connected to research, extension, and teaching of the International MBA Network in Agribusiness and Commerce are also encouraged.

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Editors of Applied Studies in Agribusiness and Commerce want to make theory and practice come together and feel privileged to have access to them. The Editors hope Applied Studies will be a forum to evaluate the impact of life sciences and modern technology on business strategies in the food chain. Applied Studies will exchange views, develop strategies and evaluate the impact of changes taking place throughout the integrated food chain, and provide an opportunity to establish priorities in the development and direction of the global food system.

Editors of Applied Studies in Agribusiness and Commerce would recommend this journal to anyone who wants to better understand the agricultural economy and international trade. They want to access information on food quality, food production and manufacturing practices. Editors of Applied Studies in Agribusiness and Commerce discuss important issues of food and agribusiness and improve communication with colleagues in food and agribusiness programs throughout Europe.

Editorial Board

Towards innovative environmental management in the Agro-food Industry

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Abstract: This article focuses on the problem: what external (stakeholder) and internal (structural/organizational) factors drive companies in the food- and agribusiness towards innovative environmental management? Innovative companies are those considered to have adopted a supply-chain perspective, instead of a focus on the single business unit. We propose that innovativeness is associated with stakeholder wishes (the government, the public environmental policy being a major influential factor), in combination with structural characteristics of the firm (like R&D-efforts, culture and managerial competences).
We surveyed 492 companies in 2002, to get insight into the causes of innovativeness in the Dutch agri-food sector, and supplemented this data by means of a similar questionnaire in 2005. Structural equation modeling and correlation analysis were applied.
The research provided evidence that companies are restricted by, and therefore not comfortable with, public environmental policies, which seem to obstruct innovativeness rather than stimulate it. Firms that (1) have enough internal (physical, financial, social) resources to innovate, and (2) are more embedded in a web of (commercial) stakeholder wishes, prove to be more innovative. Suggestions are made to shift the corporate and public policies towards a supply chain-oriented approach by granting benefits for vertical cooperation in supply-chains.

Key words: environmental management, innovation, governmental policy, stakeholder influences

1. Introduction

In a report of the British Department of Trade and Industry, it is clearly stated that "innovation is essential for meeting the environmental challenges of the future" (*DTI Innovation report,* 2003). The implementation of an environmental management system (EMS) is essential to reduce environmental pressure. An EMS provides a managerial framework, directed at integrating environmental measures in the organization and to continuously improve the environmental performance (*Netherwood,* 2004). Companies are challenged to make the EMS profitable and competitive (compare: *Hart,* 1995; *Porter and Van der Linde,*1995), at two managerial levels:

- the external level. Companies are challenged to improve their product characteristics in cooperation with their supply chain partners in such a way, that both environmental and customer demands are taken into account.
- the internal level. Companies are challenged to adapt the different processing stages to environmentally-friendly conditions through measures that influence production efficiency and effectiveness;

These different levels are related to each other. The satisfying of external stakeholder wishes can only be achieved by internal restructuring and a shift in managerial focus. The different perspectives get differing attention in recent literature. As to Cooper (2003) external challenges can be met by means of new technologies, new applications and/or entering new markets. Janszen on the other hand (2000; p.61) focuses on organizational restructuring to enhance competitiveness. The problem that has to be addressed is a lack of insight into the factors that promote innovativeness in the Dutch agro-food sector.

The research objective of this study is to gain an understanding of the organizational and relational determinants for innovativeness in the Dutch agro-food industry. Innovativeness is linked to environmental performance, since pro-active firms that adopt environmental policies beyond the bottom-line will have to change and improve their relational and organizational capabilities.

The agro-food industry is of interest, because it is responsible for a great deal of impact on the natural environment in the Netherlands, because of i.e. high levels of noise, smell (*Dutilh and Blijswijk,* 2004). However, the industry is also widely known for its consumer-driven innovations in products (e.g. packaging material, taste, and color), as well as its strong focus on achieving cost-savings in logistics and the production process (Batterink, Omta et al, 2005). This industry is therefore very suitable for getting an insight into the conditions that influence the adoption of environmental measures.

This paper is structured in two layers.

(1) The external managerial level is addressed by means of a structural equation model. We highlight the influence of stakeholders (especially the government) as a determining factor for promoting or hindering pro-activeness. Does the dominant stakeholder (government) promote or obstruct environmental innovativeness, and why?

(2) The internal managerial level is addressed by means of an analysis of organizational determinants for EM-performance.

In the conclusions & discussion part of this paper (par. 5), we interrogate policy consequences for both private companies and public bodies, to stimulate a more sustainable and environmentally friendly (future) production.

2. Context and concepts

2.1 The two sides of environmental policy

Stimulating the adoption of environmental management in organizations has been fostered by governmental as well as other stakeholder groups for decades. The main stakeholders for sustainability improvement are local governments, as well as international organizations. Long time political discussions have shifted back and forth between top-down regulation and stressing companies' own corporate responsibility. For some firms, elements of an environmental management system will have to be implemented; otherwise, the permit (license to produce) will be withdrawn. The adoption of environmental management elements is stimulated also by means of subsidies, regulatory relief and voluntary agreements (see: *Vermeulen,* 2002; *Jordan and Lenshow,* 2000; *Glasbergen and Driessen,* 2002). However, as in other countries, the government is the most significant stakeholder in environmental issues, especially for small and medium-sized companies (*Clarkson,* 1995; *Madsen and Ulhøi*, 2001).

A factor that could obstruct innovativeness and pro-activeness is the difference in focus between public and business policies. Dutch environmental policy and its regulatory system are directed mainly at the single business unit: permits are unit-bound, environmental reports have to be made for every single business unit, prescriptions are mainly sanitation and process-oriented. What happens outside the business unit is covered by less restrictive policy instruments, such as voluntary agreements (for instance the Dutch packaging covenant), and the provision of documentation and information, mainly to legislative bodies.

Companies that are compliance-oriented will not easily act pro-actively and innovate to a beyond-compliance level. As the public policy is mainly internally oriented (taking sanitation and process-control as a goal), they will not easily adopt goals that, from their viewpoint, only cost money. They will minimize their efforts to keep their 'license to produce' and eventually collect 'low-hanging-fruit'. Companies that perceive environmental care as a source of profits ('pollution prevention pays' because of lower operating costs, redesign of products and processes, recycling, better image, higher company value) will possibly proceed beyond the formal rules and regulations, aiming at 'high-hanging-fruit'.

Figure 1 proposes a relationship between the level of public-private policy correspondence and the willingness to perform beyond the myopic, isolated firm.

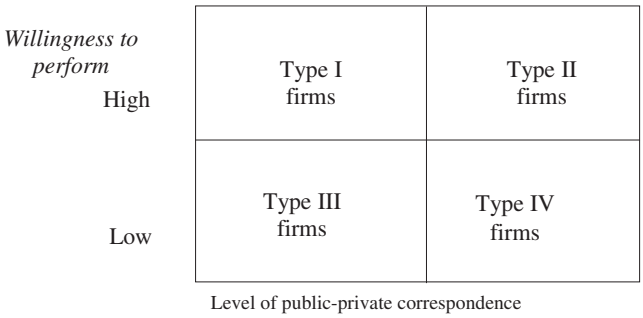

Figure 1: Performance and correspondence

Provided that our proposition is right, namely that governmental policy is oriented at the lower levels of environmental performance, type I and/or type III firms will dominate the agro-food sector. Type I-firms' strategies can be characterized as 'beyond-compliance'. They are willing to adopt higher goals than publicly required and set targets that go beyond internal control. This means that public and private goals do not match, either because intentions are different (high environmental performance because of the contribution to profit (instead of environmental) goals and/or because the focus is different (*Rugman and Verbeke*, 1998; *Clemens and Douglas,* 2005). On the other hand, the low-low type-III firms do not embrace environmental goals. They will comply with a minimal level, if they are forced to do so. Compliance will have to be enforced by means of penalties, monitoring and control.

2.2 Environmental management and performance

The primary objective of an EMS is to reduce the environmental impact. This is a managerial framework that facilitates the reduction of pollution by the firm (*Netherwoord,* 2004). The elements are: compliance (for realized by means of environmental audits, process-oriented measures, environmental reporting), coordination (design of and environmental action program), control (inclusion of an environmental database for instance and communication (internal and external reporting) (*Bremmers,* 1995). For some firms, the system is formalized, following the IS0-14001 guidelines, EMAS and/or BS 7750 (*Starkey,* 2004).

Agro-food companies have an advantage in the implementation of EMSs, because quality and food safety systems already have on a wide scale. Formalized EMSs have similar characteristics as quality management systems (QMSs) and systems to improve working conditions. We therefore expect, that companies that already implemented QMSs systems will perform better than companies that have to organize the system "stand-alone" (*Karapetrovic and Willborn,* 1998; *Wilkinson and Dale,* 1999).

In this study, we view environmental performance as "managerial" performance and not "physical" performance in the sense of actual reduction of impact on the environment. The link between the two is obvious: managerial effort is necessary to achieve reduction targets. We make a distinction, within (managerial) environmental performance, in four different levels:

1. sanitation: the implementation of measures that are meant to clean-up and reduce immediate environmental impact;
2. process-oriented: measures focusing at controlling the processes in the organization;
3. product oriented: measures in the organization with a long-term perspective;
4. supply-chain oriented: measures that foster cooperation with external partners in the food supply chain.

As indicated, our predisposition is that the public environmental policy is primarily directed at the first two levels of environmental management. Will this orientation obstruct companies from being more pro-active and innovative?

2.3 Innovation and performance

Utterbach and Abernathy (1975) distinguish between two types of innovation: product and process. Process innovation aims at reducing the costs of the production in order to increase the efficiency, whereas product innovation focuses at redesigning the product-market combination.. Innovation in the agro-food sector must find a balance between R&D needs, production process and marketing efforts. An optimal innovation effort could be seen as the best trade-off between the dimensions.

At the lower levels of environmental performance, innovations take place to reduce and/or improve internal processes to reduce emissions instantly. The measures are in general: short-term, internally directed and with a focus on immediate returns. In contrast, product- and supply-chain oriented performance requires a different attitude towards the stakeholder environment, a long-term strategy and an awareness of "indirect" gains (connected with a better image and positive consumer-attitude).

The focus on process- versus product-oriented innovation (and therefore environmental performance as we conceive it) will not be stable over time. It is well-known that companies develop through stages in the course of their lives (Keuning, 2006). This implies that there are differences in innovative power over time, depending on size and structure. We will assess the effect of size in our further analyses by using size as a control variable.

Another question related to innovation is: how does environmental innovation occur, will it be a bottom-up activity, starting with sanitation and (hopefully) ending with chain-oriented environmental care? Or will it occur top-down, with setting long-term and strategic management goals by top-management, the influence of which then pervades through the organization, ultimately reaching the work-floor. Some authors will adhere to the top-down approach: support from the top-management is regarded as a prerequisite for organizational change, whether it will be more strategic or operational of a kind (*Lee and Ball,* 2003; *Govindarajulu and Daily,* 2004). Others stress the developmental aspects of organizational change (with links towards systems theory, that itself has its origins in biology), and see organizations change in stages from process- towards product orientation, from sanitation to external orientedness (e.g. *King,* 2000; *Blomquist and Sandström,* 2004). Although one could argue that both are necessary and synergetic, we want to assess the dominant causal effect. The above elaborations lead to the "layer 1"-research model as it is described in par. 3.

3. Research outline layer (1)

3.1 Research model

To get insight into the external determinants for sustainable environmental management, we elaborated the following research model.

The middle part of *figure 2* represents the structural model, which is composed of 6 latent variables and their interconnections. The left side are the observed variables that are linked to the independent variables in the structural model: IMPACT (the perceived impact of environmental influences), NONCOM (the influence of non-commercial stakeholders on the corporate environmental policy), COM (the influence of commercial stakeholders on the corporate environmental policy) and the perceived need for 'changing the rules' for environmental management, which we depict as the perceived need for relational change with respect to public environmental policy, i.e. the desirability of the following innovations, included in the construct INNOVAT:

- introduce a chain-wide environmental permit, instead of a permit per business unit ('chainpermit');
- introduce a chain-wide environmental report, instead of an environmental report per business unit ('collper');

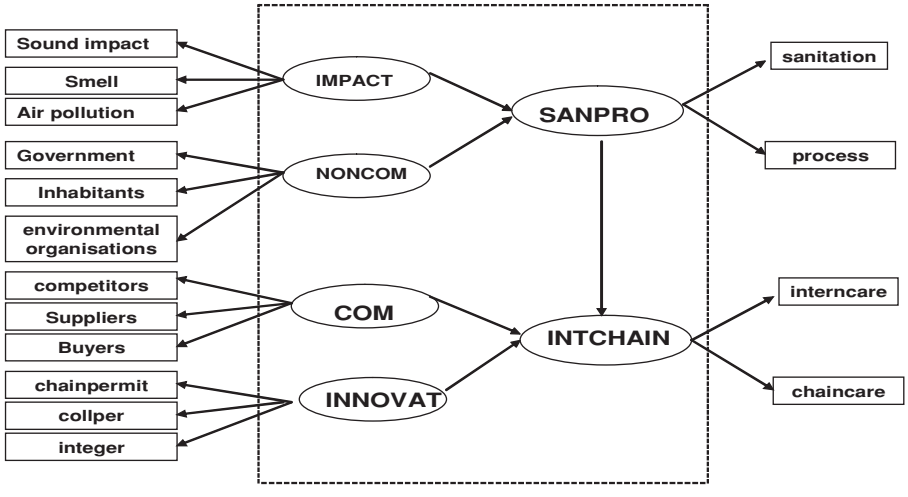

Figure 2: Research model layer 1

- integrate environmental management information with other information addressed to governmental agencies ('integer').

We expect a significant causal but negative relationship for companies that feel limited in their efforts to obtain higher stages of environmental care; this means that the path-coefficient between INNOVAT and INTCHAIN is negative. If, however, such an obstruction would not be perceived (companies actions are not restricted by the present environmental policy), we would expect this relationship not to be significant. A positive relationship however would mean that the theoretical propositions of the model, which is of extreme importance in confirmatory factor analysis and model building, would not have been adequate. The presented model presupposes a positive influence from sanitation and process-oriented environmental care, and product-oriented combined with chain oriented environmental care. Such a positive causal relationship suggests that the former stages facilitate reaching the higher stages. This implicates that changes on the work-floor are necessary (but will probably not be sufficient) to bring about innovative EM.

3.2 Material and methods layer (I)

Material: This study population consists of 2620 companies with five or more employees in the Dutch agro-food sector. All the companies were addressed in 2002 using a written questionnaire. The questions asked were pre-tested by a team of experts and by means of interviews with 10 firms from the sample. Of the initial response of 592 (response rate 43%), 492 questionnaires were used in the structural equation modeling process to test the designed model (100 questionnaires were discarded immediately, among others because of incompleteness).

Methods: We applied structural equation modeling, combining confirmatory factor analysis with path analysis. We used a covariance matrix as input in the data-analysis process, and (in further stages of analysis with a lower N, see par. 3.3.2) the EM-algorithm for imputation to reduce the number of missing values, per category of observed variables, that constitute latent variables. We used Chi-square, in relation with degrees of freedom, p-value, RMSEA, NFI, GFI, and NFI-measures for assessing model fit. We standardized the regression solutions and assessed the appropriateness of dependencies using t-values.

Measures

We measured environmental performance as a multi-dimensional concept, consisting of sanitation, process-, product- and chain-oriented environmental care (see par. 2.2). These dependent variables are formative of a kind; we related the answers on the single questions to the constructs by applying non-weighted averages of 4 x 5 answer categories. An example of a question to measure sanitation is: "An environmental audit has been carried out". Process-care has been measured by means of questions such as "Regular measurements of environmental impact take place". One of the questions to measure product-oriented EM was "Information gathering for product redesign", whereas the chain-oriented EM was employed by means of questions such as "Cooperation with suppliers/buyers" (0/1-scales).

3.3 Results layer (I)

Baseline results

2-statistics show that the study-sample (N=492) is representative for the total population of companies (N = 2620). With respect to size, however, the bigger companies are slightly overrepresented. *Figure 3* shows the score on the different care levels, with size as an independent variable.

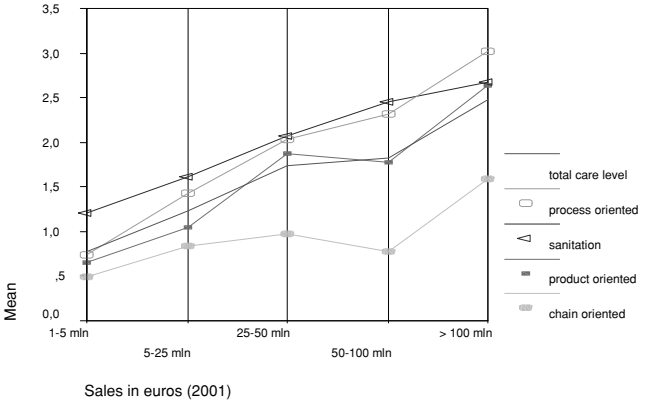

Figure 3: Care level and size (*Bremmers* et al, 2003)

It appears that care levels are influenced by the size of companies in a positive way. Remarkably, a relative decline in performance for the middle-sized category can be observed. This could be an indication that in different stages of corporate development, different factors will influence the performance level. Especially the score on the innovative chain-oriented environmental care level appears to be relatively low for this category. In contrast, it is cared for by the bigger companies.

Structural equation model (SEM-) results

The SEM-results (standardized solutions) show mixed indications for the model fit (figure 4). χ2-value relative to degrees of freedom indicates improvement possibilities, RMSEA (0.066), NFI (0.93), GFI (0.93) and AGFI (0.90) indicate a reasonable/good model fit. T-values are satisfactory within the model ($t > |2|$).

We applied the same model to the companies with 50 or more employees. The results are similar, but are not presented here since the number of cases is relatively low (N = 107) for a similar application of SEM. Another check included reducing the number of 288 cases, by eliminating those variables with on average many variables missing, and

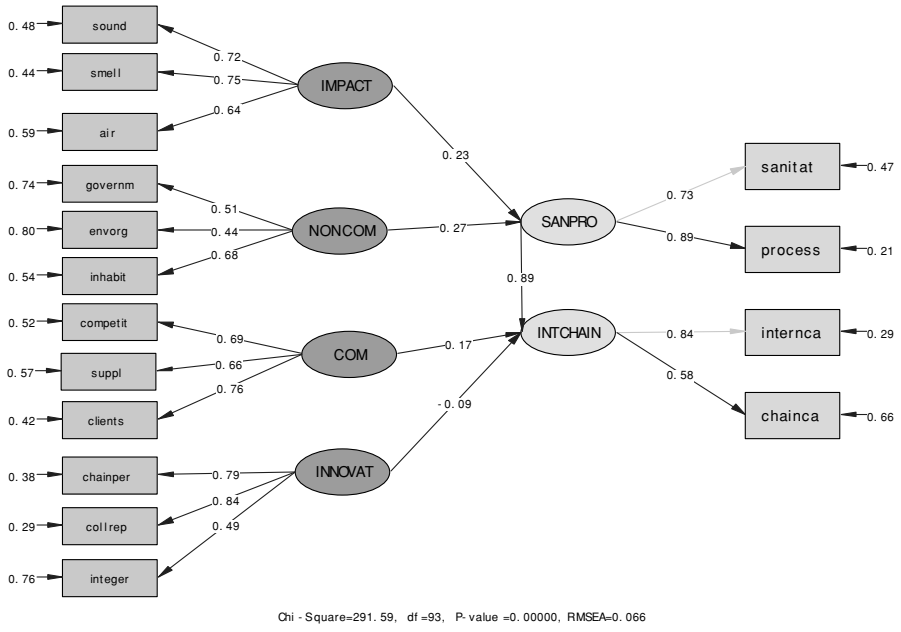

Figure 4: SEM-results (N= 492)

for sales levels < € 5 mln in 200. The results indicated a better fit ($\chi 2 = 170.51$, df = 79, RMSEA = 0.064). All model results showed a significant and negative relationship between INNOVAT and INTCHAIN .

It is interestingly to see that there is indeed a negative relationship between the innovative environmental management (INTCHAIN) and the willingness to change governmental policy. In other words, the companies that wish a pro-active change of governmental policy (positive scores on 'chainper', 'collrep', and 'integer'), score low with respect to the higher levels of environmental care, represented by the latent variable INTCHAIN.

Possible explanations are:

- firms are willing to perform better, but are hindered by governmental policies in doing so (type III-firms);
- firms are not willing to perform, experience low correspondence of business policy and public (environmental) policy (type I firms);
- the variables 'internca' and 'chainca' are influenced by other, intervening factors, not
- included in the model (like size, administrative loads).

4. FURTHER ANALYSIS (LAYER II): INTERNAL FACTORS

The research outline in layer II is presented in a condensed form, to limit the size of this paper.

4.1 Theoretical background

To get insight into the internal factors governing innovativeness, we applied the McKinsey 7S-model (*Peters and Waterman,* 1982). On the basis of data, gathered in 2005, we constructed an alternative research model. The research model includes four S's of the 7S-model: environmental strategy, environmental structure, systems & procedures and one soft S (style/culture). These variables were supplemented by generic structural organizational characteristics: corporate culture, innovative product strategy, financial resources and company size. 'Environmental strategy' ('Envstrat') refers to the level of integration of environmental management with other management activities (for instance: quality management), from which synergy-benefits are expected. 'Environmental structure' refers to the impact of the environmental manager on business policy (*Schaltegger and Synnestvedt,* 2001). "Systems and procedures" ('Sysproc') refers to the willingness to change existing procedures to incorporate environmental management targets. The necessity to change existing systems and procedures can meet organizational resistance (Hannan and Freeman, 1984), in 'unfreezing' for organizational change, the R&D-department should play a leading role (*Roome,* 1994; *Blomquist and Sandström,* 2004). The cultural element ('Corpcult') in the model stresses the fact that environmental management can benefit from a culture of corporate social responsibility ('CSRcult'), because it contributes in terms of environmental responsiveness and transparency (*Robert* et al. 2002; *MacDonald,* 2005). Other structural elements are pressure on margins ('Presspro') and size. It is expected that bigger companies do not experience strict limitations on spending resources for environmental management. Last, "innovative product strategy" is a main key to competitive advantage (*Porter,* 1980). The innovative product strategy ('Corpstrat') encompasses dimensions as:

- an orientation on technical innovation (development of new products)
- and, especially important for the agro-food sector: the possibility to innovate (*Berchicci and Bodewes*, 2005; *Van Nes and Cramer,* 2005).

4.2 Data, methods and measures

The data that we collected in second instance focus especially on the internal organizational characteristics of pro-active firms. The analysis, presented in this paper, is based on 75 completed questionnaire forms (all included firms have at least fifty employees). This sample is representative for the total population (N = 417) in the agro-food sector of companies of this size-category ($\chi 2 > 0.05$).

Environmental performance was measured in a similar way as in 2002. However, two generic performance measures

were discerned: internally oriented (EMInternal) versus externally oriented (i.e., innovative) managerial performance (EMexternal). Explorative measures of analysis were applied, including Spearman rank correlations and Cronbach alphas. The α's appeared to be satisfactory given the explorative character of the research (≥ 0.69).

4.3 Results

The main results are included in the correlation matrix in *table 1*.

As in the 2002-data:

- size is a major determinant for internal environmental care. However, for externally oriented (innovative) environmental management systems, correlations are lower, positive, but not significant.
- internally and externally oriented environmental management are significantly correlated ($r = 0.52$, $P < 0.01$).
- Additionally the data provide the following information:
- corporate culture and CSR-culture are distinctively correlated. Whereas corporate strategy is related to both types of EMS, the CSR-culture is significantly correlated with externally oriented EMs only.
- there is a positive association between an innovative corporate strategy and externally oriented EMS-implementation ($r = 0.27$, $P < 0.05$).

5. Conclusions and policy implications

With respect to the governmental policy the results stated in figure 4 confirm the negative association of the governmental policy with externally oriented EM. The distinct and positive association between sanitation/process-orientedness and product/chain-orientedness suggests (which can not be reversed in the model without loosing explanatory value), that sanitation and process-oriented care implementation constitute a necessary first step to be taken. This indicates, that EM starts bottom-up (but needs top-management support to become a strategic issue).

On the basis of a relatively well-developed internally oriented EM-system, the agro-food sector could take a decisive second step. The synergy between quality, social and environmental control systems can provide a sound foundation for a more pro-active strategy. An external reward, especially for the big companies, is the positive effect this brings along won image, brand-quality, and thus to sales. The bigger and more open companies are, the more they will have to come up to external stakeholder wishes, the higher this reward will be: not only for financial performance, but also for corporate social responsibility, which is of viable importance for survival of the agro-food industry in The Netherlands.

Remarkably, a draw-back in performance can be discerned for the middle-sized companies (see figure 3). This result is not an anomaly within the (almost linear) relationship between size and performance. In contrary, middle-sized companies are possibly more internally directed, for instance because of business-unit development and therefore a revival of a profit on the path of corporate development. A differentiation in public environmental policy is therefore necessary.

Structural organizational specifics (see par. 4) indeed appear to have a definite impact on EM-implementation levels. Especially the R&D-program of firms is managerial of a kind, although limited by product-specifics. Pro-active firms seem not only leading to be leading in R&D-activities, but also in adjusting organizational structures in the direction of sustainability. One could argue that bigger firms are more innovative and therefore are more sustainability-minded. This relationship is not confirmed (see table 1). Size is only a determinant for internal measures, whereas market-orientedness, the willingness and possibilities to innovate, appear to go hand in hand with externally-oriented EM. So a commercial attitude and innovative management seem to point in the same direction.

This article has taken as a starting point that innovativeness is necessary to reach beyond-compliance environmental goals. To further stimulate pro-activeness, initiatives should come from three sides:

Table 1: Spearman rank correlations layer II (*Haverkamp* et al, 2005)

	EMInternal	EMexternal	CorpCult	CorpStrat	PressPro	Size	EnvStrat	EnvStruct	SysProc
EMexternal	0.52**								
CorpCult	0.13	0.15							
CorpStrat	0.08	0.27*	0.41**						
PressPro	-0.13	-0.17	0.09	0.05					
Size	0.29*	0.19	0.04	0.14	-0.07				
EnvStrat	0.37**	0.28*	0.20	0.11	-0.12	0.05			
EnvStruct	0.49**	0.40**	0.40**	0.15	0.04	0.22	0.27*		
SysProc	0.33**	0.30**	0.46**	0.32**	-0.06	0.12	0.37**	0.41**	
CSRCult	0.18	0.29*	0.48**	0.39**	0.05	0.02	0.22	0.25*	0.41**

** P<0.01, * P<0.05

- environmental organizations, which appear to have a low influence on EM (*figure 4* gives an indication with the low loading for environmental organizations' influence) should refocus their policy from macro- to micro-levels.
- governmental agencies should refocus their policy, from the firm to the supply-chain level (which is actually done already in some – like the energy-covenants).
- Managers at the top-level of organizations should be made aware, that higher levels of environmental performance are beneficial in the long run. Via the mediating role of stakeholders, sustainability can enhance continuity and profitability.

There are a multitude of instruments that can be used to bring about a chain-oriented approach. Three of them are already mentioned in this paper: a permit for the supply-chain, integration of reporting (a framework is provided by the GRI-guidelines), and an environmental report for the supply-chain. These instruments will only work for the bigger companies. For SMEs, it is especially important to influence scale (as can be done by forming 'environmental cooperatives') and mediation by branch-organizations and chain-leaders (dominant companies within the supply-chain), as is the case in food quality and safety management (Eurep-Gap, available at www.eurep.org). The proposed reorientation is in line with recent research, which shows that the leaders in environmental innovation tend to outperform in the stock market. This underlines the importance of environmental innovation and of a constant measurement of innovative power, to the benefit of all stakeholders (Esty and *Cornelius,* 2002).

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Knowledge transfer: a case study approach

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Abstract: The article builds on the growing importance of knowledge as a strategic resource for maintaining the competitive advantage of a business. We illustrate one of the initiatives contributing to effective knowledge transfer by describing a case study approach which suggests how universities might assist in disseminating knowledge and enhancing industry competitiveness. The case study approach is apparently an effective way to share best practices, and with the use of appropriate ICT tools, it provides for an enormous diffusion of codified (explicit) knowledge in the industry. The example in the focus of this article describes a Virtual Portal designed as a single-point access to information and tools (case studies, decision models and software), with the emphasis on case studies (their selection, coding and use).

Keywords: knowledge transfer, knowledge economy, decision-making support, agribusiness

Introduction

Knowledge is regarded as the most important strategic resource, and the ability to create and apply knowledge is a key skill for the establishment of a relatively sustainable competitive advantage. (*Pentrose,*1980). An expanding environment for creating and managing knowledge recasts a wide range of policy issues, including public investment priorities, program design, dissemination of research results, technology transfer, and the form and scope of private controls on information and knowledge. Tension arises from the fact that governments, universities, and private companies operate in different ways and under different rules, yet there are compelling reasons to encourage rapid movement of knowledge across sector and institutional borders.

The role of universities thus goes beyond simply being education or research provider: transferring knowledge to industry, the community and wider society is becoming the third cornerstone ("third stream") of universities missions. Knowledge transfer encompasses a wide variety of activities that range from appearances in the media and at public forums to participation in bilateral projects, the commercial development of research, the application of expertise through partnerships and internships, and the inclusion of broader community influences in the curriculum to enhance the capabilities of graduates. The most cited and accepted definition of activities encompassed in this area is those: "*concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments"* (*Science and Technology Policy Research Unit Report to the Russell Group of Universities,* 2002)

The importance of knowledge transfer in boosting competitiveness and contributing to the effectiveness of public research is increasingly recognised also by EU Member States. European universities and other research institutions are equally realising their changing role in the globalized economy and have undertaken interesting initiatives. This article illustrates one of the initiatives: a knowledge-based portal designed with the aim to facilitate the decision-making process by providing single-point access to information and tools (case studies, decision models and software). The knowledge base consists of a set of databases with a common structure, common searching and usage facilities, and common updating possibilities. The portal (VIrtual POrtal, VIPO) is tailored to meet the needs of both agribusiness facing major decision requiring support, and individuals who seek opportunities to develop their decision-making skills.

Objectives and methods

The objective of this article is to illustrate an approach facilitating the transfer of knowledge generated at the university level to its ultimate users by the use of codified case studies describing best practices. The article is theoretically embedded in the ongoing debate about the type and role of different type of knowledge in business competitiveness. The theoretical findings about the nature of knowledge and its contribution to the process of generating wealth is put into the context of transferring such knowledge: finding appropriate tools and formats facilitating effectiveness of their further diffusion.

Knowledge in the business context

Citing various authors Martennson (*Martennson,* 2000) identifies some of the attributes of knowledge:

- Knowledge cannot be easily stored;
- Information has little value and will not become knowledge unless processed by the human mind;
- Knowledge should be studied in context;
- Knowledge depreciates in value if not used.

Polanyi (*Polanyi,* 1966) makes the distinction between tacit (personal) knowledge and explicit (codified) knowledge. Polanyi understood tacit knowledge to mean "committed belief", embedded in context and difficult to express, sometimes inexpressible.

Referring to the seminal work by Polanyi, Nonaka expanded on explicit and tacit knowledge in great detail – according to him explicit knowledge is documented and is made public, structured and can be structured and shared through information technology and other means; while tacit knowledge resides in people's minds, behaviour and perception and evolves from social interactions (*Nonaka,* 1991). In constructing his model, Nonaka identified four patterns for knowledge conversion in the business, namely:

1. From tacit to tacit – through social interactions and shared experiences, e.g. apprenticeship and mentoring;
2. From explicit to explicit – through the combination of various explicit knowledge forms, e.g. merging, categorizing and synthesizing;
3. From tacit to explicit – through externalization, e.g. articulation of best practices
4. From explicit to tacit – creation of new knowledge from explicit knowledge through internationalization, e.g. learning. *(see Fig. 1)*

	Tacit	**Explicit**
Tacit	**S Socialization**	**E Externalization**
Explicit	**I Internalization**	**C Combination**

Figure 1: Model of Knowledge creation (SECI Model according to Nonaka)

Another model that supports Nonaka and adds meaning to the discussion about different types of knowledge is Boisot´s knowledge category model (*Boisot,* 1998), depicted in *Figure 2.*

	Undiffused	Diffused
Codified	**Proprietary Knowledge**	**Public Knowledge**
Un-codified	**Personal Knowledge**	**Common Sense**

Figure 2: Knowledge Category Model

Boisot uses the term codified to refer to knowledge that is easy to capture and transmit, while the term un-codified refers to knowledge that cannot readily be transmitted, e.g. experience. The term diffused is used to refer to knowledge which can be easily shared, and undiffused refers to knowledge not easily shared.

While knowledge itself is not new, the recognition of knowledge as a corporate asset is new. (*Davenport, Prusak,* 1998) Neef (*Neef,* 1999) asserts that it is only possible to appreciate knowledge management if viewed in relation to the changes occurring in the global economy. Clark (*Clark,* 2001) notes that knowledge-based economies are heavily reliant on the production, distribution and use of knowledge and information, all at a rapid rate. He distinguishes between different types of knowledge, namely:

- Know-what (referring to the accumulation of facts); this type of knowledge is close to information.
- Know-why (refers to scientific knowledge of the principles and laws of nature).
- Know-how (skills and capability to do something; internal knowledge in organization.
- Know-who (who knows what, who knows who to do what); implies special relationship.

The same author suggests that, while knowledge might be expensive to generate, there is little cost to diffuse such knowledge. In addition, knowledge provides increasing returns as it is used; the more it is used, the more valuable it becomes. Clark also identifies key drivers of this new economy, including globalization, information technology, distributed organizational structures including network-type arrangements, and the growing knowledge intensity of goods and services.

Best practice

Best practice is focused on seeking those methods, processes and procedures used within an organisation which lead to the successful achievement of its goals and implementation of its policies, whatever these may be. Best practice can be: a method, a tool, an organisation, a system or a technology, i.e. anything used to achieve excellent performance. Identification of best practices facilitates the process of learning and applying these practices in new but similar circumstances. Best practice concept is more a statement of intent and part of a learning process with the aim of moving towards higher performance in achieving a given purpose in a given situation.

Users inspired by examples of good practices can start changes in their organisations in order to make the business better.

VIPO methodology

The VIPO methodology approach consists of a series of steps which include:

1. Research the background to the five fields and six domains of benchmarking and best practice.
2. Clarify user needs in the fields and domains.
3. Knowledge base structure and design.
4. Define criteria for case study selection.
5. Validate and update case studies including copyrights and permissions.
6. Case processing – coding case characteristics, iden-

tifying indicators and preparing best practice explanations in texts (stories).
7. Evaluate usefulness of knowledge base using pilot groups.
8. Analyse case studies for patterns – synthesise best practice.
9. Select useful and demanded study texts and materials.
10. Create and offer suitable software support for decision making.
11. Organise online professional help and assistance at departments.
12. Review and refinement of the methodology.

Results and discussion

VIPO is composed of three parts:
1. Knowledge base of the best practices.
2. Self-study materials and lines to other relevant information sources.
3. Free software tools for decision making support.

Knowledge base of the best practices

Knowledge base of the best practices is the basis of the VIPO and represents a comprehensive knowledge base, accessed via the Internet, which anyone can use to:

- Survey who has done what in a variety of selected fields of practice.
- Measure and compare (i.e. benchmark) themselves against the best examples in their selected field.
- Investigate what constitutes best practice in their selected field using real-life examples and achievements.
- Access a variety of up-to-date surveys and analyses of best practice in their selected field.

VIPO provides users with a ready made Internet platform for inputting, analysing, benchmarking and accessing best practice examples, projects and cases. VIPO has initially selected five broad fields, such as:

- plant production,
- animal husbandry,
- forestry, pond culture and fishery,
- extra productive activities, services for agriculture,
- agriculture production processing,

but its approach can in principle be used to benchmark and access best practice in any other field.

Conceptual design of case coding

VIPO knowledge base can be depicted by three dimensional cube coordinates of which are "fields", "domains" and "k-units". Soft indicators express the relevance of the case with respect to given objectives.

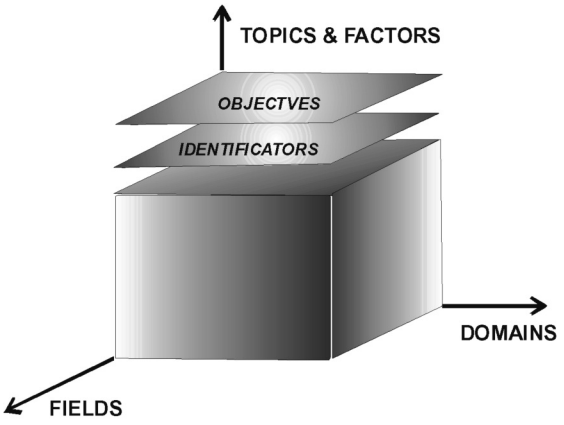

Figure 4: Three-dimensional design of case coding

This means that each case gets three main measures describing the level of consistency for the field, domain and objective. These data are topped up with a number of other characteristics namely managerial characteristics and best practice explanation.

This coding system makes it possible for users to find information according to his/her requirements.

It is obvious that „best practices" refer to different processes, settings and target groups, for instance in terms of economic sector, social background or type of activities analysed. Many cases will overlap. In the VIPO, a generic distinction among level of correspondence with field, domain and knowledge unit and the level of achieving the objective will be measured by a set of six soft identifiers. One case study can be denoted by more than one code in each criterion. Indicators express the fact that the item is in relation with chosen category and measure the correspondence with chosen topic.

The cases are classified and ranked into the VIPO base according to five selective criteria: (1) relevance to a field, (2) relevance to a domain, (3) satisfaction to the objective, (4) activity leading to achieving of the objective, (5) degree of the achieving of the objective.

The following figure describes the structure of the VIPO base:

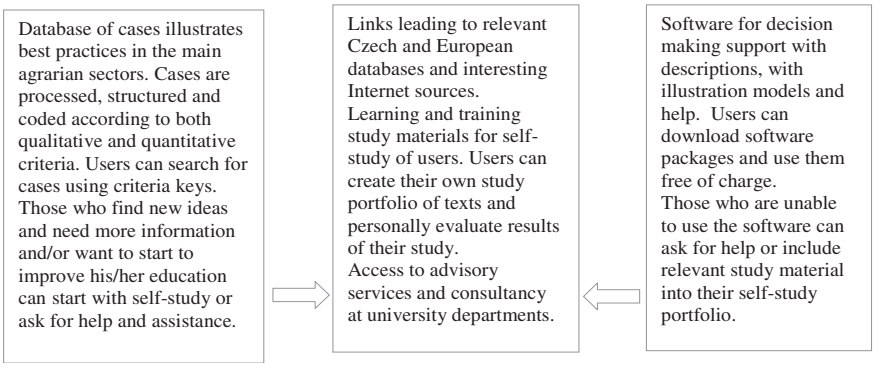

Figure 3: Structure of the VIPO knowledge base

STRUCTURE OF VIPO BASE

FIELDS: "Selected fields of agricultural production" – horizontal view

- Plant production
- Animal husbandry
- Forestry, pond culture and fishery
- Extra productive activities, services for agriculture
- Agriculture production processing

DOMAINS: "Main activities performed in fields of agricultural production" – vertical view

- Innovation, modernisation, new technologies
- Organisation and management
- Business environment
- Regional development
- Equal opportunities
- Virtual society

OBJECTIVES: "What do you want to achieve?"

- Sharing knowledge
- Improvement of education in agriculture
- Personal features and motivation improvement

KNOWLEDGE UNITS: "Topics and factors helping in achieving of the objective" – cross-sectional view

- New technologies (in husbandry, in pond culture, …)
- Improved innovation of products and services (in international influences for business environment in plant production, in organisation and management, …)
- Networks (in virtual society, in modernisation)
- Support for the mentally and physically disabled (in extra productive activities, in processing, …)

INDICATORS: "How well does the knowledge unit achieve the objective?"

- No correspondence (relevance?)
- Marginal correspondence
- Partial correspondence
- Important correspondence
- High correspondence
- Complete correspondence

In addition to fields, domains, objectives, k-units and indicators, and also the best practice explanations, which are clearly domain-specific, the VIPO knowledge base includes generic case characteristics. These describe background but important attributes of a case which will mainly be used for searching in the VIPO bases.

Case selection

The overall approach to the selection of cases demonstrating "best practice" is:

- to establish a conceptually sound and realistic framework for each domain, based upon objectives and knowledge units leading to the success practice;
- to look for cases which fit into assistance offered;
- to examine potential cases which have full and convincing documentation and explanation as to how this success has been achieved, and which can stimulate self learning and innovation by VIPO users;
- to incorporate cases taking account of the overall balance of geographic spread and type.

Although as a working rule 'excellent cases' are the primary focus, it is recognised that effective learning also comes from cases that give insights into problems or failures, and thus help contribute to the best practice learning strategy.

Case material is based on existing research, gathered through evaluation reports, the Internet, scientific and management journals, government reports, organisations, experts and potential **VIPO users.**

Cases are chosen by a team consisting of experts and technicians. Experts provide a selection of cases using multi-criteria methods of the complex analysis of the variants, such as e.g. the Saaty method, Fuller method or Sequence method. Generic case characteristics are then determined; the best case is structured, described and coded. The technician then places the case into the knowledge base and ensures its accessibility.

Case updating and validation

If selected for inclusion in VIPO, the case is:

- checked for accuracy;
- updated as required;
- validated if possible;
- referred to case contacts for appropriate approvals and release.

Updating captures the latest developments. It fills gaps in knowledge units to ensure that there is adequate coverage and to standardise against the measures used in other cases.

Where possible, the viewpoints of a variety of case stakeholders are sought, both in initial research of the case through secondary sources, and in any follow-up research. This is particularly undertaken in situations where it is suspected that significantly different views about case performance, and the winners and losers of this, are present.

As far as possible within the resources of the project, independent sources will be used to verify the content of a case. Such sources may include academics, the beneficiaries of such cases and other secondary sources. It is recognised that this may occasionally be impracticable, because of resource and time constraints, and in such instances the will be put into the knowledge base.

Conclusion

The knowledge based portal for agribusiness draws heavily from the experience gained through the EU funded project "Best eEuropean Practices", which was successfully

completed in 2004 and applies the methodology of case study coding. However, by providing single-point access to other resources it goes beyond the BEEP database potential. The VIPO has been undergoing a pilot testing; close monitoring of the testing phase is likely to bring new insights which will facilitate its further development. The project is to be completed by the end of 2007, when the tested and updated portal will go public for the benefit of the Czech farming community.

Universities across Europe are under a growing pressure to engage in knowledge transfer activities in order to increase competitiveness of European economy. In some countries schemes to facilitate knowledge transfer function of universities and other research institutions have been developed and serve the society, vast majority of EU member states, however, is yet to address this challenge and find the appropriate set of tools to initiate the process. Most studies dealing with the issue of knowledge transfer reveal that the knowledge transfer for commercial benefit represents only a sub-set of the broader concept of knowledge transfer which is directed towards enhancing material, human, social and environmental wellbeing. This by its nature multi-purpose function of the universities is difficult to implement. The implementation support scheme should include not only financial incentives (which tend to be naturally the most discussed issue) but also a combination of measures ranging from training knowledge transfer personnel, setting appropriate metrics to assess the performance of knowledge transfer processes, quality assurance schemes as well as barriers-removing policies to enhance mobility of staff and free exchange of knowledge.

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The value of quality

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Abstract: The significance of quality production and quality improvement is widely acknowledged by many but few specify what should be improved and what quality should be produced.

The reason may be that there are different quality categories in the process of the value chain. Moreover, the issue of quality costs, i.e. economically optimal quality has not yet been explored yet. The present study raises problems in the pigmeat verticum, but similar studies are needed in other animal husbandry sectors as well. It is reasonable to treat the quality categories of animal products in a complex way, as this allows the full satisfaction of consumer expectations at the certain stages of the value chain and solvent demand as well.

Keywords: Quality, quality costs, quality categories, economically optimal quality, value chain, animal husbandry

Introduction

The significance of quality production and quality improvement is widely acknowledged by many but few specify what should be improved and what quality should be produced. The reason for this is the fact that the issue is more complicated than it seems.

What is meant by quality?

Before getting directly to the point, the notion of quality should be clarified. The person who starts dealing with this issue faces immediately the fact that the notion of quality has got several definitions. *Philip B. Crosby (I1, 1996)* claims that quality "means the satisfaction of needs and not elegance". The definition expresses the essence of quality, i.e. that the full scope of customer expectations is to be taken into consideration while corporations strive to direct their organizations to fulfil these expectations. *Taguchi et al. (2004)* define the notion of quality as a loss caused to society which they present on a quadratic loss-function. According to certain experts, the use of this definition is highly restricted by the negative attribution attached to the notion. Taguchi claims that the better the quality of the product, the lower the loss caused to society – including buyers and producers - will become.

David Garvin (1988) states that "quality is pleasuring customers, not merely the prevention of annoyance". *Shiba et al. (1993)* define four levels of quality. The first is compliance with standards and specifications; the second is the satisfaction of well-known consumer needs; the third is appropriate price/cost relation as a regulating factor; and the fourth is when organizations target users' latent, unspoken demands. *Joseph M. Juran (1951, 1999)*, one of the mostly renowned experts of quality in the U.S.A., focuses on consumers in his approach, claiming that "quality is compliance with consumer needs". This essentially equals with the wording of the ISO8402: Technical Dictionary of Quality Control and Quality Insurance, i.e. "the sum of those characteristics which influence capacities in satisfying determined and expected needs". According to ISO 9000:2001: "quality is the rate of the extent to what a group of own characteristics can fulfil requirements. The definitions of ISO 9000:1996 suggest that "quality is the sum of the characteristics of a unit which influence its capacities in satisfying determined and expected needs." The notion of quality varies today as well, as it is markedly illustrated in its wording: "quality is the sum of those features or characteristics of products or services which influence the capacities of products or services in satisfying expressed or expectable needs" Nowadays the strategic definition has come into the limelight: "Quality is a basic business strategy by the help of which products and services fully satisfy both internal and external buyers, meeting their spoken and unspoken expectations", i.e. briefly: quality equals with meeting customers' demands.

What can be taken into consideration when pigmeat quality is evaluated?

In the relation of pigmeat and pork products the above mentioned definitions have enriched our knowledge; however, they have not disclosed the notion of quality products. Qualification after slaughter is a tangible fact. The qualification of pork carcasses after EU conform slaughter was developed and introduced in the eastern European

countries in the early 90's, which means the percentage of lean meat from carcasses. Qualification can be performed by instruments or by measurements at the splitting level of carcasses (2-point method). Measurements are taken with perforation-probe equipment and data processing is computerized. The letters SEUROP mean six quality categories according to lean meat production:

Table 1: Qualification of pork after slaughter and its value in Hungary and Denmark

Quality categories	Lean meat%	Hungary	Denmark
S	over 60.0	6.33	53.30
E	55.0 – 59.9	46.50	42.20
U	50.0 – 54.9	35.05	4.30
R	45.0 – 49.9	9.93	0.20
O	40.0 – 44.9	1.77	0.00
P	below 40.0	0.41	0.00

Source: Bíró-Ozsvári 2006

Under the regulations, processors and slaughterhouses are obliged to notify producers on the results of qualifications. On the basis of quality information and market demands, pig farmers can get closer to consumer needs.

Can quality be merely characterized with these parameters?

The question emerges whether the cluster of the parameter described in Table 1. is enough for the evaluation of good pig product? Probably not! Further criteria for the quality requirements of products can be generally worded as well: achieved quality should be equable and reliable, the same product should always be the same, and also they should be durable, aesthetic and so on. The situation is further complicated by the fact that producers, processors and distributors mean the notion of quality differently, just like end users, i.e. consumers. *Table 2.* presents the certain quality expectations in the process of the value chain.

Table 2. represents that producers, processors and distributors have completely different judgements and expectations – though processors base them on producers' value judgement – and by the time a product is on the consumer's table, in kitchens, restaurants or on department store shelves, producers' quality expectations will have modified, the aspects of their value judgement will have multiplied. Although the main motivators for producers are specific productivity, mass growth, resistance, reliability and saleability, i.e. marketability, by the time the products gets on the table, losses on processing, the time for kitchen preparation, amenity value, the general impression of the product, taste, colour, odour and tenderness will have become priorities. Today the issues of health protection, healthy diet and functional foods are in the focus of attention and packaging is also a vital factor. However, the list of quality expectations is not complete: food safety and hygiene are essential factors in the whole process of the value chain. Food safety guarantees consumers' safety against harmful components included in foodstuff, food hygiene is for the prevention of contamination and other harmful effects in foods (*J. Szabó* 2006). A special feature of quality is the fact that it should not only comply with consumers' value judgement, but with the principles of use and usefulness as well. The latter ones have become especially significant for the last decade in meeting ecological (bio, natural and nature friendly) and psychological expectations, preconceptions and images. Last but not least I mention the economic value of quality.

The above mentioned suggest that there is no and there cannot be a single definition of quality for the judgement of animal products. **To my understanding, the key "quality controller" is the consumer, i.e. products should comply with consumers' conceived and spoken expectations.** If quality is weighed from the viewpoint of social usefulness, this can probably divert consumers' value judgement (e.g. nature friendly, health protective or contaminating product). The conclusion is evident: there are several quality categories for the evaluation of animal products. Producers, processors, traders and consumers all have different value judgements. Quality expectations are influenced by compliance with food hygiene and food health regulations and also macro-level social usefulness.

In the following part we present an overview on the expenses and costs that can influence certain levels of expectations.

Table 2: Aspects of quality evaluation in the value chain

Producer	**Processor**	**Distributor**	**Consumer**
Specific producing capacity Weight gain Resistance Reliability Animal's useful lifetime Storage life and transportability of product Marketability	Processibility Physical characteristics Uniformity Shelf-life Capacity indicators Brand name Marketability	Transport characteristics Storage life Packaging Labelling Brand name Marketability	Rate of processibility Loss on processing Time needed for kitchen-preparation Uniformity, stability Taste, odour, colour and tenderness General impression, amenity value Origin of product Species/type, age, sex Health protection (level and rate of unsaturated fatty acid, functionality) Packaging, labelling

Source: author's own compilation

Quality costs

It is well-know that the process in which a product gets from a lower to a higher quality level acknowledged by the market, takes additional input. However, only few consider that if a product does not reach a required minimum level, this also means additional input. What does additional input mean? Some take into consideration merely input resulting in a higher use vale, whereas efforts to

inspire confidence in a product of satisfactory quality also generate costs. When quality and costs are mentioned, stock breeders almost all neglect that fact that a loss generated when a product of unsatisfactory quality is produced becomes a cost (destruction of returned goods, production costs of useless or undervalued goods).

The definition of quality cost highlights this fact: under ISO 8402: quality costs are those costs which are generated when satisfactory quality is provided and related confidence is inspired and all those losses which occur when satisfactory quality is not reached. What is the volume of quality cost? National and international technical literature claims that concrete calculations have not yet been performed in animal husbandry and in the pig sector either.

Theoretical approaches and calculations discussing its order of magnitude can be found in several studies. I will base the presentation of the elements of relevant quality costs in the pig sector on them.

First of all, in the following I will focus on the categories of quality for producers, and I will not discuss the quality costs of processors, distributors and users.

Quality costs in animal husbandry sectors

The above mentioned related technical literature distributes quality costs into four categories: *prevention of quality defects, quality insurance-maintenance and costs due to internal and external defects*. In the case of animal husbandry these four categories can be supplemented with a specific factor, namely with expenses related to biological bases (more precious breed, hybrid).

Why is it problematic to take quality costs into consideration?

In a classical sense, the classification of quality cost can be problematic for economic experts who would like to see and analyze these factors clearly. The reason is that accounting records are not always "quality cost friendly". The expenses which are directly or indirectly emerge should be collected separately in the accounting system.

When costs are reckoned, contradictions may arise when the quality related operations of various units and organizations are to be considered simultaneously.

Certain organizations perform other types of (not quality insurance) activities and certain quality insurance activities use various resources (materials, wages, instruments etc.). Therefore we may not see concrete examples in agriculture and especially in animal husbandry. *Table 3.* shows the groups of quality costs according to the accounting system, providing a clearer picture in this issue. Before presenting this in detail, let us examine the following basic question from the viewpoint of producers:

To what extent should quality be increased?

The answer is simple, although the concrete answer presupposes the comprehensive consideration of several factors. Quality is worth increasing until it reaches the economically most favourable i.e. optimal rate. It can be calculated with the following formula:

$$OM = \frac{\sum_{i=1}^{n} MB}{\sum_{J=1}^{n} MK} \Rightarrow \max.$$

Where: OM = *economically optimal quality*
ΣMB = *Extra return from sales due to higher quality*
ΣMK = *Costs of additional input generating higher quality (quality cost)*

To put it into words: optimal economic quality is the level of expenses in terms of money, increasing quality, where surplus revenue, by reaching a higher level of quality and the quotient of resources used to reach this higher level, is the highest (take a maximum value).

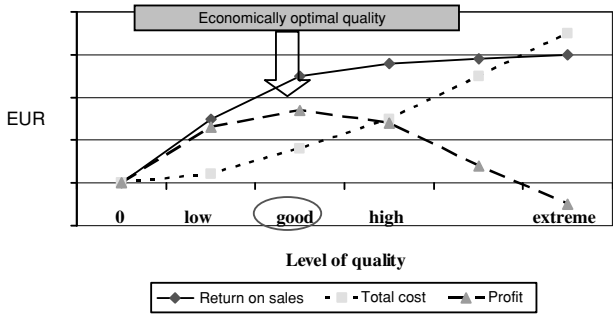

Figure 1. Economically optimal quality

The formula in *figure 1.* presents the correlation graphically. What does this correlation suggest? Naturally the fact that for the definition of economically optimal quality we have to get a good understanding of expenses that generate higher quality, its costs and at the same time extra return from sales due to higher quality. The level of quality is worth increasing as long as profit grows. The curve of the figure suggests two primary conditions. First, to reach higher quality costs more and increasingly more as compared to the previous level of quality; second, the process of reaching a higher quality is progressive, i.e. the growth of the return from sales follows the principle of diminishing returns. However, these two assumptions have not yet been proved, merely presupposed. To prove them, the variations of expenses and returns from sales have to be examined on the different levels of quality.

The following part presents which factors influence quality costs and to what extent.

Quality in practice

Quality for producers

In the analysis of quality for producers we investigate how producers can reach and increase required quality and how much it costs for them.

Generally it can be mentioned that from producers' side quality animal products can be influenced by using better quality breeding animals, better foraging satisfying animal needs, by providing higher level keeping technologies and technical conditions and human factors adjusted to all these issues. Let us examine the expense needs of all these factors, based on some categories of the accounting records.

Material costs

The classification of the types of costs *(Table 3.)* shows that producers can modify quality by using extra input in the case of breeds, hybrids, forages, complementary feedstuffs, health care and prevention, listed among material costs. Producers can decrease their opportunity costs if they do not have to pay for the input due to quality defects listed among the material costs of the table.

Genes carrying the parameters of efficiency in new **types** and **hybrids** usually take extra expenses. As its tangible result, the price of higher quality breeding animals and the sum to be paid for their sperms in the case of artificial insemination may be significantly higher as compared to lower quality sperms. In the event of breeding boars, the price difference can be the order of 100 thousand HUF. What are the results of this difference in prices? Naturally, knowing that not only genetic bases determine several parameters, we can assume that the number of weaned pigs (23.2 in Denmark, 18.26 in Hungary), the production of fattening pigs per sows (21.5 in Denmark, 17.7 in Hungary) weight gain in the fattening period (804 gr/day in Denmark, 584 gr/day in Hungary) will grow (*Bíró-Ózsvári* 2006, *Windhorst* 2003).

The prices of **forages**, feeds and complementary feedstuff may vary extremely. Producers decide what the most appropriate variations are which suit breeds/hybrids, genders and age groups. Forages, feeds and complementary feedstuff which meet animal demands the best are usually more expensive than similar ones replacing them. Foraging can influence the ratio and the volume of meat-fat, the composition of fat content, the percentage of vitamins and

Table 3: Production costs of quality animal products

TYPE OF COST	name
1. Material costs	1. Valuable biological basis (type, hybrid, sperm)
	2. Better forages and better complementary feedingstuff
	3. Preventive materials and feeds for animal health
	4. Better quality drinking water
	5. Material costs of examinations on durability and reliability
	6. Extra material costs for faulty products of unacceptable quality under guarantee
	7. Extra expenses due to products returned by customers for quality problems; costs of scrapping
	8. Emergency slaughter of young and fattening animals which have failed to reach the required quality or costs of technological culling
2. Wages and salaries	1. Labour costs of time periods for ISO, TQM, etc. meetings of governing bodies
	2. Labour costs of time periods for the development of handbooks and procedural instructions
	3. Labour costs of time periods for improvements and audits
	4. Labour costs of time for personnel in relation to the planning and development of quality insurance systems
	5. Labour costs of the information system of quality
	6. Internal audit is the maintenance cost for the operation of the quality insurance system
	7. Internal labour costs of examinations on durability and reliability
	8. Supervision of the quality of transported goods, labour costs and dues of quality supervisors
	9. Labour costs of provision during the manufacture of products or included in the processes of production
	10. Costs of final supervision, the labour cost of internal supervision
3. Depreciation allowance for specific tangible assets	1. Depreciation costs for the tangible assets of quality information systems
	2. Amortization of testing equipment for the examination of the quality of delivered goods
	3. Depreciation of technological tangible assets purchased to improve or maintain higher quality
	4. Depreciation of lower quality, out of use but unsold tangible assets (cost remanency)
	5. Costs of emergency or technological culling for breeding animals of inadequate quality
4. Other expenses.	1. R+D costs of measurement
	2. Penalty pay for defect of quality and testing equipment
5. Divided costs (services in ancillary sectors + others)	1. Internal service costs of technological equipment purchased to increase quality
	2. Consultancy costs
	3. Costs of quality training performed by external servicers
	4. Supervision costs for the operation of the quality insurance system, costs of supervisory audit and re-qualification
	5. Costs of external services, durability and reliability tests
	6. Service costs of courses and conferences
	7. Costs of qualification tests, e.g. costs of OMMI qualification prior to the introduction of a new product or breed
	8. Costs of qualifying suppliers and sub-contractors
6. Sales costs	1. Marketing costs to increase the reputation and marketability of higher quality products
	2. Delivery costs of defective, unacceptable quality products
7. Administrative costs	1. Administrative costs of the quality information system
8. Expenditure of financial transactions	1. Interest charges of credits taken out to increase quality

Source: author's own compilation

Table 4: Some cost items in the% of total production costs in Hungary

Name	Milk production	Fattening of pigs	Rearing sows	Fattening of chickens	Egg production	Sheep breeding
Depreciation of breeding animals	5–8	–	3.0–6.5	–	3.6–18.0	4.4–9.7
Costs of feedstuff	48–63	42–53	51–61	53–64	48–63	58–60
Costs of animal health	2.4–3.5	1.2-1.7	3.2–4.0	1.6–2.8	0.2–0.5	3.9–4.2
Natural and artificial insemination	1.4–2.3	–	0.3–1.5	–	–	.02–0.2
Depreciation	2.5-4.3	1.7–2.8	2.1–2.8	2.0–2.8	1.1–5.9	1.5–5.6

Source: on the basis of data (2004–2005) from AKI and the author's own calculation

minerals, taste and colour, bio-quality and food safety (*Gundel* 2006). The quality parameters of pig SEUROP, which are manifested in delivery price, incite producers only partially to improve in the areas discussed by Gundel and to realize surplus investment. Producers actually measure their specific forage use. This significant index shows a high standard deviation 4.57 in Hungary (3.41–7.92 kg/kg) on average, while in the Netherlands it hardly exceeds 2.6 kg/kg, and it is 2.7 kg/kg in Denmark (*Bíró-Ózsvári* 2006, *H.W. Windhorst* 2003).

The issue of foraging is highly significant as during the manufacture of animal products, feedstuff itself amounts to the major part of total expenditure. *Table 4.* shows the significant cost items in the key sectors of animal husbandry.

Table 4. shows that foraging costs amount to 42–61% of total costs in pig breeding. How does it correlate with economically optimal quality? The answer is self-evident. Foraging technologies are to be applied where the same input yields higher proceeds or extra input is to be used which increases economic results (return on sales through yield) to a greater extent than the value of input in terms of money. A key correlation is to be mentioned here. The availability of forages and daily body mass growth are the primary natural indices of the efficiency of foraging. However, natural indices should not be overestimated! A study in 2003 suggests that in Canada, compared to the most developed pig breeding nations in Europe, the availability of forages was the worst in the fattening period (3.39 kg/kg), in contrast with e.g. Denmark, where it was 2.7 kg/kg. Nevertheless, the cost of feedstuff per 1 kg of carcass was 0.61 ûin contrast with the Danish value of 0.65 €. The ratio was similar in the case of the U.S.A. and the Netherlands. The reason is that although specific availability was lower overseas, the prices of maize and soy were much lower (*Windhorst* 2003). In spite of this fact, the availability of feedstuff and daily mass growth are to be highlighted. Supposing that more expensive feedstuff results in higher mass growth and better availability as well, we may consider extra expenses. Supposing that all other financial factors are unchanged, under average conditions feedstuff is more expensive by 40 € – increasing production costs by 0,12–0,16 €/kg. Literary data suggest the variation of the two indices in the event of various diseases *(Table 5.)*.

The significance of data in *Table 5.* can only be appreciated if we consider not only increasing forage costs (the fall of forage availability is in direct proportion with the rise of forage costs), but the additional extra expenses which are related to decreasing body mass growth and mortality as well. What does it mean? The direct result of decreased body mass is the extension of fattening time. Simultaneously, all the cost items increase (material costs including energy, forage, drinking water, labour costs and wages, service costs etc.). Changes in the mortality rate of animals are three times detrimental! First, used forages, energy, labour costs etc. are lost; second, dead animals do not generate return on sales; third, the destruction costs of carcases fall upon the sector as well. For the good understanding of the issue an another significant fact is to be considered. *Table 4.* presents that **animal health costs** amount to merely 1–4% of all production costs in the pig sector. It is to be considered: what is worth more? Prevention, higher life performance by having a healthier livestock or the expenses of treatments, extra costs due to diseases or losses.

Table 5: Deterioration of forage availability (%), decreasing body mass growth (%) and mortality rate in the event of the outbreak of diseases

Illness	Decline in forage availability%	Acute form Decline in daily body mass growth%	Mortality rate
Disease caused by E. Coli	3	3–5	Pigs 1%
Aujeszky's disease	3–6	3–10	Pigs 25–35, fattening pigs 4–8%
Pneumonia caused by Micoplasm	6–12	3–10	Sows 1–4%, post-rearing 5%
Pneumonia caused by Actinobacillus	3–12	5–25	Pigs and fattening pigs: 2–15%
Atrophic rhinitis	3–6	3–10	Increases by 1–5% after weaning
Pig dysentry	6–15	10–15	Increases by 1–4% after weaning
Steptococcosis	1.5	0.75–3	Increases by 4–12% after weaning
Mange	3–9	5–13	
Internal parasites	3	5–13	

Source: Bíró–Ózsvári (2006)

Quality costs are basically determined by two categories. First, quality costs are those costs which are needed for the realization of the required quality and those ones which occur when the required quality is not reached. Practical experience suggests that total quality costs can be decreased if prevention activities are enhanced and related expenditure is

raised. Economically optimal quality for animal breeders (producers) can be characterized by two parameters. Producers should produce the given quality slaughter animals (e.g. E quality) at the lowest possible production costs. It may be far away from consumers' quality expectations (tenderness, savouriness, taste, flavour, processibility), but producers do not care about it.

The reason is that expected quality for producers is the standard or the contracted requirement. Producers primarily aim to manufacture the given quality at the lowest possible cost. Reversing the same correlation, **quality for producers means products at the lowest possible production cost as compared to takeover (buying-in) price** As producers fail to receive extra profit if functional food is prepared from their products or these contain the appropriate level of Omega 3 fatty acids, producers do not care if their meat products shrink during roasting. Producers are merely interested in their profits!

Some further elements of quality cost

Table 4. also highlights that **depreciation** in the pig sector does not amount to 3% of total costs. However, this relatively "cheap" factor is the basis of technological development and conditions better suiting animal needs.

The results of a **real development** underpin the above mentioned statement: analyzing the parameters of pig fattening, an enterprise set itself the target to increase mass growth by 100gr/day, the indices of specific forage availability on local units by 0.5 kg/kg, decrease its technological spoilage (losses) from 20% to lower than 5%, increase its sold mass from 95 kg to 105 kg, and to decrease the cost of medicine used in animal health simultaneously.

To realize the set objectives, the enterprise considered several solutions. Finally it decided to improve genetic basis of its livestock by purchasing quality breeding soars, to restructure its foraging technologies by the introduction of a new system. Technological restructuring required the reconstruction of buildings, the adjustment of manuring technologies and the modernization of ventilation technologies as well. Besides reconstruction and development, the enterprise decided on the introduction of the quality insurance system as well. The whole development included the following costs: material costs related to genetic bases and quality insurance, labour costs and wages, internal and external service costs, absorbed depreciation and interest charged for its investment loan. The development costs and production costs of the enterprise prior to investment-development (0,88 €/kg), which is increased – not calculating the impact of innovation – by 4,15 eurocent/kg.

Now the question is, whether the realization of the set objectives, thus the planned increase of the return on sales will be enough to cover expenses? If the enterprise successfully decreases forage availability by 0.5 kg/kg from among the set objectives, the production cost of its products will be lower by 4,8–6,0 eurocent/kg. This amount not only covers but exceeds the growth of production costs! This simple example highlights that **development**, the improvement of "quality" parameters would not increase but rather **decrease production costs** for producers as well! If we look at the correlation of *Table 3.* again, we can clearly see that in the event of the same takeover price, the impact of quality innovation generates profit as well!

Quality in the further stages of product path

What quality expectations are characteristic of the further players in the product chain? Processors produce products of higher added value from live animals. Producers' quality expectation is that they should be able to produce highly profitable products from source materials, i.e. output indices are the basic quality expectations for producers. Increased output is essential for them in the product family where the profit margin is high.

What can processors do if they have already exhausted this area? They can develop products, create innovations and produce healthier products. Products that they manufacture by using R+D and high input which they promote and pass on to distributors.

To increase quality, this issue should be studied even more carefully. It has already been declared that producers are not or just slightly interested in producing quality for customers. Processors are key players, as they have to meet domestic and foreign market expectations at the same time. The improvement of quality production is primarily controlled by processors. *Figure 2.* represents the key methods to be applied for the improvement of quality, dividing them into methods used by producers, processors and traders. The figure suggests that compliance with regulations is an expectation in all the three cases, just like

Figure 2. Quality development in the process of the value chain

Criterion/methods	Producer	Processor	Distributor
Compliance with standard	++	+++	+++
Information on products	+	+++	+++
Technological development technical efficiency, output) ,	+++	++	**not typical**
Product development (health, functional food, the same product with different characteristics)	++	+++	**does not exist**
Related diversification product + cook book	**does not exist**	++	+++
Unrelated diversification product + present	**does not exist**	+	+++
Market penetration (present product, present market, marketing)	**does not exist**	++	+++
Market development (present product, new market, marketing)	+	+++	+++
Logistics	++	+++	+++

A + expresses the rate of demand for development
Source: author's own compilation

information related to products. With a simple comparison, quality insurance and food safety are as significant as a licence to drive a car. No products can be placed on markets without them. Technological and product development for the improvement of quality is concentrated in producers' and processors' hands. Responsibility and realization for quality improvement in relation to breeds, hybrids and foraging fall upon producers. Processors can increase expected quality by packaging and converting their products into semi-finished or finished ones. Such improvements are not typical of distributors, if there are any. However, distributors are interested in selling products, so they contribute to product promotion, but as we have already seen, they do not improve them.

Nevertheless, they apply the toolbar widely used in trade. However strange it may sound, this is also included in quality development! Related and unrelated diversification means a kind of discrimination, calling customers' attention to buy the product. Breaking into markets and developing markets include a range of further marketing methods, making products more marketable in the vertical and horizontal system of sales relations.

All the players of the value chain take place in the improvement, development and increase of quality. The required expenses may vary and they actually vary from one another. The present study discusses the issue of quality from the viewpoint of producers, but hopefully it has been revealed that this problem is more complex and cannot be analyzed on some pages in its full profundity.

Future agro-economic research will indispensably need the complex analysis of this issue, rather than the mere analysis of certain elements of the value chain. A complex approach may reveal the truth more successfully, perhaps answering the question what economically optimal quality is. At present this issue is still unclear due to several subjective and objective reasons. Today we do not exactly know what volume costs may occur in the process of the value chain to increase quality. The market structure and cost-related profitability of the whole verticum is extremely disproportionate. This is justified by *figure 3.* based on price conditions in 2004–2005 in Hungary.

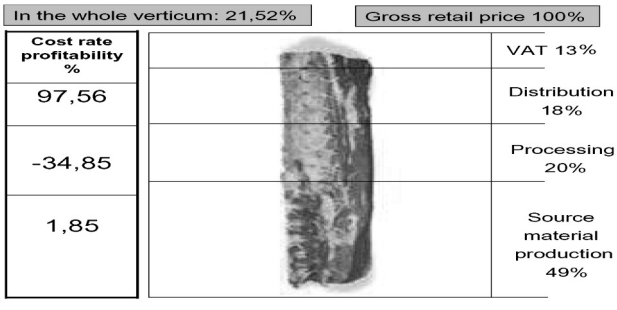

Figure 3. The composition of gross retail price and cost-effective profit for loin in Hungary

Source: *Juhász* 2005 and the author's own calculations

The figure clearly shows that approximately 50% of the gross retail price comes from the production of source materials, but cost-rate profitability is only 1.85%. Processors contribute 20% to the price; however, production is loss-making. Distributors take 18% from gross retail price, reaching an unbelievably high profitability rate (97.56%). This difference, disproportion is an eyesore. To my understanding, the solution of this problem lies in the hands of distributors. If radical changes fail to come, producers are likely to give up their activities processors go bankrupt as a result of their long-lasting losses and there will be nothing to trade with. This might not be in the interest of distributors as in this case there will be no quality products or rather no products for distribution.

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Agricultural outsourcing: A comparison between the Netherlands and Japan

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Abstract: Outsourcing may well be a tool for increasing the efficiency of Japanese agriculture. However, outsourcing is not frequently used by Japanese farmers in their day-to-day management. This has resulted in a weakly developed market for agricultural contracting services. In order to take a closer look at the reasons for making use of outsourcing, a comparative study was carried out between the agricultural contracting sector in Japan and that in the Netherlands, where agricultural outsourcing is a regular practice. In the Netherlands, especially small, diversified farms that lack sufficient labour tend to outsource agricultural work; in Japan, the situation is far less clear. Cultural factors possibly play an important role.

Keywords: Agricultural outsourcing, farm size, diversification, labour shortage, cultural factors

Introduction

Agricultural contracting is a phenomenon found throughout the world. Today's Japanese farmers face various problems, such as the declining or stagnating price of agricultural products and the rising price of agricultural input. A decrease in the agricultural labour force, especially within young or middle generations, shows the potential for a continuous labour shortage in rural areas. However, the significance of agricultural outsourcing varies between countries.

In Japan, farmers' organizations for agricultural contracting have increasingly developed since the beginning of the 1970s. Especially, the 'operation contract' organization system (the so-called machinery bank) was imported from Germany and adopted by the agricultural cooperatives (Rural Development Planning Commission, 1996; Rural Development Planning Commission, 1986; Ishimitsu & Kajii, 1972). In recent years, cooperation among farmers has become limited due to the decreasing agricultural population and the ageing of farmers. There is a need for a new type of non-farmers' organization. 'Agricultural contracting' could be one of these new organizations. Agricultural contracting supports not only small and medium sized family farms, but also those farms that are seeking to expand. Expansion of contracting services is urgently needed, especially in dairy farming and upland farming in Hokkaido prefecture, and it will be a key in the preservation of family farming, regional agriculture and rural society (Hokkaido Regional Agricultural Research Center, 1996; Niinuma & Igata, 1999).

In the Netherlands, the contracting sector has developed strongly. A large proportion of labourers in rural areas are employed by contracting companies, which are now the second largest source of rural employment after the horticulture sector (Takano, 1992). A report on dairy farmers in the Dutch village of Lienden illustrated a farmer's use of contractor services to counter a labour shortage brought about by the introduction of the free stall barn and the resultant increase in the number of cows. The farmer mentioned the following advantages of contracting: 1) because machinery is not owned, costs can be reduced; 2) contractors provide high quality services for silage making; 3) prices of contracting services are acceptably low; and 4) the farmer can concentrate on dairy production, and have more leisure time.

In the past, the need for agricultural contracting in Japan and the Netherlands has been discussed from various points of view. The general opinion is that outsourcing is important in maintaining the specific character of the family farm. However, agricultural contracting in farm management has not been investigated in sufficient depth. Therefore, the objective of the present study was to examine the demand for agricultural outsourcing in Japan and the Netherlands and to clarify the specific characteristics of the farms that make use of outsourcing.

Theory

The UK is known as the most developed country in Europe as regards agricultural contracting systems (*Korokawa,* 1997). The results of studies of the farmers and the contractors were published in survey reports in 1987 and 1993. A number of variables seem to be crucial in taking the contracting decision; the variables are farm size, labour shortage, diversification, machinery ownership and cultural factors.

Farm size

The 1987 study concerns the agricultural contracting by 200 farms in the Midlands and north Wales (Ball, 1987a). The contract work was concentrated in dairy farming and arable farming. More than 80% of these farmers used contractors. Although farms of various sizes used contracting services, larger farms tended to be focused on highly specialized services such as spraying, drainage and hedging, while smaller farms found contracting attractive for less specialized tasks such as harvesting, sowing and ploughing. The reason for this is that smaller farms cannot maintain modern machinery that is designed for high volume use. Therefore, farm size seems to be an important indicator for clarifying the characteristics of contracting services. Although in the British case, farmers in every size group entrusted operations to contracting services, smaller farms tended to use contracting for regular agricultural work. This means that large farms can use their own machinery and provide services to other farms. Therefore, contracting services tend to be used more heavily on small than on large farms.

Labour shortage

The decisive factor determining whether a farm will contract or lease/buy is the availability of family labour. The pros and cons of machinery leasing vs ownership is also an important issue, but this is not the topic of this paper (see: *Agricultural Experiment Station Division of Agriculture* 1984; *Schwart,* 1983). Where family labour is sufficiently available, outsourcing does not occur; where family labour is not sufficiently available, contracting operations are required. Specific circumstances of the farm are crucial for the availability of family labour and thus for taking the outsourcing decision (for example, ageing of the farmer, and the increasing number of part-time farmers). The supply of labour is explained by the relation between the number of working hours and the wage (*Stiglitz,* 2000). Therefore, the increasing availability of part-time jobs and the increase in wages also has an indirect influence on the supply of family labour and the number of contracting operations. Further, farmers will try to get part-time jobs if the wage level is higher than the expenditure on contracting operations. Thus, the availability of labour seems to be an important variable in clarifying outsourcing.

Diversification

On a diversified farm, the labour force is likely to be engaged with core activities. If a farmer wants to reduce costs, he will dismiss the labour that is engaged in supplemental work if outsourcing is cheaper than the cost of the labour and machines required to carry out the operations. For example, the harvesting task was widely outsourced in dairy farming in the UK and Japan. Simultaneously, the management of the dairy sector on diversified farms was intensified by introducing modern machinery and technology. Particularly harvesting is often outsourced by dairy farmers who produce high added value products (such as cheese), because of their desire to reduce the time they spend on caring for feed crops. Thus, when farms maintain several farming sectors, operations of the dairy sector or arable sector are outsourced more often than is the case with single sector farming, in order to maintain one heavily intensive farming sector. Therefore, diversification is an important indicator of contracting.

Machine ownership

If the return from investment in agricultural machinery is below the market interest rate, investment becomes over-investment. Over-investment is distinguished from the appropriate investment level by the existence of idle capacity. Outsourcing is a means to avoid over-investment and the concomitant cost. Expenditure on agricultural implements and machinery is responsible for a large share of the agricultural production cost: in the British case, a farmer's outlay for contracting services is reported to be 14% of total machinery cost. It is generally assumed that farmers are able to greatly reduce the machinery cost by outsourcing. Generally speaking, outsourcing is a substitute for the ownership of machines. If one owns machines suitable for a specific task, there is no need to outsource this task (and vice versa). If the ownership of machines induces higher costs than outsourcing, the farmer will decide to outsource certain tasks. Therefore, machinery ownership is an important indicator of contracting.

Cultural factors

In Japan, labour-intensive agriculture is still widespread; therefore, there are a lot of farmers who think that productivity will increase by increasing the amount of manual work performed, even on large farms. However, compared to Japan, in the Netherlands agriculture is mainly labour extensive and contracting has been used for a long time. In any case, continuous outsourcing depends also on farming traditions and on good results from contracting services. Therefore, cultural factors are one of the important variables of contracting.

Regression equation

The following regression equation is based on the above theory.

$$O = \alpha + \beta F + \gamma D + \delta L + \varepsilon M,$$

Where: O: quantity of outsourcing operations
F: farm size
D: diversification
L: labour use
M: machine ownership

Because it was not possible to measure the variable 'cultural factors', it was included in the constant α

Method

Quantitative agricultural data were collected in the Netherlands and in Japan. In the former country, in 2004 the Farm Accountancy Data Network (FADN) system collected data for an impact study of the European Union's Common Agricultural Policy (http://europa.eu.int/comm/agriculture/rica/index_en.cfm). In total, the FADN provided data on 826 farms. On some points, the data had to be adjusted to get the variables to fit the theoretical model. The variables 'quantity of outsourcing operations' and 'farm size' could be used without any adaptations (*LEI,* 2004). For the variable 'diversification', a rate of diversification was set: for a specialized farm with one division of farming, the rate of diversification is 0%, while for a mixed farm, the rate is 100% minus the percentage of the largest division of the farm. For example, if the DSU of the largest division of the mixed farm accounts for 70% of the total DSU of the farm, the rate of diversification is 100% – 70% = 30%. (DSU= 'Dutch Standard Unit', a standardized measure for farm size.) The variable 'labour use' was measured in man years (in the FADN statistics, one man year is 1700 hours). The variable 'machinery ownership' was measured for the new state of the machinery.

The Japanese data generation was done in Yubetsu, Hokkaido; the data were partly acquired by the Yubetsu agricultural cooperative, and partly by surveying (*Niinuma & Igata,* 2000). In total, 65 farm samples were available. As in the Dutch case, the Japanese data had to be adjusted to get the variables to fit the theoretical model. In Japan, too, the variable 'quantity of outsourcing operations' could be used without any adaptations. For the variable 'farm size', although the Japanese agricultural statistics do not have an index comparable to the DSU index in the Netherlands, data in terms of 'area of management' were available. This index concerns the ratio between the agricultural area used for feed production (grass and forage) and the number of milking cows. Therefore, in the Japanese case, farm size was measured in terms of 'area of management'.

In Japan there are only three types of farms, namely arable, dairy, and mixed vegetable farms. Therefore, for the variable 'diversification' there was no need to work with an index, such as was used in the Dutch case. In the analysis, 'diversification' in the Japanese case was set as a dummy variable. The variable 'labour use' was measured by the labour force working on the farm. Family labourers who work on the farm for more than 150 days a year are called 'regular farm workers', while family labourers who work for between 60 and 149 days a year are called 'quasi-regular workers'. According to this classification, in the analysis a regular farm worker was counted as 1, a quasi-regular worker was counted as 0.5 and family labourers who work fewer than 60 days a year on the farm were counted as 0.3. The variable 'machinery ownership' was measured by the number of machines in ownership.

After defining the theoretical variables, a SPSS statistical analysis program was used to perform a regression analysis. All samples were used for a normal linear regression analysis. However, it soon became clear that not all variables were significant. In order to be able to test the hypotheses in a well-founded manner, some adjustments of the data were inevitable.

First, five dummies for diversification were added to the regression equation. These dummies were demonstrated for all the non-diversified farms. Therefore, the rate of diversification showed only the diversified farms. In the case of Japan, only two farming sectors remained; it was therefore decided to use a dummy for the variable 'diversification'. Second, a non-linear regression expression was adapted for an analysis. A natural logarithm function type is generally used to estimate non-linear correlation. It worked out that the adoption of natural logarithm function was useful for testing the hypothesis. Third, in the Dutch case, farms without contract work were excluded. The main reason was that contract work is constant to all farm sizes, which means that the correlation between contract work and farm size will not be significant. In the Japanese case, two farms that had used scarcely any contract work were left out according to case-wise diagnostics. In the end, 790 Dutch farms and 63 Japanese farms were used for the analysis.

Results

The results of the Dutch case are shown in *Table 1* and of the Japanese case in *Table 2*. The values of the coefficients, the t-values and the significance of the structural equation are also given in the tables.

Table 1: OLS regression results for the Dutch case

Independent variable	Dependent variable: contract work / DSU			
		β	t-value	signifi-cance
Constant	α	4.239	5.807**	0.000
Farm size	F	-0.634	-6.192**	0.000
Labour use	L	-0.453	-2.997**	0.003
Diversification	D	0.102	2.060*	0.040
Machine ownership	M	0.150	2.679**	0.008
Dummy arable single farming	D1	0.841	1.690	0.091
Dummy horticulture single farming	D2	0.990	2.167*	0.030
Dummy permanent crop single farming	D3	-0.346	-0.527	0.599
Dummy grazing livestock single farming	D4	0.982	2.127*	0.034
Dummy intensive livestock single farming	D5	-6.684	-12.342**	0.000
Adjusted R square	R^2	0.452		

* the value of the coefficient is significant on the 0.05 level.
** the value of the coefficient is significant on the 0.01 level.

Table 2: OLS regression results for the Japanese case

Independent variable	Dependent variable: contract work			
		β	t-value	signifi-cance
Constant	α	5.933	2.940*	0.005
Farm size	F	0.048	0.177	0.860
Labour use	L	-0.869	-0.030	0.047
Machine ownership	M	-0.157	-0.268	0.790
Dummy diversification	D1	0.710	0.308	0.759
Adjusted R square	R^2	0.210		

** the value of the coefficient is significant on the 0.01 level.

In the Dutch case, there is a positive relationship between the total value of contract work and farm size. However, there is a significant negative relationship between the value of contract work per DSU and the farm size. This means that large farms outsource more than small farms. Per DSU, however, large farms outsource less than small farms. It can therefore be concluded that contracting services tend to be used more on small farms than on large farms, which means that our hypothesis with respect to the relationship between outsourcing and farm size is confirmed.

Second, the amount of outsourcing per DSU is negatively related to the use of labour. This means that the contracting is effective in reducing the number of working hours for farm workers, which means a confirmation of this hypothesis. Third, both the total amount of outsourcing and the total amount of outsourcing per DSU are positively related to diversification. This means that diversified farms outsource more than single farming farms, which is in agreement with our hypotheses. Fourth, there is a significant positive relationship between the value of outsourcing per DSU and the value of the machinery (machine ownership), which is contrary to our expectations. In our hypothesis, the value of the machinery should have a negative relation to contract work, at least to contract work per DSU. A possible explanation is that because the value of machinery per DSU in horticulture is smaller than in arable farming and grazing livestock farming, and arable farming and grazing livestock farming operations are outsourced more than horticultural operations, there is a positive relationship between contract work per DSU and the total value of machinery per DSU.

In the Japanese case, the value of adjusted R square is not high, and, apart from the t-value of constant the coefficients are not significant. First, total amount of contract work has a positive relationship with farm size. However, the total value of outsourcing per ha does not have a significant relation with farm size, which is contrary to our expectations. Second, in terms of the total number of man years, the labour force in the Japanese case has a negative relation to contracting work, although the significance level is not high. This means that the contracting is effective in reducing the working hours of farm workers. Third, machinery ownership (here, the number of machines) and diversification do not have a significant relation to contracting work. The cultural aspect is included in the constant, which, as in the Dutch case, is highly significant. This may imply that in both the Dutch and the Japanese case, cultural aspects play a dominant role in the outsourcing of agricultural work.

Conclusions

In the Dutch case, we looked at the relationship between outsourcing on the one hand and farm size, labour use, machinery ownership and diversification on the other. Based on the statistical results, we can conclude that contracting is used significantly more by smaller farms, diversified farms and farms with a shortage of labour. These results confirmed our hypotheses. However, the relationship between contracting work and machinery ownership produced an effect contrary to our expectation (a negative relationship between the amount of outsourcing and machine ownership). In short, the advantage of contracting for the saving of labour is clear, while the advantage of the reduction of the cost of machinery is far less clear.

In the Japanese case, we applied the same model as in the Dutch case but for a much smaller sample size (790 Dutch farms versus 63 Japanese farms). Unfortunately, this produced almost no significant results, perhaps because of the modest sample size. Only the constant was significant, which may imply that cultural aspects are of major importance in Japan. Still, we may tentatively state that outsourcing is an effective means to deal with a shortage of labour.

We may therefore conclude that labour shortage occurred because of the increase in farm size, and contracting expanded as a result of that. However, in the Japanese case, both the demand and the supply side of the agricultural contracting sector need to develop further before outsourcing can become a major tool for increasing the efficiency of Japanese agriculture. In order to overcome any possible cultural obstacles to outsourcing, extension might be a good way to stimulate the demand for it.

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Competitiveness of Polish regional Agro-clusters

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Abstract: The present paper concerns the analysis and evaluation of the performance of regional agro-clusters in Poland and also the examination of the significant basic factors which have influence on it. The objective of the paper is both to rank the 16 Polish regions according to their competitive position in the agrocomplex and to present their economic and social position, show differences and regional contrasts. Also, we compare the outcomes with the overall Polish regional competitive index, which was created in accordance with the Huggins Institute approach.

Keywords: Agricultural outsourcing, farm size, diversification, labour shortage, cultural factors

Introduction

Poland represents a country with growing regional agricultural disparities, which are the unavoidable consequence of the process of transformation and economic growth. One of characteristic features of the Polish economy is a strong concentration of gross domestic product contribution in a few voivodships, namely Mazowieckie, Slaskie and Wielkopolskie. These three areas generate one fourth of the total gross domestic products.

The accession to the European Union in 2004 created new opportunities for improving Polish regions and especially rural areas. In the European Union, agriculture is a leading policy area and the largest area of EU expenditure. The aim of the Common Agriculture Policy is *to provide farmers with reasonable standards of living, consumers with quality food of fair prices and to preserve rural heritage.* (EU, 1997) The process of EU integration appeared to offer great advantages from the benefits of the EU policies and its single market. Polish farmers gained both access to the rich market with its higher prices (*Niedzielski, Lapinska,* 1999) and financial support.

Agriculture employs almost one third of the total Polish work force, but contributes less than 4% to the gross domestic product (GDP) (GUS, 2006). Productivity is, on the whole, not high. However, low agricultural incomes are rather a common phenomenon, explained by a slower increase of productivity in this sector and restricted mobility of the labour force between agriculture and the rest of the economy, which was observed also in other European countries. (*Zarebski,* 2002)

The structure of Polish agribusiness is regarded to be relatively backward and distorted. Both down-stream and up-stream sectors of agribusiness are insufficiently developed. The greatest production of the entire agribusiness sector still originates in agriculture. (*Wilkin,* 2004) Many challenges face agro-food producers in Poland, as they seek to remain competitive in local, national and international markets. Although the phenomenon of industrial districts is common in Poland, only recently did the regional cluster approach became recognized as a valuable tool to foster economic development. Rising interest led to exploration of where to establish potential clusters in Poland. (*Wojnicka, Brodzicki, Szultka,* (2003) Limitedly, the cluster concept was mentioned within the confines of Regional Innovation Strategies. Highlighted was also that the cluster policy is one of the best instruments to promote and foster regional economic development. Regional clusters are regarded as an efficient way to achieve job creation and wealth in regions. (*Porter* 1998b, *Boekholt and Thuriaux* 1999, *Landabaso* 2000) A cooperative mechanism can facilitate the sharing of sustainable development and competitiveness of the agro-food sector. Clusters of producers in the same sub-sectors can also generate interest and public support for the defense of traditional products, which may be protected under geographic indications or international protocols that seek to protect traditional knowledge. (*Zarebski,* 2002) Fostering strong agro-clusters is also important both for the national government and regional authorities, in order to be competitive in the enlarged European Union and the world market.

This article objective is to present the strongest and the most competitive agro-clusters in Poland. The paper is structured into principal sections, followed by a set of conclusions:

- a review of the phenomenon of clusters and competitiveness and their impact on regional economic development;

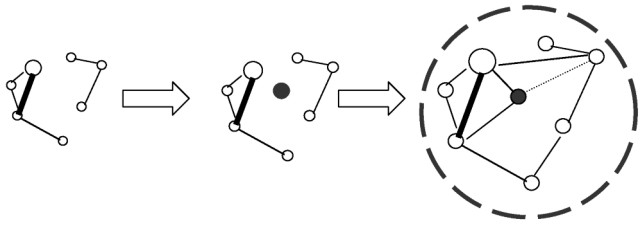
- a research framework – study methodology used in the paper;
- final results, namely the rating and performance of Polish regional agro-clusters.

The phenomenon of clusters and competitiveness

A considerable number of researchers and practitioners have discussed the phenomenon of the cluster and its impact on competitiveness, growth and regional economy. Broadly speaking, the competitiveness can be understood as: "*a way of discussing the relative performance of economies in a benchmarking sense. It can help identify areas of the economy that are lagging behind but not the reason for those lag.*" (*Dunning,* 1998) The representatives of the World Economic Forum (*WEF,* 2004) emphasize that: "*competitiveness concerns adapting state economic institutions and economic structures to produce a growth visible in the international scale. The national economy is competitive in the international scale if its institutions and policy support rapid and stable economic growth*". In the enlarged European Union and in the framework of globalised markets, regional competitiveness is of utmost importance for the regional economy. In enhancing competitiveness and growth, clusters play an inevitable and prominent role. They represent a new way of thinking about national, state and local economies. (*Porter,* 2000). Cluster theory was originally outlined by the work of Michael Porter. As he pointed out: "*clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or a region*". (*Porter,* 1990) Clusters highlight opportunities for coordination and mutual improvement in areas of common concern. They are also understood as *"self-reinforcing networks of not just firms, but a range of other organizations – including research institutes, universities, financial bodies and public sector agencies – which is characterized by high levels of both competition and collaboration."* (*Raines,* 2001) According to *Rosenfeld* (2002) "*clusters help regions better understand how their economies function as systems and which policy levers are likely to have the greatest impact*". They are differentiated by their specialization in a particular stage of their field's value chain, by their focus on specific geographic areas, or by targeting selected customer needs or market segments (*Ketels,* 2003). They provide a constructive forum for dialogue among all related participants; they create a system of network of cooperation which results in a synergy effect. The concept of cluster is far from being homogeneous and a number of schools of thought and empirical phenomena have adopted the concept, but there are some key points which are highlight in most of definitions, namely: the geographical concentration, co-location, interlinked economic activities, simultaneous competition and cooperation. (*Porter,* 1990, 1998, 2000, *Rosenfeld* 1997, *Raines,* 2001)

Regional Agro-clusters

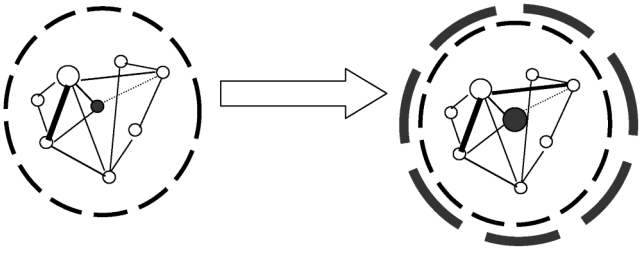
Regional clustering is both a dynamic and a systematic process, where a cluster goes through different phases of development. It requires the successful integration of a series of different factors, such as cultural, social or institutional ones. Most of the theoretical literature suggests that clusters are significant at every stage of economic development, but that in weaker environments, clusters will tend to be weaker and narrower as well. (*Ketels,* 2003) That is why it is widely acknowledged that clusters at different stages need different kinds of policy to guarantee their successful development. However, undoubtedly they are all important because they create economic benefits and they can determine the standard of living in particular region. It is worth emphasizing that regional cluster can succeed by identifying what specific role they can play based on improving their current position. (*Ketels,* 2003) Nowadays, we can perceive growing significance of clusters initiatives in rural areas and the agribusiness sector. Agribusiness is one of the most important components of the national economy. It is understood as a *system of integration of farmers with suppliers, food processing industry and distribution, which make possible to control effectively all mutually interdependent links from farmer to consumer. (Davis, Goldberg, 1957)*



The agro-cluster initiative aiming to raise an agro-cluster
Source: Kępka, 2007 r.

The cluster concept is very flexible, so it is difficult to define a one universal cluster model and apply it. However, clusters do not emerge automatically. Broadly speaking clusters initiatives in agribusiness may by created in two ways, namely by the potential participants of cluster or by directive from above. Public policies may have been the catalyst, but the most important factors which generate real growth are market demand and entrepreneurial spirit. (*Rosenfeld,* 2002) Clusters are useful device using to design development strategies for less developed regions. Cluster initiatives lead to set up cooperation among distracted business working in the same or related trade which makes them stronger and more powerful. Co-operation in regional networks, both vertically and horizontally, helps enterprises to face new challenges; it is also beneficial for the region on the whole in terms of economic development and employment. (*Rosenfeld,* 2002)

It is widely acknowledged that the term "cluster policy" covers a wide diversity of policies, ranging from sectoral networking initiatives to complex programmes. (*Nauwelaers,* 2001)



The agro-cluster initiative designed for developing an existing agro-cluster
Source: Kępka, 2007 r.

Every regional network has to promote itself in order to attract new members, to create confidence and a positive attitude towards the industry in the region and, more importantly, to build a common identity. Cluster policies generally concentrate their support in networks rather than individual firms and emphasize the importance of enhancing innovation and learning within the cluster. (*Lagendijk,* 1999)

Research framework

The purpose of this paper is to rank the Polish regional agro-clusters according to their competitiveness on the NUTS II level. The current paper will both study the Polish regions agro-cluster policies and present how cluster policies have been developed in selected regions. The analysis which we will carry out will be significant in drawing attention to the existing and potential sources of competitive strength in Polish agro-clusters. Data of essential measures were gathered from Eurostat and Central Statistical Office of Poland (GUS).

In many different analyses in order to statistically define clusters a number of attempts have been undertaken utilizing variously methodologies. In this paper regional agro-clusters were identified based on location quotients, a useful device which is defined as:

A calculated ratio between the local economy and the economy of same reference unit that. This ratio is calculated for all industries to determine whether or not the local economy has a greater share of that industry than expected. If and industry has a greater share than expected of a given industry, then that "extra" industry employment is assumed to be basic because those jobs are above what a local economy should have to serve local needs. (University of Florida State)

Location quotients enable us to make a comparison of currently selected sectors in an economic structure. In this case, the national gross value added share of the region in an agriculture relative to the region's overall national gross value added was examined. The gross value added gives an indication of the value of the economic activity generated within area.

The 16 Polish regions were studied according to above-mentioned assumption, which allowed us to see which of Polish regions were overrepresented and which underrepresented in terms of the share of agriculture in their structure. Next, we compared the outcomes with our previous research concerning the regional competitiveness in which, in order to provide an overall picture of the regional level of competitiveness, we followed the Huggins Institute approach (*Huggins,* 2003). We took into account the impact of three different categories, namely: inputs, outputs and outcomes. The relationship between inputs, outputs and outcomes was complex. The key input factors were: business density, knowledge based business and economic participation, although, there were many indicators underneath these subsets. Next, these variables were conceptualized as contributing to the output – productivity, measured GDP per capita. The impact of these measures - the outcomes – the earnings and unemployment were given. The 16 Polish regions were ranked according to their scores on each index. Then, we assessed the importance of business density, knowledge based business, economic participation, productivity, earnings and unemployment on the basis of the scenarios created by Huggins Institute. Finally, it was possible to achieve the robust results of competitiveness of Polish 16 voivodships.

Position of Polish regional Agro-clusters

In the analysis of performance of regional agro-clusters in Poland, the highest scores obtained following regions: Podlaskie, Warmiñsko–Mazurskie and Wielkopolskie. The middle-ranked regions with the score above 1.0 were Lubelskie, Kujawsko–Pomorskie, Swietokrzyskie, Lodzkie and Opolskie. However, the lowest positions were taken by the regions Slaskie, Pomorskie and Dolnośląskie. In our previous research concerning overall regional competitiveness, the most competitive Polish region was undoubtedly the Mazowieckie voivodship. It took the first position regardless of the scenarios taken into account. In the top of the ranking, we could also find Śląskie, Małopolskie and Dolnośląskievoivodships. None of these mentioned regions are found in the lead of agro-clusters rating. This can mean that Polish regions with predominance of agriculture are less competitive and characterized by poor economic performance. This may confirm the analysis of the investment outlays in agriculture. The highest level of investment in the agricultural sector was in Wielkopolskie voivodship, but even in this region the investment outlays in agriculture were more than 10 times less than its investment outlays in industry or in services. In both created rankings, only one region, the Wielkopolskie voivodship, took a relatively high position, namely the third position in the agro-clusters analysis and fifth place in the overall competitiveness index. This is the reason why we focused on this particular region, but we also took into account the Podlaskie voivodship, which obtained the highest score in the agro-cluster examination. A well developed agriculture is one of the greatest assets of Wielkopolska. Arable land takes 57,7% of total area of region. The average size of farm is 9,91 ha, whereas for the whole country is 6,59 ha. The region is

leader of food production what is an outcome of the traditionally well-developed agriculture and excellent management. The agriculture of the region evolves towards an increasing the size of intensive plants cultivation areas. (*The Local Government of Wielkopolska,* 2006) A network of specialized centers operating in the voivodship introduced new plant species and develop seed grain. The institutions like research centers and agricultural consultancies play an inevitable role in popularization of farming knowledge and latest achievements. A flagship institution of this kind is the state-of –the art center in Sielinek, where agricultural and farm animal exhibitions are held. The events accompany the "Polagra"Internacional Agricultural Trade Fair, which constitutes a unique forum for the promotion of Polish agriculture. The region which took the first place in the agro-clusters examination was Podlaskie but this voivodship achieved only the 14 place in the overall regional competitive analyses. This can means that this region is not well developed and faces particular challenges in improving its economic performance. (*Boeckhout,* 2004) One of the branches of the economy which have the major importance in Podlaskie voivodship is food processing. The structure of rural areas makes good conditions for further development of the production of milk and beef. Potatoes are mainly cultivated in the area of the province of Podlasie, as well as cereals (rye, oats, wheat, corn) and sugar beets. (*GUS,* 2006) In the last few years, the owners of rural farms have seen more and more success –in their agrotouristic activities. The most dynamic development is observed in the production of food. The plants operating within this sector specialize in the processing of milk, meat, poultry, as well as cereal and beer making. Large and modern dairies located in Podlasie are famous for their excellent products in all of Poland. The rural character of region and well developed net of food processing producers made that entities from this agricultural sector initiated the quasi – cluster cooperation. The aim of the initiative entitled "Podlaski Cluster of Healthy Food" is the acceleration of development of the food industry in Podlasie. In 2006, two brands of dairy association "Mlekpol" from Grajewo, namely "£aciate" i „Milko" found in the ranking of 300 the most valuable Polish brands. (Rzeczpospolita, 2006) £aciate, which is the most famous brand of milk in Poland and is on the market since 11 years, has taken the 50 position with the value of brand 180,2 mln zl and Milko with its 4 years existence come in 198 place with the value 29,1 mln zl. In comparison with the last year, the value of this brand rose above 40%. This is a visible improvement, but in order to increase the overall growth and competitiveness Podlasie should put emphasize on developing the clusters initiatives. The dynamic clusters are critical for a successful microeconomic business environment. (*Solvell O., Lindqvist G., Ketels Ch.*, 2003)

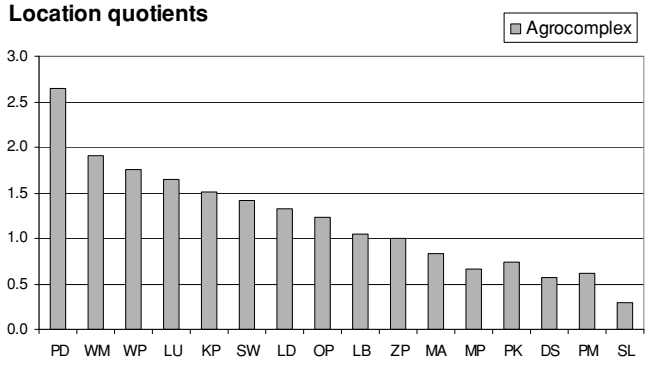


Figure 1.: The location quotients concerning the agrocomplex in Polish regions (Source: *GUS,* 2005)

Table 1.: Total Value Added (TVA) in the agrocomplex in Polish regions, 2005, in million zlotys.

Region	Code	Tot. TVA	TVA Agricul	TVA Agribus	TVA agrocom	% agricul	% agribus	% agrocom
1	**2**	**3**	**4**	**5**	**6=4+5**	**7**	**8**	**9=7+8**
Dolnoslaskie	DS	67790	1743	2319	4062	2.6	3.4	6.0
Kujawsko-pomorskie	KP	40942	2765	3678	6443	6.8	9.0	15.7
Lubelskie	LU	33821	2488	3309	5797	7.4	9.8	17.1
Lubuskie	LB	20664	958	1274	2232	4.6	6.2	10.8
Lodzkie	LD	53840	3181	4231	7412	5.9	7.9	13.8
Malopolskie	MP	63213	1857	2470	4327	2.9	3.9	6.8
Mazowieckie	MA	185211	6802	9047	15849	3.7	4.9	8.6
Opolskie	OP	19740	1089	1449	2538	5.5	7.3	12.9
Podkarpackie	PK	32879	1077	1433	2510	3.3	4.4	7.6
Podlaskie	PD	20184	2384	3171	5555	11.8	15.7	27.5
Pomorskie	PM	48988	1356	1804	3160	2.8	3.7	6.5
Slaskie	SL	114924	1475	1962	3437	1.3	1.7	3.0
Swietokrzyskie	SW	21844	1384	1841	3225	6.3	8.4	14.8
Warminsko-mazurskie	WM	24804	2115	2813	4928	8.5	11.3	19.9
Wielkopolskie	WP	81772	6371	8474	14845	7.8	10.4	18.2
Zachodniopomorskie	ZP	35712	1601	2130	3731	4.5	6.0	10.4
total		866328	38646	51404	90050	4.5	5.9	10.4

Source: GUS (2005)

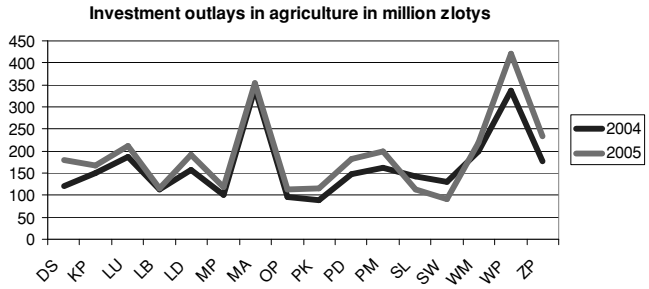


Figure 2.: The investment outlays in agriculture in Polish regions in million zlotys, 2004,2005.
(Source: *GUS,* 2006)

Table 2.: The competitive index of Polish regions (voivodships)

Rank	Index	Region
1	203,53	Mazowieckie
2	140,2345	Slaskie
3	128,9457	Malopolskie
4	124,4999	Dolnoslaskie
5	110,2475	Wielkopolskie
6	103,525	Pomorskie
7	88,64148	Lodzkie
8	85,96411	Lubuskie
9	83,27333	Podlaskie
10	81,14631	Lubelskie
11	80,40586	Kujawsko-pomorskie
12	78,05903	Zachodnio-pomorskie
13	74,35078	Podkarpackie
14	71,91269	Opolskie
15	64,76154	Warminsko-mazurskie
16	62,74923	Swietokrzyskie

Source: *Bronisz, Heijman* (2006)

Conclusion

It is widely understood that differences between regions require differentiated policy approach and that such differences derive from variations in economic development processes.

Clusters initiatives become an important way to structure economic policy and strengthen ties between all components of agro-clusters, but the main problem often faced is a lack of systematic evidence and structural approach to the factors that make the cluster initiative successful. In Poland, there is a strong need to adopt cluster policies to specific regional circumstances. The first step in designing a cluster policy should be a process of cluster identification and analyses of strength and weaknesses. Polish regions need to activate their agro-clusters, create an institutional structure which enables focusing on mobilizing the potential of its business environment. Undoubtedly, they need an overall microeconomic agro- clusters strategy which influences their conditions and improves their competitive positions.

One of the most important challenges facing Poland is to modernize and restructure the agricultural sector without destroying rural communities.

Unfortunately, the efforts and initiatives in establishing new links between the farmers, community and other components of the agriculture sector, such as the processing plants, companies supplying farm inputs and marketing agricultural products, are still very inefficient. Farmers fail to understand that in order to adjust to European Union conditions, they will have to develop new patterns of cooperation with the Polish food and agriculture. (Wilkin, 2004) Clusters highlight opportunities for coordination and mutual improvement in areas of common concern. They differ widely in their profile, their setting, their objectives and organization, but they all lead to improve growth and people's living conditions. However, there is still much to learn about translating the concept of clusters into practice and their implication for the competitiveness and growth.

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Historic landmarks in the development of Agricultural Land Market in Poland after the year 1989

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Abstract: For a number of decades in the second half of the XXth century, agricultural land has been divided in Poland between three sectors: family, state owned and cooperative farms, with a dominating share of private, individual farmers in land use. As a result, ownership structure of agricultural land in Poland is quite unique among the former socialist Central and East European countries.
Until the year 1989, when the transformation to a market economy was initiated, the land market in Poland was almost non-existent. The State Land Fund (SLF), an institution created in 1944 was for decades a substitute to land market. Originally, the Fund was responsible for the implementation of the land reform. After nationalization or confiscation of real estates, state farms have been established on a larger part of agricultural land under Fund's management. The rest has been divided between former farm workers and small farmers owing less than 5 hectares of land.

Keywords: Agricultural Land Market, development in Poland,

After the completion of the reform, with the SLF's participation as a representative of the state in governing state-owned agricultural land, in the following periods a few attempts made to move some of the private land to so called "socialist type of ownership" undertaken by former socialist governments (mainly in the fifties and seventies) have largely failed. Although there were some transfers of agricultural land to state or cooperative farms due to incentives (e.g. pensions) for farmers quitting farming and reassigning their land to the State Land Fund, the size of the private sector in Polish agriculture remained fairly stable. Transfers of land between private farmers in the pre-transition period were strongly limited to a small number of sale or lease transactions, mainly between neighbors. In the "socialist era." agricultural policy favoring state and cooperative large scale farming discouraged private farmers from enlarging individual farms. The lack of industrial jobs and limited housing in cities resulted in a small migration from rural to urban areas and further contributed to conserving the farm structure in Poland *(table 1)*.

Table 1. Structure of agricultural land use in Poland (1970–2005)

Year	1970	1975	1980	1985	1990	1995	2000	2005
Total area of land in agricultural use [mln ha]	19,5	19,2	18,9	18,8	18,7	17,4	17,8	15,9
Public sector [%]	19,0	21,0	22,8	23,5	18,5	8,8	7,8	5,0
Private sector [%]	81,0	79,0	77,2	76,5	81,5	91,2	92,2	95,0
Average size of family farm [ha]*		5,6	5,7	6,0	6,3	6,7		

* for farms more than 1 hectare of total area of land
Source:

In the period analyzed two basic features of changes in the farm structure should be underlined:

- the diminishing share of private sector and a slow, but steady increase in the average family farm size in the period 1970–1985. This proves that some transfer of land between farms actually took place. However, the scale of land transfers and implications for the farm structure were limited.
- the rapid increase of the share of private sector after 1990 resulting from privatization of the state owned land.

The year 1989, the beginning of the transformation to the market economy, can be considered as the first landmark in the more recent history of the Polish agricultural sector.

1989/1990 Transition to the market economy

Agriculture was one of the first sectors of the Polish economy to experience the effects of economic transformation. Almost full market liberalization resulted in increases of prices of inputs, largely due to the removal of subsidies to costs of agricultural inputs, as well as to the freeing of energy prices, earlier kept at a level below costs of energy production. Other factors, such as increased imports of agricultural and food products competing successfully with domestic production or rapid increase of interest rates above growing

inflation led to a significant decrease of real agricultural incomes and put a large number of farms into critical financial situation.

The implications of deterioration of farmer's incomes and changes in the macroeconomic environment for the land market in the first years of transformation were twofold:

- real demand for agricultural land was small, despite the willingness of a large number of farmers to expand their holdings. This was mainly due to low incomes from farming, cash flow problems farmers were facing and high interest rates, because of inflation, making any investments in agricultural production hardly profitable.
- on the supply side, agricultural land became available, at least in regions of Poland with a high share of state farms in the agricultural land use, because privatization of state farms was one of the first political decisions in the beginning of the 90. In 1991 the State Property Agency (APA), replacing former State Land Fund was established to administer the privatization processes in agriculture.

In consequence, the share of private sector in the land use noticeably changed in the first five years of economic transformation due to the primary state farms lease transactions in the privatization process, whilst in the family farms sector a continuation of the long-term trend of slow increase of the share of larger farms could be observed, as shown in *table 1*.

1994/1995 – visible signs of a land market being established

Since the mid 1990s, agricultural policy in Poland has undergone further changes due to the preparations for accession to the EU. Positive price trends and improved productivity, resulting from increased inputs due to better terms of trade and technological advancements, had a strong impact on growing farm incomes. New financial support measures which re-established subsidizing of the agricultural production, including preferential interest rates for bank loans, after the almost complete removal of subsidies in the beginning of transformation period, have pumped into the farming sector additional funds available for investments.

Fig. 1. Farmers declaring interest in enlarging farm size in the year 1995 (sample of 655 family, commercial farms) Source: Own research

The recovery of the sector from a transition crisis as well as improving profitability of agricultural production resulted in a growing demand for agricultural land.

In a study conducted in 1995 almost 57% of commercial, family farmers from the surveyed sample of 655 farms declared their interest in enlarging farm size *(figure 1)*.

Farmers from the smallest farm size cluster (below 15 hectares) were less interested in farm enlargement, while willingness to increase farm size was growing among owners of larger farms. This shows one of the features of the agricultural sector in Poland – progressing polarization within the farm structure: the number of small farms is relatively stable and large, commercial family farms grow in terms of the number and share in the land use. Middle-size farms slowly loose their dominating position as too small to provide a sufficient income and to benefit from economies of scale and too large for being semi-subsistence and allowing farmers and their family members for non-farm jobs and additional income sources.

Another study conducted in 2000 leads to similar observations and conclusions *(table 2)*.

Table 2. Willingness to change farm size in the sample of family, commercial farms [2000]

Farm size clusters	Number of farmers willing to enlarge farms	Average farm size [ha]	Declared, mean scale of changes		Average, potential farm size if increased as declared by farmers [ha]
			[ha]	% of existing area	
7-10	26	8,7	14,3	163,9	23
10-15	84	12,5	15,4	123,4	27,8
15-25	116	19,5	20,6	105,4	40,1
25-40	99	31,3	25,3	81	56,6
40-75	49	53	40,81	77,1	93,8
>75	13	144,1	121,3	84,2	265,4
Average	387	28,7	26,2	91	54,9

Source: *Kubis,* 2002

In a sample of 721 farmers randomly selected from different regions of the country where agriculture is an important branch of the regions' economy, 387 farmers (53,6% of the total sample) representing different farm size clusters were interested in buying or leasing more land. The scale of declared changes in the area of agricultural land was greatest in smaller farms (up to 163,9% of the existing area in 7–10 hectares farms). However, smaller percentage-wise changes would lead to significant increase of farm size in larger farms, showing a potential for the polarization process. Although the results of the survey show only the intent of farmers and in many situations declarations of an interest are not turned into factual decisions (e.g. because of limited availability of land for lease of purchase) national statistics prove the trend, indicating a steady concentration of land which takes place in the last decade *(table 3)*.

After years of relative stability 1994 was the turning point when growth in the number of larger farms began. More

Table 3. Changes in the structure of family farms in Poland in the period 1990–2005

Years	Total number of farms ['000]	Farm size clusters [ha]				
		1–2	2–5	5–10	10–15	>15
share in the total number of farms [%]						
1990	2137,5	17,7	35,1	29,8	11,3	6,1
1993	2148,8	17,9	35,3	29,6	11,2	6
1994	1967,3	19,2	33,7	27,6	11,4	8,1
2000	1880,9	23,8	32,6	23,8	9,9	9,9
2005	1786,7	25,0	32,8	21,7	9,4	11,1
share in the land use [%]						
1990	2137,5	4,2	18,7	34,5	22,4	20,2
1993	2148,8	4,3	18,9	34,5	22,3	20,2
1994	1967,3	4	16,2	28,6	20	31,2
2000	1880,9	4,8	14,7	23,6	16,6	40,3
2005	1786,7	3,7	11,1	17,1	12,9	55,1

Source: *Gradziuk,* 2005.

importantly, larger farms significantly increased their share in the use of agricultural land. Farms of the size greater than 10 hectares operated in total about 42% of agricultural land in the year 1990, 51% in the year 1994, and in the year 2005 their share reached 68%. Increased transfers of land between farms of different size in the family farms sector are not the only indication of the land market being established and operational (in the analyzed period share of land used by smaller farms steadily diminished). Also in the former state farms sector rapid changes resulting with a growing turnover of land could be observed.

Formal and legal preparations to the restructuring of the state owned land which took place in the first years of the transition period allowed, after completion, to start the privatization process. In the beginning, mostly in the period 1993–1995, land leasing was the preferred form of acquiring land which belonged previously to state farms, due to low capital requirements [*Ciodyk, Zagorski* 2007]. In the following years purchases of state land became favored, as illustrated in *figures 2 and 3*.

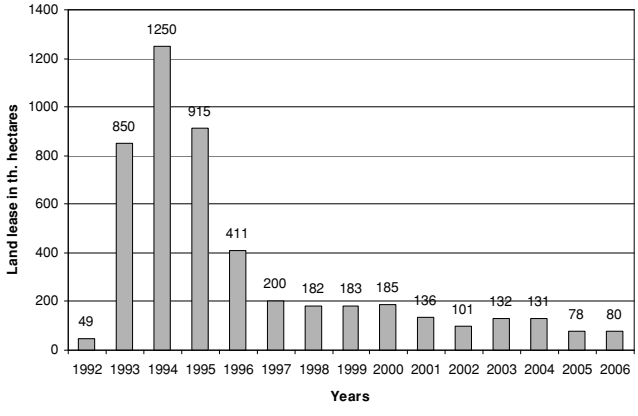

Figure 2. Leasing of state farms land in the years 1992–2006. Source: *Ciodyk, Zagorski* 2007

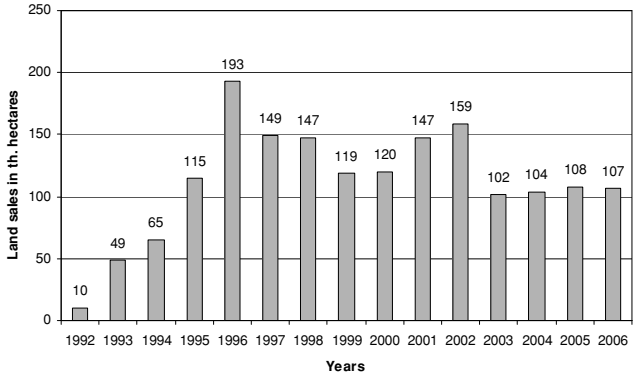

Figure 3. Purchases of state farms land by private farmers in the years 1992–2006.
Source: *Ciodyk, Zagorski* 2007

2004 – EU accession and Land Market mechanisms functioning

Since 1994 a visible, high turnover of land and evolving farm structures clearly indicate that land market in Poland has been established. The year 2004 and the inclusion of Polish Agriculture in the Common Agricultural Policy brought a new feature into this market. Significantly reduced

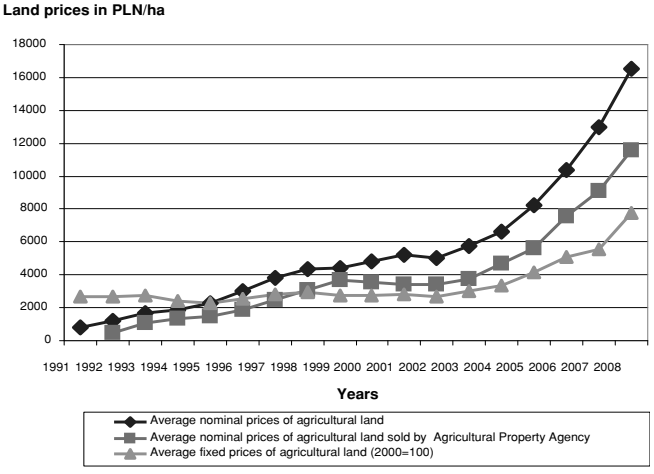

Figure 4. Agricultural land prices in Poland in the period 1991–2008

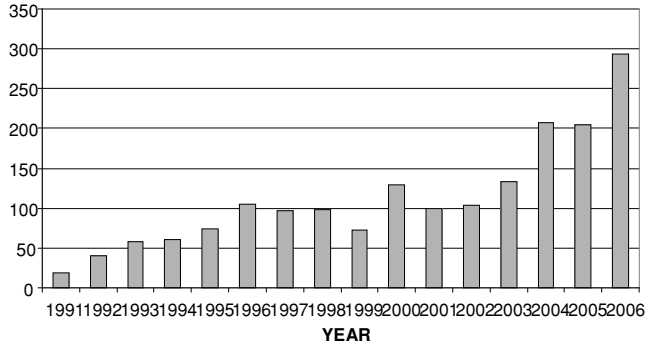

Figure 5. Land lease costs in PLN/ha in Poland in the years 1991–2006 nominal

supply of land, after privatization of former state farms has been almost completed, and growing profitability of farming due to direct payments and favourite price trends, which made investment in agricultural land more attractive, resulted with a rapid increase of land prices, as well as land leasing costs *(figures 4 and 5)*.

Concluding remarks

In Polish agriculture, three sectors coexisted for decades until the year 1989, in which the economic transformation to the market economy has been initiated: state, co-operative and family farms. Farm structure in the period before the transition was relatively stable and the land market was practically non-existent. Political and economic changes in Poland enabled the establishment of a land market. Its development can be linked to three major "landmarks" which had a significant impact on the supply and the demand for land and a pattern of structural changes in the farming sector. One of the basic economic consequences is, that price of land became a monetary indicator of the value of the key production factor in agriculture.

There were several factors facilitating creation of the market in the first years of transformation, such as the political decision to privatize state owned land and strong expansion in the sector of family farming in order to increase family incomes and to benefit from the economies of scale.

Economic growth in Poland and introduction of the Common Agricultural Policy in Polish agriculture in the year 2004 brought more incentives for changes influencing turnover of land and causing strong increases of land prices. Among economic factors such could be mentioned as, having an impact on the supply of land, rapidly diminishing unemployment and more off-farm opportunities, which made possessing the agricultural land and farming less attractive for farmers seeking for non-agricultural income sources and (or) for potential successors. In a direct or indirect way also some of the CAP measures (e.g. early retirement schemes) contributed to the land supply. On the other hand, farm expansion strategies realized by a large number of farmers [*Majewski, Sulewski,* 2007] and improving financial situation of farming and urban population created strong and growing demand for land, both for agricultural and non-farming use. The supply and demand situation on the Polish land market explains, to a large extent high equilibrium land prices. However, observations of developments on the Polish land market in the pos-accession period, and a pattern of changes in land prices, supports strongly the hypothesis that "the increase in the value of assets used in agricultural production is considered to be one of the major outflows from government support payments" [*Wesselink* et al., 1999] leading to the capitalization of benefits from subsidies.

The rapid increase of land prices in last years is can be also attributed to an effect of the "paradox of value". Apart of growing use of the agricultural land for recreation purposes (hobby farming) and housing in rural areas in the neighborhood of large agglomerations, land is also treated as a lucrative asset.

Summing up, the creation of land market in Poland after the transformation to the market economy has been initiated and further developments on this market clearly indicate linkages with the political and economic changes which occurred in the analyzed period. Growing turnover of land, to a large extent due to the privatization of former state farms, as well as much stronger demand for agricultural land than the supply, results in price increases. This proves that land market became operational. The data show significant changes in the farm structure leading to a growing share of large, commercial farms in the land use reminding a pattern of structural changes in the most developed European countries. In the near future, stronger demand for agricultural land, also for non-agricultural purposes, and further transfers of land enlarging size of Polish farms and deepening an existing polarization of the farm structure can be foreseen.

Efficiency evaluation of service marketing in a Hungarian Telecommunication Company

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Introduction

It is unquestionable that marketing is an essential promotor of the economy and commerce. With its diverse tools, it can influence consumers and also regulate supply by measuring needs and demands (*Bauer-Berács,* 1998). Although the roots of marketing go back centuries, it is interesting that the *raison d'être* of service marketing was disputed even in the 1960s and 1970s. However, by today it has developed into a substantive specialty.

In this study, the inquiry service and the implemented marketing tools of a leading Hungarian telecommunications company were studied for four years. (The data was provided by the communication manager of the company. Being bound to secrecy, I will not disclose the name of the company or the inquiry service.)

The company is held by foreign owners, its stocks are also listed on the New York Stock Exchange. Its services include mobile communication for private clients and corporate services for business partners. Content, media and other non-access services in new business areas are provided, as well. The analysed service is at the clients' disposal 24 hours a day, providing information on professional, business, cultural and other fields. The questions are answered by the operators themselves, based on the company's internal and continuously expanding database and the Internet *(INTERNET 1.)*.

Continuous intercommunication with the company made it possible to perform an audit of the marketing of the service and these experiences provided an opportunity to make new plans for the following period. There was also a chance to evaluate efficiency.

During this examination, the theoretical basis of auditing and planning were learned, as well as the past and present of the company and the inquiry service. In this article, only the main results and the proposals are shown about the future of the service based on these conclusions.

Literature review

Service marketing: First, WE MUST look at the service itself, as a special kind of goods. Even the wording is different, as traditionally the object of the barter deal between the seller and the buyer is the product, while service goods are exchanged between the provider and the user. In fact, "from the marketing point of view, service is a non-physical type of problem solving" (*Veres*, 1998). The special marketing problem comes from the lack of physical contact. The essence of the goods is a non-tangible physical object, which includes both the material and the bodiless content of the goods, but totally 'pure' service does not exist (*Józsa–Piskóti–Rekettye–Veres,* 2005).

According to the so-called HIPI principle, from the marketing point of view, services differ from physical products in four primary features:

- H – heterogeneity: The performance of the provider and the service observed by the user vary in place and time by nature. The higher the ratio of „personal factors" of the service is compared to material factors, the bigger the risk of heterogeneity is. The consequence of heterogeneity is unsteadiness, so quality control is fragile even if the positioning is well-reasoned.
- I – intangibility: It is not possible to gain information of the service by sense perception; the buyer must experience the service (goods of experience). This is a disadvantage, because no sample can be provided of the service, i.e. the future buyer can not test without buying it.
- P – perishability: the service that was not consumed today cannot be replaced, it represents 'lost' turnover (*Kotler,* 2001). Storing enables flexible adjustment to the unexpected fluctuation of demand. The provider misses this opportunity, and the client may lack one of the most important quality parameters, the availability of the service.
- I – inseparability: providing and using a service cannot be separated in time, it happens at the same time in the presence of the front personnel of the provider and the user. While quality control can be performed between production and storing, a service can be controlled only while it is being performed.
- And if it is faulty, supplementation is not equal to replacement (*Veres*, 1998)
- and (*Laczkó–Zsom,* 2004).

In the following part of the article, the structure and process of marketing audits and plans are discussed.

Marketing audit: Auditing is defined as a tool of control, screening and surveying. Thus, a marketing audit is the control of marketing activity based on a relevant structure *(INTERNET 3.)*. Organizational strategy is elaborated by the company in order to reach its organizational targets, which include plans related to products, production and distribution, finance and labour force. Controlling of the product and the market is made by a functional audit, which includes a marketing audit, as well (*Józsa,* 2000).

In other words, the strategy, tools, actual facts and results achieved through the effectuation and performance of the employees participating in effectuation are compared in an audit with the market results of the company within a certain period of time. helping this way, the points that need modification and the direction of intervention can be determined, and using its results, the marketing guidelines to be followed or modified can be elaborated (*Bokor–Mészáros,* 2002).

Marketing planning: The main task of efficient management is to elaborate strategies, including marketing plans that contribute to the attainment of a set target. An exact definition is not cited here, as there are as many determinations as books on this subject (*Bősze,* 2001); (*Fazekas–Harsányi,* 2002); (*Griffin,* 2001) and (*Sárközi, Schleicher,* 2003). What these definitions do have in common is that planning is a procedure of making decisions today in regard to the future, in order to assit the optimal development of business management. Therefore, the primary task and aim of marketing strategy is to accomplish the higher level strategies of a company by establishing a competitive and good market position (*Muray,* 1984) and (Wensley, 1991).

1. table: Steps of Planning (Source: *Paley,* 2000)

Phase 1: Setting targets	Determining Mission
	Organizational targets
Phase 2: Analysis of the situation	Marketing analysis
	SWOT analysis
	Assumptions
Phase 3: Forming of the strategy	Marketing targets and strategies
	Estimated expected results
Phase 4: Resource Management	Budget
	First-year plan

The planning is based on the audit, which in turn provides the basis of the SWOT analysis, which is used to set the marketing targets. These include product mix, markets, segments and channels (*Incze–Pénzes,* 2002) and (*Törőcsik,* 2003). The next step is to determine strategy. This usually should help to make the best of the opportunities, correct the deficiencies and build up a balanced product portfolio (*POrter,* 1985). The following element of the process is 4P, i.e. the compilation of marketing-mix: determining Product, Price, Place and Promotion. Then activities are divided into sub-targets and sub-strategies that will result in product quality, positioning, design, timing, profitability and market share. All these are reinforced by a suitable and confirmed budget (*Katits,* 2002).

During and after the forecasted period, the accomplishment of the targets can be monitored by a new audit. Abstract calculation of efficiency can be made based on the numerical data report *(INTERNET 2.)*. Its method will be shown in the next section.

Methodology

In the following section, the results of the research of the past 4 years are shown and the most important data are highlighted. The starting point is the audit of the service made in 2005. Based on this, a marketing plan for 2005–2006 was prepared. In the audit of 2007, not only a survey of the current situation was attempted, but the primary aim was to measure to what extent the plan from the two preceeding years had been achieved. Finally, a new marketing plan was made that aims to achieve the highest possible efficiency based on the previous experiences. *(Figure 1)*

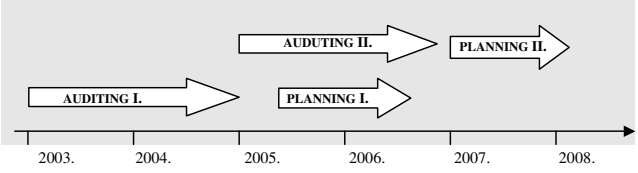

Figure 1.: Methodology of research (Source: *Kalmár,* 2005–2007.)

In the following, the details of the calculations are specified. The following formula was used for the calculation of additional income – TNJ, which is additional income owing to marketing activity (*Kárpáti,* 2005.a) :

$$TNJ=Q*Price-Mk*(1+Ha), \text{ where}$$

Q: sold quantity
Mk: Marketing cost
Ha: Cost of renounced profit, it was taken as 20%

The formula does not include variable costs, as these are not specific of services.

The following significant calculation is the difference between additional financial results and own targets, where the formula is:

$$\Delta TNJ=(TNJs-TNJc)/TNJc*100=\%$$

TNJs = own additional income
TNJc = corporate additional income

Both additional income and additional financial result are based on estimated or achieved quantity. Quantity means the number of calls per month. The data was provided in the above form, in minutes and in HUF. In our judgement, this form is the best to show the popularity of the service and the

numerical value of the additional users of the service on account of the communication. The data given in minutes are distorted by the time of the search, while the income is distorted by the fees changing year by year.

Finally, the calculation of efficiency is expounded (*Kárpáti,* 2005.b). Its value is the difference between additional income and marketing costs and the quotient of the same expenditure:

$$HK=TEK /\Sigma MKK *100= \%$$

$$TEK=\Sigma\Delta Qx*(Price-VK)-\Sigma MKK, \text{ where}$$

Price = price of the product: '000 HUF/t
VK = variable costs: '000 HUF/t
TEK = additional economic result of the communication policy ('000 HUF)
ΣMKK = total marketing costs

The formula does not include variable costs, as these are not specific of inquiry. Marketing costs, on the other hand, include not only communication activity, but also the salary of the communication employees (gross salary per month).

Results

Marketing auditing I.
(Audited period: January 2003 – December 2004)

During the first audit, marketing organization and the realized sales data were examined based on the number of calls and the income. Then, the efficiency was calculated using the costs of marketing activity. In the following, from the analysis of marketing functions of this study (*Kalmár,* 2005), only communication will be highlighted, as this is the feature the company most emphasized. The costs of this are equal to the expenditures of 4P. Finally, the common efficiency of the campaigns of 2003 and 2004 will exposed, because of the space limits.

In the following points, the communication related to the service will be shown through the campaigns.

- August – September 2003 TV campaign on 5 TV channels (RTL Klub, TV2, NatGeo, Viasat, Sport1), TVfilm, period: 2003. 11 August – 14 September, (ceased in the meantime), News magazine, Invoice envelope **Cost: HUF 80,000,000.00**
- 17 July – end of August 2004: TV campaign with local cable TVs, using the advertisement of 2011. **Cost: HUF 40,000,000**

Common evaluation of the efficiency of the campaigns of 2003 and 2004

The audit contains detailed calculations and analysis, but here only the marketing efficiency of these two years is compared.

The table above highlights the effects of marketing activity. *(Figure 2)* The start of the communication and its consequences can be observed clearly. It shows that the

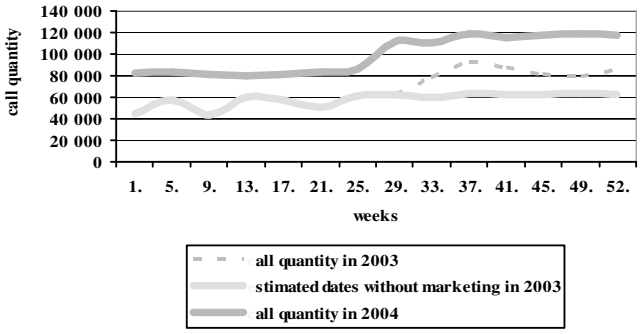

Figure 2: Number of answered calls in 2003 and 2004 (Source: *Kalmár,* 2005.a)

campaign of 2003 increased the number of incoming calls by 20,000, and the campaign of 2004 increased it by 30,000. As the advertisements caused the number of calls to get steady, the campaign of 2004 started from the increased data, so its efficiency cannot be analysed separately – the outstanding results of 2004 are based on the campaign of 2003, too. *(Table 2)*

Table 2: Cumulated results (Source: *Kalmár,* 2005.a).

	2003.	2004.	Total
Additional income ('000 HUF)	48800	92900	141700
Marketing costs ('000 HUF)	83600	43600	127200
Efficiency (%)	-41,62	113,07	11,39

The impact of the 2004 advertising is extraordinary. The significant increase of efficiency owes to the fact that - with the increase of the actual number of calls – the 2004 campaign used an existing advertising spot, so costs included only the costs of media. Marketing costs for 2004 are only half of the costs of the previous year.

According to the abstract calculations, the consolidated efficiency was 11,39%. This experience showed the company and us, too, that the target audience should be reminded of the service, as their reaction is positive to the ad and it is not always worth making a new spot for a given communication. In our view, planning a big budget every 2 or 3 years will do, while in the interim period, it is sufficient enough to use an old spot or other promotional tools.

Marketing planning I.
(Planned period: July 2005 – June 2006)

In 2005, using the above described audit, a short-term marketing plan was made, which covered one year after the beginning of the communication period. The aim of the plan was to improve the achievements of the company. The communication policy chosen was very close to the previous marketing activity of the company. The information basis of the service was broadened and the teenagers were pulled in the target group with the introduction of the text message-based service that is liked by young people. Furthermore, using the real data of the audit forecasting, a true picture of

the future situation was intended to be gained. In the research description, further details on the market analysis, the SWOT analysis and the action plan will not be given. The accomplishment of this plan will be described in the next section, as part of the 2007 audit.

Targets

Following a brand switching, the company does not communicate the service itself until the last quarter. Their aim is to popularize and promote the new name, so stress is laid on promotion of the company and advertising of other – new – fields. Based on data from previous experience, the annual campaigns increased the frequency of the service by twenty-thousand calls. They are convinced that they can achieve the previous growth level even without a campaign. Their expected additional net sales revenue

In my opinion, the communication and promotion of the service range expanded by the text message-based option continues to be essential. Therefore, 43,600,000 HUF should be spent on communication (TV, radio, wages) altogether. Regarding the frequency of the service, 22,000 additional calls per month and 25,000 incoming test messages per month are expected. The price is 130 HUF/call, or 100 HUF/text message. Thus, for a yearly period, 142,000 incoming calls per month and 25,000 test messages per month are calculated.

The additional financial result, the difference between corporate and own targets, would be almost 6%, and these sales targets exceed the targets of the company by 16,8%.

Because of the experiences described in the audit, the use of new communication tools (such as billboards, flashers) is not offered. All that occurs is that the radio station Danubius broadcasts the audio of the TV spot for one week after the TV campaign has finished. The modified version of the ad spot would be shown on the TV stations RTL Klub, TV2, Viasat and Sport 1 from 9 to 17 July and from 23 to 30 July. Total communication costs are 40,000,000 HUF.

Budget

The calculation shows the additional sales quantity expected to be achieved (22,000 calls and 25,000 text messages per month) and also the aimed additional sales revenue, which is 58,960,000 HUF per year. The campaign will be held in July, so its effects can be measured only from August. Therefore, the difference between the corporate and the own additional sales and revenue appears only from August, i.e. through the next 11 months reviewed.

Total marketing costs are 43,600,000 HUF for 12 months. The additional amount of profit – difference between corporate and own planned profit – is 18,960,000 HUF, and the cumulated amount is equal to that. Current assets required by the plan are 40,000,000 HUF.

The development of cumulated surplus and additional profit for the 12 months of the plan is shown on *Figure 3*.

Communication costs arise as expenditure in the first month, i.e. in July, later the only costs are the payment of the

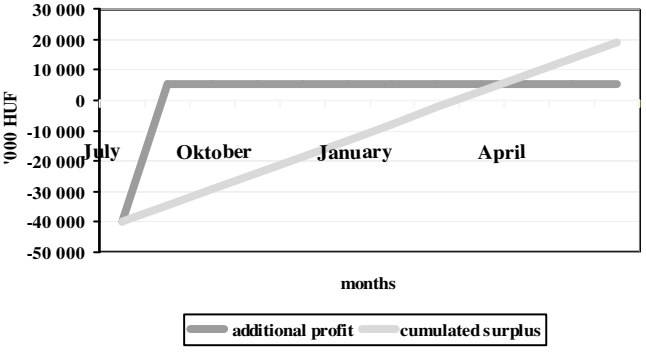

Figure 3: Cumulated surplus and additional profit July 2005 – June 2006 (Source: *Kalmár,* 2005.b)

employees. From August the planned revenue and the profit difference is higher by 5,360,000 HUF. Thus, the additional profit is 18,960,000 HUF per year. The figure shows that the point of intersection of the two charts is in April, i.e. in the tenth month after the beginning of the communication. Based on the numerical data the plan is definitely effective. Marketing efficiency is 35,23%, which is considered very effective. It also shows that the forecast is based on real data and the plan can be accomplished.

Marketing auditing II.
(Audited period: 1 January 2005 – 31 December 2006)

In the second audit, the plan described in the previous section was compared with the realized activity, turnover and revenue of the company. From this study, the features backing up the comparison of the target and actual data are highlighted.

Communication policy of the Company

2005: the professional database was set up using DM for 8 million HUF, and in spring LA4-size leaflets were made in order to promote text message service for 4 million HUF. **Total costs: HUF 12,000,000.**

2006: 'Who wants to be a Millionaire' programme was sponsored for 2 months and 42 million HUF, then a press campaign was conducted during the Football World Cup in sports section of national and local newspapers, Nemzeti Sport and Blikk. There was a billboard made in the World Cup Park promoting the services. The press campaign cost 43 million HUF. Total costs were 85 million HUF in 2006.

Sales activity

Figure 4 shows planned and actual sales data.

The figure shows that while in January 2005 128,000 calls were received in a month; in December 2006, the number of the calls was 197,000, which is undisputed and significant improvement. In the plan an optimistic project was forecasted based on the previous audit, but the actual number of incoming calls significantly exceeded the planned

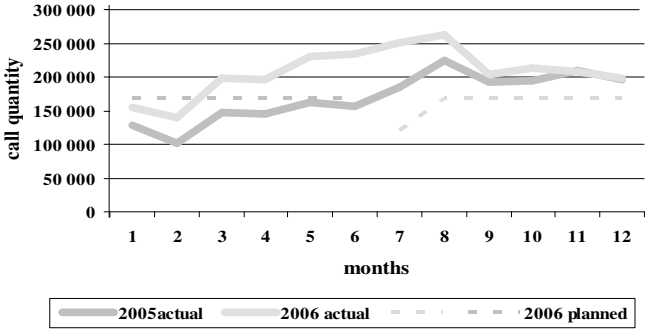

Figure 4: Planned and actual sales quantity in 2005–2006
(Source: *Kalmár,* 2007.a)

data. The reason behind this is that despite its previous plans the Company conducted an expensive communication campaign. In the analysis of marketing efficiency all marketing efficiency was attributed to communication. Its rate is 351.19% in 2005 and 35,23 in 2006. Cumulated efficiency is 52%.

The target data of the plan based on the previous audit fell well behind the actually realized data of the Company. One of the reasons of this that at the beginning of 2005 it seemed that there would be no budget for special activities. Therefore in Plan I the planned data of the Company were kept constant. On the other hand, the high differences indicate that the life cycle of the service is going up, as the number of customers increases very fast. It seems that communication does not only reach the users of the service, but it also influences them positively. The monthly turnover data shows that the number of the answered calls started to show a bit declining tendency just at the end of 2006. This proves that it is worth monitoring the plans and reviewing their accomplishment, as the data of one year does not give a true picture of the life cycle and market potentials of a company or a service. The effect of Internet in the decrease of the turnover may have been overrated and the potentials of this service underrated. The marketing plan of 2007 was based on the above conclusions.

Marketing Planning II.
(Planned period: 1 January 2007 – 31 December 2007)

In the marketing plan of 2007, based on previous experience, it had to be considered that – although until that time the service had been in the cash cow phase of the BCG matrix – the turnover had just started to decline, so the effect of communication must have been planned more conservatively. And for the Company had spent 85 million HUF to promote the service in 2006, for this year much less was planned, as the tendency had showed that a bigger budget was worth it only in every two years.

When creating the communication theoratical guidence of *Virányi,* 2005 and *Yadin,* 2000 were taken into consideration.

The estimation in the short term financial target is based on 430,000 additional calls annually owing to the marketing expenditures. The calculation method of the additional sales is based on stagnating or declining calls without marketing, and the monthly fluctuating additional sales were added to this amount. 5 HUF price increase/call was calculated, but it is not expected to decrease the number of calls. As a result, 28,290,000 HUF additional net cash flow is expected. This shows 114.07% of efficiency, which is a very good result.

Marketing tactical steps

Among the elements of marketing strategy expenditures were only planned on communication, just as it was done before. Total costs are 20,000,000 HUF per year, and the payment of the communication manager – 400,000 HUF per month and 4,800,000 HUF per year – is added to this.

Based on the knowledge gained from the audit, following the big budget of 2006 moderate expenditures were planned for this year. Communication is composed of prize games, online advertising, leaflets and direct mails.

1. This plan includes a year-long prize game, where there is a laptop and a cell phone with subscription drawn by lot every month among the callers.
2. Online banner campaign on Origo and Index portals in February promoting both the service and the prize game. The cost of this is 10,000,000 HUF.
3. Leaflets (85,000 pcs) in April also promoting the service and the prize game showing the characters of the advertising spots and the prizes. The leaflets are distributed by students in the county towns at weekends. The planned cost is 4,400,000 HUF.
4. Direct mails are linked to the invoices sent to the subscribers of company. At the back of the invoice the service is advertised by a colourful montage . The costs of design and implementation are 20,000,000 HUF. The turnover of the action can be seen on *Figure 5.*

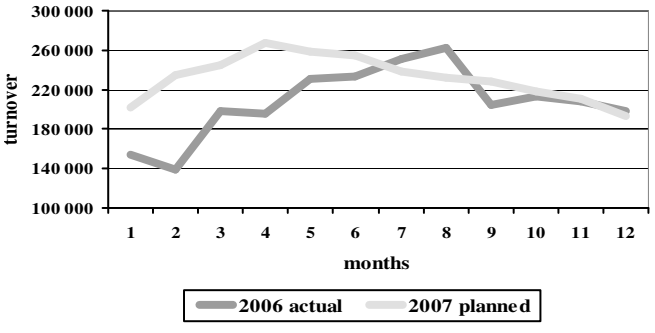

Figure 5: Actual data of 2006 in comparison with planned turnover of 2007
(Source: *Kalmár,* 2007.b)

The above diagram contains the turnover data in budget report compared to the actual number of calls in 2006. The planned data (2,782,905 calls per year) are barely exceeding the actual data of the previous year (2,487,396 calls per year). Even so this calculation is optimistic, as the life cycle of the service has just started to decline, so it's good enough if the turnover can be increased. In order not to be unrealistic the year-end turnover is estimated to fall behind last year.

There was no opportunity yet to monitor the planned data of 2007, but after comparing the confirmed turnover data of the service with the marketing activity, these targets can be considered realistic.

Conclusion

Following a lot of numerical data now we seek to give a summary of the experiences of the last four years and come to conclusions that can support suggestions about the future of this service.

The advantage of inquiry service is that the caller gets in touch directly with the operator, which represents a personal and human contact, and – the service being non-stop – the questions can be asked 24 hours a day.

The extremely positive side of the service for the Company is that – without real competition at the moment – users are not sensitive to the price level and occasional price increase. Furthermore, the efficiency of the communication is so high, that it is worth and expedient to plan some kind of activity every year. Advantage of the applied tools is that their efficiency is noticeable not only during the campaign but the achieved results remain stable in the coming months, as well, so enabling further increase of turnover in the next year.

From all the above this service can be concluded as a real success story, although the drawbacks of the service should also be kept in mind:

The database is not complete, the scope of information should be extended based on consumer research, and it should be updated not just as a professional database but also with data of cultural and sports events.

It is a long price service, and on top of it, the price is not homogeneous, but varies depending on telecommunication providers, therefore mobile providers should compromise and harmonize the prices there are 'unanswerable' questions and the search for information can be too long, as well, so it is recommended to refine the already excellent technology, i.e. to decrease the time for getting through and to lessen the time of searching for information.

There is a risk that the service will be copied; i.e. the name of the service of the company – there is a website offering free of charge access to similar information provided by this inquiry. For this reason and also because of the expanding importance of Internet, the Company should initiate to combine Internet with the original and real inquiry service.

As the life cycle of this service is expected to decline, the potentials should be exploited and the marginal profit should be skimmed off as long as it is still possible.

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An analysis of the national strategies for sustainable development with special emphasis on the issues of Agriculture and Rural development[1]

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Abstract: In this paper which is based on my dissertation I carried out a comprehensive analysis of the national strategies for sustainable development prepared by the EU and its member states. I paid special attention to agricultural and rural development issues discussed in the strategies.
According to my hypothesis the sets of objectives defined in accordance with the principles of sustainable development provide a firm basis for the objectives of the ongoing reforms of the European Union's Common Agricultural Policy. Due to the complexity of the topic I applied an interdisciplinary approach in my research.

Keywords: sustainability, national strategy for sustainable development, evaluation, agricultural issues, rural development possibility

Introduction

Preparing and reviewing the sustainable development strategies have been important processes during the last decade, and they will probably mean a great challenge in the forthcoming years, as well. Handling social, economic and environmental processes in a uniform and integrated way is becoming a significant requirement when making political and economic decisions. Social pressure to fulfil this requirement has strengthened although its extent is highly different depending on the individual countries.

Investigating the agricultural and rural development aspects of the national strategies for sustainable development (NSSDs) is an up-to-date research area for two major reasons. On the one hand, the ongoing reform of the Common Agricultural Policy, which I regard as the most significant change in strategizing, gives an exceptional opportunity to prepare and introduce measures based on the principles of sustainability. Rural areas and agriculture are enriched with new functions, which may become determining in the near future. In my oppinion the objectives related to agriculture and rural development, as presented in the national sustainable development strategies, contribute to this reform. The principles and objectives promoting the reform appear, or should appear in the set of objectives. On the other hand, by investigating the national sustainable development strategies we can see Hungary's position on the way to sustainable development and we can decide what positive characteristics we can borrow from the leading countries' strategies to use them in our national strategy for sustainable development.

Before analysing the concrete agricultural and rural development strategies I strove to explore the theoretical and practical problems and the possible solutions that occurred most frequently in the analysis of the NSSDs. On the basis of my investigation it can be concluded that both the concept of sustainability and the complex task of national level strategy design caused difficulties to the strategy-makers.

For the last two or three decades sustainable development has proved to be an extremely complex and ambiguous concept theoretically, while in practice it can be implemented only gradually and by making serious compromises.

In theory, the concept has several, sometimes contradictory interpretations. At the same time some elements of the problem cannot be clearly defined. In my view, sustainable development is basically a global ecological concept. I do not agree with the interpretation that separates "economic sustainability" and "social sustainability" from the global concept of sustainability as it overshadows the ecological requirement. (*Kiss,* 2005)

From the point of view of strategy design, the clear definition of the theoretical problems of macro-level strategizing can be considered an important result, as it is often neglected by present-day economics. Reviewing the theoretical problems, I emphasize two major problems: the conceptual ambiguity of strategy design, and the lack of connection between plans and strategies. Besides the

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identification and classification of these issues I have focused on the actual manifestations of these theoretical problems in the NSSDs.

The creation of sustainable development strategies is still in the early days of its development. These strategies struggle with the above mentioned problems. Analysing the NSSDs we can conclude that there are serious contradictions and extreme solutions in connection with major issues, such as time span, objectives, social participation, responsibility, institutional system, etc., which originate from the theoretical ambiguity of the subject.

Objectives of the research, definition of the research area and the applied methods

The subject of my paper is the analysis of the sustainable development strategies, so primarily I concentrate on the characteristics, problems and interrelations of the *strategic documents* at the level of the European Union and its member states (by analysing national and supranational strategies.). I did not aim at investigating the practical results of the objectives and principles as defined in the sustainable development strategies and I did not intend to examine the impacts of the strategies on economic and social decision-making. In my opinion the analysis of these issues could not be effective at present, due to the novelty of the process. Furthermore, the analysis of the local sustainable development strategies is not included in the subject of my research, though I would like to emphasize that the two approaches should be combined to achieve good results.

My investigations focus on the sustainable development strategies. It is doubtless that the quality of a strategy in itself is not enough to assess a country's performance in the field of sustainability; however such a document informs us about the public awareness and the attitude of the political leadership concerning the global problems that threaten sustainability. In my opinion the importance of analysing the strategic documents is justified by the fact that the sustainability policies of the different countries apply more and more complex and effective sets of objectives and instruments even if their approaches may definitely differ. The basic difference among the sustainability strategies lies in *the level of awareness about the concept of sustainability* and the related *system of values* as experienced by the political and intellectual elite and the civil society, who took part in formulating the strategies.

I use an interdisciplinary approach in this paper. Due to the complexity of the research area I will include the secondary research exploring and analysing the scientific literature.

Regarding the method of the second chapter, it can be considered an analytical review of the scientific literature. In the first part of the chapter I discuss the concept of sustainability and its most widespread interpretations, and I also demonstrate the growing demand for sustainability strategies by analysing the documents of international conferences. In the second part of the chapter I describe the present situation regarding the expansion of NSSDs.

The results of my research are mainly based on the critical comparative analysis of the NSSDs, as documents. As the first step of my research I explored the research material using the Internet. I continuously updated the stock of strategies, supplementing them with the new documents as soon as they were published. Finally, I studied and analysed the 35 sustainability strategies adopted by the national governments and several supranational strategies of the European Union.

I supplemented my analysis by using a qualitative method, which perfectly suits my chosen theoretical research area. After careful preparations, in January and February of 2007 I carried out in-depth interviews with internationally recognized researchers of sustainability. I managed to consult 12 scholars of the contacted 18. The most valuable outcome of these contacts was the possibility that the researchers informed me about their newest, often still unpublished opinions, and in some cases I could even disagree with their points of view.

The main results and conclusions of the dissertation

The necessity and the appearance of the national strategies for sustainable development

The necessity of the preparing national strategies for sustainable development can be supported by at least two arguments, in addition to the constraint arising from the global ecological crisis. The first argument that is often mentioned both in the international and in the Hungarian literature refers to the international expectations towards the countries (Dalal-Clayton *et al*, 1998). Such expectations are defined, among others, by the UNO, the OECD and the European Union, as well (UNCED, 1993; OECD, 2001; EC, 2001; CoEU, 2006). Besides the expectations, the direct and indirect benefits provided by the national strategies must be mentioned. Indirect benefits include the positive impacts of the strategy-making process, while a direct benefit can be the influential role that a good and effective strategy plays in economy and society.

The main two arguments supporting the necessity of national strategies for sustainable development are the following:

- The NSSD may become an important instrument of creating a social vision, which provides an opportunity for defining long term objectives.
- Preparing NSSDs is an international expectation, which has been emphasized several times on the different platforms.

The necessity to prepare and apply national strategies appeared in the 1960s already, almost at the same time as the need to handle environmental problems in an integrated manner. The process originates from the first studies dealing with the relationship between environmental and social problems. The first report to the Club of Rome refers to the need to establish an institution that is suitable for representing the new approach (*Meadows* et al., 1972). It was

declared that national strategies are important means of the developmental policy. After this, the world conferences organized by international organizations urged the nations to prepare national strategies for sustainable development so that the long term objectives and the tools for their implementation could be defined.

On the basis of the documents prepared by international conferences and institutions, I summarized the main steps how the need for national strategies for sustainable development appeared and how their preparation became an important expectation. *(Table 1)*

In conclusion, I think the countries fulfil the international expectations by preparing their national strategies for sustainable development, and in this way they promote the implementation of the principles of sustainability both at the national and supranational level. The preparation and the implementation of the strategies also contribute to the sustainable development of a country's economy and society.

Countries all around the world responded to the international expectations and started to prepare their national strategies for sustainable development at the beginning of the 1990s. The process was initiated in several ways. This time only few countries were able to prepare a comprehensive strategy meeting the requirements of sustainability. However, by the end of the 1990s the majority of the developed countries completed environmental plans, agreements, and official documents which could serve as a firm basis for the preparation of real strategies.

24 member states of the European Union – with the exception of Bulgaria, Cyprus and Hungary – have already prepared their national strategies for sustainable development, or the draft versions by now. Some of the countries, like the United Kingdom, Slovenia and Finland have already evaluated and revised their strategies. Besides the national documents the EU prepared and ratified its sustainability strategy (2001) and five years later a new revised and renew version was adopted (2006).

The sustainability strategies of the European Union differ from several aspects. The differences are obvious regarding the date and background of the preparation, the scope and specification, time span, social participation in the preparation of the strategy, content (e.g. objectives regarding a sustainable society) and their approach.

The differences of the national strategies originate from the theoretical ambiguities (e.g. the NSSDs of the UK and Slovenia highly differ in the scope, specification and time span), as theory lags behind practice: national strategies are prepared in many parts of the world. The ambiguity of the concept of sustainable development causes difficulties for the strategy-makers. However, the strategies usually do not provide a detailed definition of the concept; they only quote the definition of the Brundtland Committee instead.

The characteristics and requirements of a strategy are not settled either, on the basis of the strategies. The strategy-makers do not undertake the task of defining the characteristics of a strategy; they find it evident that the document they prepare is a sustainability strategy, irrespectively of its approach, content and time span.

Theoretical issues and practical problems in the national strategies for sustainable development

The number of the national strategies, regarding various topics (such as economy, transport, energy, education, etc.) definitely increased during the last decades. Strategy design could be considered a new framework for community planning. An important element of this phenomenon is the appearance of the national strategies for sustainable development, which respond to the most important challenge of our days: the global ecological crisis. At the same time *there is a serious contradiction between the theory and practice of macro-level strategy design and planning that includes environmental aspects*, too. (*Kuti – Szabó,* 2003, 1. o.) Within this, the macro-level strategizing and planning lacks a firm theoretical basis.

In all of the member states of the European Union there is national planning going on related to many different topics. Preparing sustainable development strategies and national development plans are community requirements; furthermore, in most countries, strategies regarding education, energy, transport, healthcare, research, competitiveness, etc. have also been prepared. *The efficiency of these documents is not*

Table 1: The main steps of the appearance of the need for preparing national strategies for sustainable development, and the formulation of the expectation

Date	Event/document	Steps
1972	The first report to the Club of Rome: Limits to Growth	*Need for an integrated approach to environmental, economic and social problems (reference to a strategic approach as an instrument).*
	Stockholm: UN Conference on the Human Environment	
1987	Brundtland Committee: Our Common Future	*Need for new types of developmental strategies.*
1992	Rio de Janeiro: UN Conference on Environment and Development (Agenda-21)	*Recommendations and deadlines for preparing national strategies for sustainable development.*
1996	OECD: Shaping the 21st century	*Recommendations and new deadlines for preparing and implementing national strategies for sustainable development.*
1997	New York: Special Session of the General Assembly to Review and Appraise the Implementation of Agenda 21	
2001	European Union: Gothenburg SSD	
2002	Johannesburg: World Summit on Sustainable Development	
2006	European Union: Renewed SSD	*New deadlines for the member states that have not prepared their strategies.*

Source: Own elaboration on the basis of the analysis of the documents

Table 2: Main conceptual differences between a strategy and a plan

	Strategy	**Plan**
Type of objectives	Essentially new objectives	Achievable objectives
Uncertainty	Characterized by a a great uncertainty. The ways to achieve the goals are not known.	Achieving the goals is very probably, the available instruments make it possible.
Time span	Long term; one or more decades depending on the subject of the strategy.	Foreseeable time span: adjusted to a governmental cycle or EU budget.
Financial resources	Finding concrete financial resources is not necessary.	Finding the concrete financial resources is obligatory.
Political support	Broad social support is needed; consensus among political parties, and stakeholders	Governmental, parliamentary decision is sufficient.
Social participation	Social participation is obligatory.	Should be based on expert knowledge.
Instruments	Instruments may be outlined only.	Defining physical and financial instruments is necessary.
Relationship to each other	Determines the plans.	Plans have to be adjusted to strategies

Source: *Kuti,* 2005, p. 27. modified

adequate because the theory lags behind the practice, and does not provide enough support for the social practice.

Supposedly, the ideological opposition is has been an important reason why macro-level planning in the broad sense of the term has been poorly discussed in economics. The shortcomings of the theory are proven by the fact that economics and macro-economics textbooks taught in the world, studies in social sciences and scientific journals all ignore the discussion of this important form of economic coordination.

Macro-level planning struggles with several problems. In my view, the majority of the problematic issues have not even been defined. In my dissertation I deal with the most important issue, i.e. the differentiation between the concepts of a plan and a strategy. I summarized the most important characteristics of a strategy and a plan in *Table 2* could be further extended, however in my opinion these are the most significant and influential differences.

The objectives of the strategies do not appear to be well-defined, or very ambitious – especially as regards the national strategies for sustainable development. As a result of this shortcoming the objectives do not influence society sufficiently, so their implementation may fail, as well. It is the task of the plans to modify the ambitious, long term objectives of a strategy so that they could become effective short and medium term objectives. A plan has to set concrete, numerical, implementable objectives, has to define the ways and instruments to achieve them, and has to find the financial resources and the people to be in charge of the process. These requirements do not apply to strategies, in general. Therefore, it would be essential to limit the political influence, which usually prefers short term interests, when setting long term strategic objectives.

The distance between theory and practice is especially remarkable in the case of the strategies for sustainable development. The diversity of the NSSDs is probably caused by the fact that neither the formal requirements, nor the necessary content of a strategy has been clearly defined. The two basic questions may be formulated as ”What makes a good strategy?” and ”What makes a strategy for sustainable development?” I interviewed several internationally recognized researchers about the problematic issues, and their opinions support my argument that there is no harmony between the theory and practice of strategy design.

In January and February 2007 I carried out in-depth interviews asking international experts about the concept, significance and possible role of a strategy. My primary aim was to highlight the differences and similarities between the real and the ideal state, the theoretical and practical characteristics, as well as their expectations. I managed to consult approximately 66% of the contacted experts (12 of 18), which is considered to be a good ratio, and can be attributed to my prior contact with the researchers. When choosing the interviewees, I aimed at consulting internationally recognized researchers who deal with the issues of sustainability, and whose works I knew and used as secondary resources in my dissertation. In my opinion, consulting international experts is especially useful, because in their countries national strategies for sustainable development have already been adopted so they have experiences in this field.

I consider very important to investigate how the strategies themselves define what a strategy is. Some documents do not fulfil the requirements of a strategy, although their title refers to a strategy. Other documents can be regarded as real strategies, although they were published as plans or action programmes. Oddly enough, none of the strategies defines the criteria for a strategy or the requirements of a strategy. There is little guidance related to this issue in the literature.

In our study with Kuti and Szabó the characteristics of a strategy – based on the national strategies for sustainable development – were defined as a comprehensive and systematic approach, objectives containing essentially new elements, long term view and interpretation as a learning process.

- All the sustainability strategies strive to use a comprehensive and systemic approach, which means investigating all the important problems in the network of their interrelationships. This is mainly the result of the fact that they consider the uniform treatment of the economic, social and environmental processes as an essential element of sustainability. We

do not regard environmental plans as strategies. Recently only the document prepared by the government of Cyprus has claimed that sustainability policy can be implemented by environmental plans. However, earlier in many cases sustainability policy was identified with environmental plans. I consider the systemic approach of the strategies very important. Several documents contains loosely connected chapters and do not emphasize the relationship of the three pillars. The Polish and the Greek strategies are examples for this approach.

- The NSSDs seem to be too cautious when setting their objectives. There is no doubt that the society cannot be changed very quickly. However, if the objectives set by the strategy are not brave enough, the strategy will not stimulate the members of the society. On the other hand, the speed of the change will not be fast enough to meet the requirements defined by the ecological limits. Most of the strategies set objectives that can be achieved, and they do not take into account the objectives that would be really necessary.
- The long term approach is included in the problem itself. It has been recognized that our present activities threaten the future ecological conditions, although we wish to ensure the same conditions for human life for the next generations. The time span of the change in the ecological processes and the concern for the needs of the future generations require a long term view, relating to a few decades. Still there are a lot of countries that set a timeframe for less than 10 years in their strategies, e.g. Austria, Belgium, France, Greece, Malta, and Slovenia.
- As strategies define the main directions and set the objectives to be achieved, important elements of a strategy are the evaluation process, the frequent review and the systematic modification. A strategy can be considered as a learning process, instead of one static response to a problem area. The French and the Belgian sustainability policies are typical examples for this type of approach. Partly as a result of the learning process social participation in the preparation and the implementation of a strategy is given a great emphasis.
- The conceptual ambiguities and the theoretical problems are obvious in the NSSDs. The strategies are characterized by diverse and often contradictory features regarding the objectives, time span, social participation and sets of indicators mentioned in the strategies.

I intended to analyse the concrete objectives of the NSSDs by focusing on the agri-environmental problems. The comparative analysis is suitable for demonstrating the differences among the strategies and showing their weaknesses. I carried out a detailed analysis of the strategies that can be considered as real strategies (e.g. the Austrian, the Czech, the German), but I also analysed documents that, in my opinion, cannot be defined as strategies (e.g. the Polish). *(Table 3)*

During the evaluation I focused on the following aspects:

- Definition of the objectives related to the problem
- The concrete objectives and target values to solve the problem
- Timing of the deadlines to achieve the objectives

On the basis of the above mentioned criteria I divided the discussion of a certain agri-environmental problem into four groups (greatly emphasized, emphasized, mentioned, not mentioned). Studying the evaluation we can see the topics and areas that are given more emphasis, and it becomes clear how detailed the documents are from this point of view. *(Table 3)*

The majority of the documents place special emphasis on the relationship of climate change and agriculture, pollution

Table 3: The importance of some agri-environmental issues in the national strategies for sustainable development prepared by some EU member states

Country	Multifunctional agriculture	Climate change and agriculture	Biodiversity	Food safety and quality	GMO	Pollution from agriculture
Austria	***	**	*	**	*	**
Belgium	***	*	**	***	**	***
Czech Republic	*	***	**	**	*	***
Danish	**	***	**	**	*	***
United Kingdom	***	*	*	**	_	*
Estonia	**	**	**	-	-	***
France	***	*	**	**	**	**
The Netherlands	*	*	*	**	_	*
Ireland	*	**	**	*	*	**
Poland	*	-	-	*	-	-
Latvia	**	**	**	*	-	**
Lithuania	**	*	**	**	-	*
Germany	***	**	**	***	***	**
Slovakia	*	**	**	**	**	*
European Union	*	*	**	**	_	*

Source: GÁTHY, 2005, p. 350.

*** : particularly significant, ** : significant, * : only mentioned.

originating from agriculture and multifunctional agriculture. I also investigated these issues in detail in my study. The problem area of the genetically modified organisms (GMOs) is not included in the majority of the strategies, however the German strategy provides a detailed analysis of this issue, as well.

Strategic planning related to sustainability at the EU level

There is a great disharmony between the objectives of the EU Strategy for Sustainable Development (EU SSD) and the Lisbon Strategy (LiS), the two major strategic documents of the European Union (*CoEU,* 2006; *EC,* 2001). The objectives that are often contradictory and belong to different levels hinder their implementation. I reviewed the unsettled system of the strategic documents in a separate chapter, because the EU greatly influences the national strategy design (see: development plans, strategy for sustainable development), so the problems originating at the EU level will appear at the national levels, too. The ambiguous relationship between the two fundamental strategies becomes even more confused if we consider the planning mechanisms related to agriculture and rural development.

The most interesting contradiction is the result of the confusion regarding the two fundamental strategies. When the environmental dimension was added to the LiS (Gothenburg Strategy) the EU juxtaposed short and medium term objectives with long term environmental objectives. Joining these concepts is not adequate as their time span is different, so they cannot be handled together.

I extended the investigation of the two fundamental strategies to the analysis of strategy design regarding agriculture. At the EU level there is no document that could be considered an agrarian strategy, the EU agricultural policy is defined by decrees and programmes. Besides these, the sustainability of agriculture is supported by a new type of instrument. Recently the strategic approach towards agriculture has been strengthened by seven new, so called thematic strategies connected to the 6th Environmental Action Programme – EAP). Three of the thematic strategies (soil, natural resources and pesticides) are closely related to agriculture, while the other four strategies contain more or less references to agriculture and rural development.

The analysis has clearly proven that no systematic relationship exists among the documents regarding agriculture and rural development. As an example I would like to emphasize the strange characteristic feature that the thematic strategies regarding agriculture are not attached directly to the Strategy for Sustainable Development of the European Union, but they are subordinated to the 6th Environmental Action Programme. This solution demonstrates the immaturity of the system of strategies in the EU. The thematic strategies concentrate on a given sub area and ignore the irrelevant information. However, this approach would also require common grounds to start from, preferably a fundamental strategy whose objectives could define the thematic objectives. If this position is not filled by the EU SSD but a solely environmental programme – the 6th EAP, in this case – the thematic strategies may not promote the shift to sustainable development. This dilemma is noticeable when choosing the right time span. Occasionally the thematic strategies define objectives for longer terms than the time span of the 6th EAP. Due to the type of the problem, the thematic strategies often use a long term approach, which is an important feature of the strategic approach.

In my opinion, the Common Agricultural Policy of the European Union and its reforms, serving to achieve the objectives set in the Treaty of Rome can be considered an implemented strategy. However, based on my analysis of the thematic strategies regarding agriculture and rural development I strongly believe that there is an urgent need for a declared, documentlike agricultural and rural development strategy.

Similarities, differences and shortcomings of the evaluation methods in the national strategies for sustainable development

The international literature includes numerous studies of international institutions and researchers regarding the analysis and evaluation of the national strategies for sustainable development. I reviewed and analysed the 18 evaluation methods[2] so that I could highlight their similarities and reveal their shortcomings. By investigating the evaluations I founded my own content-based evaluation method. Analysing and evaluating the national strategies is highly important to judge their effectiveness, as the approach, structure and content of a strategy influences its future role.

I summarize the conclusions of the evaluation methods as follows:

- The guides and evaluation methods show significant differences, although there are many common points as well.
- It can be concluded that the studies do not separate sharply the requirements related to the elaboration and the implementation of a strategy.
- The analyses do not pay strict attention to the content of the strategies.
- Only the study prepared by the Committee emphasizes the need to harmonize the strategies of the countries and that of the Union.
- The criteria do not include the need to pay attention to other types of economic and social strategies, such as the Lisbon Strategy.
- Although there are attempts to provide a qualitative analysis of the strategies in numerical forms, but these analyses seem to be rather unnatural, and they are often based on subjective judgements even if concrete numbers are defined.

[2] The most important evaluation methods: *Dalal-Clayton* et al., 1994; 1998; *Geßner* et al., 2001; *Cherp* et al., 2004; *Berger – Steuer,* 2006; *Stevens,* 2005; *Dalal–Clayton–Bass,* 2006, *OECD,* 2006; *Volkery* et al., 2004; *Swanson* et al., 2004; *Niestroy*, 2005; *European Commission,* 2004.

Evaluation of the objectives regarding agriculture and rural development in the national strategies for sustainable development

After reviewing the literature on the evaluation of the NSSDs, I drew the following conclusions. These studies pay hardly any attention to analysing the content of the strategies, they rather emphasize the process of strategy design, their implementation and the integration of the three pillars. It is probably justified by the fact that these characteristics are fairly easy to analyse, and in this way the strategies become easily comparable. Investigating the content of the strategies is a challenging and complex task because the contents of the NSSDs highly differ depending on the economic, social and environmental state of the given country. Analysis of the content is unavoidable as the effectiveness of a strategy is based on the content related to the various topics. I could not undertake a comprehensive analysis of all the strategies. Agriculture and rural development are important research areas of our Doctoral School; therefore, I carried out a detailed analysis of the NSSDs from an agricultural and rural development aspect.

A national strategy for sustainable development should contain new and ambitious objectives so that the shift toward sustainable development could take place. Most of the sustainability objectives are closely connected to agriculture and rural development. These objectives include the economical use of natural resources, protection of biodiversity, change in the consumption and production patterns, fight against climate change, human health, etc. It is highly important to analyse the content of these objectives. The implementation of the objectives may depend on how a nation is able to and willing to form a strategic future vision. As a result, the NSSDs should define a brave and really new future vision to make agriculture and rural development sustainable. The task of the national strategy for sustainable development is to outline the long term vision of a society, taking into account the ecological limits as well. The majority of the NSSDs prepared by the EU member states do not undertake the task of defining a brave vision for agriculture and rural areas. The strategies only define objectives related to smaller problem areas meeting the requirements of sustainability. This is a serious problem, referring to the extreme cautiousness of the strategies when they should adapt to clear values. Natural resources are the basis of agricultural production; therefore, the management of these resources should be the primary aim of the strategies. Stopping the pollution of waters (open and soil) and protecting the soil are mentioned in most of the strategies. However, real future visions are only defined in the Danish, French and Dutch strategies.

In order to analyse the national strategies for sustainable development adopted by the EU member states I elaborated my own points to evaluate the strategies. My aim was to demonstrate whether the steps to promote sustainability are included in the objectives related to agriculture and rural development. The aim of the analysis is to establish the criteria for a good strategy, which could be used when preparing the Hungarian NSSD.

My questions were the following:

- Do the NSSDs use a stock or an assets approach?
- Do the NSSDs include the need to turn production patterns sustainable?
- What possibilities are mentioned in the NSSDs to introduce multifunctional agriculture?

The relationship between natural resources and agriculture is restricted to their role in production. The NSSDs should regard natural resources such as soil, forests, plant and animal stocks, water, air, etc. as a nation's wealth. The following important questions should be included in the NSSDs:

- How much agricultural land do we need? How much land can we occupy from nature?
- What the size of the plant and animal stock that we need? To what extent should the biodiversity of wild and raised plants/animals be changed?
- How much forest do we need? To what extent should we increase the size of the forest?
- How much water do we need and of what quality? How much water can agriculture use?
- How much air do we need and of what quality? To what extent agriculture can influence the quality of air?

The conclusion of my experience was that the strategies do not emphasize that natural resources are parts of a nation's wealth, with the exception of the objectives regarding the stock of plants/animals and forests.

The most important conclusions

- A *comprehensive, critical analysis of the national strategies for sustainable development* prepared *by the European Union and its member states* (27 member states) is provided in the dissertation. I paid special attention to the *problematic issues and the shortcomings*.
- Analysing *the conceptual framework and the contradictions of macro-level strategy design* has been an important result of my dissertation. I explored the shortcomings of the theoretical background, and outlined the new framework adapted to the principles of sustainability.
- *Defining the requirements of a national strategy*, based on the national strategies for sustainable development can be considered a new result. These requirements have been critically analysed in the NSSDs.
- I regard the Common Agricultural Policy of the European Union as an implemented "implicit" strategy. My analysis of the reasons why a *declared, documentlike agrarian and rural development strategy should be prepared* represents a novel approach. My arguments are supported by the analysis of the strategic documents regarding agriculture and rural development in the European Union. An agrarian and rural development strategy should not be adjusted to the short term fiscal policy

but it should define the long term developmental objectives and the new functions of rural areas based on the principles of sustainability.

- I provided *a critical analysis of the evaluation methods used in the national strategies for sustainable development and revealed their shortcomings*. I concluded that the evaluation methods and guides do not pay enough attention to the content of the strategies, while the issues of elaboration, implementation, integration, and evaluation are emphasized.
- I investigated the content of the national strategies for sustainable development by analysing the objectives regarding agriculture and rural development. I demonstrated that *the strategies include objectives and novel approaches* that attempt to outline a *new economic and social vision based on the correct interpretation of sustainability*. Thus they form a basis for an agrarian strategy representing a new approach.
- I suggested the introduction of *the assets approach regarding natural resources*, and propose the *analysis of this issue in the national strategies for sustainable development in the EU member states*.

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Analysis of economic issues relating to the dairy sector, with emphasis on price transmission[1]

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Abstract: The dramatic decline in consumption after 1990 was an important problem during the analysis of the sector. Even today, consumption is still below the degree that was before the political change, and significantly lags behind the EU level. The importance of this topic is emphasized by the fact that surplus milk could be marketed through the increased domestic consumption; this would create a more stable and calculable situation for farmers. Therefore, I considered it important to reveal what factors and by what shares influence the consumption of milk and dairy products. The relationship, time series and cross-sectional analysis based on national and international databases demonstrate the relationship between the consumption of milk and dairy products and the other determining factors of consumption in Hungary and in the EU-25 through diagrams. I draw the conclusion that there is a medium correlation between the development of the economy, the higher income level and the consumption of milk and dairy products.
Just before our EU accession, the dairy sector was one of the most critical industries of Hungarian agriculture, which is why I chose this for my analysis. I regard as a new scientific result the econometric analysis of the asymmetric market conditions in the price transmission approach within our dairy sector between 1995 and 2003. I confirmed and quantified that the market is under an oligopoly and defined the direction of price adjustment. Furthermore, I regard as a new result in the price transmission analysis (also published in the article published with Dr. József Tóth), that the three possible dimensions (elasticity, asymmetry relations, lag) are analysed simultaneously. Therefore, a more sophisticated picture is given on price transmission. The theoretical advantages and disadvantages are verified by an example of a vertical coordination based on the horizontal cooperation in the dairy sector (Alföldi Tej Ltd).

Keywords: milk production, dairy sector, price transmission, asymmetry, oligopolistic market structure

1. Introduction

I have undertaken an analysis of certain economic issues of the dairy sector, in which I set three objectives:

1) To analyse the past 15 years of the Hungarian dairy sector, I surveyed the stages of production, processing and trade. The income situation of producers and the most important factors that influence their profit situation have been given special attention. Considering the fact that the Hungarian dairy market is characterized as a supply market, I assumed that market balance can be attained at the consumer end of the chain. I have analysed the factors that influence the consumption of milk and dairy products from international aspects.
2) The main objective of the study is to introduce and analyse the asymmetry in the dairy sector caused by insufficient price transmission.

I assume that price transmission between the specific stages of the chain is imperfect, i.e. price changes at the production level are not passed on properly to price changes at the processing and at the retail level.

To support the theory above, I tried to answer the following questions:

1. Within the sector, significant changes have taken place. It is worth examining, which participant in the sector starts these changes.
2. Is there an unambiguous relation between the prices of the different stages in the chain? If there is, which price moves the others?
3. I also analysed how producer price influences prices in other stages, and to what extent these changes are market-conform.
4. Are the price changes symmetric, i.e. do the prices in one stage change to the same extent as prices changed in the previous stage, or they increase the asymmetry in the sector? What is the time interval of passing through of the price?

3) I conducted a case study to point out how the divided and vulnerable producers of raw milk can benefit from horizontal and vertical cooperation through the decrease of price asymmetry.

[1]This dissertation carried out under the Doctoral School of Interdisciplinary Social and Agricultural Sciences. Supervisor*:* Prof. Gábor Szabó, DSc.

2. Materials and metods

When I decided on the topic of my thesis, I planned to examine more product chains, but it seemed more reasonable to shrink the subject, thus I concentrated my analysis on certain economic relationships within the dairy sector.

The accomplishment of the thesis is based on scientific publications. Between 2002 and 2006, I wrote 3 book chapters, 1 lecture note chapter and published 11 proceedings at national and international scientific forums.

In addition to the accurate examination of national and international literature, I strove to support my study with methodological arguments.

The methods applied are chosen according to the characteristics of the subtopics.

In the first chapter, the comparative analysis based on secondary data bases (Eurostat, FAO, HCSO) is dominant, during which the verbal development is supported by different statistical analytical programs (MS Excel, Eviews 3.1, SPSS 13.0), by exact correlation and trend calculations.

The completion of this chapter was supported by professors *Dr. Péter Biacs, Dr. Sándor Szakály* and *Dr. Gyula Széles,* and by associate professors *Dr. Béla Béri, Dr. Csaba Borbély* and *Dr. Zoltán Szakály*.

From the methodological point of view, the biggest challenge was made by the econometric analysis of the Hungarian dairy sector (Chapter 2). The use of the ADL model allows for the deduction of potential market imperfections. I have cooperated with *Dr. József Tóth* associate professor (Corvinus University of Budapest) (*Popovics–Tóth,* 2006) in this analysis.

Some of the data base used – processing prices – is my own collection (with the help of the HCSO), allowing for an outstanding solution even in the international point of view, that besides producer and consumer prices, the analysis of price transmission is extended to the processing prices as well.

3) The case study in Chapter 3 is based on an in-depth interview with the managing director of the Alföldi Tej Ltd. in September 2005. Furthermore, I have consulted the leaders of the Dairy Marketing Board, *Dr. József Popp* (AKI) and other experts.

Dr. Gábor Szabó G. (MTA KTI) helped me to review the national and international literature on the cooperation and integration issues and to adapt these concepts in the case study.

3. Results and discussion

The main results and statements are overviewed according to the specific chapters.

3.1. An introduction of the Hungarian dairy sector from the 1990s to the present

3.1.1 The main characteristics of the Hungarian dairy sector

The most relevant conclusions *of Chapter 1* that give a comprehensive analysis of the Hungarian dairy sector are the following:

1) Cattle farming, especially dairy cow breeding has traditionally been an important Hungarian agricultural sector. Consequently, the share of the dairy sector within the food industry is also high, and the consumption of milk and dairy products comprises an important part of our food consumption.

2) The number of cows has been continuously decreasing since the 1980s, but the sector also suffered a dramatic fall after the political change, when the cattle stock dropped by half (53%).

3) The drop of milk production (39%) was less than the decrease in the number of cows, as milk production per cow increased significantly (47%).

4) Per capita consumption of milk and dairy products (hereafter consumption) has significantly decreased (about 20%) in the period between 1990 and 1996, in parallel with the drop of real incomes. During the following four years, consumption has been growing continuously, then another significant fall came in 2001, in contrast to the fact that real incomes continued to grow. So far, the reasons of this drop could not be revealed. According to FAO statistics, out of the EU 24 (there is no data for Luxembourg), only Slovakia comes after us. Considering the relevance of the topic, the issues on consumption are specified in depth in chapter 3.1.2. (I would like to note that there are significant differences between the consumption of milk and dairy products data of the HCSO and FAO databases).

5) The level of self-sufficiency continuously increased to 100% in these product groups in the 1990s, and it exceeded 110% in the period between 1995 and 2003.

6) Between 1995 and 2003, the increase of import significantly exceeded that of export, strengthening the profile of the dairy supply market. This tendency changed from bad to worse after our EU accession.

7) Concerning the production costs of 100 kg milk (IFCN), out of the four categories Hungary is ranked third. Thorough analysis of this fact would be required, which I could not take in the framework of this study. I assume that the low quality of our grasslands and breeding circumstances significantly influence this result.

8) Studies published in the Research Institute for Agricultural Economics offer a comprehensive survey on the profitability of milk production in Hungary. The calculations for agricultural companies show that the relatively unfavourable profitability situation in the '90s has been continuously declining from 2000 to 2003. The data for 2004-2006 – not including the area-based subsidies – are already in the negative range.

9) 80% of milk production comes from large farms with more than 300 cows in each. Contrary to the public opinion, it indicates a significant concentration level.

10) The proportion of foreign capital in the dairy processing sector is considerably higher than it is in

the food sector, and the concentration rate for the first ten companies (CR10) is also high.

11) Multinational companies are becoming increasingly dominant, not only in the food industry, but in the commerce of milk and dairy products as well.

3.1.2. Analysis of the consumption of milk and dairy products in Hungary

In Hungary, the demand for milk and dairy products is generated by domestic consumption. Its long term trend between 1960 and 2003 can be divided into three main periods, out of which two concern social-economic structural changes, and the third to changes in technology and breed.

In international comparison, the current milk consumption is considered to be medium level in Hungary, but we are lagged in the consumption of some other dairy products. While per capita cheese consumption is 8.9 kg in Hungary, it is 18–19 kg in the average of the EU-15. Our butter consumption is also very low, only 1.3 kg/person, while in other EU member countries it is the triple, 4.5 kg/person. Comparing with developed countries, our liquid milk consumption is also very low.

Considering the fact that in the period between 1998 and 2003, the international consumption trends of milk and dairy products was also stagnating, the Hungarian consumption still lags behind the EU average. While, according to the HCSO, per capita consumption of milk and dairy products ranges between 140–150 kg/year in Hungary, the EU average is 246 kg/year (in milk equivalent).

These very low consumption data inspired me to analyse the issue and survey the factors that influence consumption by means of different methods of analysis. I consider this to be the key problem of the Hungarian dairy sector, because if our consumption fell in line with that of the EU members, the participants of the sector would enjoy a more stable situation.

First I tried to prove my hypothesis that there is a close relationship between per capita milk consumption and real income. The correlation coefficient for the period 1990–2003 is r=0.05, which means that there is no correlation between the two time series. Thus, the hypothesis seemed to fail, but interestingly, there was a very strong correlation (r=0.82) between 1990 and 2000, which proved my hypothesis for this decade.

Then I analysed the time series and found that reverse changes occurred between 2000 and 2003, because in this period real income increased while consumption decreased. *(Figure 1.)*

My next hypothesis was that if there is such a close correlation between the consumption of milk and dairy products in Hungary during the examined 10 years, then the similar tendency must prevail for the EU member states between per capita consumption of milk and dairy products and per capita GDP during the same years. The FAO database for the consumption and GDP in the EU-25 (excluding Luxembourg) (2003) is almost complete. I found strong correlation (r=0.7) with an acceptable significance level (5%) that was calculated both by using GDP on exchange rate parity and GDP on purchasing power parity, therefore, this hypothesis seems to prevail as well.

Figure 2 shows that in countries where GDP is lower than the average (typically EU-10 countries), the consumption is lower as well, and where per capita GDP is higher (EU-15), the consumption is also significantly higher. The figure also depicts that the countries disperse around a linear trend line.

However, the difference from the trend in old and newly joined countries is worth analyzing separately. Figure 3 shows that the EU-15 follow the trend, except for four countries. At the same time, the relationship is weaker in the EU-10. The correlation coefficient is r=0,52 and r=0,26, respectively.

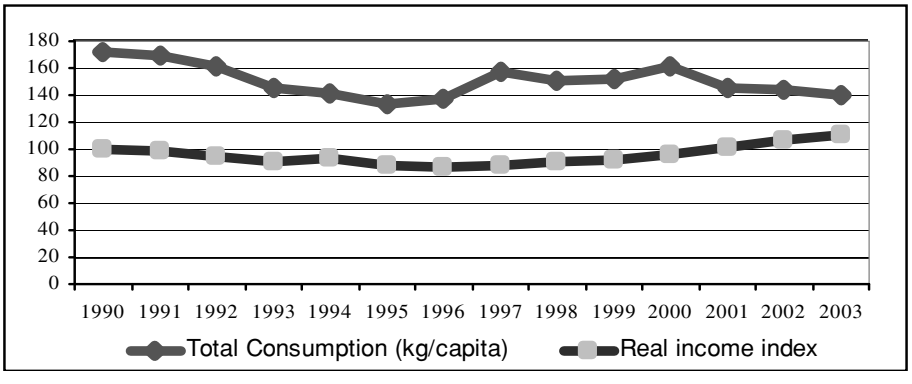

Figure 1: Consumption of milk and dairy products and real income in Hungary between 1990 and 2003 (Source: *HCSO,* 2004)

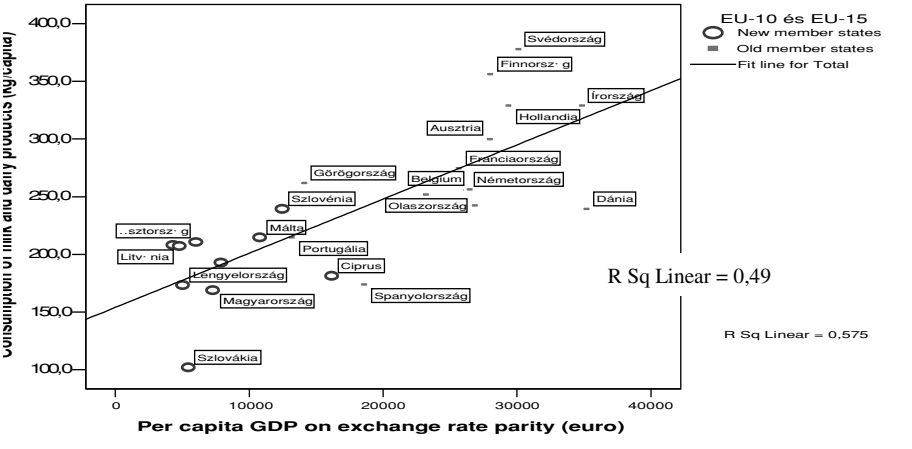

Figure 2: Correlation between the consumption of milk and dairy products and GDP on exchange rate parity in the EU-24 (Source: own calculations based on FAO (2003) statistics)

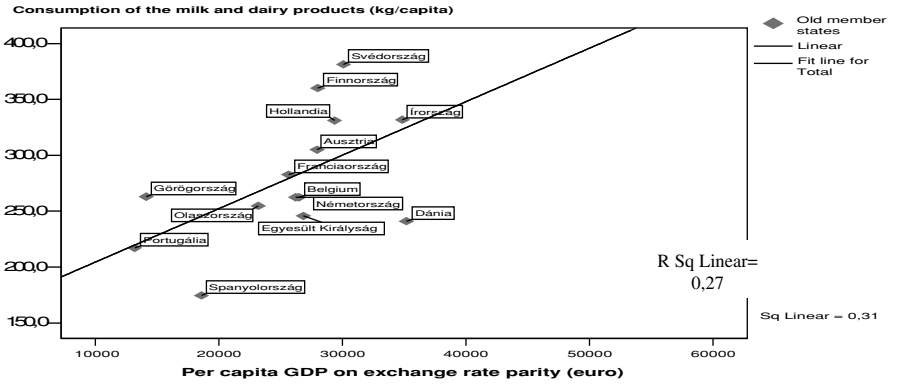

Figure 3: Correlation between the consumption of milk and dairy products and GDP on exchange rate parity in the EU-15 (Source: own calculations based on FAO (2003) statistics)

My third hypothesis was that in EU countries where per capita milk consumption and milk production per cow is higher; the consumption is high as well. The values calculated here are not correlated as much as those found with income values. There is a weak medium correlation between per capita consumption and consumption values (r=0,47), and between milk production per cow and consumption values (r=0,45). However, it has no connection with production calculated for 100 ha. The conclusion is that only if our economy strengthened and real incomes were higher could we expect the increase of milk consumption in Hungary in the new circumstances of the EU.

At the same time, in addition to the income situation of the population, milk consumption is influenced by several other factors, such as marketing, the traditions in the gastronomy of the specific country, health education, healthy nutrition, and the spread of illnesses like lactose intolerance and allergic reactions.

3.2. Theoretical and practical approaches of price transmission

3.2.1. Theoretical approaches of price transmission

The price relationships between the different vertical levels can be analysed by means of price transmission analysis. First, I give the definition of price transmission that is a complex price effect, during which the prices of products or sectors (markets) influence one another, the determining (starting) prices are passed on and establish economic relationship between the specific products or sectors.

Most studies examine price transmission for its symmetric or asymmetric features. Price transmission is symmetric if the price increase or decrease in a market (for e.g. raw milk) influences the other market (for e.g. end consumption) by the same rate. The similar reaction on price increases and decreases prevails for the direction, measure and speed of price reactions. In an inverse situation, price transmission is asymmetric. The characteristics of price transmission include several assumptions, for example:

- Symmetric price transmission characterizes the perfectly competitive markets, while if price transmission is asymmetric we can conclude to non-competitive, imperfect markets.
- Perfect (complete) price transmission prevails rather in the long term, while in the short term; price transmission may be asymmetric or incomplete.
- The direction of price transmission is also an issue of great importance. If the price is determined by the suppliers (for e.g. farmers producing raw milk), during the process of price transmission cost-push impulses are dominant. However, if the demand (for e.g. the consumer market) is dominant, the characteristics of price transmission are determined by the demand-pull force. (*KInnucan* and *Forker*, 1987).

The "price gauging law" introduced in New York State in 1991 claims that retail price of milk must not exceed twice the price of raw milk. (*Cotterill,* 2003)

We can obtain an interesting result if we analyse the hypothetical application of the price gauging law, were it applied to the Hungarian dairy sector. Figure 5 demonstrates the difference between the consumer price and the double price of raw milk. The diagram shows that while the results stayed in the positive range in the period before 1998, between 1998 and 2003 almost every result was negative. Thus, we can conclude that farm prices lag far behind

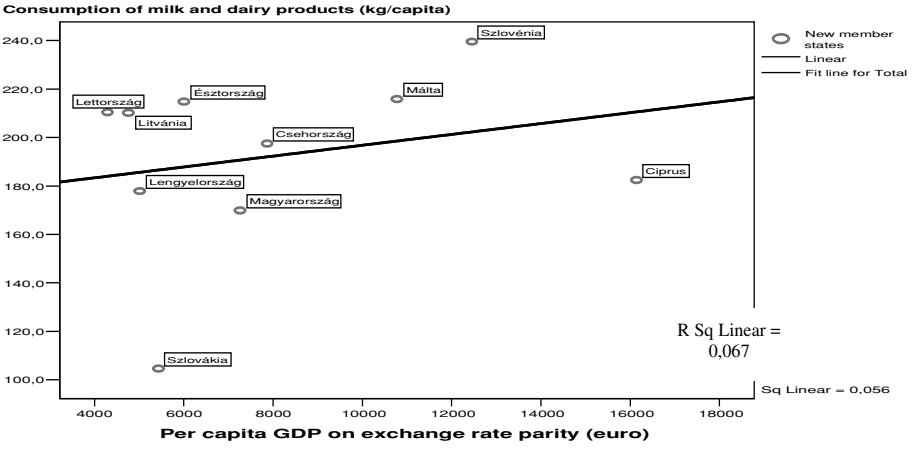

Figure 4: Correlation between the consumption of milk and dairy products and GDP on exchange rate parity in the EU-10 (Source: own calculations based on FAO (2003) statistics)

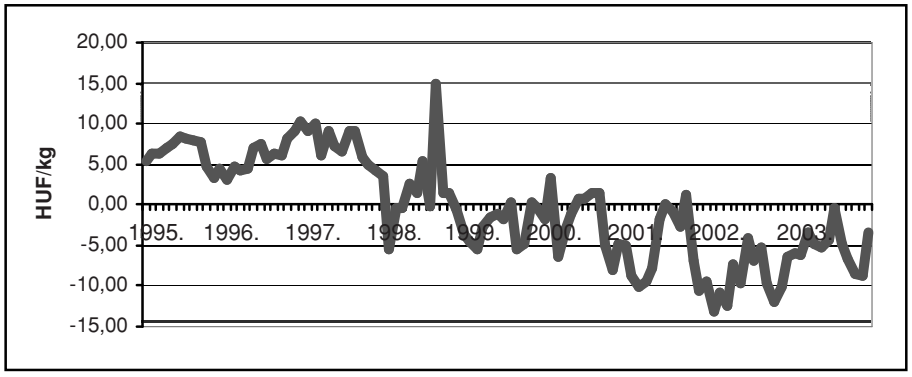

Figure 5: Differences between the effective consumer price and double the price of raw milk in Hungary (HUF/kg) (Source: Own calculations based on HCSO statistics)

consumer prices. The application of this law in domestic circumstances would be effective, because it would allow for the increase of farm prices through the increase of consumer prices in the more powerful commercial sector; thus, producers would be less forced to accept low prices.

3.2.2 Analysis of price transmission in the Hungarian dairy sector from the practical point of view

The issues of profitability and the distribution of profits within the sector are of great importance. Our analysis showed that producers within the sector are in a vulnerable situation, as they sell milk at nearly the unit cost. Contrarily, the retail price of milk we come across in the shops is higher than double the farm price. This contradiction drove us to compare the prices of the different stages. To analyse the imbalance in the sector, we have conducted a price transmission analysis for the whole sector that deals with the rate of transmission of price increases and decreases between the specific stages.

3.2.2.1 Antecedents and considerations

Our analysis proved that two parallel effects of different directions prevail in the formation of the market price. One is the upward price mechanism, when changes in raw milk prices induce price changes in the processing and retailing stages. However, in the oligopolistic market, there is also a downward price mechanism.

The reason for this is the effort of the commercial sector that forces processors and farmers in a price taker position. The latter puts raw milk producers in a vulnerable position; as a consequence, they get the worst of the fight for favourable prices. The problem stems from two things. One is that milk is a perishable product; therefore, there is no way to retain or to stock it. The other is historical, i.e. Hungarian producers are unwilling to join forces and establish effective economical cooperations. However, if farmers integrated into larger organizations, they could reduce the transaction costs per unit that would improve their profitability position.

We assumed that price transmission between the retail and the production stages is imperfect, i. e. price changes in the production stage are not transmitted properly in price changes in the consumer stage. We tried to answer the following questions:

1. Within the sector, significant realignments have taken place. It is worth examining, which participant within the sector starts this realignment.
2. Is there an unambiguous relation between the different prices in the stages of the chain? If there is, which is the price that moves the others?
3. We examined how producer price influences prices in other stages, and to what extent these changes are market-like.
4. Are the price changes symmetric, do the prices in the retail stage change at the same rate as prices changed in the production stage, or they increase the asymmetry in the sector? How long does it take the price effect to pass through?

We neither analysed the factors that increase or decrease producer prices, nor did we want to decide whether the distribution of profit between the stages is fair or unfair. Our analysis tries to reveal at what rate the price changes between the specific stages are influenced by the effectiveness of their market functioning.

To solve these problems, we have conducted an econometric analysis: we adapted a **linear autoregressive model** using a time series of price data showing changes at national level.

3.2.2.2. Price margins in the dairy sector

Figure 6 shows price margins in the dairy sector between 1995 and 2003 in real and nominal values. When we analysed the figures, it became clear that the price margin

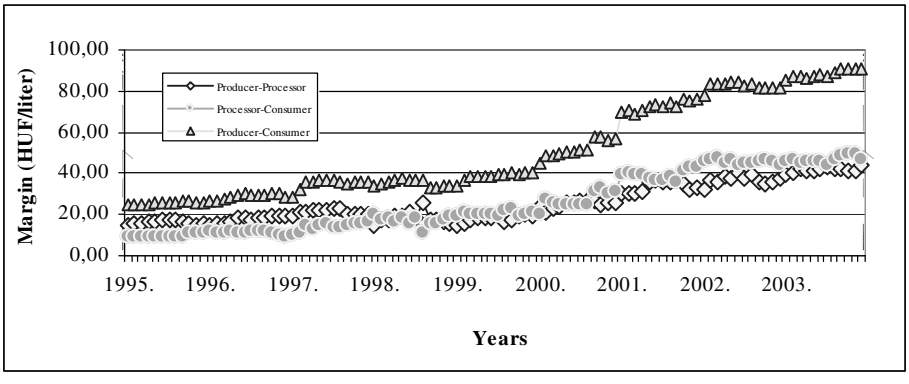

Figure 6: Price margins in nominal value (1995–2003) (Source: Own calculations based on HCSO statistics)

between the producer and processor stage was wider than the commercial price margin between 1995 and 1998. It was probably the consequence of the concentration in the processing industry and of the lack of that among the farmers.

During the period after 1988, processors lost their market power within the sector, partly due to the loss of confidence caused by the scandals concerning MIZO and other processors. The other factor was the significant investment of foreign capital in the dairy sector. Its share increased by 20% from 1998 to 2000, attaining an 80% share (*Rontóné*, 2005).

In line with this trend, the market power of commercial sector has increased. This was the period when huge commercial chains spread and started the battle for supplier positions. This allowed the strengthening of the commercial sector to become a price leader.

The figures show that the peaks of the different price margins varied between the stages and increased continuously between 1998 and 2000. During this period, the balance of power between processors and traders was evened out. Later in 2001, price margins started to increase rapidly, as a sign of a market distortion. In the battle for the price margin, the commercial sector seems to take the lead against processors.

3.2.2.3. Econometric analysis of the Hungarian dairy sector

To construct the model, we used monthly price data of 8 years between 1995 and 2003. The model uses output prices of the production, processing and retail stages. These prices from the database of the Hungarian Central Statistical Office (KSH) allowed us not only to analyse the price symmetry between the production and retail stages, but also to look at the symmetry between the production-processing and the processing-retail prices by breaking down the stages into two sub-stages by inserting the processing stage.

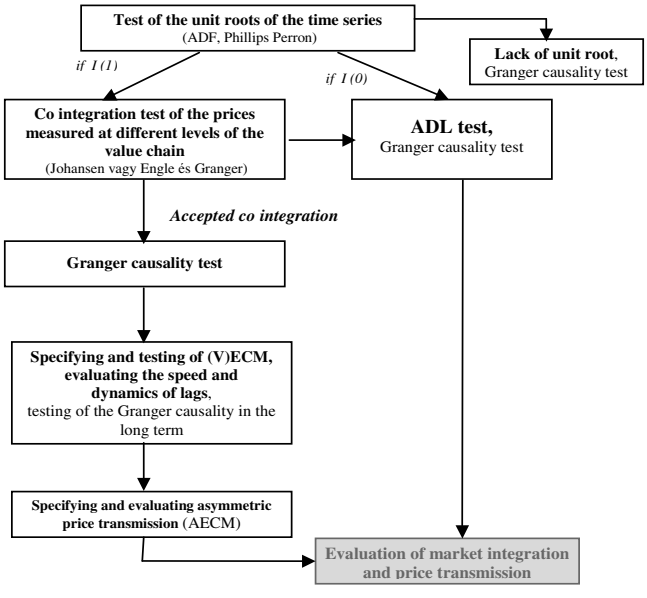

Figure 7: Summary of the econometric analysing methods (Source: own design by Rapsomanikis, *G. – Hallam, D. – Conforti, P.,* 2003)

We had to analyse the co-integration of price data. We have conducted this analysis on the production-processing, the processing-consumer stages and the whole chain. We considered the staging of the time series dividing them into 2 stages (1995–1998, and 1999–2003), according to the analyses in chapter 4 and 5. Basically, we cannot reject the fact that consumer prices are not co-integrated at different levels of the dairy chain in the examined period in Hungary. We also examined whether the price determination process is upstream or downstream in the marketing channel, the Granger causality test seemed an appropriate tool for that.

3.2.2.4. The Autoregressive Distributed Lag (ADL) model

The results on the direction of price determination process give no answer to the question of at what extent the change of output price signals are transmitted from one stage to another. The importance of this question lies in the fact that it might point to market distortions. When the effect of price change is asymmetric, the market fails to act the part of a balancing and profit allocating medium[2].

To decide whether an asymmetric price transmission prevails, we assumed the price correlations from the model by Kinnuchan and Forker (*Knnuchan, H.W., Forker, O.D.,* 1987; *T=th,* 2003). The characteristics of marketing costs are excluded from our analysis, as we do not analyse whether price margins between the output prices are market-effective, but the appearance of price changes in the following stage.

During the process, the characteristics of price transmission have been analysed in the following 3 models:

$dfl\_pcp = a_1 + b_1\,AR(1) + c_1 AR(2) + d_1\,sdppri + e_1\,sdpprd$ (1)

$dfl\_cp = a_2 + b_2\,AR(1) + c_2 AR(2) + d2\,sdppri + e_2\,sdpprd$ (2)

$dfl\_cp = a_3 + b_3\,AR(1) + c_3 AR(2) + d3\,sdppri + e_3\,sdpprd$ (3)

where

dfl_pcp: deflated processing (output) price
dfl_cp: deflated consumer price
c: constant
AR(1) és *AR*(2): autoregressive terms
sdppri: cumulated production price increases
sdpprd: cumulated production price decreases
sdpcpri: cumulated processing price increases
sdpcprd: cumulated processing price decreases

Model (1), (2) and (3) describe the price transmission in the processing, retail and the entire chain, respectively. To separate instant and long-run price effects, we used the Almon lag structure with linear polynom, using two lag periods for both price increases and decreases.

We expected that price movements would be asymmetric in the examined period: price increases are passed on to the following stage more completely than price decreases. We also assumed that the effects of short-run price increases would be higher than those of short-run price decreases, and that their transaction over time would be different.

[2] See *Meyer, J.* and *Cramon-Taubadel, S. Von,* 2004; *Tóth,* 1999; *Tóth,* 2003

Table 1: Results of the Granger causality test

Lag	Processing stage			Retail stage			Entire chain		
	1995–2003	1995–1998	1999–2003	1995–2003	1995–1998	1999–2003	1995–2003	1995–1998	1999–2003
1 month	↑*	↑*	↑***	↓***	↓***	↓***	○	→←	↓*
2 months	↑*	↑*	↓**	↓***	↓*	↓*	○	↑*	○
3 months	↑*	↑*	↓*	↓***	○	↓*	○	↑*	→←
4 months	○	↑*	→←	↓***	○	↓*	↑*	○	→←

Keys: ↑ Upstream flow of information on price and price enforcement
↓ Downstream flow of information on price and price enforcement
○ No significant causality relations
→← The causality test gave paradox results
*** The causality test is significant at 1%
** The causality test is significant at 5%
* The causality test is significant at 10%

Table 2: Summarizing table of the results (price transmission elasticity)

Price transmission elasticity		Processing stage			Retail stage			Entire chain		
		1995–2003	1995–1998	1999–2003	1995–2003	1995–1998	1999–2003	1995–2003	1995–1998	1999–2003
In-crease	prompt	0,35***	○	0,65*	0,72***	0,55***	1,03***	0,84***	0,59***	2,14***
	next									
	month	0,16***	0,20***	0,38***	0,34***	0,37***	0,38***	0,42***	0,27***	0,60***
	long term	0,49***	0,59***	1,14***	1,01***	1,12***	1,13***	1,27***	0,82***	1,81***
De-crease	prompt	○	○	○	0,43**	0,97***	○	○	○	○
	next									
	month	0,08**	0,23***	0,19***	0,19**	0,36***	○	○	0,35***	○
	long term	0,24**	0,68***	0,58***	0,57**	1,09***	○	○	1,04***	○
Corrected R^2		0,85	0,61	0,76	0,97	0,81	0,95	0,97	0,86	0,95
DW test		2,02	2,04	1,95	2,01	2,03	2,00	2,02	2,02	1,99

Keys: *** the parameter is significant at 1%
** the parameter is significant at 5%
* the parameter is significant at 10%
○ non-significant parameter

3.2.2.5. The results of the causality test

Table 1 summarizes the results of the Granger test[3]. (*Granger,* 1989)

Table 2 demonstrates that in the processing stage the direction of the price determination process is upstream, from dairy farms to the processors. The *mark up pricing* theory indicates that participants of the production and processing stages are more willing to accept that market values are generated along the chain, than participants in the retail stage. However, we have to note that in recent years, the causality correlation seemed to turn. When lags are 2 and 3 months long, a downstream correlation prevailed between 1999 and 2003.

The relationship is demonstrated more obviously and significantly by the retail stage, as market price information spreads upstream the chain.

We cannot draw unique representative information for the whole chain[4].

3.2.2.6. Asymmetry

Using models (1) – (3), we have concluded to the results shown in table 2[5].

The table demonstrates that both dividing the chain into stages and staging of the time series are confirmed in the results. In the examined period, asymmetric price development prevails in the whole chain and in the specific stages as well, but the appearance of these effects is different in the specific stages. On the one hand, parameters for price increases significantly indicate that these price increases will appear in the price of the next stage or of the end product; and in the long term its amplitude is definitely higher than it would be for price reductions. On the other hand, price reductions do not induce significal decreases in the prices of the following stage, especially in the short term in the processing stage and in the retail stage between 1999 and 2003. Furthermore, the extents of price effects vary within the specific stages, since the effects of price increases

[3] Previously and according to the literature (*Mészáros–Popovics*, 2004; *Tóth*1999) we supposed that by applying maximum four months long lags in the model, we can determine the characteristics of the direction of price reporting process.
[4] Partly it comes from the reverse results of the two phases; fortunately, the individual analysis verified the logic conclusions.
[5] Only those results are published that are relevant for the issue.

are more intense in the retail than in the processing stage. Consequently, the retail stage reacts on input price increases more rapidly and intensely.

In the neoclassical theoretical model of the economy, market price includes perfect and full information. At the same time in national economies there are situations and periods when the effective functioning of the economy is far from the theoretical model, therefore, market information is somewhat distorted.

Our study reveals that Hungary faced this situation in the period between 1995 and 2003. Given a general overview of the sector, we showed those factors (oligopolistic market structure, market power) that can be the basis for asymmetric price developments.

I would like to emphasize the following results that concern the functioning of the sector:

- The results obviously show that price determination process moves upstream in the production-processing stage. Consequently, it seems that the transmission of values is based on the value added, by summing up the production and processing costs. Thus, the value is determined rather by the production than by the market. However, the prices of the retail stage are determined in the consumer market. To decide whether the marketing chain fails to transmit the information of the production stage through the whole chain is an interesting issue for future research.
- **Fragmenting the marketing sector for analysis seems definitely necessary: the characteristics of the production-processing stages are absolutely different from those of the retail stage. This highlights that analysing only the production-consumer price relations is not sufficient.**
- **The results of the causality tests alone do not necessarily indicate market power; however, when examining it together with the results of price transmission analysis, we can conclude that the transmission of price reductions is less significant and is of a less magnitude, due to market power of retailers.**
- In the second period of the analyzed time interval, the asymmetric character has grown in each two stages.

These questions raise further issues. What is the role of the asymmetric price development (if there is)? If there is, how distorted the price determination process is, and how it take decision makers away from the optimal solution. What are the long term effects? The dairy sector is only a small segment of the whole economy.

3.3. Theoretical and practical approaches towards coordination and integration processes

Independent, privately owned farm organisations cannot countervail the market power of their business partners. Accordingly, coordination seems an appropriate solution, as it tries to solve the most critical problem: the great deficiency in pursuing the interest of producers in the chain. The results of our price transmission analysis obviously show that only the increase of input prices will increase the prices in the production-processing stage. Hence, the farm gate price is determined by the costs, not by the market situation. Farmers cannot enforce their interests separately and act against the concentrated processing industry. High investment costs, expensive functional machinery, the long production cycle from the time of investment, the continuous production and the perishable dairy products are all significant risk factors and deepen the vulnerable situation of farmers.

The different coordination mechanisms improve and strengthen the position of farmers in the price negotiations for a fairer selling price and for eliminating the fluctuations of the price. Furthermore, some effects might go beyond the industry and concern the whole society, such as decreased demand for subsidies through stabilized prices and supply, or lower food prices through more effective marketing (*Szabó M.* 1999).

In the following section, I summarize the strengths, weaknesses, opportunities and threats of the different

***Table 3**: SWOT analysis of the coordination structure established by the processor*

Strengths	**Weaknesses**
• decreasing transaction costs; • cost effectiveness of the production stage can be enhanced; • more computable, more secure market through long term contracts; • more-or less-balanced prices guaranteed in contracts; • the processor takes part in ensuring the current assets of farmers through pre-financing • long term stability, permanent subsistence; • bad quality products are filtered out by the system; • transportation is organized and financed by the integrator.	• the different market power causes imbalanced relationship between the integrator and the farmers; • the integrator is interested in cost cuts (raw materials, pre-financing current assets etc.;) • price-asymmetry; • the integrator might arbitrary change the contract; • the bargaining power and the interest enforcement of farmers remain weak.
Opportunities	**Threats**
• easier technological and product development; • better flow of information; • food safety is ensured via central control and monitoring.	• milk is a perishable product, that leads to opportunist behaviour of the contracting partner; • hold-up (relationship) problem based on the vulnerability of farmers because of functional investments.

Source: own design based on *Szabó G.G. - Bárdos,* 2005; *Szentirmay-Gergely,* 2005; *Széles,* 1998

Table 4: SWOT analysis of the coordination structure established by the farmer

Strengths	Weaknesses
• decreasing transaction costs; • cost effectiveness of the production process can be enhanced; • lower technological and market risks; • more influence on the market and on prices; • cost savings through the shortened flow of information; • rearranging some of the profit from a certain level of the marketing chain to farmers; • better interest enforcement , better bargaining position;	• inexperienced management; • inexperienced independent marketing activity; • members often have to cope with shortage of capital, therefore the investment structure is not optimal; • the current assets of the farmers have to be financed under their own capital; • members often cannot recognize that investments serve their interest – internal conflicts (horizon problem); • contact with the cooperative, transparency of its operation and practicing their managing and controlling role might cause problems for members; • ensuring food safety, quality control • weak logistics
Opportunities	**Threats**
• acquiring and retaining new markets; • high value added activities.	• shortage of capital; • technological and product developments are not materialized; • some members might gain benefits without paying-in ("free rider" symptom); • the cooperative is sometimes unable to control the quality and quantity of the supplied product; • milk is a perishable product

Source: based on *Szabó G.G.,* 2002

coordination structures, assuming two theoretical situations: one is when the coordination is initiated by the processor or when it is initiated by the farmer.

SWOT analysis on the vertical coordination mechanisms in the Hungarian dairy sector

SWOT analysis of the coordination structure established by the processor (as initiator) from the farmers' point of view (market compensation model):

If we have a look at the statements defined in both SWOT analyses, we find that depending on the initiator of the coordination, there are significant differences between the strengths, weaknesses, opportunities and threats. There are common points, since transaction costs decrease and production is more cost effective in both cases. However, some factors occur as a strength in one system and as a weakness in the other, for e.g. quality. We cannot decide which organization is more beneficial, since the factors listed might include many subjective factors that make the judgement more difficult; furthermore, the development, fulfilment and emphasizing of the specific points might cause significant differences even for two similar organizations. However, we can claim that, in any organization, the key points of the successful coordination are financial muscle, quality consciousness, and professional management, and these factors are included as strengths in the processor-initiated coordination.

At the end of the chapter, I present a successful organization in the region. The Alföldi Tej Selling and Supplying Ltd. is a good example for the vertical integration based on the horizontal coordination of farmers as initiators. The Ltd. is an independent group of farmers, of which members cooperated not for production, but for selling, in order to establish market power against the monopolistic processors and retailers in the region, and to ensure the benefits of the members.

The existence, development and the efficient production of the business proves that by the cooperation of farmers there is a chance and opportunity to significantly improve their interest enforcement and to establish ownership for farmers in the processing stage of the chain.

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Estimating the economic potential of rural microregions[1]

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1. Introduction

Experts have been involved in the problems of determining microregions in Hungary since their establishment. In Hungary, the microregions (NUTS[17] IV) were established by top-down method. This system cut through existing economic and cultural connections. The villages set up their own bottom-up microregions, which have tighter connections than the official regions. In my article, I estimate the economic potential of two regions, the regions Erdőspuszta (Hungary) and Hohenlohe (Germany), after analyzing the relevant literature on determining economic potential.

Projects realized by enterprises and civil organizations have strategic significance in the economies of settlements, and it is true that their developers are not members of the formal management of the settlement. The local governments, however, should conduct realization and top-down of projects, and they have to have an image of the future and strategic plans.

The present Hungarian practice, which appears in supply-oriented applications, is not expedient over the long-run. The projects of settlements are run parallel to each other; they therefore fail to reach any synergic effect. The aim is harmonizing and building projects onto each other.

This development is assisted by Hungarian and Community sources. To utilize these sources, soundly prepared plans and strategies are necessary. The supported projects of leaders of settlements must be combined into parts of a strategic plan. Projects realized in an ad-hoc way do not serve the interests of a settlement over the long term. Leaders should be aware of the strengths and breaking points of the settlements and, on these bases, they have to work out the long-term strategic program, which should be divided into operative aims and concrete projects. While my work assists the work of the leaders of town councils in determining the breaking points, at the same time, I do not wish to identify the strategic plan to be followed. They can decide whether they want to strengthen the weak points for balanced development or build on a single potential, as the best branch.

The strategy established by the local government should be realized on a wide partnership basis by integrating civil organizations and the local economic sphere. The local government should develop its strategy on this basis. The leaders of the settlement can later conduct by an operative way by gathering the realizing projects and investments in the settlement, and by fitting its own projects into these.

2. Raising the Subject

Studies on microregions may be found primarily in technical literature relating to rural development. Only few experts are interested in this topic, writing excellent studies, but read by few. These publications are distinct from the publications written by extremely few experts in regional development. This phenomenon appears not only in Hungary: the overlapping is small-scaled in the literature worldwide. One of my aims of this article is to reveal, compare and analyze literature on regional development, rural development and economics regarding the topic of economic potential.

In the second part of my article, I will summarize the potential models of the literature, going through the models of regional economics, macroeconomics and especially the models used in the European Union. Information of potential model provide detailed outline than regional GDP based on estimations. The information of **potential model** based on investigating rural resources and worked out in my article reflects real situation. The model strives to eliminate the deficiencies of GDP, as regional GDP reflects only incomplete situation on regional processes. I investigate the literature validity of the indicators of the model in part four. The used database and methods are introduced in parts five and six. At the end, I will summarize the results of the model and draw conclusions. In the part conclusions and recommendation, I deal even with the practical utility of results and the opportunity to develop further the model.

The significance of the topic is highlighted by the continuous decrease of the role of the county within the

[1] NUTS: Nomenclature of Units Territorial for Statistics (Statistical territorial units): It is a territorial system for mainly statistical aims developed by the institutions of the European Union.

administrative system. In developing regions, it is necessary to strengthen an intermediary level, which ensures the connections between settlements and regions. The strengthening microregions may mean this level. At the same time, it is clear that microregions have only very few information on their resources and opportunities. My article tries to help in this deficit.

My article is based primarily on studying domestic and international literature; as such an investigation has not been made before in Hungarian scientific literature. The second part of my article is supported by the secondary sources detailed in the first, broader part. I took published results into consideration and highlighted those factors which are appropriate for describing the economic potential of a microregion.

2.1. Objectives

The objective of my research is **to assist rural local governments with their work**. Through the assistance of the developed model, local governments and microregions can establish their strategic plans. The model does not determine the directions to be followed; this remains the function of the management, but the model helps in direction setting.

I based the model by processing the relevant literature. The aim of the literature processing was **to gather, summarize and analyze national and international publications**. One of my objectives was to compare and analyze potential definitions of different scientific fields.

My objective was to determine **a new potential definition, which can be generally used**. The aim of the new potential definition is to aggregate the definitions of scientific fields and to develop a definition, which can be used in every field.

The model is based on literature. During constructing the model, I try to base a coherent strategy. Data used by the model are easily available for the local governments, thus inputting data into the model is an easy task for the local governments.

The aim of the survey was to justify the results of the model. When developing the model, I took even the opinions of managers at local governments into consideration. The survey based on the opinion of the local population wishes to proof the fact that the model is well-established.

3.1.1. Partial Potentials

The rural economic potential is not determined in the literature, but on the other hand the definition potential is often used by publication writers dealing with the mentioned field. Mainly literature on regional development and economics define complex economic potential, but even literature on rural development and others, for example documents of the European Union use the definition potential. I introduce a few of the definitions, mainly those utilized during constricting the model. To my mind, the definitions are incomplete and imprecise, which reflect the fact that the definition of potential is not consistent both in the Hungarian and in the international literature.

In this way, my aim is to develop a new potential definition based on the listed literature. In the part of the research dealing with the partial potentials, I investigated partial potentials of tourism, labour, innovation, migration, settlement and enterprise mainly on the basis of international literature.

3.2. Partial Potentials of Regional Economics – Problems of Approach

Potential models of regional economics have importance in the literature on potentials. These potential models investigate the relationship of physical approach, accessibility and economic significance.

My aim is to analyze and compare these potential models and to study the fact that to what extent these models can be utilized in rural development originally developed to bigger territorial units, regions and countries. I investigate in the chapter whether the described models can be used on microregional levels.

3.2.1. Theory of Regional Weights

The potential model of regional economics belongs to the territorial models based on physical analogs. In the international literature, potential models evolved in Stewart's research in 1948 in connection with the quantitative revolution. There were studies on determining population (*Bene and Tekse,* 1966) and transportation potential (*Kovács,* 1976, *then Papp,* 1978) in the Hungarian scientific life. *Haynes and Fortheringham* (1991) in the English literature; and *Nemes Nagy* (1998) in the Hungarian literature dealt with summarizing geographical approaches. Major and Nemes Nagy utilized again potential model for determining profit potential in 1999.

Vickerman (1995) refers in the analysis, dealing with regional effects of high speed trains, that local development depends always on a certain local potential. At junctions and stops (which mean exits of motorways) the expected development, the increase of the territory in value count on the standard of local business services and local enterprises. Réthelyi and Túry see potential, attraction and competitiveness as equal concepts (*Réthelyi and Túry,* 2003).

3.2.2. Accessibility and Fact of Periphery

The periphery index belongs to potential or in other words gravity-type models. According to the supposition, the economic activity of any place depends on the distance from other economic centres and the economic size of the centre, or on the correlation of its "weight". It is an explicit similarity to the law of gravitation, that is the effect of every economic centre to any other economic centre is in direct proportion to the size of the economic activity and is in inverse relation to the distance between centres. The

economic potential of a certain area is the totality of the interactions of the centres.

The tendency goes toward the utilization of potential models, as the dynamics of changes can be illustrated in the most suitable way by the help of potential models. The models become more and more detailed; they can be used even to 10x10 rasters. The GDP is loosing its significance in the models primarily due to the mention GDP problems.

The models of previous years use traveling time as impedance variable, as the effect of changes in infrastructure cane be reflected, which cannot be reflected as the function of the distance.

Besides accessibility models above mentioned, I investigated and evaluated the theories of regional weights, theories of accessibility and the fact of periphery, the basic accessibility indicators, travel costs, daily accessibilities, potential accessibilities, periphery indicators, gravity model indicators, traveling time/cost and daily accessibility models, the used periphery theories.

3.4. Potential Models of Macroeconomics – Investigating the Maximal GDP

Potential determinations of macroeconomics generally study the reaching of potential GDP and investigate the deviations of GDP by mathematical models. I introduce only the model constructed by Ghali from the potential models of macroeconomics; the results of the other models cannot be utilized during constructing my model.

Ghali (2002) in his work on Tunisian economy considers the economic potential and the total factor productivity (TFP) to be the same. TFP means the change of the barriers of economic performance in this determination.

The researcher thus follows the neo-classical economic growth model by SOLOW, which takes primarily capital accumulation and technological change into consideration. The economics uses this neo-classical model to explain the growth processes of developed countries and to investigate the sources of economic growth (*Samuelson-Nordhaus,* 2003).

3.5. Summary: Potential Definitions

The determinations of the Hungarian and international literature are widespread, but at the same time are less developed and concentrate only a certain partial field, except for potential models of regional economics, which are based on gravity theories.

Although these models were developed for bigger territorial units, they can be used for even microregional units. The models, however, consider only two main factors, the economic weight (GDP) and the physical accessibility, by which the concept potential is very simplified. To determine GDP at microregional levels is a difficult problem for the statistical systems as the value of the total products is divided from the top.

I mentioned even the potential models of macroeconomics during the survey, though these models cannot be used or may be used only in a limited way in my research as they are based on the potential national GDP determination.

4. Information Basis

I analyze the problems of the information basis, regional data gathering and territorial GDP and strengthen my hypoarticle revealing the unreliability of the territorial GDP.

When gathering data, besides gathering information, financial or monetary data, even basic data are gathered for example the number of flats or the number of active workers, being in the denominator of average economic indicators. In spite of the efforts of researches and statistical offices, the economic and scientific life considers the regional average gross domestic product (per capita GDP) as the main information source. The overweight of the indicator does not make following regional processes in a detailed way possible.

Besides examining the availability and evaluation of data, trade cycles of the reference period should be focused on, too, as they basically modify the indicators necessary for the regional political evaluation. The most frequently used indicators in the political life are demographic, productivity, profit and employment indicators. Politics tries to explain the regional and social differences to regional population by utilizing the indicators above mentioned. Such a difference is the difference between cities and villages. The professional debate on facts and placing the data in proper time and space is relevant as this may provide explanations to empirical observation as well as solving strategies for the future. Using simply and transparent indicators and dividing data into regions and periods make the evaluation of data possible. The quantity and availability of data have been improved thank primarily to the work of statistical offices and the legal regulation. The statistical offices, however, carry out only ex-post evaluation.

I mention the details of data problems of regional and rural economics only in a few thoughts.

- Places of work and residence: places of work and residence of employers in rural areas and around city agglomeration situate in different settlements, or possibly in different regions. Before data gathering, it must be made clear, that whether the population of the place of residence or of the place of work, as well as the profit realized in the place of residence or in the place of work is considered during data gathering.
- Gross and net values: the difference between gross and net values is the value depreciation or amortization. Before data gathering one has to fix the method of handling depreciation that is whether the gross or net values are evaluated.
- Market value or accounting price: subsidies generally serve establishing fixed assets. Before data gathering, it must be defined whether the established assets are registered in market value or in accounting price.
- Partial or complex performance indicators: when determining performance indicators, such as produc-

tivity or efficiency indicators, it is necessary to cope with the problems of numerator and denominator.

4.3. Summary: Regional Indicators

The regional indicators by which literature tries to define the development of an area or a region are loaded with deficiency and inaccuracy. Such indicators being most often used are the GDP and unemployment.

The indicator unemployment involves only the registered unemployed, thus it does not reflect the real number of the unemployed. The appropriate indicator for measuring unemployment is to determine the number of inactive population on the basis of the introduced method.

When dealing with the problems of GDP, I focused on the problems of determining the territorial GDP. The territorial GDP is significantly distorted by the effects of commuting, the division of multi-regional organizations, and the up-bottom-method of the Hungarian Central Statistical Office (KSH).

It is a problem that GDP is based on profit data according to the place of work and not according to the place of residence, which means a distorted effect in case of rural microregions. Employers often commute from the settlements of the rural microregions to the microregional centers, but their profit is not reflected in the territorial GDP. Due to the problems above mentioned, the values of the territorial GDP cannot be accepted without stipulations.

5. Basing the Model

I cope with the theoretical and literature basis of the model in the fifth part of my article. I overviewed the territorial indicators in the international and national literature. The chapter follows the structure of the model, and consists of parts on the basis of partial potentials. The indicators found in the literature are examined, summarized and evaluated with respect to the certain partial potentials.

I investigated territorial, demographic, profit, human index, accessibility, migration, labour, infrastructural, tourism and enterprise indicators in the chapter.

The complex economic development indicators are the most comparable to the described economic potential indicator. It must be mentioned, however, that these indicators concentrate only on economic development of the past, do not give answers to future opportunities. Researchers often do not explain or hardly explain involving indicators into the model. The indicator groups used in the models are similar, at the same time the indicators of the indicator groups differ significantly from each other. Among the indicator groups, I took several indicators into the model.

Based on literature I have developed the definition of the rural economic potential. According to the definition the rural economic potential is the sum of local resources, which can be the basis of a new strategic program.

6. Database

I introduce the database used during my research in the sixth part of my article. The database do not serve enough information source in every case, thus I supplemented the data with own data gathering. I carried out data gathering in 2002 and 2003 in Germany and in Hungary. The Tempus scholarship financed by the European Union helped in the German data gathering. I based the indicators described in the fifth part in the previous chapters in my article. When selecting the indicators, I considered the literature background and the opportunity of the realization.

During my investigation I used the following database and data:

- Statistical yearbook of the Hungarian Central Statistical Office, 2002 (KSH)
- on-line database of TEIR
- Database of General Agricultural Survey (ÁMÖ), 2000
- Own data collection in the microregion of Erdőspuszta
- on-line database of Statistisches Amt Baden-Württemberg
- Own data collection in the region of Hohenlohe.

When making indicators I took the availability of data into account. When determining the necessary data, I considered the fact, which data are easily available for decision-makers of settlements. During constructing the model, I tried to make the model to be utilized in general and even at international level. The next table shows the developed partial potentials and indicators.

7. Data Used in Analyzing

In the sixth part of my article, I deal with the collected data both in Germany and in Hungary and the difference between them on the basis of the indicators introduced above. First, I carried out the introduction and analyzing of the microregion Erdőspuszta, then I introduced the microregion Hohenlohe and analyzed the value of indicators of the indicator groups.

7.1. Erdőspuszta

The Association of the Self-Governments of Erdőspuszta (Erdőspuszta) is one of the most active microregions in the Eastern part of Hungary. It consists of ten settlements such as Álmosd, Bagamér, Hajdúbagos, Hosszúpályi, Kokad, Létavértes, Mikepércs, Monostorpályi, Sáránd and Újléta.

The aim of the joined settlements is to reach higher living standard for their population helping each other and co-operating with each other. The history of the settlements shows similar facts, though the settlements differ from each other from many aspects. This is reflected even in the collected data.

Table 7.1.: Partial Potentials and Indicators

Partial Potential	**Primarily Indicators**	**Secondary Indicators**
Accessibility	Cars	Traveling time
	Public transportation	Frequencies of bus lines to the nearest economic junction
		Frequencies of railway lines to the nearest economic junction
Demography	Human index	Number of classes
	Labour	Number of the registered unemployed
		Education of the unemployed
		Age of the unemployed
Enterprises	Operating joint ventures	Number
	Available industrial site	Size
	Agricultural land	Size
	Taxation	Industrial tax
	Tourism	Number of beds
		Number of tourism nights
		Number of catering places
Built environment	Public utility	Ratio of cleaned sewage
		Water pipe system
	Culture	Number of sights
	Forest	Ratio of the whole territory
	Infrastructure	Ratio of paved roads from the whole roads
Natural resources	Raw materials	Number
	Land quality	Golden-crown
	Nature conservation	Size of the territory
		Number of protected habitats
		Size of protected water basis
Community sources	Public health care	Opening hours of surgery projected to 1000 inhabitants
		Number of general practitioners projected to 1000 inhabitants
		Utilization of capacities in old people home
	Services	Number of non-profit organizations
		Number of personal services
	Management	Number of applications
	Education	Number of institutions
	Poverty	Ratio of social fund receivers

7.2. Hohenlohe

The microregion Hohenlohe is a self-organized microregion in Germany, in the Northern part of Baden-Württenberg, by near the city Heilborn. The microregion consists of 7 settlements, such as Dörzbach, Ingelfingen, Jagsthausen, Krautheim, Mulfingen, Schöntal and Widdern.

The reason for establishing this microregion was to realize a common rural development program. Recognizing their common interests, these settlements have been co-operating with each other since 2000, on the basis of common past and geographical accessibility.

8. Results of the Model

I illustrate the calculated indicators on the basis of the method outlined in the previous chapter and in the appendix 1. I show the results of the model in the eighth part of my article, where the size of the indicator of every settlement is illustrated in each axis. The aggregated indicators of the results reflect the rate of partial potential of the settlement in the major six axes. The graphical introduction of the model is reflected by the example of 2–2 settlements.

8.1. Microregion Erdőspuszta

Mikepércs belongs to settlements having imbalanced potential. The most favorable partial potential of the settlement is the partial potential accessibility, which received 239 scores. All the other partial potentials do not exceed 120 scores.

Mikepércs has outstanding opportunities in case of accessibility *(Figure 8.2.)*. The management of the settlement may determine to improve the other partial potentials. Especially, partial potentials demography and built environment show low numbers. Thus, management should focus on improving these two indicators in the field of a given strategy.

The partial potential of the settlement may be reflect by a single aggregated number; in this case the potential has 114.16 scores. This aggregated potential, however, do not show the differences mentioned above, that is the extreme high value of the partial potential accessibility and the low value of partial potential enterprises and built environment.

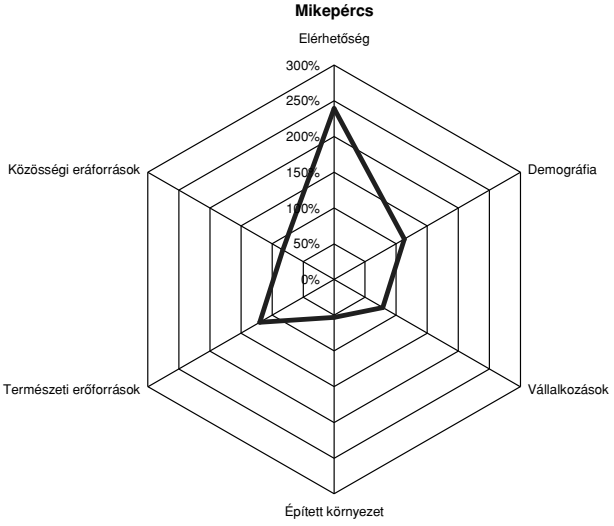


Figure 8.2.: Graphic Model of the Potential of Mikepércs

Létavértes shows a potential equilibrium, four of the six potentials are between 100 and 150 points. The partial potential community resources have 13 scores. The partial potential demography reached 71 scores.

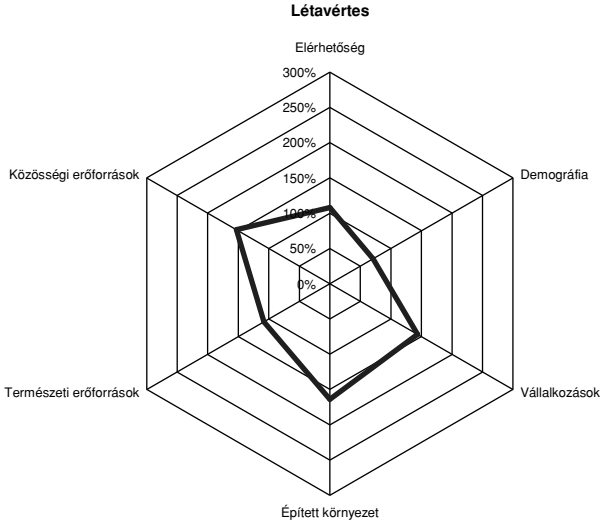


Figure 8.3.: Graphic Model of the Potential of Létavértes

The leaders of the settlement must build up a strategy to increase the demographic potential if they want to achieve a full equilibrium. Naturally, increasing indicators are important for leaders and not decreasing indicators to the same level, similar to the policy of the European Union striving for regional equilibrium.

The aggregate potential is 126,16, which is only 12 points higher than the potential of Mikepércs, although the potentials show very different possibilities *(Figure 8.3.)*. Investigating the partial potentials, however, the settlement can set a much more balanced growing cycle as an objective. The settlement strategy probably concentrates on the improvement of partial potential of demography.

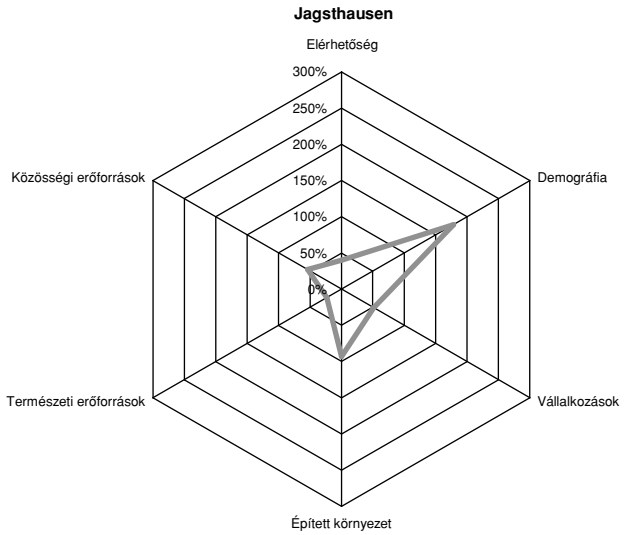


Figure 8.5.: Potential Indicators of Jagsthausen Settlement

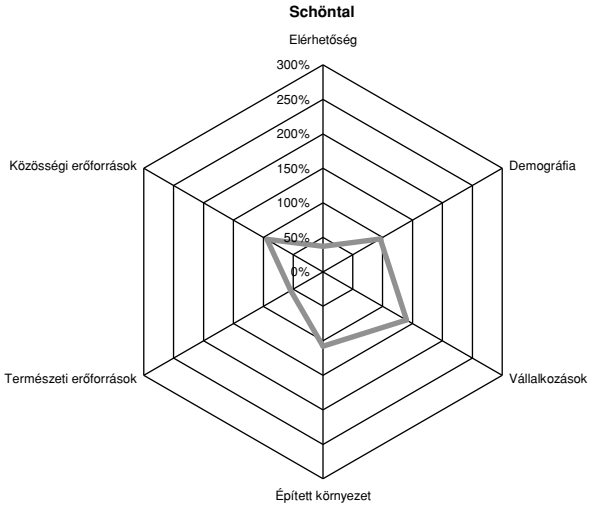
8.2. Microregion Hohenlohe

This situation may be discovered in Jagsthausen *(Figure 8.5.)*. The highest partial potential of the settlement is the demographic partial potential with a number of 178. Partial potential built environment also reaches very high value.

The aggregate potential show 73,16. At the same time this indicator does not reflect the potential opportunities of the settlement. The potential can only be understood in regional context. It can not be separated from the microregion or the researched area. Differences of partial potentials confirm the opportunity net of settlements.

The settlement has only one outstanding partial potential. In order to change this situation, leaders should strengthen the other partial potentials. The difference of 155 scores between demography and natural resources may be considered as an extremely significant problem.

Schöntal has a potential equilibrium, compared to other settlements in Hohenlohe. Schöntal has balanced opportunities in this economic and territorial environment. The lowest partial potentials are the nature and the **accessibility** potentials.



8.6. ábra: Potential Indicators of Schöntal Settlement

The aggregate economic potential is 88,16. That means only 15 points difference between Jagsthausen (Figure 8.6.) and Schöntal. At the same time Schöntal shows a more balanced condition in comparison with Jagsthausen. In the figure, the distance from the centre in case of four potentials show numbers between 90 and 150 in the axis.

The potential as an aggregate indicator may be calculated in a given regional context. On the other hand, it must be determined that the potential in a single number do not describe the rate of the economic potential. The indicators of partial potentials and their deviations provide information for the leaders of the settlements. By utilizing this, the management can plan the strategic tendency for the future both in the settlement and in the microregion. Striving for equilibrium may mean a way to be followed.

9. Analyzing Results of the Model

Graphic illustration of results of the model provides figures easy to understand. The highest and lowest values are easily recorded. Determining the values behind the indicators needs a more detailed analysis.

9.1. Result of Model Calculation

Figures above illustrated reflect the developmental level of settlements. Naturally, the potential may be expressed with a single number. Though it is a complex indicator, it does not provide extra information. The complex index aggregates several typical indicators, where every indicator contributes to the whole and the lack of certain indicators may worsen the effect generated by other typical factors.

The strength of certain partial potentials is illustrated by the position in the axis. The higher the number of certain axis it is, the stronger the given partial potential in the settlement it is. The partial potentials of settlements may be aggregated, which result in the partial potential of a microregion as well as the potential value of a microregion. This indicator group has more significant content than the generally used indicator GDP.

9.2. Results of Analyzing Questionnaires

I checked the results of the model by carrying out two surveys. I executed the survey in the 2002. This is the year from which the data originate. I had the opportunity to fulfill the survey in Germany by the help of the Socrates/Erasmus scholarship and the University of Hohenheim. When doing the Hungarian survey, I used the data of the Regional Association of Self-Governments of the Debrecen Agglomeration.

I used simple statistical methods when analyzing the questionnaires. I calculated modus, median, and correlation coefficient. The survey is not relevant because of the low number of elements in the pattern. The ratio of respondents from the whole population is 5% in Erdőspuszta, it is 2% in Hohenlohe. We had altogether 360 questionnaires filled out in Erdőspuszta, 50 questionnaires in larger settlements (Hosszúpályi, Mikepércs and Létavértes), and 30 questionnaires in smaller settlements. The number of respondents was 150 persons in Hohenlhole, where 30 persons answered in larger settlements (Schöntal, Mulfingen, Ingelfingen) and 15 persons in smaller ones. The aim of the survey was to check the result of the model. The questionnaire consisted of seven main parts.

The structure of the questionnaire:

1. The economy of the settlement
2. Aims of the settlement
3. Tasks of the settlement
4. Rural life
5. EU accession
6. Personal data
7. Data of place of work

Before comparing the results of the survey done in the two microregions to the results of the model, I begin with answers of residents from several selected settlements. 66% of the respondents consider Monostorpályi as agricultural settlement, 22% of them as settlement for residence in the attraction of a big city, while 6 respondents characterized the settlement as of mixed functions.

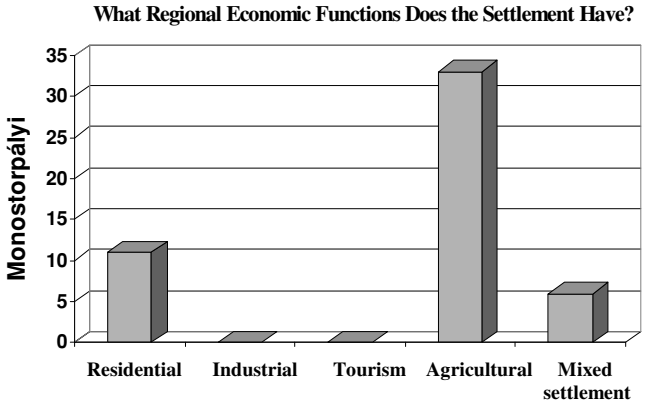
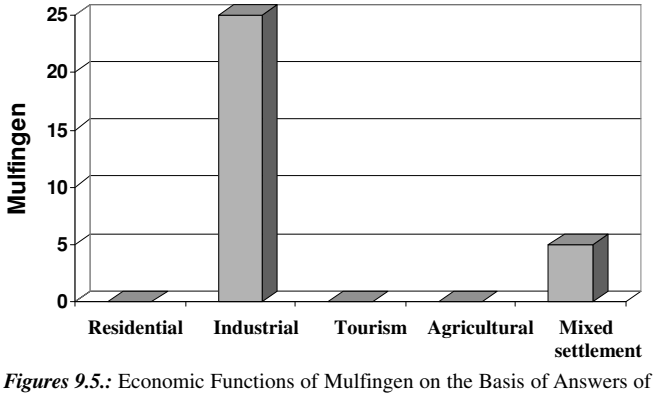


Figure 9.1.: Economic Functions of Monostorpályi on the Basis of Answers of the Questionnaires

The question serves revealing the situation of the settlement. The aims and tasks of the settlement helped in the control whether the problems determined in the model were real. Besides local government, the agricultural enterprise formed from the co-operative is considered to be the biggest employer in the settlement.

In **Monostorpályi** the strongest partial potentials are demography and natural resources having 164 and 144 scores, respectively. Within the partial potential demography, the ratio of the registered unemployed is low, while the indicator education of the unemployed reflects high value. Within the partial potential natural resources, the indicators raw materials and protected habitats reached high value.

During giving answers, the inhabitants highlighted the advantages of healthy environment and the high number of employed (especially in the field of agriculture). In Monostorpályi the partial potentials community resources and built environment reflect low values (47 and 92 scores). The low rate of community resources is caused by the lack of



Figures 9.5.: Economic Functions of Mulfingen on the Basis of Answers of the Questionnaires

surgery room and the low number of applications. Surprisingly, those who answered to the questions highlighted only the deficiencies of built environment and the need for development, such as building further paved roads and the improvement of canalization. There is not any cleaned sewage in the settlement and the ratio of paved roads is also small (29%).

I asked 30 persons during the survey in the German settlements. I selected a 30-person-pattern even in the settlement Mulfingen.

More than 83% of the respondents characterized the settlement as industrial settlement; others described it with mixed functions. This is based by the fact that more than 70% of the employees wok for the EBM factory and the JAKO commercial company.

The partial potentials demography and built environment are the highest in **Mulfingen**. Every respondent mentioned the developed industry of the settlement, especially the EBM factory then the JAKO commercial company, whose activities resulted in low unemployment rate. The answers emphasized the built environment among the problematic fields as the abandoned farm buildings in the city center spoil the city image. The model does not cover this field. The lowest partial potential in the settlement is accessibility.

9.3. Summary

When comparing the two examined microregions, I concluded that although the partial potentials of the microregion Hohenlohe is smaller, the potential is in equilibrium to a larger degree than in the settlements of Erdőspuszta. “Standing on more feet” is more frequent in the German settlements that is the number of stronger potential is higher. In Hungarian settlements, a single outstanding potential is typical.

Determining potential can be considered to be a tool, which helps in preparing decision making, which may help in strategic planning of settlements. The management of the settlements can decide whether they will build their strategy on one potential of outstanding or they wish to improve the other, lagged behind potentials. In case of selecting the second solution, the indicators to be improved may be found in the model.

The results of survey did not prove completely the result of the model. According to the inhabitants, the most critical fields do not cover entirely those indicated by the model. One of the reasons of the difference is that the inhabitants do not always know the strengths and problems of the settlement. It turned out in several cases that even the leaders of the settlement are not aware of the significant indicators including the number of services, ratio of forest or the number of tourism nights.

I had to conclude that there are fields that cannot be covered by the model, for example, the problems of abandoned farm buildings in the center of Mulfingen. The model is not deal with the investigation of these buildings and the effects. The model is not capable of reflecting the reality completely; on the other hand it may provide relevant assistance for decision makers.

Reflecting the economic potential with a single number provide only little information and make the comparison of settlement at only regional level possible. Determining the partial potentials may provide supplementing information, the differences of indicators mean this additional information. On this basis, the management can determine the major tendency of the strategy by either equalizing the opportunities of the settlement or concentrating the one or two significant sectors. Thus the strategy may be equalizing, closing up and concentrating strategy.

In the case of equalizing and closing up strategies, the settlement focuses on equalizing the partial potentials, the opportunities. Investments are carried out, which strengthen the weak partial potentials. Obviously, this determination supposes the principle mentioned during describing the model, that settlements and microregions follow conscious strategy and do not follow the obligatory tendency paved by the state and community applications.

When choosing the concentrating strategy, the settlement focuses on outstanding partial potential or potentials. The settlement handles the outstanding partial potentials as peak sectors and it builds the other sectors on the basis of the generated effects.

The graphic model makes the quick illustration of the rural economic potential possible. The figures mean a strategic tool developed easier for the management and the mayor.

10. Conclusion and Recommendations

In the ninth part I introduce my developed new and novel scientific findings, I emphasize the practical utility of the results and I propose recommendations for developing further the model. In the part of the practical utility of the results, I established my recommendations by consulting the mayors of settlements in Erdőspuszta. I considered the actual technical literature and the concerned in regional development when realizing my theories.

On the basis of studying the technical literature I concluded that studies in rural development, regional economics and economics cope with the issue of economic potential from different approaches. When comparing the different theories, I wound up that regional development deal with economic potential from an accessibility aspect, while according to the economics, the central issue of economic potential is to maximize the GDP, rural development tried to determine the complex economic potential, though the state investigated partial results defined as partial potential. In order to harmonize the differences observed during analyzing the technical literature, I **recommend** *starting interdisciplinary consultations between scientific fields* in the issue of economic potential.

When investigating the database I determined the problems of the generally used indicator GDP. The critics of GDP were mentioned even from a macro-economic aspect,

but I focused on studying regional GDP in my article. I concluded that the calculation of the regional GDP is often based on estimations and extrapolations thus this indicator may be considered to be extremely unreliable. I **recommend** *data collection by the method of bottom-up when calculating the GDP*, which would result in more reliable data and it even harmonizes with the principle of the European Union relating to subsidiary.

I created the indicator of rural economic potential, which was utilized for investigating Hungarian and German settlements. I made several conclusions during the research, introducing settlements as examples. I **recommend** *using the indicator of rural economic potential* for the management of settlements, as the gained information introduces results by figures easy to understand. On the basis of this indicator, the management of the settlement may determine the tendencies in strategy striving to equilibrium or concentration.

During the survey, I tried to prove the results of the indicator and concluded that the operation of the indicator is satisfactory, though it is not able to cover all aspects of the economy of the settlement. Furthermore, I concluded that the awareness of the population on the settlement is little, thus I **recommend** *developing communications with inhabitants for the management*, especially regarding the economic situation of the settlement.

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Certain elements of population retaining ability and the ability to economically provide for a population of the countryside

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Summary: According to the data of population density, most of Hungary's territory has rural features. Achieving EU supports in order to focus on developing the most underdeveloped communities, and in order to lessen the differences between communities, to establish priorities and to determine the rank of rural communities based on their development potential is necessary. The need of measurability arises because of comparison and classification. A possible target area is an analysis of population retaining ability and the ability to economically provide for a population of rural areas.

Introduction

Research past and present has focused on analyzing competitiveness. Studies investigating the population retaining ability and the ability to economically provide for a population are less typical. Also, the expression itself is quite new; it was born parallel with the evolvement of such problem as national migration or the decreasing role of agriculture in income production. More precisely, it developed as soon as the demand to solve the problem, i.e. the increasing of the population retaining strength, as well as the ability of agriculture to economically provide for a population, emerged (in the 1980s). Since then, the use of the expression has become popular among researchers. Unfortunately, it is difficult to find national publications in this topic. Foreign authors can only indirectly be engaged into this topic, by studying the reasons behind migration. The most important domestic and foreign researchers are the followings: *Tóth* (1982), *Sántha* (1983), *Csatári* (1986), *Konkolyné Gyuró* (1991), *Tóth* (1991, 2006), *Dorgai* (1991, 1998), *Fekete* (1997), *Fehér* (1998), *Romány* (1999), *Magda.* (2000), *Hamza* (2006); *Ginsberg,* (1998), *McGranahan,* (2002), *Beale,* (2002), *Epstein,* (2001), *Lesley,* (2003), *Hanson,* (2003).

In addition to the low amount of literature, it is difficult to ascertain any agreeable definition which embodies the terms population retaining ability and the ability to economically provide for a population. I found only one definition in the research of *Csatári* (1986), who interpreted the population retaining ability as the aggregation of different abilities; the most important of which is the *biological reproduction ability* of the population. This ability refers to the demographic structure, the age structure, the natural reproduction, the immigration and out-going migration of a given community. Another important factor is *the ability to economically provide for a population*, i.e. the income-producing ability of the communities, which depends on the rate of employment, its supply and structure. The third determinant is *the ability of supply*, thus the living conditions, while the fourth element is the *emotional affection of those living in communities*. The lack of this last factor influences the retaining ability the most heavily.

To gain adequate, many-sided information with the aim of defining the development potentials of a community, micro-region or a region, it is essential to make a complex status evaluation and to complete the information gained from statistical surveys with empirical investigation and subjective evaluation. Population retaining ability also has economic, social and ecological-environmental relevance; the examination of development potentials, on the community or regional levels, should be completed by considering population changes – as a reaction of the inhabitants to what is happening in the community or in the region. In every case, the aim is to recognize the present situation by determining the direction of the change, and finally to predict development.

Generally used indexes/indicators for carrying out such investigations have not been developed yet. The European Union, from the OECD sample, created its indicator stock for evaluating environmental state, also in the area of rural development indicator systems measuring community, or regional development potential can be achieved, however there cannot be found any uniform, cleared-out, easy to apply models.

My objectives were the following: (1) to make the definitions of population retaining ability and the ability to economically provide for a population more complex; (2) to develop indicators, in order to compare economic, social and ecological-environmental conditions, situations and tendencies of communities, subregions and regions; as well as (3) to construct a model based on indicators that may serve as a basis for national and international surveys, to assist in

developing complex plans, and to thereby ensure sustainable development.

Applied research methods

The research was based on secondary and primary data collection. The **secondary data collection** was aimed at **creating** a fact-type **indicator stock** suitable for investigations at a community level. To do this, I collected data on the target area, the Statistical Subregion of Püspökladány, for the period between 1999 and 2004, from different sources of the Hungarian Central Statistical Office (HCSO). I used the indicators from statistical sources for investigating population retaining ability. To do this, I classified the communities of the sub-region into 4 groups, considering the tendency and rate (decreasing or increasing) of population change. This made analyzing state-survey of the studied area based on population change, and revealing causes of population retaining ability possible.

I based the supplementation and strengthening of the secondary data collection on **empirical information**. Within primarily research, I used quantifying methods by constructing three types of questionnaires. For supplementing and justifying fact-type data with opinion-type data, as well as investigating population retaining ability on the basis of subjective evaluations, I constructed a questionnaire for the population and workers at local governmental offices. The questions for the local governmental workers serve the strengthening, control and, in certain cases, the supplementation of the questionnaires for the population, thus the questions in it are related to the questions for the population. I constricted the investigation of **the ability to economically provide for a population** to the **agricultural sector**, due mainly to capacity limits. In order to avoid non-sufficient results, I excluded agricultural ventures (farming over 300 hectares) being out of private enterprises posterior. The reason is that very few farms (only 3) got into the sample, but because of their sizes, they significantly distorted the result, which hindered me from making adequate conclusions for the subregion. 87 private farmers were surveyed from all of the communities of the sub-region (*Table 1*.).

Because of the small element number, none of the surveys may be considered as representative.

I made the survey in May of 2006. My **minimal expectation** relating to filling out the questionnaires **was that every community should get into the sample**. *Table 1* represents the final number of questionnaires filled out.

Table 1.: Number of Questionnaires Filled Out in the Communities

Name of the community	The number of filled out questionnaires (piece)			
	Local governmental workers	Population	Agricultural producers	Altogether
Báránd	10	28	7	45
Bihardancsháza	2	8	4	14
Biharnagybajom	4	16	7	27
Bihartorda	10	17	7	34
Földes	10	25	6	41
Kaba	10	16	9	35
Nádudvar	12	30	8	50
Nagyrábé	9	20	9	38
Püspökladány	10	26	7	43
Sáp	3	15	6	24
Sárrétudvari	6	9	6	21
Szerep	2	13	5	20
Tetétlen	6	14	6	26
Together	**94**	**237**	**87**	**418**
Filled-in but inestimable	0	11	3	14
Altogether	**94**	**248**	**90**	**432**

Source: own investigation

I used the **SPSS 13.0 program** for processing the questionnaires; during evaluation, I used both descriptive and mathematical-statistical methods.

I calculated the total Standard Gross Margin (SGM)[1] of the farms by utilizing the available data in order to investigate the ability of agriculture to economically provide for a population, and I also determined the European Size Unit (ESU)[2] for defining the economic viability. I used two typologies for the calculation. One of the typologies is **the 146/2004 (IX.30.) Regulation of the Ministry of Agriculture and Rural Development on using standard gross margin values established within the test farm system in connection with rural developmental subsidies from the European Agricultural Guidance and Guarantee Fund** (EAGGF) (*FVM,* 2004). The ESU values calculated from the SGM are used for determining the viabilities of farms,

[1] **Standard Gross Margin (SGM):** a normative (relating to average weather and farm conditions) gross margin determined primarily to the single size unit (1 hectare, 1 animal) of agricultural productions. (The gross margin is the difference between the production value of the agricultural production and the related variable costs.) The SGM per unit of production activities multiplied by the size of the activity in the given firm and to sum up the products result in the total SGM of the farm. This value reflects the permanent profit producing capacity of farms in accordance with assets, production structure and production conditions. In this way, it can even be used for determining the economic size of a farm (*Keszthelyi,* 2006).

[2] **European Size Unit (ESU)**: 1 ESU equals with 1200 EURO (306 thousand HUF), of the total SFH; its value may be sometimes modified by the inflation (*Varga,* 2006).

which is one of the conditions to win EU subsidies, such as Subsidizing Agricultural Investments within the Agriculture and Rural Development Operational Program. The limit of the economic viability (ensuring the livelihood of a family) is 5 ESU (*Nagy,* 2006; *Varga,* 2006), thus I also utilized this limit in my investigations. I made a further correlation examination using the calculated SGM and ESU values.

The Agricultural Economics Research Institute (AERI) utilizes a so-called EU-typology within the Farm Accountancy Data Network (FADN) for analyzing test farms production, which is suitable for carrying out research on the basis of economic farm size (by calculating SGM) and production tendency. The AERI placed the typology software for 2006 at my disposal, which ensured the comparativeness with the national results and correlation investigations of the created farms size for the 87 investigated farms.

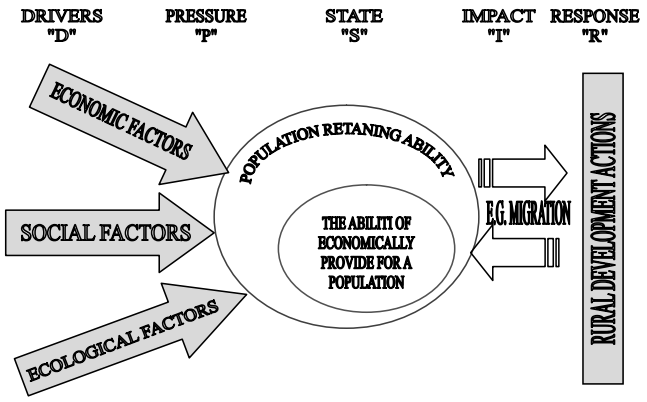

Figure 1.: The System of Population Retaining Ability and the Ability to Economically Provide for a Population
(Source: own figure)

System of population retaining ability

I constructed the system in connection with population retaining ability and the ability to economically provide for a population on the basis of the environment analyzing model used by the European Environment Agency and adapted from the impact-state-response model serving the conception basis for **OECD** environment performance evaluation (*Figure 1.*) This applies the so-called **DPSIR (Drivers-Pressure-State-Impact-Response) system.**

- The group of *Drivers* consists of human activities, such as macroeconomic processes, energy, transportation, industry, agriculture, tourism, consumption, population growing.
- The *Pressure* contains the utilization of natural resources, environmental pollution, environmental processes, poisonous materials, data relating to communities and waste output.
- The *State* is the situation, which comes from the pressure of environmental and natural resources. Data with respect to atmospheric process, environmental elements (humans as well) and natural resources.
- The indicators of *Impact* relate to biological and physical systems involving human health, safety of ecosystems, breeding animals and crops, agricultural ecosystems, state of buildings.
- The *Response* is measures in order to reduce and eliminate harmful impacts. It involves data relating to economic and environmental factors, such as business administration, households, ventures, environment safety and international co-operation (*KGI,* 1997; *Katonáné Kovács,* 2004).

On the basis of these, **Drivers ("D")** and **Pressure ("P")** can be classified into economic, social and ecological-environmental factors according to the three functions of rural areas.

The **State ("S")** is the population retaining ability, **an already existing complex situation in a given period of time, as the community as a whole operates in a certain moment**, which evolves as the aggregation of impacts and due to their pressure. Agreeing with *Csatári* (1986), I find it also as the **aggregation of different ability and conditions**. I deal with *the ability to economically provide for a population* in a highlighted way, as according even to the previously mentioned research, it primarily influences the population retaining ability of a community, thus this is illustrated separately in the figure (*Figure 1.*). The ability to economically provide for a population is determined by the role of certain economic branches played in the economy of the population. In this way, they influence the safe livelihood, employment and raising income of the population to a different degree. It operated properly, if job supply and job demand are in harmony with each other, that is if job creation and employment is based on local conditions (natural conditions, labour supply) and traditions. In my opinion, the *biological reproduction ability* is both a state and an impact. (I rather prefer the second one that is it can be considered as an impact). As the age structure depends on the willingness to give a birth, thus the number of birth, which is influenced by the economic-social state, and the population retaining ability. Furthermore, it depends on the number of deaths, which is primarily a state; though losing jobs may cause health problems, which may result in natural death or even suicide. The age structure is influenced by the migration, too, which to my mind is the result of the population retaining ability. The third one is *the ability of supply*, which means that how a community can meet the demand of the population and ensure proper livelihood. It contains infrastructural conditions and different services. One of the most important features of the population retaining ability is the role of those living in the community, *devotion*, emotional affection and being aware of identity of *people living in villages*, which influence the migration willingness to a great extent as well. The fifth condition is the prevailing *political state* influencing historical processes, too. It has a dominant role both at a global (at a national level) and at a local level (operation of local governments). In my opinion, from the point of view of the community it is a state that what kind of rural developmental, regional and community

developmental policy is carried out by the government, and furthermore, how the local governments can adapt all these. I consider the *ecological-environmental well-being* playing a more and more important role as the state of the population retaining ability, which is the aggregation of the natural, environmental and built environmental state being present by the drivers.

The **Impact („I")** is the migration in this situation, which can be two-sided. In case of favourable population retaining ability of a community that is as favourable impact of influencing factors, immigration can occur, while an unfavourable case may cause emigration. The biological reproduction ability can be considered as an impact, as I mentioned earlier.

Response ("R") is rural developmental and other developmental measures for improving population retaining ability.

The elements of the system are not independent from each other; one or several of them determine the others. This means, furthermore, that the evolved pressure or state may be even drivers in other relation.

Results and their evaluation

The Püspökladány sub-region consists of 13 communities, three of which are towns. Altogether, 51 989 people live on the 95 491 hectare-sized sub-region; the population density is 54 persons per km^2. 60% of the population lives in the three towns, and this ratio has not changed since 1990. Comparing the population of each community to the whole population in the sub-region, it is clear that 30% of the population is concentrated in the centre of the sub-region, in Püspökladány, while less than 0,5% of the population lives in the smallest community, in Bihardancsháza. 31% of the population lives in villages which have a population lower than 3000, which is 69% of the sub-region's communities. There are two communities in the sub-region with populations lower than 1000, of which one hardly exceeds 200 persons. The population of the sub-region has shown a continuous decrease since 1990 (2%).

Table 2.: Change in the Population of the Communities in the Subregion of Püspökladány (1990–2004)

Communities	Area (hectares)	Number of population		Change in the number of population (%)
		1990	2004	1990–2004
Báránd	4256	2907	2700	-7,12
Bihardancsháza	831	235	209	-11,06
Biharnagybajom	6135	3008	2945	-2,09
Bihartorda	2238	1035	947	-8,50
Földes	6523	4598	4241	-7,76
Kaba	9503	6404	6454	0,78
Nádudvar	22591	8715	9265	6,31
Nagyrábé	8542	2573	2286	-11,15
Püspökladány	18695	16371	15747	-3,81
Sáp	1922	958	1049	9,50
Sárrétudvari	5442	3180	2990	-5,97
Szerep	5604	1413	1675	18,54
Tetétlen	3211	1467	1481	0,95

Source: HCSO, 1991; HCSO, 2005; own calculation

Regarding Tóth's (1982) research, in order to analyze secondary data gained from different statistical surveys from the point of view of population retaining ability, **I created four groups on the basis of the change in population of the communities.**

1. *community group*: communities, where the number of the population increased and the ratio of the increase is higher than 1% (Nádudvar, Sáp, Szerep)
2. *community group:* communities, where the increase of the population is between 0 and 1% (Kaba, Tetétlen)
3. *community group:* communities, where the number of the population decreased and its ratio is between 0 and -7% (Biharnagybajom, Püspökladány, Sárrétudvari)
4. *community group:* communities, where the decrease of the population exceeds even the -7% (Báránd, Bihardancsháza, Bihartorda, Földes, Nagyrábé)

When classifying the groups, I tried to keep in mind that **the differences between the changes in population of the communities belonging to one group should not be too high; furthermore, the communities should be classified into groups proportionately** (*Table 2.*). Next, I analyzed the data of the sub-region from secondary sources according to this classification, and I also use this to reveal certain correlations found when analyzing the questionnaires. I note that the low element numbers cannot be neglected when explaining the results.

I evaluate the results on the basis of the structure of "DPSIR"-system. This kind of structure, which separately handles the elements of the model (Drivers-Pressure-State-Impact-Response), is suitable for highlighting indicators, which otherwise would not be taken into consideration during a general evaluation. Furthermore, certain problems and data repeat but in different views. It is suitable for introducing system processes, revealing reason-effect correlations, by even focusing one indicator in the system. The analysis becomes more complex by featuring the secondary and empirical investigations next to each other and not separately. For example investigating the role of employment, going through the system, first I examine job opportunities, the structure of the active population in the given community (*drivers*), from which arising employment and unemployment (*pressure*), its consequence is the living standard (*state*), decisions and acts (*impacts*) of the inhabitants of the community, as well as measures for solving and may be for preventing problems (*response*).

I would like to call attention to the fact that I handle the population retaining ability and the ability of agriculture to economically provide for a population together, or rather in a parallel way. The dependence of the elements of the system on

each other and the classification of the utilized indicators depending on the investigation field is the reason of the fact that certain indicators gain different meaning in different relations (e.g. income is a pressure from the point of view of the population retaining ability, while it is a state in case of the ability of agriculture to economically provide for a population).

Drivers („D") and **Pressure („P")** as the first two elements of the system may be further structured; according to the three functions of rural areas, they can be divided into economic, social and ecological-environmental factors. In order to systematize the indicators belonging to these elements and to introduce them in order of importance, I took the opinions of the population and the local governmental workers into consideration.

The respondent should evaluate factors influencing life quality (population retaining ability) of their communities from 1 to 5. I evaluated the answers of the population and the local governmental workers together, as overlapping is out of question that is one person might fill out only one kind of questionnaire.

On the basis of the averages, I placed the factors into decreasing order, as well as I defined drivers **above an average of 4, as basically important factors**, and those having an average of less than 3, which have little influence on the population retaining ability according to the joint opinions of the respondents. Then I illustrated the result *(Figure 2.).* **I defined the basically important elements separately in the figure**, indicating their priorities. I did not illustrate factors getting a value of less than 3.

According to the respondents' opinions, the population retaining ability of the area is **primarily determined by economic and social factors** (as there is not any ecological-environmental factor among the basically important factors). There are four economic factors that should be highlighted; these are jobs and employment opportunities, income ensuring acceptable standard of livelihood, the operation of local governments of communities and the state of infrastructure in the community. The three most important factors of the social factors are the availability of health care, public security and schooling conditions.

During evaluating drivers and pressure, I regarded the orders of importance determined by the help of *Figure 2*.

Drivers

Drivers are external and internal conditions (economic, social, ecological-environmental), which determine basically the operation, state of a community and have an influence on the would-be development tendencies.

Pressure

According to my model, pressure contains factors and indicators that realized **as a consequence of the drivers**. In this way, pressure may be positive or negative, and **influence the realization of the state, the population retaining ability** (e.g. number of jobs is a driver in a community, while employment, commuting, unemployment, income, etc. are pressures.) Regarding the questionnaires, indicators relating to production (crop structure, breeding stock, revenue, aim of the production) are pressures in case agricultural farmers. In the case of the population survey, the enterprise feature of the qualification, employment, commuting, revenue sources of households, buying habits, opportunities to satisfy needs, as well as issues in connection with schooling of children belong to this category.

State

The state is **an already existing complex situation in a given period of time, as the community as a whole operates in a certain moment**, which evolves as the aggregation of impacts and due to their pressure. This is the income-producing capacity of the communities, the population retaining ability, and furthermore, the ability to economically provide for a population, which altogether contribute to the present situation of the population, influence their way of thinking, behaviors and decisions. It contains even the affection of villagers, the prevailing political condition and the ecological-environmental state. All these determine the population retaining ability of a population.

The **population retaining ability** of a community may be evaluated by the opinion, satisfaction and living standard of the population that is by subjective evaluation.

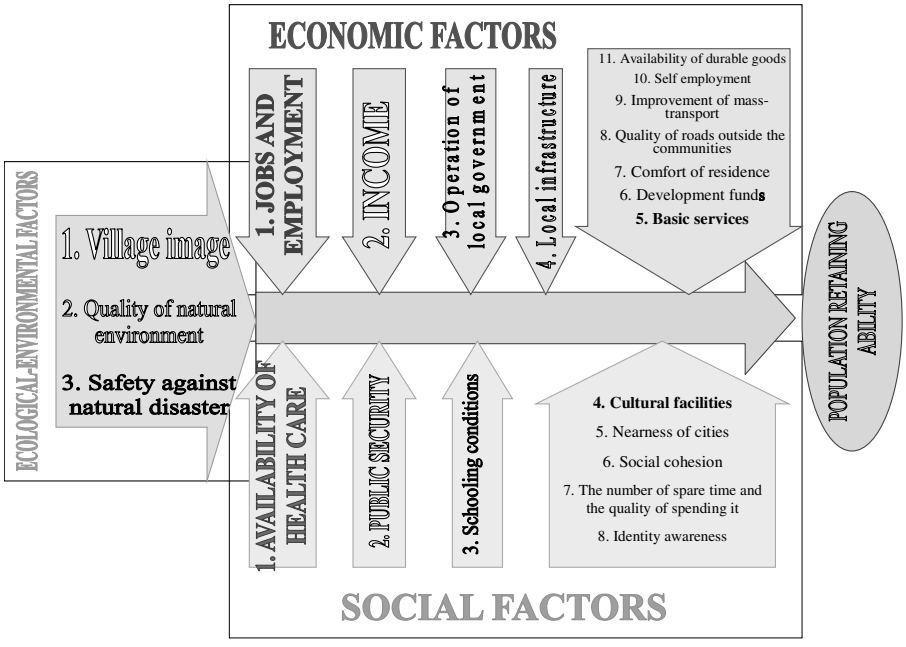

Figure 2.: Drivers and Pressure of Population Retaining Ability in the Subregion of Püspökladány (2006) (Source: on the basis of own investigations)

The **ability to economically provide for a population** in case of the agriculture is the complex situation realized by the external and internal conditions (drivers and pressure), which may be concluded on the basis of investigating income producing ability. For determining the profit producing ability of the farms, I calculated the total Standard Gross Margin by using the available data and utilizing the two typologies, and then to determine viability, I evaluated the European Size Unit.

The ability to economically provide for a population contains even the revenue of the farm, the profit situation and living standard of producers' households in harmony with the profit producing ability. The revenue and profit belong to not the pressure, but to the state due to the features of the system (its elements are not independent from each other). I handled the agriculture separately; its indicators require other ordering principle, and in this case the ability to economically provide for a population means the state, which does not allow that I handle the revenue and profit separately.

Impact

The impact is the **consequence** of the state, **of the population retaining ability**. It can be characterized by demographical processes, such as migration difference, population increase, or the aging indicator. This is the **reaction of the population** to the positive or negative changes. Questions relating to changes, moving willingness of the respondents in the questionnaire for the population belong to here, while in the questionnaire for agricultural farmers, ideas for the future, willingness to co-operate, and the fact that what experiences the farmers have with respect to EU accession.

Response

The last element of the system is the response, which involves **tasks relating to handling, preventing and solving the evolved situation and its impacts**. This is the task of the local governments in the community in the sub-region, on the other hand, setting the problems, goals and the tasks should be determined **in a bottom-up way**, being in harmony with the conditions, taking the demand of the inhabitants into consideration, asking about their opinions, that is ensuring the participation of the inhabitants. Relating to agricultural farmers, response is every decision in connection with development, and the use of EU subsidies.

Results and the summary of their evaluation

To sum up the results, on the basis of data from the introduced secondary and primary examinations, it can be concluded that **the sub-region is considered to be lagged behind from both economic and social aspects.** Regarding the ecological-environmental factors, there are both advantages and disadvantages (advantages are land quality, great ratio of nature conservation area, low number of infringements of lawful rights in environmental protection; disadvantages are ratio of forestry, the ratio of water network and sewage system, lack of recreational area, village image). **Communities of increasing population are more lagged behind than communities losing their population in many fields**. The attraction of these communities is not their developmental level or the fact that they serve better livelihood for their inhabitants. Those who move into these communities, primarily gypsy families, choose these communities as their home in hope of cheaper livelihood and due to the extremely low real estate prices. The "lumpen-proletarianism" going with general impoverishment is still an existing problem; it is not just the typical process of the period of the change of regime. It should be noted here, that this is about villages being lagged behind but having an increasing population. The exception is Nádudvar.

With respect to population retaining ability, **I can conclude that there is not always a correlation between the change of the number of the population and the population retaining ability of a community**. That is, if the population increases, it does not mean the fact that its population retaining ability or its ability to economically provide for a population is better than in other communities. On the contrary, in certain cases it is even worse, that is why they attract poorer people. The hypothesis of the research is not justified in this issue.

All in all, the living standard of the inhabitants in the subregion is not sufficient; the majority has difficulties in making ends meet *(Figure 3.)*. The reason is the employment of low standard, lack of jobs and income, which results in willingness to move and in aging population. The structure of the household revenues indicate the circumstances, from which pension and social-type subsidies, as well as buying habits with respect to food and maintaining the household have great ratio.

With contrast of these, it is a positive fact that the effort of the communities for ensuring local jobs is outstanding, the conditions for basic education are given, many people like living in their community, in this way they are attached to it even emotionally.

To sum up the investigations relating to agriculture, it can be stated that farmers in the sub-region of Püspökladány are **aging and carry out small-scale farming**. The production structure is determined by primarily the traditions and markets both in crop production and animal breeding. The agricultural diversification is not typical in this area, the majority of the farmers gain profit from mainly the agricultural sector, which has to be supplemented by off-farm profit in case of small-scale farmers. The average profit production of the farm is 163% of the national average, however, that of smaller-sized farmers is worse, in this way their viability is not sufficient. In other words, **the agricultural activity is a supplementary profit source for smaller-sized farmers.**

The willingness to co-operate among the farmers of the

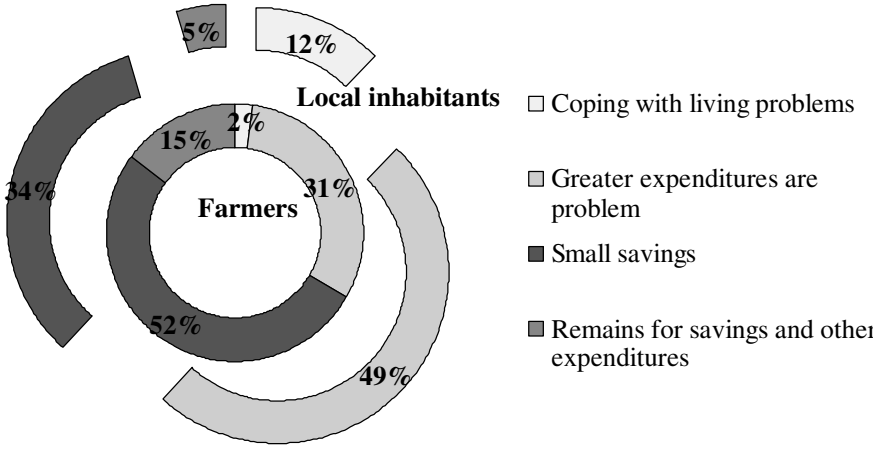

Figure 3.: Living Standard of the Investigated Population and Farmers in the Sub-region of Püspökladány (2006)

area is low due to bad experiences, which concerns mainly the small-scale farmers, thus they cannot improve their situation in this way. Gaining developmental subsidies is not typical to them. Mainly greater farms are able to make savings and finance developments.

To sum up, the agriculture **as a profit supplementing activity (as one but not the only one sources of the household revenues) primarily contributes to the more favourable living standard of private farmers in the area than the average of the inhabitants in the most significant way** *(Figure 3.).* To my mind, the ability of the agriculture itself to economically provide for a population is only sufficient in case of middle- and large-sized farms producing for selling, and having a Standard Gross Margin of over 2 500 000 HUF (33% of the respondents).

The practical use of the results

The indicators can be classified into the system, it is understandable and makes the proper utilization possible, and it bases the would-be complex investigations of similar kind, the state evaluation, and the evaluation on the basis of same principles. Its further significance is that it serves a basis for national (local, regional and national) and international surveys, considering the fact that it harmonizes with the methods used by the UN, OECD and EU. It helps in preparing development plans of complex view, in this way it ensures the sustainable development. It suits well to the middle-term objectives and institution and asset system development tendencies of the National Regional Development Conception (2007–2013) as well as to the expectations relating to the monitoring and evaluating system. It harmonizes with the New Hungary Rural Developmental and Strategic Plan by strengthening the strategy; and it serves a basis for working out the local rural developmental strategies with respect to LEADER.

Its practical utilization was justified in the investigated research area (Statistical Sub-region of Püspökladány), in this way I analyzed the population retaining ability and the ability to economically provide for a population of the area. The necessary corrections should be carried out in the future. *I recommend using this model for basing sub-regional projects for their mid-term reviews, for quantifying developmental levels of communities, for making orders of priority and need and for determining gaining subsidies*.

In the field of education, conclusions, new and novel findings in the dissertation may be fit well into the topic of the rural development subject; I recommend entering the topic of community/regional state survey into the subjects. The figures and tables help the illustration even in the education.

In the field of research, the overdevelopment of the system should be highlighted. To do this, it is necessary to make the analysis in further areas, in order to investigate the wider utilization of the indicator stock and to reduce the indicators (to create key indicators). This last one is necessary to make the mid-term reviews easier. To determine or quantify the population retaining ability and the ability to economically provide for a population in a more concrete way, it is essential to compare more sub-regions.

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Liquid bio-fuels in Hungary: effects and contradictions

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Summary: The increase of living standard requires ever more energy, despite energy saving measures. Domestic growth was 100 PJ between 2000 and 2006, and 77% of the total utilization was imported (Hungarian Central Statistical Office, 2008). Sustainability was endangered not only in our energy and commerce policy. Our domestic natural conditions are suitable for plant production; however, the stagnation of the domestic population and decreasing livestock numbers restrict inland marketing. Therefore, significant surpluses from year to year had to be stored and sold abroad, and the fact that the interventional purchase of corn and the expected stringent new EU regulation of the sugar beet sector, make the strategic significance of these branches uncertain. The difficult marketing opportunities make the better utilization of our opportunities in producing liquid bio-fuels possible from marketing aspects, while environmental issues and realizing the EU directions enforce to do so in a longer term. Over the short term, agricultural and competitive aspects will determine its spread, which cause different effects in Europe in comparison with the developing countries. According to Nábrádi-Ficzeréné Nagymihály, 2008, one of the breaking points of Hungarian agriculture lies in the utilization of alternative energy sources.
During the past period, many contradictory opinions came forward relating to economies, agricultural effects, food risks as well as the energetic and environmental efficiency of bio-fuels. One thing is certain: these fuels are already used today and their significance has been increasing. Although due to technological development, spread of new products and processes (cellulose-based bioethanol, bioethanol, biogas, hydrogen, biomethane) will obviously have to be expected in the future, at present biodiesel and bioethanol are determent among bio-fuels, thus I deal with these as well as their energetic and agricultural effects in my study.

1. The Clue Numbers of the Spread

The expectations of the EU for bio-fuels determine its future in every member state. These aim at increasing the present ratio (only 1 to 2% even at EU level) to 5,75% by 2010 and to 10% by 2020, with the help of a tax allowance or compulsory mixing. In every member state, the allowances are restricted to bio-fuels of standard quality and mixing into traditional fuels is restricted to 5% (to 7% in case of ETBE). In addition to clear biodiesel, E-85 is also considered as standard fuel. The domestic regulation under a ratio of 4,4% of bio-fuels, burdens 8 HUF per liter extra fiscal tax to every traditionally traded petrol and diesel oil. However, these figures are not directly comparable, as the EU expectation relates to heating value, while the domestic regulation applies to volume (liter). This disparity has two consequences. (1) The fact that in which ratio bio-diesel and bio-ethanol are used also plays a role in realizing expectations, as their heating values are significantly different. Additionally, the domestic spread of diesel cars may contribute to the spread of biodiesel, which may increase the mixable biodiesel quantity due to the greater utilization of diesel oil. (2) By mixing 4,4 volume% (because of the lower heating value of bio-fuels), we are still far from the expectations, which may be fulfilled only by a great use of B-100, or E-85. But for this purpose, presently used cars are unsuitable. The increase of bio-fuels being mixed into fossil fuels to 10% is planned, as is making the output values stricter. This stands, however, in opposition to the interests of certain (European, Japanese) car producers.

2. The Domestic Relativity of the Economies

At first glance, the mentioned change of the Fiscal Act (+ 8 HUF per liter penalty tax), as well as the present standards (above 5% extra 40 HUF per liter fiscal tax), make mixing in the case of 4 to 4,5 volume% reasonable from economic aspects. If tbio-fuel is more expensive than the traditional component, naturally the 4,4% (the minimum value) should be mixed. The price should of course be related not to liter but heating value (maybe the more effective burning should be considered)., It is worth investigating what it would cost to drive the same distance with different fuels. Although the bio-fuel may be more expensive, it will be worth mixing. A commercial firm may choose from two bad alternatives. (1) Either it will not mix the more expensive bio-fuel and have to calculate 8 HUF per liter extra cost, or (2) it will mix because its loss is lower than this 8 HUF, and this loss will be passed on to the customers. The 4,4% ratio is 1/23 part of the total quantity (100%), as a consequence, if the bio-fuel is more expensive by 23 HUF per liter than the replaced fossil fuel, the rise is only 1 HUF per liter in the case of a mixture. On the basis of this calculation, only a price difference of 23 x 8 = 184 HUF per liter (relating to the same heating value) may make the exclusion of bio-fuels from mixing under the

domestic regulation reasonable. Such a great difference, however, does not exist at all. As a consequence, the standard fuels will probably be more expensive to a small extent due to the bio-component, but this rate will drop to a level that would make it seem as if they were not being utilized at all. It is presumably not MOL* that will bear the rise, but the consumers, who will evaluate this as change in oil prices.

2. The Effect of Oil Prices

The most important factor of the world economy is change in the oil market (supply, prices). The sound and continuous economic development of the EU, the USA, Japan and China in the near past precipitate the rise in oil prices. This affects every segment of economic life, increases inflation and makes it necessary for central banks to raise interest rates. This move leads, in turn, to recession, which (besides its many disadvantageous consequences) reduces the energy requirement, which again results in a reduction in oil prices. These market fluctuations provide hope for decreasing this dynamic price growth, in contrast with the 1970s, when prices rose in a multiple way from political and not from economic reasons. The last seven world wide recessions always came after a significance growth in oil prices. Today, however, it is not only prices which mean problems and not only the anxiety that is from what sources energy will develop, but also the question of whether enough energy will still be available in several decades (*Roberts,* 2004).

An oil price of 100 USD per bbl is 117 HUF per liter raw material cost considering 187 HUF per USD (the average of 2007) exchange rate. This is supplemented by the costs of processing, transportation, commercial, the profit of processors and traders, as well as state taxes, which result in 290 HUF per liter petrol price and 300 HUF per liter diesel oil price at petrol stations. Thus, the cost of the raw material is influenced not only by oil prices, but the HUF/USD exchange rate. The costs of processing and trading are much lower than this; the profit need is obviously not public. If this were so, there would not be any reliable data available as cross-financing reasons against other products traded by the MOL may influence this. However, taxes may be examined in an objective way, as the effect of oil prices has two directions. First, they directly increase the cost of raw materials, but at the same time, they also increase the HUF-value of taxes imposed in%.

The quantity-based tax (fiscal tax) is the determent element in the domestic price structure. In this way, the change in oil price modifies only the value of the Value-Added Tax (VAT). Other costs and profit need are also independent from oil price change. Because of the different taxes (and processing costs), the effects of oil process will also be different in the cases of petrol and diesel oil. Thus, it has a different effect on the replacement value of biodiesel and bioethanol. On the basis of data from September 2007, taxes constitute 55% of the price of petrol and 50% from the price of diesel oil, from which the fiscal tax is 103,5 and 85 HUF per liter. One USD/bbl price change equals 1,18 HUF per liter in the case of a 187 HUF/USD exchange rate. Between January 1 and January 18, 2007, the oil price rose by 0,21 USD per liter, the domestic petrol prices by 0,35 USD per liter, the diesel oil prices by 0,41 USD per liter, considering the actual USD exchange rate. These figures suggest that the rate of price following was 1,67 times higher for petrol and nearly two times higher for diesel oil. A longer time series would provide more reliable consequences, as in price and exchange policies other factors may appear in a short run. If we consider the 55-week-long period as reliable, in theory one USD/bbl oil price change would cause 1,78 HUF per liter price change in petrol and 1,72 HUF per liter price change is diesel oil. Not incidentally, domestic finances will be in a favourable situation, and there will also be the macro-economic advantages: if bio-fuel is not mixed in, there is a surplus fiscal tax of 8 HUF per liter; if the bio-fuel is mixed in, there is a surplus VAT on the net price. This latter case is only true when the bio-components are more expensive than the replaced fossil fuel. Oil price rises and technological development of producing bio-fuels may overwrite all these, even in the near future.

3. Agricultural Aspects

Plant production, in comparison with other domestic economic sectors, requires more capital investment due to the land need, typically reflects lower profit margins because of the disparity between agricultural and industrial prices, and the losses due to unpredictable weather. Energy plants are suitable for improving the security of production, as they diversify the activity of farmers and produce marketable products of significant added value which are also useable by the farms themselves. Energetic plants may be grown on what were formerly areas for sugar beet or on set-aside areas by hybrids of higher yields and special content (HTF and hybrids of high oil-acid content). The area of agricultural land out of cultivation was 240 thousand hectares in 2007. Until 2006, the inland use of cereals was 8.5 million tons per year, its average price was 44 thousand HUF per ton. Both cereals and oil plants experienced a significant price increase (151 to 174%) over results from the previous year. At the same time, prices have stagnated (90 to 110%) in animal breeding. Additionally, forecasts predict a continuing decrease in livestock numbers. This decline means less fodder will be required, and therefore sets even more areas aside for other potential uses. which results in the fact that further fodder area will get out of cultivation. Formerly, the decrease in livestock was caused by the unfavourable change of market situations, to which the new bio-fuel market partly contributes. It is worth remembering that after producing bio-fuel, there remains a protein containing by-product which is mainly used as a component of fodder for ruminant

* Hungarian Oil Company

animal stock. The domestic market of oil plants requires 700 to 900 thousand tons of production annually, from which 600 thousand tons are utilized for meal purposes; the average producer's price in 2007 was about 89 thousand HUF per ton in the case of sunflower and (because of the early harvest) only 62 thHUF/t in the case of winter rape (www.ksh.hu, 2008). *Table 1* summarizes the previously mentioned factors.

Table 1: Major Data of Domestic Markets of Plants Usable as Even Bio-Fuels

Product	Price Change* (%)	Cropping Area, 2004-2007 (Mha)	Inland Need**, 2004-2006 (Mt)	Total Yield, 2004-2007 (Mt)
Beef Cattle	97			
Cow Milk	112			
Hogget	89			
Hog	88			
Broiler	115			
Cereals	151–174	2,8–3	8,6–8,7	9,6–16,8
Sunflower Seed	163	0,48–0,53	0,65–0,82	1,04–1,19
Rape Seed	109	0,10–0,22	0,06–0,08	0,28–0,49

* price from November in 2007 in percentage of the price from January in 2007

**: with loss

Source: www.ksh.hu, 2008

The potential cropping area is restricted by soil conditions (the best soils) in the case of corn production, by landscape for rape seed (danger of winter loss) and by crop rotation for both plants. At the same time, raw material supply of bio-firms has to be decolonized from the effects of years, as the decrease of fixed costs of the extremely significant investment may only be realized by better capacity utilization (*Bainé Szabó,* 2005). In this way, an over-sized capacity may make even the inland food and fodder supply unstable and make strategic inventory management necessary. The question can be asked even in a different way: what is more favourable to Hungarian farmers and rural areas in the case of exports of plant products (1) if it is sold as plants (raw materials) abroad with its uncertainty and low added value, or (2) if it is sold as animal products (which can hardly be made competitive in comparison with foreign concurrent products and even quotas regulate the marketing) or (3) if products (fuels) with unlimited barriers are produced in Hungary by creating jobs, local markets and infrastructural developments. This latter naturally has dangers too, not only from the aspects of raw materials, but because of the interest validation ability of foreign capital. It must not be neglected that bioethanol producing capacities of 1.5 million tones per year are available directly from our neighbors and a part of the domestic (mainly biodiesel) firms process foreign raw materials due to the closeness of the borders and the reduction of transport costs. The SAPS supplementary payment of 45 €/ha (about 11.000 HUF/ha) for energy crops improves the interests of plant producers, which doubt the willingness of traditionally marketing the same crops. At the same time, it is not sure that this payment makes the produced fuel competitive with the concurrent products; moreover, after 2010 the further payment of the subsidy is not guaranteed.

In case of figures mentioned in plant production, the cropping structure in 2007 (cereals in 2,8 to 3 million hectares, oil plants in 720 thousand hectares) is able to produce 5 million tons cereals and 0,6 to 0,8 million tons oil plants in an average year besides meeting the traditionally inland requirements. The stabilization if this may be carried out by ensuring intensive conditions (good soil, irrigation, fertilization), which may contribute to the biggest spread of corn, as this crop is able to produce a much more ethanol yield on one hectare than cereals and reacts better to the intensive production technology. It must be noted that only 9,6 million tons cereals were produced in 2007, which could have covered only the domestic processing bio-fuel supply. Primarily cereals will probably grow on the presently set-aside areas, which area freeing effect will be lower than 240 thousand hectares. The indirectly effect of this will be more significant, as probably cereals will grow on these areas. The raw material demand of the domestic mixing, taking the fuel consumption in 2007 and the EU expectations for 2010 into consideration, is 400 thousand tons corn and about the same amount of oil crops (*Popp,* 2007), which constitutes only fragments of the opportunities. The land even in an average year makes a significant export possible, in comparing to the EU countries, corn and sunflower production produce raw materials for bio-fuels by lower prime costs. However, there is an uncertainty with all of them: (1) whether the corn will

Table 2.: The Most Important Economic Data of Oil Plants in Hungary (2000–2007)

Denomination	Unit	2000	2001	2002	2003	2004	2005	2006	2007	**Mean**	**Disper-sion**
Prime Cost of Sunflower	thousand HUF/t	*56*	*54*	*55*	*57*	*51*	59	63	70	**58**	**6**
Average Marketing Price	thousand HUF/t	47	60	65	52	56	50	54	85	**59**	**12**
Average Yield (national)	tons/ha	1,80	1,90	1,97	1,96	2,57	2,17	2,18	2,04	**2,07**	**0,24**
Average Yield (HB County)	tons/ha	1,60	1,94	2,00	2,30	2,56	2,19	2,38	2,48	**2,18**	**0,32**
Prime Cost of Rape	thousand HUF/t	*55*	*49*	*59*	*69*	*43*	53	61	65	**58**	**10**
Average Marketing Price	thousand HUF/t	43	54	53	53	47	53	57	62	**56**	**14**
Average Yield (national)	tons/ha	1,42	1,87	1,69	1,41	2,75	2,31	2,34	2,26	**2,01**	**0,48**
Average Yield (HB County)	tons/ha	1,70	1,61	1,80	1,01	2,86	2,26	1,66	1,74	**1,83**	**0,54**

Source: HCSO (2000-2008), www.akii.hu (2008), *Bai-Pfau* (2007)
Note: 00-07 = 2000-2007, HB = Hajdú-Bihar county

be competitive with the Brazilian sugar cane; (2) only sunflower is unsuitable for producing standard quality; on the other hand, rape can be produced with much higher risks and lower yields in Hungary, especially in the Eastern part of the country *(Table 2.)*, than in Western Europe.

There is a twice as much fluctuation in the prime cost and yield of rape than the national averages in comparison with sunflower. The difference is somewhat lower in Hajdú-Bihar County, where the average yield of rape is 10% lower than the national average.

All in all, the farmer can count on more certain marketing opportunities and higher product prices thanks to the demand market, and lower transaction (storage and transportation) costs because of the domestic (incidentally local) utilization not only in energy crops but, due to the reduction of cropping areas of other crops, even in other plant production branches. The use of more intensive production technologies is necessary for safe raw material production. Yet, this is accompanied by an increase of prime cost, which was exceeded by the change of prices significantly.

4. Factors Affecting Economies

For any success, it is obviously necessary for producers to be concerned about producing raw materials, processors and sellers should be interested in producing bioethanol and finding markets, and the consumers should have the willingness to purchase the products. The replacement value of the products is determined by the oil price, its competitiveness depends on factors which influence prime cost in the most effective way, such as raw material cost, by-product utilization, (in case of bioethanol) the price of the used heat and firm size (as well as its utilization). Because of extension limits, I am going to introduce my calculations relating to only maximal raw material costs being deduced from petrol and diesel oil prices.

4.1. Bioethanol

Figure 1 illustrates for how many HUF it is worth participating in verticum purchasing, producing bioethanol under the present economic conditions and what maximum corn price may be reached considering average figures of technologies in the case of a petrol price of 281 to 298 HUF per liter. The latter reflects the expected effect of 10 USD/bbl oil price change. In theory, 153 to 163 HUF per liter prime cost in bioethanol equals with the examined petrol prices, the totally solution or leeway of by-product utilization equals with about 10 thousand HUF per ton price difference in purchase of raw materials. If not the total quantity is utilized or the smaller the rate of the by-product utilization is, the more costs go to the prime product, in this way the production of bioethanol will be more expensive.

The total utilization of the available opportunities in the future would go with significant risks:

- It may make the utilization of by-products problematic and expensive (because of transportation).
- Changes of world market prices of crude oil, sugar and fodder all influence the economies of bioethanol production as replacing or replaced products. In this way Hungary cannot influence prices.
- The Brazilian competition seems to pose the greatest danger in the near future. Up to now, the import duties kept Brazilian bioethanol (and also sugar) out of European markets. As it is considered to be an agricultural product (in contrast with biodiesel), everywhere in the world ethanol is hit with import duties., Reduction of these is expected to occur, in accordance with the IEA (International Energy Agency) recommendations and as a result of WTO (World Trade Organization)-EU negotiation. The competitiveness of domestic ethanol remains, therefore, uncertain. If sugar and fodder prices rise, the compulsory mixing rate will increase in Brazil, and the ethanol demand of the Far Eastern markets is able to absorb the remaining surplus. This time ethanol production based on domestic corn may be competitive in a longer term.
- From global aspects, land use and cutting rainforests will put cellulose-based ethanol production of bigger yield forward, which may be based on by-products, too, and even the spread of other second generational technologies (bioethanol, biobuthanol from DDGS). The EU lags behind the USA in these technologies, on the other hand supports biofuel production (mainly from agripolitical aspects). If we are only waiting for the appearance of the more developed technologies, we miss out on the use of these sources, but our corn

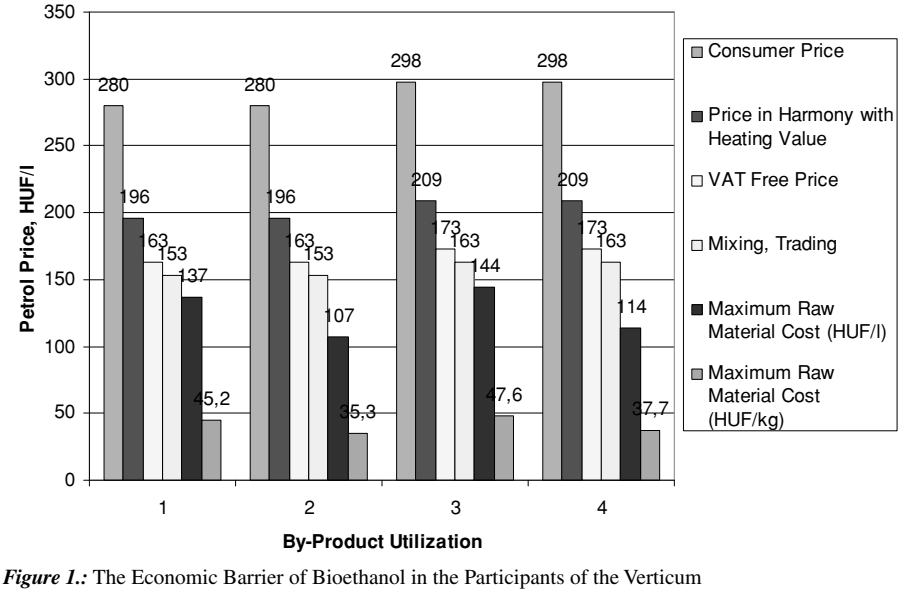

Figure 1.: The Economic Barrier of Bioethanol in the Participants of the Verticum

will become bioethanol in the same way, However, we will have to import it from another country.

4.2. Biodiesel

In case of biodiesel, the following consequences can be made with the vertical analysis mentioned in the previous chapter *(Figure 2.)*. In theory, in the case of MOL, it is worth taking over biodiesel at 200 HUF per liter (which almost equals the German wholesale price). Farmers might get a takeover price which would be lower than the present inland prices, but having significant profit content if the other participants of the verticum did with the fact that they do not have any loss. Naturally, this situation does not reflect the reality from two aspects. First, the interest validation abilities of producers and consumers are the weakest, thus the major portion of the reachable profit will expectedly spring to other participants (mainly to traders) having bigger economic power. Secondly, reaching profit may be doubtful due to the following factors:

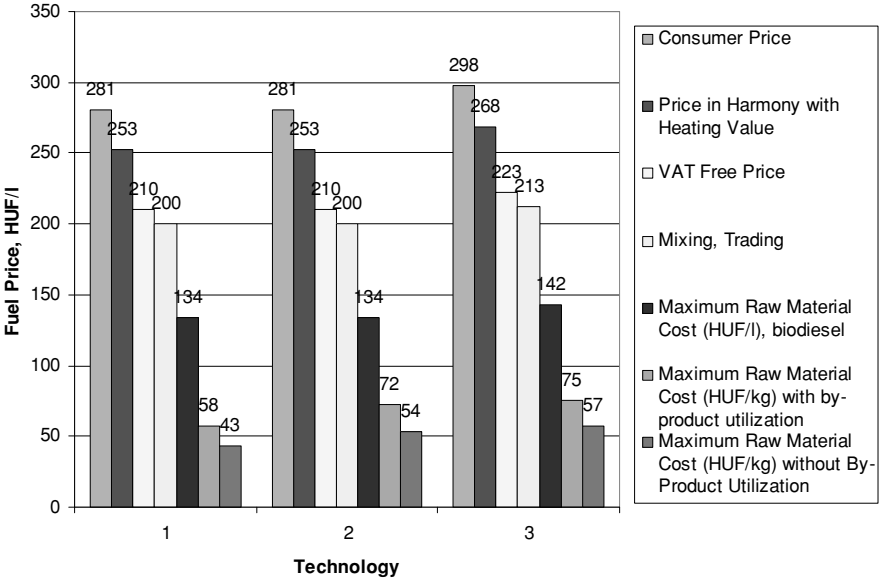

Figure 2.: Economic Barrier of Biodiesel in the Participants of the Verticum
Sources of Main Data: www.oil-price.net, www.bloomberg.com, www.gkm.hu.
Notes: 1. technology: 281 Ft/l diesel oil price, 32% oil yield
2. technology: 281 Ft/l diesel oil price, 40% oil yield
3. technology: 298 Ft/l diesel oil price, 40% oil yield

- The interval of the factual prime cost may fluctuate within wide borders depending primarily on firm size and the used raw material, with a very important supplementation: if the total quantity of the produced by-products is managed to market/process at value-ratio price! Their quantity is 1,5 to 2 times higher than that of main products, utilizing oilseed sleet needs huge livestock (mainly ruminants), glycerin requires cleaning firms, the neglect of the utilization may increase the prime cost of biodiesel by about 46 to 60 HUF per liter, in this way marketing would suffer losses.
- The world market prices of crude oil, fodder and glycerin are significant and heavily influenced similarly to bioethanol. The expected decrease of crude oil prices naturally may reduce the competitiveness of biodiesel, as well. In case of a diesel oil costing 281 HUF per liter and 32% (considered as unfavourable) biodiesel yield, the break-even would be at only 58 thousand HUF per liter raw material price, thus smaller sized biodiesel firms having worse output indicators may easily suffer losses.

Composting and burning glycerin may solve the problem of by-product utilization in firms having a capacity of lower than 10 to 15 thousand tons per year. In bigger firms, it is practical to establish an own cleaning unit and to produce standard (medicine book) quality (*Hancsók,* 2004). In theory, oilseed sleet may be used in biogas plants. The products produced in this way have a much lower value than fodder or medicine book value. The oil and biodiesel may be utilized for producing electricity and operating stable engines. These are preferential and tax-free opportunities in Hungary. Significant relieves are expected in the near future in case of use in experimental and public transport.

Summary

By carrying out technical and technological development in plant production, producing raw materials of biodiesel and bioethanol may become one of the successful branches of Hungarian agriculture; at the same time making fulfillment of EU directives and the gain of export revenue of significant added value possible. The latter goal may be restricted by foreign competitors, available land and the interests of animal husbandry. The present oil and fuel prices even in the best case would realize zero profit by calculating a corn price of 45 to 47 thousand HUF per ton and oil seed price of 72 to 75 thousand HUF per ton, although due to the different interest validating ability of the participants in the verticum, farmers may count on smaller values. At the same time, the technological and genetic development, the increase of oil and fodder prices can make the production of biodiesel and bioethanol more favourable in Hungary for a longer period of time.

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Internationalization development of tertiary education system in the Republic of Croatia

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This paper forms a part of Executive MBA Training in Agribusiness and Commerce which has been supported, developed and carried out in frame of the Tempus project AHEAD, CD JEP 19009–2004. Understanding of business and management with all components related (from economic principles, marketing, accounting to organisational behaviour, strategic development and thinking etc.) and especially international focus on all this areas initiated the idea of this paper.

Clear idea of strategic management from formulation, implementation and evaluation, as well as how important analyses are to develop any kind of good business or development plan (as one of the learning outcomes on MBA training) are present throughout the whole paper. Introduction to internationalization development of tertiary education system is given thru PEST analysis followed by analysis of whole tertiary education in Croatia, identifying major issues for internationalization of tertiary education, analysing them and suggesting solutions to develop it in right direction.

Croatia is about to become a member of the European Union and the level of education in Croatia is below the international average in many respects. The percentage of the total population that is both tertiary graduates (11.9%) and 4-year secondary school graduates (15%) is not sufficient to meet the challenges of a knowledge-based society.

As for many modern societies with low birth-rates and rising longevity, a demographic, economic and social time-bomb is ticking. The transitional years brought about the restructuring of many older companies by cutting the workforce. This job cut was not compensated for by new jobs at newly created or expanding enterprises. Despite some reductions in the last few years, the registered unemployment rate in Croatia remains rather high.

This knowledge-based society that is being built has already overcome national level and in order to be recognised and competitive on global market Croatia needs to put additional effort for developing tertiary education on the principles of quality assurance, comparable study programmes, and easily readable and comparable degrees or as it is named is this paper "Internationalization at home"

In the early nineties Croatia opted for a binary system separating polytechnics from universities. Despite many problems decision to have a binary system remained. In August 2003 a new Act of Scientific Activity and Higher Education has been adopted, and it has brought a lot of changes in tertiary education: new tertiary education structure (according to Bologna principles); support to both the specialist education offered in Polytechnics, independent Schools of Professional HE and Universities on one hand, and the academic education which is conducted solely in the Universities on the other. One intention behind the new Law has been also to strengthen the university position as against that of Faculties, and it is hoped to secure full legal integration of the universities by 2007. Under the new Law the composition of the NCHE is revised and it is given terms of reference which include proposing a coherent strategic plan for public HEIs in Croatia. It has also foreseen establishment of new Agency for Science and Higher Education.

At present the Republic of Croatia has seven universities or including universities themselves, there are 111 HEIs in Croatia accredited by National Council for Higher Education, assisted by the Agency for Science and Higher Education. There is the very heavy concentration of tertiary education institutions (which are: universities, polytechnics, schools of professional higher education together with all its constituents) in the capital city, Zagreb, and of university resources, personnel and students at the University of Zagreb. All tertiary institutions, public and private, enrolled 132 952 students for the academic year 2005/06.

The basic principles and guidelines of tertiary education policy are determined by the Croatian Parliament, which regulates them through laws, legal enactments and provisions and the system of tertiary education and science is under the responsibility of the Ministry of Science, Education and Sport. The current legal framework consists of the Act on Scientific Activity and Higher Education. The main responsibility for the development and quality of the entire scientific arena, as well as the entire tertiary education system, is assumed by the NCS and the NCHE.

National goals and targets in tertiary education are defined in Development Plan 2005–2010 and in Development Strategy for the Republic of Croatia in the 21st Century – Science. But unfortunately, in those documents clear internationalization development can not be found. This paper emphasise two major issues for internationalization of tertiary education system: assuring and improving the quality of tertiary education in order to be transparent and credible internationally and internalization at home.

Before the new Act on Scientific Activity and Higher Education the adopted quality assurance system had been in many aspects inadequate and inefficient from the lack of appropriate legislation, quality indicators, internal quality measures, time consuming procedures, unfamiliarity of concept to academic community, non existing awareness of universities, underdeveloped quality culture, lack of experience and tradition in evaluations to misunderstood goals of evaluation and resistance of the higher education staff. Some changes are seen but not many of these assumptions are still valid and in order to develop QA system in Croatia following issues need to be addressed:

- Creating a sustainable and efficient model of quality assurance.
- Roles and responsibilities of the various bodies and organisations in relation to QA in HE should be very clear and unanimous and it must be clear that the primary responsibility for the quality of higher education programmes lies with the higher education institutions themselves.

Recommendation: There should be a national body (or ASHE can take over), at arms length from government, with the remit to establish clear processes and methodologies for periodic review of programmes, departments and units within all institutions. This body will not assess quality; but it will audit the thoroughness and appropriateness of the evaluation of quality, and prepare a framework for periodic assessment.

- As to external QA, the exact roles and the boundaries of responsibilities of NCHE and ASHE should be clarified. This could also be done, of course, in the framework of an overall exercise reconsidering the existing national scheme for QA.

Recommendation: ASHE should be responsible for accrediting institutions, not programmes. Its primary role should be to ensure that both new and existing universities and polytechnics have the mission, mandate, relevance and quality required to ensure success and integration of both the national system and regional institutions. Accreditation of institutions will also facilitate functional integration.

- HEIs should have the necessary resources, both financial and human, and enjoy an appropriate degree of autonomy in order to be able to develop and operate their internal QA systems. They should nevertheless, not forget that autonomy means responsibility and accountability at the same time.
- The external QA system should, in accordance with the European Standards and Guidelines (ESG), be transparent and clear to all. If it involves accreditation in the future too, then when revising the predefined criteria, the involvement of a broad spectrum of experts from HEIs (including private institutions and students as well) could be considered in the drafting process.
- An impact analysis of the performed programme accreditation of the new, Bologna type degree programmes could be carried out. Results of this could be fed into the possible refinement procedures of the national QA system.
- A clear conceptual separation should be made between accreditation and the decision on licensing HEIs and degree programmes to operate.
- Any possible refinement of the current QA arrangements or the establishment of a future national scheme of external QA in Croatia should be accomplished based on a holistic approach, on the system level.
- Quality assurance is perceived differently from different stakeholders. It is often seen as a control mechanism for higher education institutions. It should be made clear, that in line with the European Standards and Guidelines it should be (primarily) based on the internal mechanisms in HEIs, and then linked to other, higher levels which provide external mechanisms.
- An important part of the quality assurance is quality of teaching and learning and, including learning outcomes, assessment (examinations) of students and quality of teaching. These are issues that haven't been addressed yet in proportion to their importance and should be addressed.
- MOZVAG system that served for accreditation of study programmes, and that could serve as information system on quality assurance on all levels providing data needed both for HEIs, universities, ASHE and NCHE, as well as the Ministry. System itself should also provide for link with the existing MIS that exist in different HEIs, especially ISVU, which is used by more that half of HEIs.
- Quality assurance in HE should be built both on experience from the European Higher Education Area as well as on the experience and expertise which has been developing in the country in last decade.
- Creating a culture of assessment and accountability in Croatian tertiary education is a long-term, stepped process requiring vision, leadership and commitment over time.

From all this mentioned above it is clear that Croatia needs to built a quality assurance system. Maybe the best solution would be to built together with all stakeholders (MZOS, NCHE; NCS, representatives from tertiary education institutions, students, employers) "National model for quality assurance" which will clearly define responsibilities between various bodies and institutions, objectives, targets, methods, criteria and consequences in line with ESG.

Internationalization is seen as a major vehicle for the achievement of a higher quality of tertiary education and its competitiveness. The main opportunity for the internationalization of tertiary education institutions has been through EU projects that Croatia has had access to (TEMPUS, Jean Monnet, Marie Curie), as well as through direct bilateral and multilateral cooperation with institutions abroad. Unfortunately, the national policy did not provide special measures to ensure the sustainability of joint programs

developed through the Tempus projects. No mention was made of the infrastructure that would support them, or grants for the domestic students who do not have the financial resources to cover the costs of international programs.

The mobility of students and teachers, both nationally and internationally, is at an unacceptably low level of development. There are a number of obstacles inside the national legal and administrative system, but external problems exist because Croatia was not eligible to join European Union mobility programs. The main instrument for the student and academic mobility are bilateral and multilateral interuniversity agreements of cooperation in different fields. Possibilities are limited to only a few programs such as Tempus JEP (Joint European Projects) and Tempus IMG (Individual Mobility Grants), CEEPUS, DAAD, and Fulbright. In 2009 Croatia will apply for participation in EU LLP.

The major weakness of the system from the perspective of the academic community is recognized as the lack of general strategy in the sector. But some steps of internationalization are mentioned in the Ministry of Science, Education and Sports Education Sector Development Plan 2005–2010 (establishment of system of easily recognisable and comparable academic and professional degrees and international recognition; encouragement of mobility of students and teachers).

In order to develop internationalization at home bilateral and multilateral interuniversity agreements should be encouraged and special financial incentives given to increase the so far still modest numbers of Croatian exchange students.

Courses in foreign languages (notably in English) should be offered in order to increase the number of incoming foreign students. Croatian tertiary education institutions should open themselves to all forms of programme and institution mobility. Mobility, both national and international, as well as fruitful international cooperation must be rewarded and made individually worthwhile.

Further implementation of the Bologna Process is an important step towards growing internationalisation of the Croatian system of tertiary education.

The most important goal in order to develop internationalization at home should be creation of general internationalization strategy.

Police organization in the Republic of Croatia – problems in decision making

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Introduction

During the last few years of my police work I had a chance to speak and share opinion with my work associates about the police system in Croatia. My colleagues sometimes shared my opinion and sometimes they did not about the quality of police organization. Everyone's conclusion was that some sort of change in the police organization has to be made; organization of the police must follow and embrace modern standards in organization and conduct.

Almost each person had the same opinion about police management and decision making. Their opinion was that management is not efficient; decision making is based on chain of command and not on finding good solutions; members of the management team do not have education or creativity to be qualified managers; form is more important than the quality of work.

Furthermore it was pointed out that there is no quality communication, only one way communication from managers to officers. All this results in depressed police officers with lots of overtime.

Croatian police was one of the most important factors, together with the Croatian army, in defending Croatia during the last war. Decision making and entire management was established in the way to be the most efficient during war times. Twelve years after, we can still see some elements of management that have remained ever since then.

There were some changes in the organization in 2000 regarding rationalization but in recent times new departments and divisions have been established. It must be pointed out that efficient management education does not exist. Managers are educated only through short courses and their own experience. A control mechanism does not exist. In past times the role of the police manager was defined only with defining the rules of conduct and giving orders. Now, bigger attention is put on adjusting the police organization to needs of the local community and care for police officers.

In the program guidelines of the Ministry of Interior for the period from 2003 to 2007 it is pointed out that a demanding effort awaits Croatian police in order to create and conduct education programs for management on all management levels since this is the most important condition for stable transformation of the police system in Croatia in general.

In this paper attention will be put on a segment of decision making since my opinion is that this part of police organization in Croatia needs improvement and standardization using modern standards. Decision making plays a vital role in every police organization. We recognize two levels of decision making in police organizations; crisis management and strategic management. Focus will be put on strategic management.

It is important to follow steps in decision making and gather information, discuss these information, review, consider and weigh alternatives and outgoing assessment. In police work decisions are very often made based on limited information and personal intuition. For police officers with extensive work experience personal intuition can be used in decision making process *(Burke & Miller,* 1999).

Police organization plays a vital role in the quality of life of every community member. It is required that police managers make quick judgments and decisions that can influence lives of police officers and citizens that they have a duty to protect.

This research was made to identify problems in decision making in Croatian police and to find and propose solutions, education and a system of decision making that can be most usable in this environment. This topic is important to the future and present police managers but until now it has not been a subject of any research.

Methology

This study was made as a result of the interview with police officers and members of the police management team with work experience in the different lines of police work. The interview was based on informal conversation about police organization, problems in police and possible solutions of problems.

Twenty people were interviewed; ten police officers and five members of the police management in Croatia and five employees of four different law enforcement agencies in the world (United States of America, Bundeskriminalamt, Slovakia, United Kingdom). All interviewed individuals

were asked the same questions. Each interview took about one hour and after the interview a conversation summary and important facts from the interview were written down.

The second important issue that was studied in this thesis was the organization of the Police in the Republic of Croatia. All organization units in the Ministry of Interior were presented. Highlight was on organization units in the Police. Each unit tasks and functions were examined. Chain of command and decision making was determined.

After observing facts recognized in interview a further review of foreign experiences was made. After comparing system of police organization in Croatia with other police systems in the world (United States of America, Bundeskriminalamt, Slovakia, United Kingdom) the focus was on decision making.

Evaluation of the interview was undertaken. Problems in decision making process in Croatian Police were documented. Then the attention was put on organizational behaviour, management and decision making. Terms were defined and studied. Categories of decisions and decision making process were presented. Decision making styles were also a subject of this thesis. In the end concentration was put on problems in quality decision making, group decision making and evading of risks in decision making.

Results of the interview

As it was already mentioned the basis for this thesis was the interview. Persons interviewed were employees of law enforcement agencies. Each of them was asked the same questions. Results of the interview were studied in the following chapter. The following questions were included in the interview and here are the most frequent answers:

1. Are you familiar with the term organization?

Each person that was interviewed was familiar with the term organization. They understood function of the organization in general. Interviewed people also understood and described structure, function and frames of the Institution in which they are working.

2. Do you know what Organizational Behaviour is?

Only seven of twenty people could explain what Organizational Behaviour really is. Five of them were employees of foreign agencies and two were employees of the Croatian Police where they work as members of the management team.

3. What is Decision Making?

Again, only seven people gave a valid answer to this question. Five of them were from foreign agencies and two from Croatian Police management. Those people were then asked where they got information about decision making. Members of the Croatian Police management team answered that they heard it on a course held by foreign law enforcement agencies lecturers. Employees of the foreign agencies answered that education about decision making is a standard education in their agencies.

4. What do you think about the organization of Institution in which you work?

All interviewed employees of Croatian Police agree that Institution is very well organized. All functions of the Institution are covered with organizational units within the Institution. Structure of the Institution is very complex. Opinion of the foreign law enforcement officers was that they work in Institution which is very well organized and in line with modern standards of police management.

5. Do you use decision making process when you deal with problems?

Two members of the Croatian Police and five employees of foreign law enforcement agencies interviewed stated that they use decision making process. Foreign interviewees stated that decision making process is a very important factor in their everyday police work.

6. Does management of your Organization support Group Decision Making?

Opinion of the Croatian side was that management supports Group Decision Making. However, that type of decision making seems to be used in wrong situations and for the wrong reason. Foreign law enforcement agencies employees answered that group decision making is very popular in their Institution and management encourages its uset.

7. Do you have problems in your Institution regarding organizational aspects and can you point them out?

Most of interviewed Croatian police employees stated that problems exist. Few of problem stated were: there is too much work to be done and not enough time, we work too much overtime, ordered measures don't give valuable results, people in the management don't have knowledge, experience and creativity to do their job. Again, foreign enforcement agencies employees assumed that problems in their Institution regarding organizational aspects do exist. However, they don't think the reason for that comes from lousy management but that it is caused by ever-changing and developing criminal activity.

8. Do you have problems with Decision Making in your Organization and what are they?

All the persons interviewed stated that they have problems concerning Decision Making. Some of the problems are serious and some are not. Foreign enforcement

agencies employees. opinion was that Decision Making policies in their Institutions do exist and managers are following approved guidelines. Sometimes there are problems with making Non-programmed decisions since there are no guidelines or policy for dealing with them. Then they depend on decision making process. Interviewees from Croatia defined more serious issues concerning Decision Making.

Next statements describe problems in Decision Making:

- Managers do not enough time to evaluate information.
- Managers do not know exactly what information they need.
- Managers do not follow steps of decision making process.
- Managers often have only one alternative.
- Managers don't use group decision making.
- Managers do not include experts in decision making process.
- Managers do not evaluate information properly.
- Managers enforce implementation of some decisions that cannot be applied.
- Decision making has to be modernized, only one way communication is not proper for modern standards of decision making.
- Employees are not satisfied with manager's decisions but they cannot influence decision making.

Discussion

Results chapter gave an overview of opinions and valuable information about the Decision Making in law enforcement agencies in Croatia and in several foreign countries.

Interviewees from Croatia were familiar with basic term like organization, organization behaviour, decision making but they not fully understand importance of these terms in police management. Only small part of Croatian interviewees has some knowledge of subject of decision making. However, those interviewees agree that problems in police management do exist. Answers gave precise information what problems trouble police employees the most.

Foreign experience is a valid guideline how things should be organized. First, police employees have proper education concerning decision making. Second, they embrace modern standards of police work and management. Decision Making policies and guidelines are used as valuable help in decision making. Process of decision making is basic procedure for dealing with every problem. In that way it is much easier to cope with every day police tasks.

Different techniques are used when dealing with decision making and involvement of employees in decision making is widely used. All that work as a benefit to a quality of police work in general.

Situation in Croatia is a bit different. First of all, quality education about modern police management in Croatian is still very low. That results in use of management methods that are obsolete and inefficient. Some members of the management team were educated through courses organized by foreign agencies and they got important knowledge in connection with decision making.

Decision making would benefit even more it that kind of education could be provided for each police officer.

Furthermore, it must be point out that police system in the Republic of Croatia is very complex and large organization that employees more than 20,000 people. Changes in the organization can influence results and efficiency of the police work only if they are implemented on a large number of people employed. That is why implementation of changes is quite long-lasting and compounded process.

Finally, some important issues concerning decision making process and group decision making, have to be mentioned. There are no clear policies when dealing with decision making in Croatian police. Decision making process is not used or is not used enough. When decision making process is used steps of the process are not followed. Information needed for decision making process is not sufficient or valid. Managers sometimes cannot even identify a problem.

Evaluation of the information sometimes is not done properly. Alternatives sometime don't exist or implementation of inadequate alternative is enforced. Managers don't use group decision making and they do not use experts help in decision making process. Employees are sometimes not satisfied with manager's decisions since they cannot influence decision making.

Conclusion and proposed measures

Decision making makes a very important part of people's lives. People make a lot of decision every day. Some of them are important and some of them are not. Sometimes decisions are good and sometimes not. Usually people's decisions influence only their lives and their closest ones.

But in the large and important organizations, like the Ministry of Interior is, that is not a case. One wrong decision can influence lives of tens of persons. It can be a question of life and death. Complexity and dimensions of Croatian Police Organization is an assurance that this system will work every day. More than 20000 police officers come to work every day to apply their police tasks. Important decisions that direct everyday work of police officers are made by managers.

In chapter .Decision Making in Organizations. all of the most important subjects of Decision Making were studied. Special attention was on Group Decision Making as one of the best type of Decision Making in modern organizations.

Interview of employees of Police Organizations in Croatia and four different foreign law enforcement agencies gave an answer about decision making in those organizations. After interviewing foreign law enforcement officers conclusion is that organization where those people work pay much respect to decision making. Employees are

educated and deeply aware of importance of the decision making. Guidelines and policies for decision making are made. Officers and managers use decision making process and use of group decision making is encouraged. In that way Organization embraces modern standards in Decision Making and improved its efficiency.

Situation in Croatia is a bit more complicated. Education standards police officers and managers do not include studying of modern types of Decision Making. Only present, one way communication and one man decision making, is comprehensively studied. It seems that managers are trying to be leaders. Good characteristics of Group Decision Making are not exploited in the way that they should be. As a solution of the stated problems these measures should be applied:

- Education of the management and police officers in a subject of the Decision Making has to be implemented,
- Foreign practice and knowledge on a subject of the Decision Making have to be exploited,
- Decision Making Policies have to be developed,
- Implementation of modern standards of decision making have to be encouraged (group decision making, involvement of employees in decision making).

This work has answered one important question concerning decision making in Croatian Police; .Are people that work in Croatian Police satisfied with present standards in Decision Making? Answer was that a lot has to be done to improve today's situation. After studying materials connected to Decision Making and reviewing of foreign practice some solutions were introduced. But to answer all the questions and to find all the right solutions, more comprehensive study has to be made. This thesis can be used as a basic for further research.

It would be good to give more importance to foreign experience and try to adjust it and implement in Croatian environment. For that purpose it would be most appropriate to use experiment on one organizational unit of Croatian Police, for example one police station. Managers and police officers would be educated and encouraged to use modern types of Decision Making. After examination period survey would be taken. This survey would have to give answers about what do managers and police officers think concerning decision making. Again problems in decision making, if they exist, should be quoted. It would be useful if method some method for examining efficiency could be use. This will give more comprehensive study and valuable information how to fully implement modern standards in Croatian Police Organization.

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Investment analysis of plum brandy production – methodology approach

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Introduction

The major prerequisite of successful entrepreneurship venture is quality of decision-making process. Decision in investment is the most important financial decision. It is a part of both long-term business planning process and strategic business definition. Using available investment appraisal methods, entrepreneur should make positive or negative investment decision. Within the development of the economic theory and the practice many of methods made decision-making process rational and gave the scientific and practical base for successful project evaluation.

In practice, there are three major traditional methods of evaluating investment proposals:

- Payback period method (PP)
- Net present value method (NPV)
- Internal rate of return method (IRR)

The advantage of all these methods is, first of all, simplicity and explicit interpretation of the results. However, they have some imperfection, which can be overcome using modern option approach.

All these three traditional methods use, as the base, projected cash flow that is discounted according to the time value of money.

The largest problem for each investment is uncertainty of the future performance. Investors will never invest until future major uncertainty is cleared. In other words, investors have the opportunity or option but not the obligation to invest in a project in a period of time. They can also have flexibility to abandon, expand, contract, extend and shorten the operation of the project even after the investment. A good project evaluation methodology or model should incorporate in a quantitative way all the three characteristics: irreversibility, uncertainty and flexibility. Traditional (conventional) appraisal methodologies for project investment can hardly incorporate the three characteristics above.

In recent years, management accounting and corporate finance academics have reasoned that the conventional discounted cash flow techniques do not adequately incorporate the value of managerial flexibility to respond to the changes that can emerged during the project' s life (*Herath, Bremser,* 2005). Furthermore, they do not take in a count properly risks and uncertainty in investment and operating decisions. An emerging method of research in capital budgeting called real options has been developed to overcome these limitations (*Herath, Bremser,* 2005).

Real options techniques value managers' options to make some adjustments according to the current market situation. Once projected business plan does not have to be eternal and unchangeable. Each project can be expanded if circumstances enable it, it can be cancelled if market condition become worse and it can be delayed for some better business condition period.

Real option methods for investment appraisal includes possible volatilities during the project life by identification of all options that entrepreneur have and adding this option value to the total project value. On this way some project that traditional investment appraisal methods reject can be accepted if has some potential (optional) value.

It is important to notice that real option methods are not substitute for traditional investment appraisal methods but their complement that enable wider insight of investment judgment (*Dixit, Pyndick,* 1995).

Expanded (Strategic, Real option) NPV = Static (Passive) NPV + Value of Options from Active Management

In this paper traditional and real option investment appraisal approach will be presented on the plum brandy production in continental Croatia.

Objectives and hypothesis

The aim of this paper is to research increased significance of the real option as modern investment appraisal methods that have starting point on traditional investment analysis with addition in form of project flexibility estimation.

According to the financial theory quantifying the main investment scheme, this paper will compare results of the traditional and modern real option investment analysis on example of the plum brandy production. Author will with that respect explore the next hypotheses:

- TRADITIONAL METHODS OF INVESTMENT ANALYSIS CAN UNDERVALUE INVESTMENT OPPORTUNITIES BECAUSE THEY DO NOT TAKE IN CONSIDERATION AN OPTIONAL VALUE (POTENTIAL) OF INVESTMENT.
- ONLY TRADITIONAL METHODS FOR INVESTMENT ANALYSIS ARE NOT ENOUGH BECAUSE MODERN MANAGEMENT IS FLEXIBLE. IT ACTIVELY TRIES TO FIND ALL OPTIONS AND BENEFIT FROM THE CURRENT BUSINESS POSITION.

These hypotheses can be divided on the next sub-hypotheses:

1. Decision on investment is the most important financial decision. It is a part of long-term business planning process as well as strategic business definition.
2. Traditional methods of the investment appraisal are often used for the tactical decision making level, not in strategic level. These methods have the major importance for the small, individual, irreversible and independent project appraisal. Traditional methods are not enough for the complex, independent and multiphase projects appraisal.
3. Strategic of the capital planning that apply option approach is the way of management flexibility quantifying as well as measure of all interdependent projects aspects.

In order to confirm or reject specified hypotheses this paper is asking to offer the answers on the next questions:

1. What methods for investment appraisal purpose traditional (conventional) investment analysis use?
2. What are advantages and disadvantages of the traditional investment analysis?
3. What are the major characteristics of the modern investment analysis approach, generally real option analysis?
4. What advantages and disadvantages of real option analysis can be noticed?
5. What is the result of the traditional investment analysis of the plum brandy production?
6. What is the result of the real option investment analysis of the plum brandy production?

Final valutation of the project

As maintained before, the adjusted value of the project should take in consideration an option value of the extended project. In case of plum production it was identified that plum plantation gives an option for distillery investment, which will use the plum from the plantation as the input source. Because of that, real value of plantation consists of NPV of the future net cash flow as well as call option value for distillery establishment.

Strategic NPV = Real option NPVplam plantation = NPV + call option

Real option NPVplam plantation = –2.036,18 EUR + 4.986,72 EUR = 2.950,54 EUR (Black-Scholes option valuation)

or

Real option NPVplam plantation = –2.036,18 EUR + 5.184,17 EUR = 3.147,99 EUR (Binomial option valuation)

Real option calculation of NPV adjusted by the next investment option value, gives considerably different results than conventional NPV calculation. While the NPV without option value indicates that plum production is not profitable enough, this extended approach found that NPV is positive. Therefore, investment in plum production with option of distillery extension should be accepted.

If the whole project consisted of plum and plum brandy production should be evaluated, the investment appraisal is also enlarged by option value.

Real option NPVproject = NPV (plum) + call option (brandy production)+NPV(plum brandy)
RO NPVproject = –2.036,18 EUR + 4.986,72 EUR + 2.996,18 EUR = 5.946,72 EUR (Black-Scholes)

RO NPVproject = –2.036,18 EUR + 2.996,18 EUR + 5.184,17 = 6.144,17 (Binomial method)

Recapitulation of the calculation

On example of plum brandy production, the call option that exists in the plum plantation has been determined. Using only traditional methods of project evaluation, the plum plantation of 1 ha in current market condition hasn't showed satisfied results. But, traditional methods have ignored hidden (potential) value that investment has. Traditional methods neglect flexibility of management decision-making, which is in compliance with actual market situation.

Plum plantation owner has different options:

- To withdraw the plantation after first negative results caused by, for example, decrease of plum price.
- To enlarge a plantation hoping that results will be better with higher production surface (economy of scale).
- To change a technology in order to change target from proceeding plum to fresh consumption plum.
- To expand plum production to plum processing products (plum brandy, plum jam).

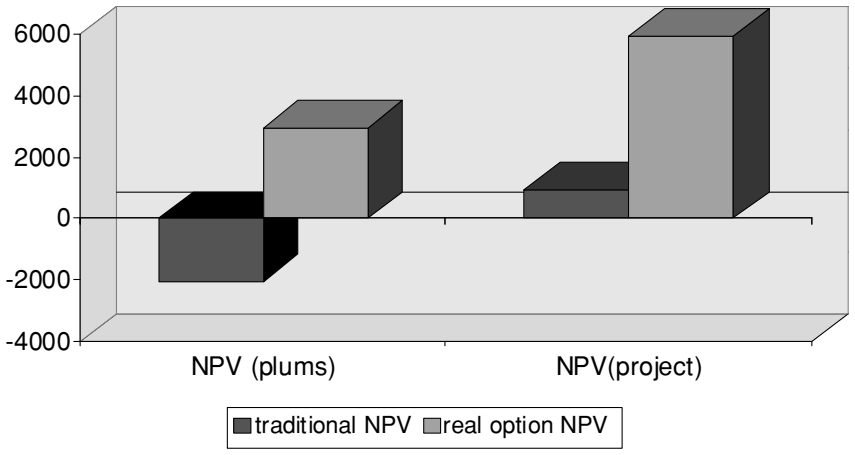
In our example, the option of plum brandy, as one of the options, has been tested. Considering separately, plum brand production ensures positive business performance, much better than plum production only. Logically, plum plantation has a certain optional value that raises a first project appraisal.

Table 1: Comparison of traditional and real option appraisal

	Traditional appraisal	Real option appraisal (Black-Scholes)	Real option appraisal (Binomial method)
NPV – plum plantation	–2.036,18 EUR	2.950,54 EUR	3.147,99 EUR
Investment appraisal	Not accepted	Accepted	Accepted
NPV - aggregated	960,00 EUR	5.946,72 EUR	6.144,17 EUR
Investment appraisal	Accepted	Accepted	Accepted

Source: Author's calculations

Graph 1: Traditional and RO NPV



Source: Author's calculations

Using exclusively traditional approach there is no possibility to evaluate this extension opportunity value. Because of that, the project of plum production would be rejected. Real option can overstep this shortage increasing the project value by option value.

Consultation

A present business environment is very dynamic and it takes a much of decision making, fast but rational. Because of the irreversibility of the investment projects it is strongly important to notice all the business opportunities that exist. Traditional methods of investment appraisal cannot evaluate these options and managerial flexibility appropriately. High potential projects, that might turn out to be a valuable part of future project portfolios might be abandoned completely using a conventional NPV methodology. Therefore, real options theory, a complement to DCF, needed in such cases, adds that necessary flexibility. In the process, real options theory addresses important strategic and financial issues. Thanks to the analogy between financial instruments investments and real projects, the real option valuation methods have been developed during 1970s'. In spite of some critics that found different constraints of the real option approach, today, it is unique methods for the option valuation. However, only 10% of all American CFO use real option model in they project planning.

Presented sample has been used for simple understanding of the basic principles of the real option model. The only feasible way to value more complicated projects is by using a computer programmes. In this case a project of the plum brandy production has been tested with traditional and real option methods as well. Traditional methods of plum plantation investment appraisal haven't given acceptable estimation. Option's methods have taken in consideration optional value that emerges from the plum plantation. In case where plum brandy production is offering an acceptable business result, plum plantation value, as the first phase of the brandy production should be increased by its optional value. With this new perspective, the plum plantation investment should be taken.

The main problem for faster real option acceptance is its appliance in practical, not only in academics' level. Hence, academics must listen carefully to the critiques of practitioners and allow them to influence the kinds of problems that are addressed in academic research.

As the prerequisite for developing of the real option approach it is needed to educate a student and entrepreneurs about benefits of the real option methods and to recognize the options in each practical sense. In this respect, I hope that this thesis can provide an option to improve financial management knowledge and increase the goodwill of its author and readers as well.

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Agribusiness higher education development – training needs analysis[1]

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2. Institute of Adriatic Crops and Carst Reclamation, Split
3. Institute of Agriculture and Tourism, Poreè
4. Croatian Chamber of Economy
5. Croatian Extension Institute
6. Croatian Employers Association
7. Agrokor d.d.
8. Ministry of Agriculture, Forestry and Water Management
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Abreviations used in the report:

AHEAD	Agribusiness Higher Education Development
MBA	Master of Business Administration
MSES	Ministry of Science, Education and Sports
MAFW	Ministry of Agriculture, Forestry and Water Management
CD JEP	Curricula Development Joint European Project
BOKU	Boden Kultur

Introduction

With the tremendous changes in political and economic systems of the Republic of Croatia after independence, new challenges have been put to the higher education system as well. The system used to be structured to serve a centrally planed economy with predominantly state ownership. Universities were producing graduates to be employed on state farms, in agri-food systems (so called „kombinats"), the state owned processing industry or cooperatives. The graduates were specialised in particular branches, such as crop production, vegetable production or livestock husbandry. Therefore, they were not educated to understand the whole system of a company or the agri-food system. In one word, they were not prepared to run firms as managers, although they were highly educated. Small and medium size entrepreneurs in agri-food business have been rather an

[1]Final Report Tempus CD JEP 19009–2004

exception than a rule, and prior to the transition there was not to much experience in managing, financing or marketing for such a firms.

Processes of privatisation and market liberation brought a huge challenge to the agri-business sector in Croatia. Both food production firms and farms were forced to face markets directly and to compete with increasing foreign competition. Family farms found themselves in an especially problematic situation, since they have been used only to production, while the distribution system was owned and run by state firms. Even more severe conditions rose when the distribution system collapsed, which happened together with the collapse of vertical integration run by „kombinats".

Consequently, the education system has had to change the way it introduces trainings in management and marketing for small and medium entrepreneurs and agribusiness professionals, because their functions are not even suitable for the new situation. Indeed, they practically disappeared together with state „kombinats" and cooperatives.

In the mid-Nineties, the Faculty of Agriculture of the University of Zagreb carried out the first big reform of study programs in answer to the new circumstances. The former eight specialised graduate study programs were reorganised into two general study programs in plant science and animal science. Each of the two study programs lasts for 9 semesters, and majors are introduced in the fifth semester. There were seven majors in plant science and three majors in animal science. Agricultural economics, which was the closest major to agribusiness management, has been a part of the plant science study programme.

With the acceptance and introduction of the Bologna process by Croatian higher education authorities, a new reform has begun at all universities and high schools. The Faculty of the Agriculture University of Zagreb started to work on the reform in cooperation with EU universities, especially University of Hohenheim and BOKU University in Vienna. The three universities started a Tempus project in 2003, with the objective to develop new modern curricula for agricultural faculties in Croatia[2]. It has been agreed through the project that developing agri-food sector in Croatia needs professionals in management, finance and marketing that should be provided by high education. The Faculty of Agriculture has found it to be an opportunity to develop contemporary agri-business management study program. Subsequently, a new Tempus CD JEP project was established and approved by EU Commission in 2005: Agribusiness Higher Education Development – AHEAD. The overall goal of the project is to develop agribusiness education in Croatia, namely at the University of Zagreb. One of the basic tasks of the project team is to determine future demand for experts in the field of agribusiness and food science. To answer the task, an activity titled Training Needs Analysis has been introduced and carried out in the sector.

Training Needs Activity of the AHEAD Tempus CD JEP

Projection of future development of education is directly connected to projection of development of a sector in question. Therefore, it is necessary to investigate and gather information from all stakeholders about the future needs of a highly educated labour force. This is exactly what the Training Needs Analysis (TNA) outcome should bring to the AHEAD project: the future expert demand of the Croatian national economy in the field of agribusiness and food. The outcome consists of three activities:

1. Creation of the questionnaire, determination of the target group for the training needs analysis
2. Collecting, processing and evaluating data in connection with the analysis
3. Final report will be created, as the main result of the training needs analysis.

The TNA was mainly carried out between September 2005 and June 2006, while development of the final report took some more time and was finished at beginning of 2007. To get the best results, the TNA was accomplished in cooperation of all consortium members from Croatia, under supervision of the university staff from Zagreb and Debrecen. The final report about the TNA results was discussed among the consortium members and it is planned to be delivered to the target group. Data and conclusions of the final report will serve as a guideline for the university trainings trend and structure.

Detailed description of the activity as stated in the AHEAD project application[3] is in annexes of this report.

Methodology

To achieve all the objectives set for the TNA outcome in the AHEAD project, a collection of methods and data sources has been applied and analysed. The collection can be broken down into the three main points:

1. field research based on a questionnaire: TNA survey
2. officials' and experts' opinion and
3. desktop research

Field research has been organised as a cross-sectional study based on multi-stage-cluster sampling method. Population was defined as all managers and experts reachable through the consortium partner network. All the branches in the agri-food sector were included and the partners approached the sample and they did the survey. Coordination work was done by University of Zagreb staff.

To get additional information about existing developments and strategies in the field of agri-business education, representatives of related institutions were consulted. Namely, the institutions involved are as follows:

[2]CD-JEP 17108-2002 Reform of Agricultural Studies in Croatia (RASC)

[3]Tempus Application Form, Joint European Project 2004, reg. num. JEP 19009–2004.

- University of Zagreb
- Faculty of Agriculture, University of Zagreb
- Faculty of Food Technology and Biotechnology
- Ministry of Agriculture, Forestry and Water Management
- Ministry of Science, Education and Sport
- and all the Consortium Partners' representatives.

Development measures under the TNA should be in accordance with national and sectoral education development strategies. For that reason, supplementary desktop research was done to check existing related studies, strategies and legal documents.

The TNA survey

The TNA field research has been organised as a cross-sectional study based on multi-stage-cluster sampling method. Population was defined as all managers and experts reachable through the Consortium Partners network. All the branches in agri-food sector were included and the partners approached the sample and they did the survey. Coordination work has been done by University of Zagreb staff.

Questionnaire

Aiming to get the most accurate information on perception of training needs among professionals and policy makers in agribusiness it was planned and necessary to conduct a structured enquiry. The enquiry survey is based on unified set of questions for all the participants prepared in form of questionnaire. The questionnaire was finally developed in two versions:

1. digital version to be distributed and filled up using PC and
2. hard copy (paper) version to be distributed by interviewer of by post, and filled up in hand writing.

Main reasoning in development of the questionnaire was to get a tool that will enable achievement of the TNA outcome objectives. The first draft has been developed at the Faculty of Agriculture, University of Zagreb, and it was partly based on the previous market research for new study programs done by the faculty staff. The first draft has been revised by the project management (University of Debrecen) and sent for revision to competent partners. As a result of the revision, it was decided that the questionnaire should be broadened and more detailed than it has been proposed in the first draft.

Final version of the questionnaire consists of four groups of questions, namely:

1. personal identification questions,
2. assessment of particular knowledge and skill for future education of experts in agribusiness,
3. assessment of demand for agribusiness professionals in short- and long-term perspective,
4. questions about the MBA study programme.

The questionnaire is a part of annexes to this report.

Personal identification questions

There are seven questions in the group of which five are closed and two open questions. The questions are about job, position, profession, education and mostly used skills in everyday work. In combination with other groups of questions, this should enable cross-tabulation analysis to get better insight into results according to different professional groups.

Assessment of importance of particular knowledge[4] and skill

In this part of the questionnaire are offered sixteen different names of potential study programs. The programs are grouped in two sets:

- study programs in agri-food or a similar field (10) and
- study programs in economics or a similar field (6).

The second set has been added, since economics subjects seem to be more attractive to prospective students, even if offered at institutions that are not predominantly economic, but incline to teach applied economics. It is especially interesting, since agricultural education institutions in Croatia have been losing attractiveness in recent years. Therefore, it is worth looking for possibilities of development of new curricula more oriented to economics, but based on the tradition of agricultural economics education at the Faculty.

Before they start to assess knowledge and skills, respondents are asked to choose five the most attractive study programs for them out of sixteen. All questions in the second group relate only to those specific five programs. For every of the five potential programs sixteen different knowledge and four skills have to be assessed by importance on scale from 1 to 5 (giving higher value for higher importance).

Finally, 16 + 4 assessments per each of the five study programs will give 100 records for this group of questions if the procedure is followed.

Assessment of demand for agribusiness professionals

To get the most accurate and reliable forecast of future demand for professionals, a group of questions has been developed about possible places of employment and about number of experts needed in both, short term (2006–2009) and long term (2010–2014) perspective.

[4]The term knowledge is used here in sense of familiarity or conversance, as with a particular subject or branch of learning: *A knowledge of accounting was necessary for the job.*

The group of questions starts with estimation of number of employees needed per area of business and per each of the five study programs.

Next, questions are about how many graduates of chosen study programs are expected to be demanded in period 2006–2009 and in period 2010–2014.

Based on sufficiently large number of answers, this group of questions should provide acceptable forecast of future demand for graduates of specific study programs.

Questions about the MBA study programme

One of the most challenging activities of the Tempus project „AHEAD" is development and implementation of internationally accredited professional MBA training at the Faculty of Agriculture in Zagreb. The MBA training should be integrated into the faculty regular program after the project is finished. Therefore, it is necessary to find out about opinion of professional society about need for specific training in management, finance and marketing as MBA training is.

Three questions are developed regarding the MBA training trying to find out (1)how much the training is needed, then (2)what are possibilities that firm will finance the training for its employees and, finally, (3) how many employees can be expected to bi financed if acceptable for the employer.

Sample and data collection

As already mentioned, the TNA enquire has been organised as a cross-sectional study based on multy-stage-cluster sampling method. Sample size was 400 managers and experts from all parts of Croatia, in the field of agriculture, food industry, agri-input industry related institutions and public administration. It was an intentional sample approached by the project consortium partners which prepared sample frame based on their contact list or member list.

Data collection started in December 2005 and finished by February 2006. Two ways of data collection were applied:

- data collection by e-mail using digital version of the questionnaire,
- data collection by surface mail using paper version of the questionnaire.

All together 434 questionnaires were collected and analysed. The questionnaires were first collected by the Consortium Partners and then sent to the Faculty of Agriculture for revision and data input.

Review of existing development strategies

Education Sector Development Plan 2005–2010, Ministry of Science, Education and Sports (MSES), 2005

In the Education Sector Development Plan for the period 2005–2010, the MSES of Croatia gave a thorough description of trends and situation in the national economy and education. Priorities are defined in the four topics given here:

- Improving the Quality and Efficiency of Education
- Supporting the Continuing Professional Development of Teachers and Other Education Personnel
- Developing Management Strategies for an Efficient Educational System
- Education for Social Cohesion and Economic Growth and Development

The priorities have to bring the system towards „Targets for Croatian educational development". The targets are set for four levels of education as follows:

- Pre-school and Primary Education
- Secondary Education
- Higher Education
- Adult Education and Training

Concerning higher education, the main targets in the programming period are connected to the adjustment of Croatian education system to the Bologna declaration and to the EU educational system.

Regarding to number of graduates, it is projected that the number should increase by 30% by 2010. There is no analysis of relation between this number and potential demand for graduates in the economy. However, it is presumed in the plan that there are not enough highly educated people in Croatia, and that even more will be needed. The plan deals with education on macro level and, therefore, there is no projection of specific sector as agri-business is.

Self-evaluation Report (Preparation and implementation of Bologna Process), University of Zagreb, 2005

According to the report, there were 55.224 students at the University of Zagreb (UZ) in 2005, of which 3.227 were in biotechnology. Total number of postgraduate students was 6.196, while the total number of full-time staff was 6,800. The university had a budget of 233,33 million EURO in 2004.

The majority of the report is dedicated to problems of implementation of the Bologna declaration and new lump-sum system of financing universities in Croatia that has to be introduced. Additionally, questions of quality assurance and transition problems related to internationalisation and ECTS system are addressed. Although the report suggests the UZ is going in the right direction and that it will successfully implement all the necessary adjustments, it says nothing about the position of the UZ regarding demand for its graduates.

Policy Recommendations For Raising Croatia's Competitiveness, National Competitiveness Council, 2004

As an advisory body that brings together representatives of business, government, unions, science and education, the National Competitiveness Council issued recommendations for increasing Croatia's competitiveness in 2004. The document was developed by numerous collaborators organised in expert groups by field of expertise. One of the groups was working under title Education For Growth And Development. The group came out with three conclusions about present situation:

- insufficient public expenditure for education (only 4% of the GDP)
- low educational attainment of the workforce compared to European countries (only 7.1% of the workforce holds a two year college degree, and 12.3% hold an undergraduate degree or higher) and
- absence of an estimate of future skills needs.

With intention to increase competitiveness, authors gave dozen of recommendations of which following can be related to the Training Needs Analysis and the AHEAD project reasoning:

- Increase participation in adult education
- Estimate the labor market's future skills needs
- Adjust educational programs to the development of knowledge and
- skills needed in the future
- Improve the system of higher education
- Modernize teacher education ("teach the teachers")
- Increase the role of the private sector in the provision of educational
- services
- Increase public expenditure for education

It is obvious that the TNA is in line with these recommendations and it can be considered as necessary step towards improvement in agribusiness education.

Assessment Of The Labour Market And The Vocational Education And Training Sector In Croatia, European Training Foundation, 2001

In 2001, the European Training Foundation conducted a research in Croatia to assess relations between the labour market and vocational education sector. In general, many of the recommendations from this document can be applied to higher education and labour market as well. It is stressed that a new changing environment emerged after overall transition of the country asks for new knowledge and skill at all levels: from recipients of knowledge, through educators to education policy makers. Recommendations are summarised in for points and we shall mention it in short.

First, they say, governance and system should change, where more coherent policy, flexible lifelong learning system, information and partnership should serve as key stones in development. Secondly, decentralisation and better perform in finance should be enforced. Third, teachers and school managers are obliged to educate themselves constantly to be able to answer all the requirements of modern education. Finally, curricula should be designed bearing in mind lifelong learning, integration of work and learning and stimulation of entrepreneurship.

Explanation of the need for a higher education reform, Ministry of Science and Technology, 2004

In the period of preparation and introduction of current Act on Institutions of Higher Education in Croatia, the Ministry of Science, Education and Sport worked out a document to support proposed changes. Among many other, there is also mentioned aim of the Act under title „Establishing closer links between the economy and education". It is said that „The analyses of the existing conditions in the field of higher education show relatively good results in the theoretical part of education, but very little or no applicability of the acquired knowledge." For that reason, educational institutions will be recommended to improve connections with economy. Changes in system of financing will also force institutions to look for alternative sources, and that certainly means better understanding of economy and labour market demand. Only attractive studies that ensure employment will be interesting for future students cause they will have to pay a great deal of their costs of study.

Higher education system in Croatia

The system of higher education in Croatia is under jurisdiction of the MSES. Education can be organised at universities and other higher education institutions as can be seen in the chart bellow. There are two bodies responsible for these two groups of institutions:

1. Rectors' Conference which administers universities and
2. Council of Polytechnics and Schools of Professional Higher Education

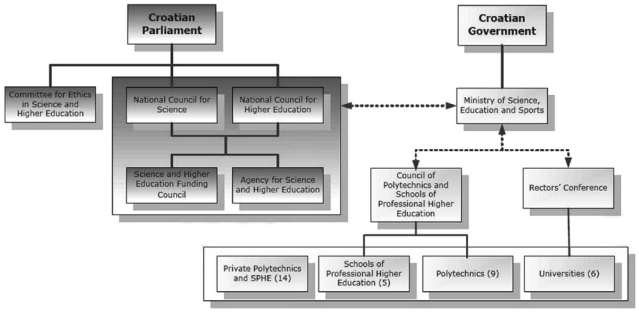

Figure 1: Higher education system in Croatia
(Source: The Croatian Ministry of science, education and Sports)

The system is further subordinated to national bodies for science and education. The national councils and the agency have licensing, coordinating and controlling role at state level.

Based on this hierarchy, two types of higher education exist in Croatia: (1) university education and (2) professional education. There are possibilities of transfers from one type to another after undergraduate level and it is also allowed for universities to organise professional studies.

With implementation of the Bologna Declaration, we can say that the whole system functions using ECTS points and it is theoretically possible to trace students' achievements through the process. There is still not much expertise on transfer from undergraduate to graduate programmes since the first „Bologna generations" did not finish the undergraduate phase.

On *Figure 2*, one can see that the cycle of higher education can last from a minimum 2 years (undergraduate professional) to a maximum 8 years (post-graduate university).

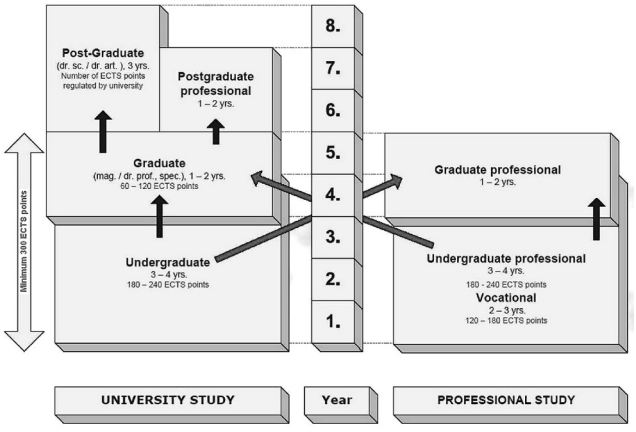

Figure 2: The scheme of higher education studies in Croatia
Source: The Croatian Ministry of science, education and Sports.

Table 1: Institutions, students and teachers in tertiary education in academic year 2004/2005 in Croatia

Tertiary education	Number in 2004/2005
Number of institutions	103
Number of educators	8,764
Number of students:	134,986
Undergraduate study	128,670
Master's degrees and doctorates	6,316

Source: As stated in the publication Educational System In The Republic Of Croatia, Croatian Chamber of Economy Business Education Centre, 2006.

Altogether, there are some more than 100 higher education institutions in Croatia[5]. Number of students involved is roughly 135.000 of which 6.500 postgraduate students. There is an increasing trend of number of student at polytechnic higher education institutions which fuels growth of total number of students, as well.

Education and unemployment

After 2002, when the vtotal number of unemployed reached a maximum value of almost 390 thousand, it began steadily decreasing. In the last few years, the unemployment rate has not been much lower than 19%[6]. It is of greater concern to this report that the trend of unemployment of active persons with higher education fluctuates more. In the periods of high total unemployment, there growth in number of unemployed higher educated persons is higher.

Undoubtedly, the conclusion can be drawn that an economy in decline usually keeps cheap uneducated labour. In that sense, educated labour is appreciated on the labour market. In other words, the product of higher education costs more than employers can benefit from.

Additional proof can be found when comparing number of graduated students and number of unemployed persons.

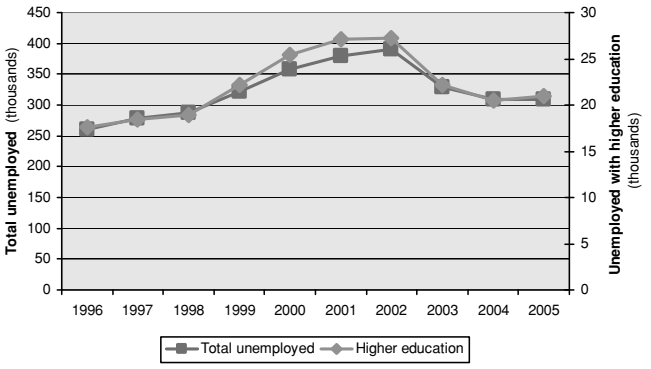

Figure 3: Average number of unemployed persons, by professional attainment

From *Figure 4* one can see that constant growth in number of students possibly caused rise in unemployment of this segment. It can be a poor connection and adjustment between higher education and the economy that produces such a development.

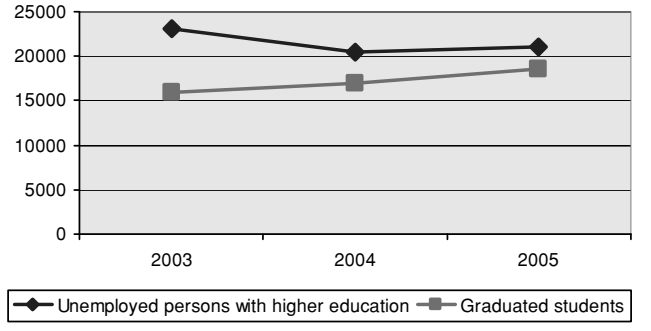

Figure 4: Unemployed persons with higher education and number of graduates in Croatia

Unemployment trends in agriculture, hunting and forestry give one more reason to reconsider higher education in agribusiness. During the period 1999–2003, the number of unemployed in agriculture was increasing faster and decreasing slower than the total unemployed.

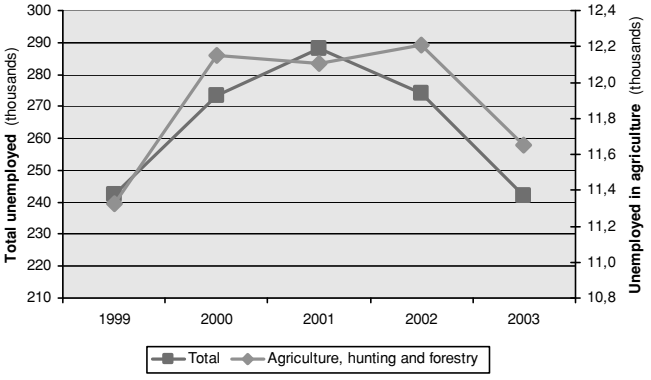

Figure 5: Unemployed persons in agriculture, hunting and forestry, situation as on 31 December

[5]Source: Educational System In The Republic Of Croatia, Croatian Chamber Of Economy Business Education Centre, 2006.
[6]The registered unemployment rate is calculated as a ratio of unemployed persons and total active population (labour force).

Based on the trends described above, the higher education and especially in agribusiness, has to introduce changes to take into account labour market demand and changes in the agricultural sector. It is obvious that agribusiness education has to shift from pure agriculture to provide employment for its graduates.

Finally, data on number of highly educated population are not satisfactory if Croatia is to give rise to its competitiveness. Less than 20,000 graduated students per year cannot promise structural changes in the labour force. It is for sure that a competitive high-tech society asks for a higher share of educated in the population.

Institutional infrastructure

Ministry of Science, Technology and Sports

Croatian higher education is under the jurisdiction of the Ministry of Science, Technology and Sports (MSES). The Ministry is responsible for the whole education system, from the pre-school to postgraduate programs, as well as for lifelong learning. Also under the Ministry is the scientific and research institutions system. Public funding for these activities goes through the Ministry and is then distributed to the institutions for either educational or scientific programs. Although some efforts have been taken in that direction, universities in Croatia still do not have complete supervision of their member institutions (faculties, institutes). It is to say that the system of distribution of resources bellow university level is still under construction and the faculties are fairly independent. In such circumstances where responsibilities and authorities are not clearly appointed, it is not easy to implement development strategies in the field.

Regarding research done about educational needs, at the ministry they have a more general approach and there is no precise forecast of demand for specific sectors of the economy. The studies done show there is need for a lot of changes and improvements and especially in regard to:

- increase of number of graduates, i.e. highly educated people
- improvement of the quality and efficiency of education
- continuing professional development of educational personnel.

The ministry encourages and asks higher educational institutions to adjust their curricula to specific need of related sectors, although it can not help much with exact data. Therefore, the institutions have to look for their own resources to investigate a specific market.

Ministry of Agriculture, forestry and water management

It is declared in the Act on Agriculture that the Ministry of Agriculture, Forestry and Water Management is in charge for structural agricultural policy measures as well (art. 15 of the act). These measures should contribute to competitiveness of agriculture and increase of farmers' income. Among other things, the measures encompass professional education and training for agriculture. The ministry has to contribute to continuous education and training of farmers and one of the most important roles in the process is that of the Croatian Extension Institute. Based on available information gathered from the ministry officials, exact information about educational needs in agriculture and agribusiness in general are missing. They do not have estimates of the number of highly educated professionals in their field for future period.

However, they can see that people from agribusiness are looking for a „new" type of agricultural specialist, which are knowledgeable not only about agricultural technology, but in, i.e. management, marketing. The ministry is in favour of any move towards adjustment of education in that direction, especially in the context of Croatian accession to the European Union, where these skills are highly valuated.

University of Zagreb

In recent years all the universities in Croatia struggle to meet requirements put into effect with introduction of Bologna Declaration. The period can be called the period of reform because the system used to be totally different regarding to types and levels of study programs. At the University of Zagreb most of the member units (faculties) introduced new system of 3+2 years of graduate programs in 2005. The faculties got licensed hundreds of new curricula and started to implement it with academic year 2005/2006.

In the same time, in accordance to the development strategy of the MSTS and the Rectors' Conference, should start the process of enhancement of the education system's efficiency and of strengthening the role of the universities in the system. Until now, only modest steps have been made in that direction. Quality assurance system is under development and system of financing is not yet completely defined.

The university leadership is preoccupied with the reform and its consequences. There have not been done thorough research about the labour market, even in connection to the newly introduced curricula. If the new lump-sum system of financing will be introduced soon, the university will have to look for possibilities to cut costs and its units will have to look for alternative sources of financing. Most probably, they will have to put forward attractive programs, programs adjusted to the market needs.

Faculty of Agriculture University of Zagreb

At the Faculty of Agriculture in Zagreb (FAZ) recent reform of higher education system has been taken very seriously. Knowing that interest for agricultural studies is dropping, at the faculty they changed from previous two 9 semester programs to 9 undergraduate 3 years programs and 13 graduate 2 years programs.

A research has been done among professionals about interest in different courses before the new programs were introduced. Based also on that research, more specialised

programs have been designed and developed. The interviewers' answers showed that more specialised graduates are needed and that among the most attractive programs are those with attractive titles like ecology, marketing, management, environment protection, tourism etc.

Not too many effort has been done regarding to neither market size assessment nor market positioning. The faculty leadership is interested in giving more independence to particular study programs, but also in asking for more financial discipline and for higher education quality.

Main findings of the field research

It is already mentioned under the Section 2.1 that the field research was designed as survey based on the questionnaire on sample of more than 400 agribusiness professionals. Based on data collected from 434 interviewees, here are the main findings of the research.

Description of the sample

In the first part of the questionnaire the interviewees were asked about their job and position (see Table 2, part a)). Regarding to employment according to ownership, most of the respondents work in private or cooperative firms and they make more than a half of the sample (56.7%). The next biggest group are professionals from state or public firms with share of 28.6%. Here are included government and local government offices, research and education institutions and alike. Some more than 11% of the respondents are self-employed while 3.4% go to *other* types or *missing* group. The expert opinion is that the sample structure is in accordance with real employment structure of the economy.

From the second part of the table it can be seen that most of the respondents work as management or consultants that indicates their competence to answer the questionnaire and to give sufficiently good forecasts. More than 77% of interviewees are in this category, while other are pretty equally distributed in three groups: entrepreneurs, educators and other.

The most various answers are given to question about profession. All the answers were sorted and grouped in 9 bigger groups (frequency higher than 5) and 1 group for other professions. Agricultural profession is prevailing one with 43%, which is reasonable for research in agri-business. Second biggest group are economists (23%), as the most common profession among managers. Then follow food and biotechnology professions with the share above 10% while all other professions are not so common.

Knowledge and skills needed

To get the most correct information about knowledge and skills that people need when work as professionals in agribusiness, respondents were asked to write down maximum five skills or knowledge that:

Table 2: Frequency tables for the main attributes of the sample

a) Employment (or job) type		
Description	Frequency	Percentage
Private or cooperative	246	56.7
State or public	124	28.6
Self-employment	49	11.3
Other types	11	2.5
Missing	4	0.9
Total	434	100.0
b) Position of interviewee in the firm		
Description	Frequency	Percentage
Management or consultant	335	77.2
Entrepreneur (SME)	35	8.1
Other	32	7.4
Educator	27	6.2
Missing	5	1.2
Total	434	100.0
c) Profession (the highest level achieved		
Description	Frequency	Percentage
Agriculture	186	42.9
Economics&management	100	23.0
Food&biotechnology	45	10.4
Mechanics&technics	19	4.4
Other	17	3.9
Veterinary	14	3.2
Biology&chemistry	11	2.5
Agrieconomics	10	2.3
Tourism	8	1.8
Law	5	1.2
Missing	19	4.4
Total	434	100.0

- they use in everyday job and
- they were missing mostly when started to work.

In the *Table 3* are the 10 most repeated writings for both groups. Comparing the lists from two sides of the Table one can see that some of the listed items are really needed and have to be considered as a part of education process. Knowledge which is the most used was as a rule also the most missing at the beginning of employment.

Moreover, it is easy to see that organisation, marketing and management are indispensable knowledge and PC skills together with foreign language are essential skills for agribusiness managers.

The results can also have another meaning: education process is satisfactory given it provides professional knowledge (agriculture, food and technology and alike) and it has to be improved to provide additional skills. Furthermore, taking into consideration the list above, there is a wide space for lifelong learning programs in the sector.

Evaluation of potential study programs and courses

Second part of the questionnaire consists of questions regarding to attractiveness of different possible study programs in agribusiness and to importance of different

Table 3: Knowledge and skills used and missed by respondents (Top ten items by frequency)

Knowledge and skills needed in everyday job	Frequency*	Knowledge and skills missing when started employment	Frequency
organisational skills	128	PC skills	116
PC skills	110	management skills	91
management skills	109	law/legislation	67
foreign languages	86	foreign languages	66
knowledge of legislation	81	practical experience	33
communication	75	marketing	23
informatics	53	production technology	22
production technology	50	practical knowledge	22
agricultural technology	49	organisational skills	20
marketing	42	human resource management	20

* Frequency counts occurrence of specific knowledge or skill in the questionnaire.

knowledge and skills regarding to specific study programme. Interviewees were offered 16 study programs under possible titles divided in two groups as follows:

A. Study programs in the area of agriculture and related sciences:
   1. Agricultural economics
   2. Agribusiness and rural development
   3. Agri-food technology
   4. Zoo-technology (Animal breeding)
   5. Forestry and game management
   6. Agronomy and horticulture
   7. Environmental and natural resource mgmt.
   8. Rural development
   9. Public administration in agriculture
   10. Food quality and safety

B. Study programs in the area of economic sciences:
   11. Tourism and catering
   12. Management studies
   13. Trade and marketing
   14. Public administration
   15. International economy
   16. Finance and banking

They have had to make choice of 5 the most attractive programs, and then to answer a set of questions concerning the choice. Answering the questions, respondents evaluated importance of specific knowledge for particular study, then they graded possibilities of employment of graduates in different sectors and finally they forecasted the number of graduates needed in short-term and long-term period.

The chart on the next page shows frequencies of selection per study programme *(see Figure 1)*.

It is apparent that four courses dominate the set: (1) agri-food technology, (2) trade and marketing, (3) management and (4) environmental and natural resource management. All four of them have frequencies above 200 and are the most attractive programs from the list. The least attractive are forestry and game, public administration (in both of the groups), zoo-technology and rural development. The respondents showed an inclination towards food and environment related programs as well as towards business (or economics) related programs.

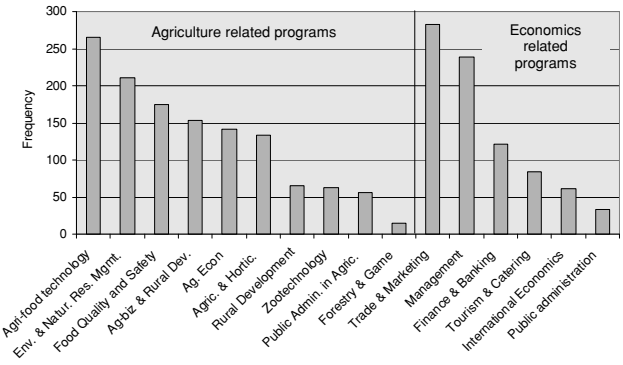

Figure 6: Frequency of choice of the potential study programs

Distribution of frequencies is not different if we compare respondents by educational level, but there are some disparities by occupation. The group of educators shows more equally distributed frequencies than two other groups of entrepreneurs as well as managers and consultants. Therefore, one can conclude that there are differences between educational personnel and the professional regarding favourable study programs. Latter ones are more focused on specific fields.

Differences are also found in distribution of frequencies between state and public employees compared to employees of private or cooperative sector. Former ones showed more equally distributed frequencies.

As already has been mentioned, respondents had to grade several types of knowledge for each study program chosen. If all the grades are summarised regardless the program chosen, the highest average grade has been given to knowledge about management and entrepreneurship as well as about project management *(see Table 4)*.

For the same knowledge standard deviation is the lowest that revealing there are small differences in grades among the respondents.

The ranking has been done for each study program as well *(see Table 5)*. Knowledge of *project management* has got the highest mark for 7 programs and knowledge of *management and entrepreneurship* for 5. Furthermore, *management and entrepreneurship* is among the top five

Table 4: Average grades per knowledge - summarised

Knowledge	N	Mean	Median	Min.	Max.	Std. Dev.
management and entrepreneurship	2004	4.28	5	1	5	.952
project management	1975	4.28	5	1	5	.951
business informatics and communic.	1975	4.22	4	1	5	.920
economics of production	1993	4.13	4	1	5	.992
ecology and natural res. manage.	2006	4.08	4	1	5	1.052
trade and marketing	1982	4.08	4	1	5	1.070
national and agric. policies of the EU	1980	4.00	4	1	5	1.102
food quality and safety systems	1932	3.89	4	1	5	1.189
financial manage. and banking	1936	3.67	4	1	5	1.203
national and trade law in the EU	1937	3.65	4	1	5	1.188
mathematics and statistics	1921	3.63	4	1	5	1.096
accounting and book-keeping	1953	3.55	4	1	5	1.175
rural sociology and rural devel.	1981	3.37	3	1	5	1.338
chemistry and biology	1915	3.25	3	1	5	1.491
public management systems	1955	3.25	3	1	5	1.155

knowledge for all the courses while *project management* is not for only one. Among the agri-food related knowledge, two with highest marks for most of the studies are *ecology and natural resource management* and *food quality and safety systems and standards*.

Regarding to business and economics related knowledge, highly rated are also knowledge of *business informatics and communications* and *trade and marketing*.

From the *Table 5* it is possible to extract 5–6 subjects that will be attractive inside any given study program. Thus, although the program has to be focused on specific topic, it is not complete and attractive enough without the highly rated subjects.

Likelihood of employment

After evaluation of importance of specific knowledge, respondents were asked to give marks for possible sectors of employment per distinct study programs. Mark 5 had to be given to the most promising sector for employment and mark one to the most unlikely sector. There were 11 sectors offered for scoring.

If all the study programs are put together, the highest average mark or possibility of employment is given to the *business services* sector. The lowest mark is given to the trade sector. Among the most promising there are also sectors of *finance* and *agri-inputs*, while among the most unlikely there are *institutions* and *public administration sectors*.

There are some distinctions in marks per sector if we analyse it by types of study programs. The study programs are grouped in two groups:[7]

1. agri-business oriented programs and
2. business and economics oriented programs.

This breakdown shows that respondents made the distinction of the possible sector of employment in regard to

Table 5: The highest graded five knowledge by potential study programs (The programs are listed in alphabetical order)

Study programs	1st	2nd	3rd	4th	5th
Agrieconomics	management and entrepreneurship	business informatics and communications	economics of production	trade and marketing	project management
Agribusiness and rural development	management and entrepreneurship	economics of production	project management	ecology and natural resources management	business informatics and communications
Agri-food engineer	economics of production	ecology and natural resources management	food quality and safety systems and standards	management and entrepreneurship	business informatics and communications
Zootechnology	food quality and safety systems and standards	ecology and natural resources management	economics of production	management and entrepreneurship	project management
Forestry and game management	project management	economics of production	management and entrepreneurship	ecology and natural resources management	business informatics and communications
Agronomy and horticulture	ecology and natural resources management	project management	management and entrepreneurship	economics of production	business informatics and communications
Environmental and natural resources mgmt.	project management	ecology and natural resources management	management and entrepreneurship	business informatics and communications	economics of production
Rural development	ecology and natural resources management	project management	business informatics and communications	national and agricultural policies of the EU	management and entrepreneurship
Public administration in agriculture	project management	business informatics and communications	economics of production	management and entrepreneurship	food quality and safety systems and standards
Food quality and safety	project management	ecology and natural resources management	business informatics and communications	management and entrepreneurship	economics of production
Tourism and cattering	project management	ecology and natural resources management	management and entrepreneurship	business informatics and communications	food quality and safety systems and standards
Management studies	project management	management and entrepreneurship	business informatics and communications	trade and marketing	ecology and natural resources management
Trade and marketing	management and entrepreneurship	business informatics and communications	project management	trade and marketing	economics of production
Public administration	management and entrepreneurship	project management	business informatics and communications	trade and marketing	national and agricultural policies of the EU
International economy	project management	business informatics and communications	management and entrepreneurship	trade and marketing	financial management and banking
Finance and accounting	management and entrepreneurship	business informatics and communications	financial management and banking	project management	trade and marketing

[7]See the section 8.3.

Table 6: Rank of economy sectors by possibility of employment (Maximum 5, minimum 1)

Sectors of economy	N	Mean	Min.	Max.	Std. Dev.
Business services	1252	3.38	1	5	1.209
Finance	1181	3.29	1	5	1.408
Agri-inputs	1185	3.26	1	5	1.158
Tourism	1183	3.09	1	5	1.453
Fishery	941	3.04	1	5	1.223
Education and science	1373	2.96	1	5	1.215
Food and beverages	1311	2.95	1	5	1.297
Agriculture	1321	2.94	1	5	1.327
Institutions	1442	2.93	1	5	1.310
Public administration	1342	2.91	1	5	1.150
Trade	1208	2.78	1	5	1.293
Valid N (listwise)	839				

the study program. Hence, they think that agri-input and agriculture sectors are less likely to employ graduates of business and economics oriented programs. On the other side, these graduates have more opportunity to get jobs in sectors like tourism, food and beverage industry and public administration sector (see the chart below).

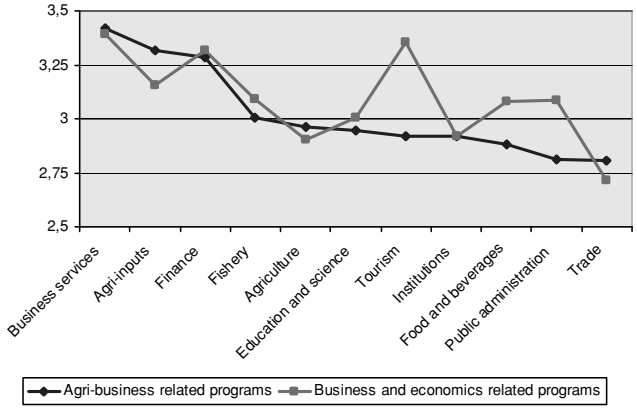

Figure 7: Potential employment by sector and by study programs groups

From the next chart, one can observe differences in marks for potential employment per study program according to type of employment of the respondents. Differences are shown relative to respondents from private business companies (square markers, yellow colour).

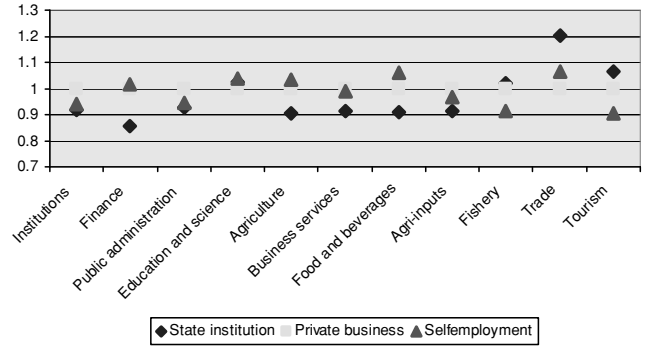

Figure 8: Potential employment by sector and by type of respondents' employment

In general, marks given by private business respondents and the self-employed are similar to those given by respondents from state institutions. The biggest difference is in marks for trading sector and finance sector where in the first case state (public) institutions employees gave much higher mark, and in the second much lower mark than workers from private business.

Forecasted demand of graduates

In most of only few rstudies done about labour market needs, there is missing any quantification of demand for highly educated experts. In the questionnaire used for this research, respondents were asked to predict yearly needs for graduates of different professions, i.e. different study programs. Predictions were asked for short period (2006–2010) and also for long period (2011–2014). Although the respondents found it hard to answer this question, the majority of them put some numbers in.

After all the extreme values have been deducted, an average number of graduates per study program was calculated. What is surprising, the highest demand is forecasted for the International Economy study program (131 graduates annually in short term and 155 in long term). Study programs related towards economics and business have higher averages in general.

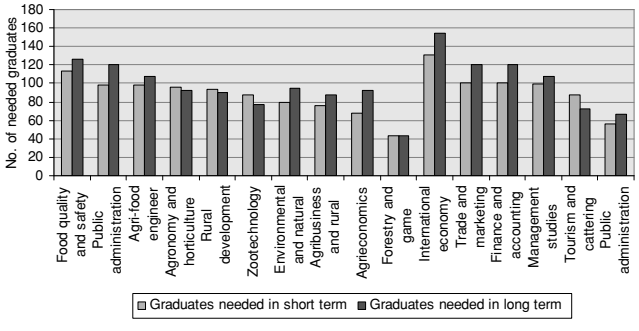

Figure 9: Forecasted average short-term and long-term demand for graduates by the study programme

In the group of agri-business oriented studies, the highest number of needed graduates has been given to Food Quality and Safety (113 graduates annually in the short term and 126 in the long term). The second „most needed" programme is Public Administration in Agriculture. It is interesting that for the „pure" Public Administration in the economics group number of graduates is relatively low.

In order to help us understand the numbers better, in table 7 are numbers of graduates per year for period 2000–2003 in Croatia. In the table are included graduates of high schools and faculties that organise professional and university study programs.

Table 7: Graduates at institutions of higher education in Croatia*

Scientific field and institution	2000	2001	2002	2003
Faculties of Food Technology and Biotechnology	188	140	169	162
Faculties of Agriculture	268	279	191	212
Faculty of Forestry	72	107	68	86
School of Prof. Higher Education in Agriculture	44	61	73	63
Faculty of Food Technology and Biotechnology	19	16	1	-
Faculties of Agriculture	39	26	35	26
Biotechnical sciences subtotal	630	629	537	549
Faculties of Economics	1,633	1,624	2,009	1,844
Faculty of Tourism and Foreign Trade	63	82	98	106
Faculty of Tourism and Hospitality Management	309	184	148	236
Faculty of Organization and Informatics	90	89	73	103
School of Prof. Higher Educ. in Tourism Manag.	-	-	-	73
American College of Management and Technology	-	190	245	226
Faculties of Economics	347	360	455	486
Faculty of Tourism and Foreign Trade	80	57	42	29
Faculty of Tourism and Hospitality Management	96	113	136	119
Faculty of Organization and Informatics	62	71	80	70
Social sciences and humanities - total	2,680	2,770	3,286	3,292
Total	3,940	4,028	4,360	4,390

* All the studies are included: professional and university.

It is apparent that the number of graduates increases, but the structure is changing in favour of social sciences and humanities. The trend can be explained by diminishing attractiveness of biotechnical studies, and the question is: can the trend be reversed? At least it can be slowed down by adjustment of programs to market needs.

However, results of the field research clearly show there is a need for higher number of graduates in biotechnological studies. If we summarize the average forecasted numbers of graduates needed for agri-business, the total number is higher than 800 per year. According to official statistics, the number of graduates in the field of biotechnology was not higher than 630 in the period of 2000-2004. Therefore, if the programs in the field of biotechnology were revised and adjusted, a higher number of graduates would be achieved. Furthermore, it looks like the agribusiness sector will be eager to swallow the increase in number.

This simple analysis results are in accordance with the stated aims of the Croatian economy and education authorities. It is a national strategic objective to improve the education structure of the population in general and especially of the active population. The objective can be reached only if number of graduates in higher education will rise.

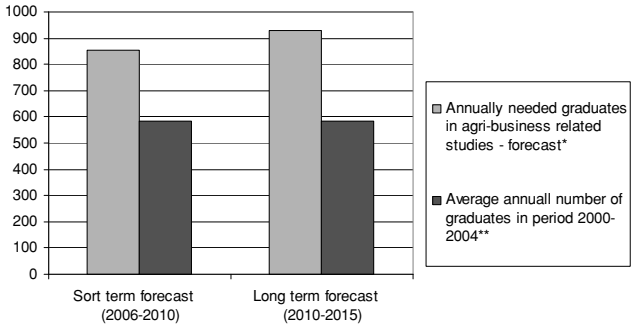

Figure 10: Forecasted demand and existing number of graduates

* Based on the field research: sum of means per study programme.

** Based on the Central Bureaus of Statistics data: graduates in biotechnological sciences.

Possibilities of financing

In the final part of the questionnaire, the interviewees were asked to estimate the possibility for their firms to provide scholarships for future students. Altogether, 415 answers were collected and analysed. The structure shows that for 44% of respondents, a scholarship is an existing practice or at least a feasible possibility. However, we have to stress again that the estimation was asked in regard to the listed potential studies and the possibility can be consumed if some of it will be established.

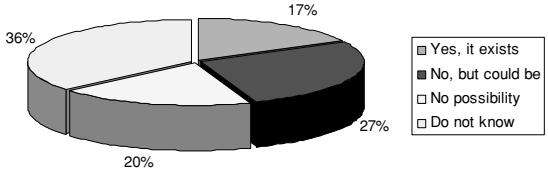

Figure 11: Possibility of the respondent's firm to finance future students N=415

To get a more useful and reliable result, the answers were cross-tabulated with information on the respondent's position. It is promising that in the group of managers and consultants the share of positive answers it the highest. Therefore, not only the possibility is estimated, but it is estimated by decision making persons.

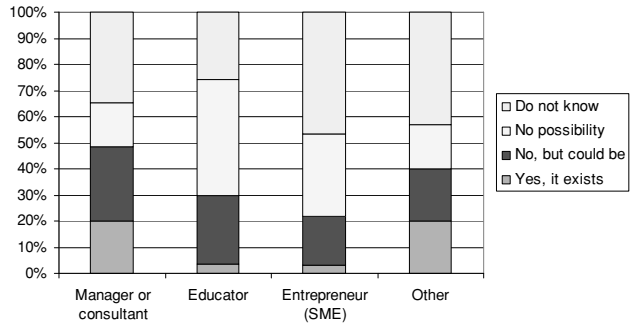

Figure 12: Possibility of the respondent's firm to finance future students N=412

Demand for MBA education in agribusiness

One of the activities in the AHEAD project is setting up of international MBA study program. The program is intended to be a part of The International MBA In Agribusiness network and should offer management, marketing and other business related education for executives in the Croatian agribusiness. To check market for such a study programme, respondents were asked their opinion on:

- the existing need for MBA study programme
- the possibility of financing of potential students
- the probable number of students per year.

The majority of the respondents, more than 60% of them, think there is at least a moderate need for an MBA type of education in agribusiness. Moreover, 35.9% of them think the need is considerable or high.

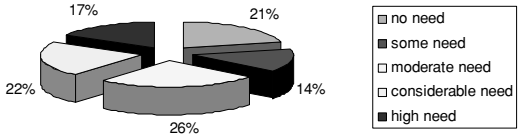

Figure 13: Opinion on need for MBA education N=404

Table 8: Possibility of scholarship for the MBA education

Description	Frequency	Percent
No possibility	92	22.3
Some possibility	61	14.8
Moderate possibility	41	10.0
Considerable possibility	41	10.0
High possibility	15	3.6
Do not know	162	39.3
Total	412	100.0

In the case of a possibility for financing of education by their employers, „Do not know“ answers have the highest share: 37.3%. Then follows 21% of respondents that thinks there is no possibility to get scholarship paid by employers. However, there is still significant share of those who thinks the possibility is moderate (9.4%) or even considerable to high (12.9% together).

When asked about number of potential students from their firm, many respondents did not answer. Of those who answered, one half thinks that one student can be expected per year. 36.62% of respondents think that 2–5 students are expectable, and 11.97% thinks more than 5 students could come from their firm.

Table 9: Possible number of students from the firm

Number of MBA students per year	Frequency	Percent
One only	73	51.41
2-3	44	30.99
4-5	8	5.63
More than 5	17	11.97
Total	142	100.00

The results are evidence for need for MBA education in Croatian agribusiness. This also proves that the AHEAD project activities and expected outcomes were planed in accordance with present situation in the sector.

Conclusion and recommendations

Since the beginning of the Nineties, the Croatian system of higher education experienced comprehensive changes to adjust to the economy in transition. Market orientation and the emerging private business sector, together with the new system of public administration; have imposed new demands on universities, polytechnics and other higher education institutions.

In the agribusiness sector, demand for a new kind and number of experts is rising, while higher education institutions are losing students. With the intention to confront the trends, in the frame of the AHEAD project, a comprehensive training needs analysis has been carried out.

Results of the field research and of the desktop research give us direction if the education system is to respond successfully to the need of agribusiness sector.

Information and proclaimed objectives found in official strategic documents of Croatian public institutions are united about idea that the education system has:

- to provide increasing number of high educated people,
- to make available efficient lifelong learning scheme,
- to provide internationality of the education,
- to reinforce business-to-education links.

Regarding to quantification of need for educated persons of different professions, information are not quite available. However, this field research can be regarded as the first one attempting to do such quantification. Furthermore, it includes inquiry of specific skills and knowledge needed by present-day professionals in agribusiness and related public administration system.

The results of the survey carried out among 434 agribusiness professionals can be summarised as follows:

Most of the professionals are employed in private firms and then public institutions. Mainly, they work as managers or consultants and their background is agriculture or economics in most of the cases.

Asked what knowledge or skill a professional has to have, the most usually they mentioned organisational and management or foreign language and computer skill. High on the list are some other knowledge as well: legislation, communication, marketing, human resource management and production technology.

When they have had to rank possible study programs in field of economics and agribusiness, the most popular ones were titled „Agri-food Technology“, „Trade and Marketing“, „Management“, „Environmental and Natural Resource Management“, „Food Quality and Safety“ etc.

Based on the survey, it seems that graduates of such studies would most probably find their jobs in the business service sector, finance, the agri-input industry or tourism.

Evaluation of needed graduates per year differs significantly among the study programs. It is highest for the „International Economy“ program among the economic programs, and for the „Food Quality and Safety“ program among agricultural programs. Altogether, the research shows that Croatia will need 800 to 900 graduates from all the programs annually. This is 250 more than number of graduates Croatia has in biotechnological sciences today.

In connection with final part of the research, we can conclude that the Croatian agribusiness sector is looking for highly educated professionals. Therefore, there is an opportunity for higher education to widen the market and to answer the need.

In order to utilise the opportunity the higher education for agribusiness should have in mind key recommendations, which emerged from the results:

1. high education business is a business with specific market that has to be monitored, planed and nourished if it is to be preserved
2. in addition to knowledge and skills traditionally associated to agriculture, up to date higher education for agribusiness have to pay more attention to organisational, management, foreign language and computer skills
3. collection of study programs or curricula at higher institutions has to be modern and flexible to keep the institution attractive to students
4. education institutions can not provide successful and attractive programs if they do not consult the industry
5. problems of unemployment and of unattractive study programs should be solved by introduction of new programs or adjustment of existing programs in scope and structure.

Development of multietnic tolerance and understanding (multitude)

Predrag Miladinović, Igor Bešić, Borislav Obradović, Maja Grujičić, Miloš Milutinović, Čedomir Stefanović, Marko Vilotić, Vuk Radojević, Bojan Ljutić, Tibor Bodolo, Andrija Aleksić

Foreword

We have to admit that our practice project got off to a rocky start. The first subject given us was "organic food" and the first problem that emerged was that we in our group had no one with this kind of specialized knowledge. But since there was no open call in this field, the subject of our project proposal was changed to multiculturalism and national differences. Our group was very diverse and had little expertise in this either. We applied our previous project experiences and the lectures we had attended in the first two weeks of training and in the end we were able to use our diversity and various abilities to our advantage and write a project proposal.

Besides the preliminary problem of diverse personal expertise, we had to attend theoretical lectures on different topics regarding the functioning of the EU, EU funds, project management and application procedures for different types of projects (FP7, TEMPUS, cross border etc.). All this did not leave much time to write the project. However, the lectures and workshops held by specialists from Hungary and the Netherlands would prove to be very useful in completing this task.

Writing the project proposal

Having read the call and the application form, it seemed easy to complete the task. The nature of PART A meant it was to be filled out at the end, so we moved on to PART B. We realized that every single point requires hours of reading, research and above all knowledge of the particular field. At this stage we began to grasp the significance of the EXTRA-2 theoretical lessons on the essence of EU fund allocation. In other words, projects are awarded only to those who can really deliver new scientific information or contribute to a solution for some existing common and recognized EU problem. This was a breaking point in our work because we realized that we had to distribute the subtasks among the members of our group – otherwise we would have been lost. We organized our work and divided the tasks among ourselves. In order to be able to monitor progress and share ideas we set up regular meetings on Tuesdays at 18h. We discussed the progress of each individual and agreed on next week's tasks. Most of the group members took part in these weekly meeting and some of the others who were not from Novi Sad and thus unable to attend, sent their contribution by e-mail. Eventually we were able to complete and send off the first draft of the project proposal on time.

Project desxription

MULTITUDE is a project intended to encounter different aspects of multiculturalism and ethnic tolerance. A total of 9 partners from 4 different countries will enable diversity in approach to the common subject and, it is hoped, lead to state-of-the-art findings in ways to improve multiethnic coherence throughout Europe.

Total time frame for the project is 3 years. Within this period, research will be carried out in 5 Working Packages: Management (WP1) and Dissemination (WP2), Survey (WP3), Data processing and model creation (WP4) and finally the Pilot project (WP5).

A pilot project will be carried out in all four partner countries, managed and mainly driven by UNS. In the pilot project we have assumed certain actions which may very in some details depending on the outcome and results of WP4 (data processing and model creation).

Proposed participants

Bearing in mind our recent history and personal experiences, the task of choosing the participants was not very difficult. The proposed participants have had previous experience in working together and were either leading educational institutions with previous experience in EU projects or organizations which have successfully dealt with these issues in the past. Belgium was chosen as a country in the EU with good practice in the field of multiethnic cohabitation. Hungary is a new EU member with a large Roma minority and is facing the challenges of their integration in the society. Serbia and Croatia share a common past regarding the issue of ethnicity and are still recovering from the period of civil war and ethnic violence. Vojvodina, where the University of Novi Sad is situated, is one of the most ethnically diverse and at the same time tolerant regions of Europe. The purpose of this project would be to conduct a survey of the present conditions and devise a pilot project for improvement of the current situation.

After defining the participants we had to distribute the work among the WP's. In contrast to the previous task, this was the hardest, partly due to our lack of subject knowledge, but also because of the budgetary requirements which had to be taken into account. Finally we agreed on the following main sub-elements:

After we divided the work into work packages the biggest problem was the financial allocation of the proposed budget. Using our experience we defined the actions but the difficult task was to estimate the cost of each and every activity in the project which meant gathering a great deal of information from relevant subjects in order to get the necessary elements to calculate the budget. Of course we needed to remain flexible in our allocation. Although it would seem an easy task, the table of budget allocation actually requires a great deal of time and effort and different expertise to be done properly. However, we were able to get guidance from the lectures we had and our mentors were very forthcoming.

Beneficiary	Beneficiary organization name	Country
1 (Coordinator)	University of Novi Sad (UNS)	Serbia
2	University of Debrecen (UNIDEB)	Hungary
3	University of Zagreb (UNIZG)	Croatia
4	University of Gent (UGE)	Belgium
5	University of Liege (ULI)	Belgium
6	University of Belgrade (UNIBG)	Serbia
7	Center for Peace and Democracy Development -NGO	Serbia
8	Croatian Helsinki Committee for Human Rights (CHC)	Croatia
9	The Provincial Secretariat for Regulations, Administrations and National Minorities (PSRANM)	Serbia

Project impacts

The main focus of this project is on the role of the state in managing ethnic issues and problems in significant cases such as Belgium, Croatia, Hungary and Serbia, where ethnicity affects almost every dimension of life. More specifically, the project includes the following major components:

- A brief background of the origin and nature of ethnic policy in these countries and the rationale of their ethnic preferential policies;
- An analysis of the major domains of ethnic contestation and state intervention (e.g., in politics, administration, business, education, culture, and religion) in the countries;
- A critical evaluation of the effectiveness and impact of these ethnic preferential policies;
- An examination of major causes and constraints in relation to the possibility of replacing these preferential policies by alternative policy measures in Consortium countries.

Ambiguous as it may seem, it set a high standard for the administrative work we had done. The best part of EXTRA-2 was the one-week stay in Debrecen. Not only had we the opportunity to see the results of EU-funded projects in situ, but we also saw at first-hand the thinking and reasoning that lie behind funding and a community awareness of the common cause. We were able to see the positive impact that the EU can have on the lives of ordinary people and were lectured on how to improve chances of getting funding. Eventually we produced a 38-page project application, believing that in case of actually applying, it would stand a good chance of being accepted. We also learned that a project requires constant improvement and that no matter how much time is given for preparation, it is never enough.

Final remarks

We feel we must mention the wonderful time we spent at the University of Debrecen, for which we have the superb organization of our Grantholder to thank.

Part of the outcome of the entire EXTRA-2 project is that we feel an obligation to spread the knowledge we gained among specialists in our neighborhood as much as possible, either by taking an active role in future projects or by supporting activities that would lead to the popularization of EU projects.

WP no	Description	Main components	Type of activity	Lead beneficiary	Person-months	Start month	End month
1	Management	Kick-off meeting Technical board meetings	MGT	UNS	28	M1	M36
2	Dissemination	Website deployed Release of promotional package Workshops	OTHER	UNIDEB	32	M1	M36
3	Survey	Initiation of survey Database creation	RTD	ULI	270	M1	M4
4	Data analysis and model	Model completed	RTD	UGE	56	M5	M12
5	Pilot project implementation	Start of the pilot project Office opening Education (workshops) Short film festival Exhibition Concerts Pilot project evaluation	RTD	UNS	326	M12	M36

Conversion course for unemployed university graduates in Serbia

Marko Banković, Andrija Bednarik, Ivan Beker, Dijana Dolićanin, Dušica Filipović-Durdević, Enrad Kahrović, Vesna Jevtić, Ivana Kovačić, Snežana Pantelić-Vujanić, Sanja Radovanović, Vanja Radulović, Vesna Rodić, Nataša Sladoje-Matić, Mirjana Solarević, Gordana Vlahović, Fatima Živić, Lela Vujošević, Plavka Skakun, Dejan Čikara, Snežana Janićijeviæ-Hudomal

Long-lasting political instability in the Balkan countries has left the region way behind the fast developing EU countries. Serbia was one of the last countries in the region to adopt political changes. Going through rapid economical changes has therefore been inevitable. The increase of foreign investments, as well as private initiatives, have led to dramatic shifts on the market. On the one hand, there has been a considerable need for young, educated employees on a number of new jobs, while on the other hand, the vast majority of unemployed young experts found themselves unprepared for the demands of the new market. According to the data of the Bureau of Statistics and Informatics, the officially registered rate of unemployment at the beginning of 2008 was 25,6%. 857 724 persons have been registered as job-seekers, almost one half of them were registered as first-time job seekers, and more than half being less than 40 years of age. At the end of 2007, 30 942 people with higher education degree were looking for a job. At the same time, 20 814 vacancies requiring high education degree remained unfilled. These figures indicate a high mismatch between the demand and supply at Serbian labour market, especially in the sector related to highly educated working force.

This particular area is where we see a growing need for expert involvement in helping educated young people adapt to the new demands. As recommended by the European Union, a Knowledge Triangle can be formed, connecting research, education and innovation, which would represent a solid base for the knowledge-based society. Relevant national authorities in Serbia, such as the Ministry of Education and Sports and the National Council for Higher Education, have recognized the task of increasing employability of graduates in Serbia as being one of the highest priorities. Universities in Serbia decided to take on the challenge of developing new teaching programmes that will provide additional skills, highly desired at the labour market, focusing on some of the professional profiles that are the least competitive at the current market, providing low employability and being highly affected by the rapid changes of technology. These are: engineering profiles (most of all mechanical engineers) – 3503 unemplouyed at the end of 2007; agricultural profile – 2741 unemployed at the end of 2007; and economy profile 5631 unemployed at the end of 2007. The National Employment Service has shown great interest in this project, providing data essential for understanding the state of the labour market and identifying current and long- term needs. Also, the Serbian Chamber of Commerce, has recognized the opportunity to influence the Serbian national education system by identifying the employers' needs and thus contributing to the increase of its efficiency. Commitment of all relevant national subjects to the task defined provides a solid background for the project.

The consortium of the project consists of 11 partners from 5 different countries. Consortium members from Serbia are 4 universities located in the 4 biggest regional centres of Serbia (Novi Sad, Belgrade, Kragujevac, Nis), and institutions that will ensure full competence for the undertaken task, both at academic and institutional level (National Council, National Employment Service, the Serbian Chamber of Commerce). Participating universities from EU countries (Ireland, UK, Slovenia and the Netherlands) have offered their expertise, based on the experience in providing very successful Conversion Programmes at their own institutions. Their main contributions are seen in terms of providing training courses for teachers from Serbian universities, and consulting regarding the development of the programmes and courses. As the consortium is comprised by organizations of complementary skills, partners will largely benefit from the exchange of experience and know-how that will take place during the implementation of the project, especially through the courses development and the staff exchange. All institutions involved in the project have competence for various national, as well as international projects.

External Expert: Prof. Laszlo Karpati, from the Faculty of Agricultural Economics and Rural Development, University of Debrecen, will provide his respectable experience and knowledge related to European projects management, to support UNS in its decision to take a challenging task of being a Tempus project grantholder, which is an opportunity opened for universities in Serbia for the first time. Prof. Karpati's expertise in project and general management, and his experience gained from coordinating several EU sponsored projects (related to trading, marketing, education) will be of precious help.

Having identified needs and constraints of Serbian society, and having gathered a consortium with competence and commitment to invest in human capital, we have defined the wider objectives of our project :

- To decrease unemployment of graduates in Serbia by offering them to acquire additional professional skills, suited for today's knowledge-based economy;
- To achieve synergy of the higher education system in Serbia with the labour market related demands;
- To increase mobility and employability of graduates in Serbia at local, regional, and European labour market.

To realize these objectives, a series of Specific Project Objectives, were defined:

- To develop eight Master Programmes for Graduate Conversion (with defined credits in accordance with ECTS) for unemployed graduates with the aim of improving their employability potential
- To provide training for 300 unemployed graduates through the newly developed Conversion Programmes
- To establish 4 Education Conversion Centres at participating universities in Serbia.

Previously conducted TNAs have shown what specific additional skills are must-haves among the target group members. Higher education in Serbia has for several years been a subject of reforms. As a result, teaching programmes in accordance with European recommendations and standards are introduced lately into Serbian high education system. New Serbian Law on Higher Education supports the Bologna Declaration and provides a legal framework for structured and modern educational programmes, that are highly compatible with modern trends and technologies. Awareness of the need for professionals, who possess not only a strong background in their main field of expertise, but the so-called soft skills as well, starts to be present both in academic and wider society of Serbia nowdays. This is exactly in line with the main goal of the Lisbon agenda, where the European progress towards "the most dynamic and knowledge-based economy in the world by 2010" (EU leaders, Lisbon, 2000) is seen as the first priority, and is planned to be achieved by innovation and "learning economy".

New teaching programmes, which are to be developed through this project as one of its main specific objectives, shall offer the target group members a range of additional skills, complementary to their basic vocational skills gained through their basic education and profession. By careful planning of the new programmes, where a selection of the offered courses is made based on knowledge about the demand on the labour market in Serbia, as well as thoughtful predictions of its future tendencies, a synergy of the higher education system in Serbia with the labour market related demands is achieved. This current issue of the local community, and the area of higher education, both in Serbia and Europe-wide is exactly the second main objective of our project. As a consequence, graduates possessing integrated skills of great attraction at the labour market will be considerd as well educated, which will increase their employability significantly. By recruiting the trainees for the education conversion from the corpus of unemployed graduates, and significantly increasing their chances to get jobs after the trainings , we address the first and the third main objectives of our project.

Based on TNA, conducted in cooperation with the National Employment Service, we have selected the education profiles that will be considered for our Conversion Programmes. The selection has been made considering both findings about the needs of the labour market, and currently the best available resources at the partner universities. Eight conversion programmes, two per each participating university in Serbia, will be developed:

- Advanced engineering technologies and Agricultural extension (University of Novi Sad)
- Managing in business strategic context, Strategy and management excellence (University of Belgrade)
- Industrial management and Business information systems (University of Kragujevac)
- Multimedia technologies and Control and Applied Computing (University of Nis)

Our partners from EU, University of Exeter, Galway-Mayo Institute of Technology, University of Ljubljana, and Wageningen University and Research Centre will be of crucial assistance in providing the expertise in the first phase of the Project, when a general practice of Conversion Programmes development will be shared with the partners from Serbian universities through a number of seminars and discussions, and training courses for teachers from Serbian universities, which will be held both in Serbia and at EU partners' institutions. Issues related to new teaching methodologies, appropriate for the groups of graduates with different characteristics in terms of age, motivation, background, and goals, compared to usual students at master and postgraduate level, will be in focus. Detailed description of programmes, with complete lists of included courses and teaching methodologies will be one of the main outcomes during the first year of the Project. In addition, participation in the quality control of the developed programmes and courses during the first year, and of the training organized during second and third year of the Project will also be an important task of the EU consortium members.

This is the first time that the opportunity of being a Tempus project grantholder is opened for universities in Serbia. University of Novi Sad is taking this challenging task after experiencing a number of successful projects accomplished under its coordination and participation. However, awareness of the complexity of the highly responsible task of general project management led to inclusion of an external expert into the consortium. Prof. Laszlo Karpati, from the University of Debrecen, will provide his respectable experience and knowledge related to European projects management.

New teaching Programmes will be organized through the Centres for Education Conversion, which will be set up

within this Project, as one of its main activities. The intention is to establish four such centres, one at each participating university from Serbia. In that way, Centres for Education Conversion will exist in all main regional centres of our country, which will enhance the availability of the training and increase the number of possible attendees. Activities of providing an adequate space for the Centres, addressing relevant legal issues, and purchasing and installing the appropriate equipment will take place during most of the first Project year.

It is planned that the selected body of trainees in this project consist of approximately 300 graduates; for each of the eight Programmes, a group of approximately 20 students will be formed; the trainings will be organized twice during the Project time: once during the second year, and again during the third Project year. The selection procedure for the students will be transparent, publicly announced, and conducted in accordance to the predefined set of criteria. The criteria will be selected to ensure that the participants chosen to undergo educational reform and conversion are graduates in fields related to the Programmes developed, unemployed, or inadequately employed, having interest in acquiring additional skills, and having certain English language qualification (the required level will be decided in advance).

Course material will be prepared and made available through an on-line database, which will be created in the early stage of the project, and will be maintained continuously. This material will be regularly updated and integrated into a sustainable database, with a significant value for further re-runs of the programmes. Another important outcome of the Project is a database with the professional records of the trainees, which will be regularly updated and made available for the National Employment Service, but also for potential employers, who will constantly be contacted and assessed with the assistance of the Serbian Chamber of Commerce.

Each student will take six of them within a one-year conversion studies. There will be three groups of courses in each programme: (a) English, (b) Soft skills and (c) Professional courses. An English course will be obligatory for all the programmes. The language command will be improved through the specialized courses of Business language, Professional writing, Topic-related Conversation clubs, etc. There will be three soft-skilled related courses offered within all the programmes. The topics considered for these courses are: Presentation and Communication Skills Development; Time Management; Human Resources Management; Networking, Team-working, Leadership; Negotiation and Conflict Management. Students will have one obligatory soft-skilled course at each programme and a voluntary one. Each of the programmes will include four vocational related courses. The two of these will be obligatory (defined for each programme) and one will be chosen out of the two remaining programmes. These courses will refer to modern practices in the related fields, using specialized software packages and staying up-to-date with information on cutting-edge technologies, their possibilities, advantages, accessibility, etc. An important quality of the Programmes is a modern teaching approach. The trainings will consist of lectures, discussions, exercises, teamwork, by means of presentations and practical work in real working environments.

The above outlined structure of the Graduate Conversion Programmes will ensure high quality multidisciplinary education, which introduces the new content into the Serbian national educational system. A formal accreditation and the approval of the developed Master Programmes at a national level is one of the expected outcomes of this Project. The main contribution of the National Council of Higher Education will be to provide help in achieving required standards for the accreditation of the Programmes and their incorporation into the national educational system. Quality control, aiming at the final approval of the Programmes will also be an important activity of this Institution. The Ministry of Education of Serbia officially supported these activities.

The prime aim of this Project is to assist unemployed graduates to gain employment. Therefore, the planned activities include the organization of “Career day” meetings with the aim of enhancing communication between the students and their potential employers, as well as to promote the Conversion Programmes in public. The support of the National Employment Service and the Serbian Chamber of Commerce will be of a great help for the success of these events. In addition, we have already ensured the support of several enterprises and institutions for the Project, which are interested in employing some of the graduates taking our Programmes.

At several stages of the Project, the resources will be allocated to the evaluation of the development of the Programme and the training results. The assessments will take into consideration the reports written by the students, teachers, supervisors from EU consortium members and the potential employers of the Programme graduates. The conclusions will be publically presented and will serve as further promotion of the Centre, the motivation of new participants as well as the basis of further improvement of the trainings. The data on the employment rate within the training group will be collected and analyzed.

Disseminating knowledge and raising awareness of the local authorities of Vojvodina on the necessity of introducing organic food production

Jasmina Milenković, Daniela Ćetković, Gordana Stefanović, Jasmina Jocić, Nebojša Pajić, Mirjana Šakić, Aleksandra Sudarević, Vita Latinović, Tatjana Buta, Aleksandar Fišteš, Momir Žestić

Summary of action

This project will launch an educational, information and promotion campaign of organic farming in order to inform producers, decision-makers, media, consumers, public institutions, schools and other key actors in the food production chain about the merits of organic farming, especially its environmental benefits, and to increase consumer awareness and recognition of organic products relevance.

This pilot project proposal aims to enhance organic food production in Serbia and transfer of best neighbouring practices in line with EU standards and internationally accepted certificate obtaining procedures. Our intention is to select eligible participants (individual producers, representatives of regional and local governments and media) who will attend the training and go on a study visit to Hungary. They will further disseminate the knowledge and experience gained. Local media representatives will also be a part of that group (Information dissemination plan will be developed, which involves promotion of national strategy). There will be a total of 50 participants (20 individual producers, 15 representatives of local media, 15 representatives of local and regional authorities). The training curriculum will be developed in coordination with the partners.

Regarding dissemination of information, we will have to apply a targeted information campaign using different media - brochures and other printed material, website, TV and radio broadcasts, promotion of participants at seminars. At the end of the project, a final regional conference on organic production will be organized. Also, a project website will be designed – in Serbian, Hungarian and English.

As part of the evaluation process, development of relevant database and a map of existing and potential individual organic food producers in Vojvodina will be made, along with an assessment report on the situation in the field.

Project relevance

Organic farming may offer farmers an opportunity to improve business profitability, biodiversity and sustainability both within agriculture and rural communities. European consumers are now spending twice as much on organic food as they did in the late 1990s. Agricultural and food processing sector in Serbia is traditionally recognized as vital and crucial for Serbian economy.

Province of Vojvodina is traditionally devoted to agriculture and it has fertile soil and sufficient preconditions in terms of experienced workforce and resources. Serbia's way towards EU membership will introduce changes into traditional ways of food production in line with new development trends and market demands and requirements.

Due to a slow reform process in agriculture, many people are out of work and they are not interested in traditional crops production. On the other hand, the percentage of organic food production still represents a small proportion of the total food sector, and many factors influence both the supply and demand. Predicting and managing growth in these conditions are difficult. Small increase in the number of producers in one sector can result in a significant increase of available organic producers, leading to significant pressure on prices and loss of confidence by existing organic farmers and those considering conversion. If the organic sector is to develop in a sustainable way, greater attention needs to be paid to demand-pull policies as well as to the supply-push policies designed to deliver agro-environmental outcomes. Government support for organic farming is justified by the environmental public good that organic farming delivers, which, then, extends to the society as a whole and not just to the minority of consumers who choose to purchase organic food.

The objectives and expected results in terms of cross-border cooperation in this pilot project proposal are intended to boost organic food production in Serbia and make a shift towards best neighbouring practices in accordance with EU standards and internationally accepted certificates obtaining procedures.

Methodology and sustainability

Main project activities are:

- Selection of eligible participants ,who will further disseminate knowledge and gained experience, for the training;

- Development of the training curriculum
- Study visit to Hungary;
- Information dissemination plan and promotion of the national strategy (creation and implementation of the market plan, brochures and other printed materials, website, TV and radio broadcasts; promotion of the participation and dissemination of information on the seminars arranged, targeted information using different media, final conference on organic production);
- Awareness raising campaign (10 seminars arranged);
- Creating and development of relevant database and map of existing and potential individual organic food producers in Vojvodina,
- Assessment of the situation in the field – report;
- Introduction to the internationally accepted certificate obtaining procedure;

This project is designed to achieve multiple effects, both within Serbia and the cross-border Hungary. In Serbia it will represent a good case study which can easily be transferred into other countries and regions especially those whose neighbouring countries are new EU member states. In case of success of the project, the trend of innovation within one of most traditional sectors will result in a changed mindset of food producers in Serbia and overall reform of agriculture policy. The knowledge gained will enable participants to further disseminate and show practically how a producer can benefit from introducing organic food production.

The sustainability of this project will be assured through training of Trainers, which will be organised in Serbia. Later, due to the increased interest, the trained trainers will charge the parties interested in organic food production for this service.

Project justification

Organic farming may offer farmers an opportunity to improve business profitability, biodiversity and sustainability both within agriculture and rural communities. European consumers are now spending twice as much on organic food than they did in the late 1990s. Agricultural and food processing sector in Serbia is traditionally recognised as vital and crucial for Serbian economy. The Province of Vojvodina is traditionally devoted to agriculture since it has good soil quality and sufficient preconditions in terms of experienced workforce and resources.

The cross-border impact on this project will be visible at the macro and micro levels. At the macro-level, cooperation between the two regions will result in the introduction of the legislative regulation for this sector and abolishing the visa regime for these two regions. At the micro level, however, European certificates for quality products will be introduced in this region both for consumption and for trading. Organic food production can have indirect additional effect, such as the protection of the environment, improved health status of the people, quality of life increase and added value of regional economic development. Serbia's way towards EU Membership will introduce changes into traditional way of food production in line with the new development trends, market demands and requirements.

Project objectives

Overall objective of the project is the introduction and development of organic food production in the cross-border region. Specific objective is raising awareness and the level of knowledge in Vojvodinian region about the importance of organic food production development, trough launching an educational, information and promotional campaign on organic farming production. This involves wide information and promotion campaign about the merits of organic farming, especially its environmental benefits, targeting producers, decision makers, media, consumers, public institutions, schools and other key actors in the food chain production and consumption, Also, this project intends to increase consumer awareness of benefits of organic products.

20 new individual organic food producers from Vojvodinian region will have the opportunity to study about the advantages and challenges of introducing organic food production on practical examples given by their cross-border partner. Once they have learned the required knolwedge and skills, they will have the opportunity to improve the production, which is the mid-term goal. Through information and promotional campaign, this project will impact on the overall level of interest and knowledge, and attempt to influance the regional government to introduce further local capacity building programs.

Project target groups

Target groups for this project are:

- The individual producers
- The consumer protection organisations
- Local media representatives
- Province of Vojvodina officials and policy-makers

The introduction of organic food production for those 20 farmers will result in advanced position in relation to classical food producers, in terms of secure and demanding market, willing to pay more for these kinds of products. These farmers will gain the opportunity to establish business connections with a wide range of local SMEs, and will be able to improve their production related to all follow-up production processes (packaging, food processing, etc).

The implementation of the project will also result in educating and informing 15 local and regional media representatives. In that way, media will be further involved in promotional activities and capacity building programmes.

Trough the projects case study, officials and policy makers at the regional level will have clear insight into the ways of how to base the future strategy of organic food production development. Consumer protection organisations represent crucial information disseminator and stakeholder

in this area, both on the level of informing wider public about the advantages of organic food, as well as on the level of their influence on policy makers and consumers.

Project impact and expected results

The eligible Hungarian border area is located in the south-eastern part of Hungary, covering a significant area (one third) of the total area of the country. It is the part of the Pannonian Great Plain. Significant numbers of rivers cross the border counties, including the two biggest rivers of Hungary, the Danube and the Tisa, thus offering specific opportunities for cross-border co-operation. In Serbia the eligible border area is situated in the northern part of the country (Vojvodina), covering 24.758 km^2, which represents 28% of the Serbian territory. There are various terrain types: plains and two major hills (Fruška Gora and Vršaćki Breg). The alluvial terrain is also present in the south western part of the eligible area. The major rivers that cross the border area are the Danube, the Sava and the Tisa. A system of hydro accumulative canals (Danube-Tisa-Danube) can be found here, and there are also five large lakes (Ludos, Palic, Bela Crkva, Belo blato, and Obedska bara.

This pilot project is designed to enhance environmental awareness and to contribute to the lower level of usage of pesticides, herbicides and other toxic chemicals. As this is a cross-border project, all activities on one side of the border will be followed and in line with the experiences of cross – border partner, so possibilities of causing environmental damage are minimised. Project is in line with equal opportunities policy and there will be positive discrimination applied in terms of motivating vulnerable groups' members to participate in the project.

As a result of the project, 50 participants (20 individual producers, 15 representatives of local media, 15 representatives of local and regional authorities) will be educated and trained on the advantages of organic food production. On the other hand, these individual producers will have the opportunity to see, on practical examples, the benefits of investing into organic food production. As a project action result, relevant database and a map of existing and potential individual organic food producers in Vojvodina will be developed, as well as the establishment of cross-border network for the organic food production knowledge exchange, on both institutional and individual producers' level.

Developing rural tourism in the cross border region

Ribar Đula, Lolita Zakić, Vladimir Todorović, Miloš Jovanović, Mitar Vasiljević, Jelena Lazić, Milica Bojković, Gordana Kašić, Milan Cvetanović, Marjan Klajn, Jelena Koldan

The main idea of the project proposal is a long term sustainable development of rural tourism in the cross-border region of Serbia and Hungary. This project proposal is intended to be implemented in the framework of a joint project with the cross border partner, University of Szeged. Project activities of our joint project are strongly coherent in terms of objectives, content and impact. Implementation of the project proposal will rapidly increase the availability of specialised information and training to reduce barriers and encourage cross-border dialogue, cooperation and common exploitation of economic opportunities in the cross-border region.

The project proposal will carry out a socio-economic assessment of the current situation regarding the level of coherence of the bordering region as well as estimation of regional competitiveness in:

- natural resources
- human resources
- urban/rural relations
- agriculture
- tourism
- traffic infrastructure and transport systems
- local communities infrastructures and resources
- environment protection.

The results of the assessment will be used as valuable information for establishing a Centre for Development of Rural Tourism. The project proposal will contribute to creation of educated and trained villagers who will contribute to the development of rural tourism, as well as to raising environmental awareness by publishing the analysis of the current situation and suggestion for further activities and development. Additionally, implementation of this project proposal based on the new concept of the regional development will result in various outputs that will create additional competitive advantages of the cross-border region. Moreover, the project proposal is intended to support specific co-operation initiatives through organising education of the communities about issues related to rural tourism and environment protection.

Furthermore, the identified opportunities offering the potential for enhanced economic cross-border cooperation will be communicated amongst cross border stakeholders (business community, local self government, NGOs, tourist organisations, etc.) via bilingual project web site. Finally, the project envisages the establishment of the Centre for Development of Rural Tourism which will provide training to the SMEs in the region and information to the wide regional and national business community on potentials for cross-border economic cooperation in the region. Moreover, the Centre will constantly monitor tourism market developments in the bordering region and will provide organisational and technical support to the creation of a cluster of SMEs operating in the tourist sector. At the end of this project, businesses, local communities, and NGOs in the region should have a clear vision about their future development and the necessary activities, trainings and investments. With this vision, they will be able to invest their own resources wisely and attract additional funding and investment from foreign and public sources as well.

The project proposal addresses directly the reinforcement of economic connections between the border regions and partially through capitalising on common natural resources to promote sustainable development. The major issues which the project proposal will address are major disparities in the level of development of SMEs as well as shared business services in the bordering region. Additionally, the SMEs in the area lack the necessary know-how to build and improve partnerships with economic players and larger companies from the other side of the border. The project proposal will encourage the cross border economic co-operation by identifying investment potentials and business opportunities in the aforementioned area. Enhanced economic cooperation of SMEs will help them find a bigger market and better partnerships inside the region. In the course of the project implementation a close business to business link will be established through organised study visits for the regional stakeholders (SMEs, local self government and NGOs)

As for the expected results the project proposal will result in establishing long term business cross-border cooperation as well as institutionalised support for development of cross-border tourism based economy.

Current situation in the cooperation area shows lack of concrete action of central government in order to improve and to encourage cross-border economic cooperation. However there are devised several strategic documents which

offer development guidelines for wider area of region. Project proposal intends to provide the best possible utilisation of the region potential through increased economic cross-border cooperation and will form basis for implementation of coordinated development actions in the area of tourism industry which can improve the quality of life and the standards of living of those in the cross border region.

Project proposal will create several structures that will continue to be exploited after the project completion thus the long term sustainability will be secured. Furthermore, this project proposal puts a great attention on sustainable development and environmental aspects which will be encompassed in all project outputs. Moreover, the strategic documents will provide the firm corner stone for creation of sustainable model of tourism development protecting and improving natural recourses and environment in the long run.

The cross-border region of the South Hungary and Northern Serbia is a multicultural space with a special heritage derived from a diverse ethnic composition. Although the Hungarian cooperation area lags behind, in comparison with the rest of Hungary and Serbian cooperation area belongs to the most developed regions compared to the rest of the country, the overall level of development in the bordering region lags behind European average economic growth. However, this region has great potential for accelerated development of rural tourism based on:

- medieval urban tradition
- well preserved traditional rural landscapes
- vast complexes of natural spaces
- viable populations of species that are no longer present in Western Europe

The project activities will enforce the increase of the level of expertise in local communities and companies involved as well. The education of locals interested in rural tourism development will lead to the improvement of tourist offer in the region, which will attract more tourists. Consequently, the revenue will rise, which will have a positive effect on further investments in rural tourism and the number of future employees in this sector.

The project proposal will result in the establishment of an information base as well as training facilities that will improve management and marketing skills for the economic agents in the region which could bring substantial improvement in cross-border economic cooperation. Moreover, in the course of the project implementation close business to business links will be established through organised study visits for the regional stakeholders.

Finally, taking into account the specific aim of the project related to the cross-border cooperation in the tourist industry it is envisaged to achieve harmonised development of the tourism industry measured in the increased share of the tourism industry in the average income of the local population.

The development of cross-border rural tourism relying on existing endowments can be a key field for the cooperation development of the small and medium sized enterprises of the region, as well as the key factor in reducing the migration rate and in raising the standard of living in the region. The two sides of the border in the region can be tied – through their similar endowments – and thus they can become part of the international tourist circulatory system and in that way they can strengthen the tourist competitiveness of the region.

International MBA in Agri-Business Annual Board Meeting

August 29, 2007 in Freiburg

Draft Minutes

Present:	Wim Heijman	Wageningen (NL)
	Marian Jonker	Wageningen (NL)
	Harry Bremmers	Wageningen (NL)
	Edward Majewski	Warsaw (PL)
	Nebojsa Novkovic	Novisad (Serbia)
	Wesna Rodic	Novisad (Serbia)
	Zorica Vasiljevic	Belgrade (Serbia)
	Slobodan Ceranic	Belgrade (Serbia)
	Tamara Pavnovic	Belgrade (Serbia)
	Thordis Moeller	Berlin (DE)
	Josip Juracak	Zagreb (Croatia)
	Bruce Ahrendsen	Arkansas (USA)
	Ivana Ticha	Prague (Czech)
	David McKenzie	Aberdeen (UK)
	Laszlo Karpati	Debrecen (H)
	Andras Nabradi	Debrecen (H)
	Elena Kovtoun	Kiev (Ukraine)
Apologies from		
	Jim Booth	Scotland (UK)
	Jan Hron	Prague (Czech)
	Mark Cochran	Arkansas (USA)
	Garth Entwistle	Scotland (UK)
	Jasmina Havranek	Zagreb (Croatia)
	Herbert Strobel	Weihenstephan (DE)
	H.L. Goodwin	Arkansas (USA)

Agenda

1. Opening
2. Minutes of the 2006 annual meeting (Fayetteville, Ark.)
3. Announcements
4. Board's issues
5. Reports on the MBA programmes in Warsaw, Prague, Debrecen, Kiev, Moscow, Zagreb and Belgrade
6. Constitution and bylaws of the associations: David McKenzie, Andras Nabradi
7. Research Papers Serires (Apstract): Andras Nabradi, Debrecen
8. ICA issues: Quality Project, Wim Heijman
9. Report on Leonardo Project: a.o. Edward Majewski, Warsaw
10. Miscellaneous
11. Date and venue of the annual meeting 2008
12. Closing

1. Opening

The chairman welcomed everyone to the Annual Board Meeting.

2. Minutes of the 2006 annual meeting *(Fayetteville, Ark.)*

The minutes were agreed as a true record of the meeting.

3. Announcements

No announcements.

4. Board's issues

Three nominations for new boardmembers:

- Bruce Ahrendsen from Arkansas (USA), lecturer in the MBA program, important for connections with the USA.
- Harry Bremmers from Wageningen (NL), already involved in the MBA program for Finance and Accounting.
- Sergey Melnichuk (Ukraine), Vice Rector of the Agricultural University of Kiev. Strengthening the links with Kiev is important.

All nominations are accepted as Board Members.

5. Reports on the MBA programmes

Warsaw report

Edward Majewski presented the report for the Warsaw programme 2006/07:

- only 12 students attend the course. 15 students is the break even point. For the next course some extra promotion should be made.
- studyresults are in average.
- teacher's evaluation is good.
- celebration 10th anniversary of MBA course
- Managerial methods and techniques are very successfull.

Leonardo project:

October 2004–March 2007. Nine partnes involved. All materials (handbooks, materials for distance learning, etc.) are on the website. Edward Majewski will open this website for all members of the MBA network. Wim Heijman will provide a list of all members.

Prague report

Ivana Ticha presented the report:

- last year some changes in personnel
- 21 students
- evaluation teachers is good
- finances: self sustaining
- study week next year will be organised by Prague.
- Ivana Ticha invites all other MBA courses for the studyweek.

Kiev report

- Elena Kovtoun presented the report.
- For the modules starting in November 2007, May and September 2008 international teachers will be asked for giving lectures in the MBA course. A module takes two weeks, part of it should be given by an international lecturer.
- The level of English language is not clear yet, especially for the part time students it will be difficult.
- Dr Kovtoun will get in contact with Wim Heijman about the international teachers.
- In 2008 re-accreditation has to take place.

Debrecen report

- 20 students
- for the final exam the boardmembers are invited
- last year no new MBA course started because of the break even point.
- Probably this year a new course will start with enough students.
- For this course international lecturers are needed. Laszlo Karpati suggests also the use of video conferencing.

Moscow report

There are no representatives from Moscow. Because Moscow has not responded for two years, Moscow will be skipped from the list.

Zagreb report

- The MBA course started in the framework of the TEMPUS project AHEAD. The final examination will be on December 10th and 11th in Zagreb. Until now the studyresults are good. A committee of this meeting is invited to attend the exams.
- The MBA will be fully recognized by the authorities and the University of Zagreb. Probably the post study will be accreditated before December this year. Now the International MBA Network is asked for an international accreditation of the MBA course in Zagreb.
- The next generation of the MBA course will start early 2008, without TEMPUS. Then the students have to pay tuition fee.

Belgrade report

- The MBA started in spring this year under TEMPUS. The Serbian MBA started with the module General Economics, which already has been completed. 30 Students attends the course, the level of English is good. The website of the MBA in Serbia is: mba_tempus.polj.ns.ac.yu
- The experiences around accreditation in Zagreb will be very important for Serbia.

6. Constitutions and bylaws of the association

For the network it is important to be recognized as a legal body. A formal agreement however means a lot of bureaucracy and is very costly. It is important to be independent of the universities. But it is also possible to let the universities sign a kind of memorandum. Then the universities should be in the board.

David McKenzie will send a proposal by e-mail to all boardmembers, with a request for reactions. Edward Majewski will try to find out if a kind of foundation in Poland is possible. Next year a decision will be made by the board.

8. ICA issues: Quality Project

The ICA will start an accrediting agency. The accreditation will be very costly, around 20.000 Euros to 30.000 Euros. Maybe it can go down to 15.000 Euros, but still it is too expensive for our MBA.

The proposal will be discussed in the boardmeeting of the ICA. Wim Heijman doesn't think that there will be conclusions by now. It will take a few years.

Decided is to continue in our own way ad see how everything develops.

9. Report on the Leonardo Project

See also point 5 of these minutes.

It is important that the website with the materials of the Leonardo project is also open for the members of this board. Also the websites of Kiev and Belgrade should be linked. Kiev and Belgrade will send their details of the website to Edward Majewski.

7. Research Papers Series (APSTRACT)

First of all there is a lot of appreciation for the first APSTRACT.

The price of the first Apstract including CD is around 6000 Euros. The first edition was subsidized by Wim Heijman. For the next edition it is important that libraries should subscribe and pay for it. All members of this board will ask their libraries to subscribe. Andras Nabradi will make calculations and send them around.

Furthermore is decided that:

- everybody will advertise with Apstract
- all MBA students will get the Apstract
- when members write articles, please make citations of Apstract
- the second edition will be ready beginning next year
- at this moment it is free to download Apstract from the website. Maybe later a payment should be asked for
- there is a need for good articles. Wim Heijman and Laszlo Karpati will review the articles. Also photos are welcome. Boardmembers will send their interim MBA report to Andras Nabradi, he will make a summary of it for the next edition. The best MBA thesis should also be sent to Andras Nabradi. Prague will make an introduction for the second edition; Warsaw will follow with the third edition.
- All materials should be sent before the end of October to Andras Nabradi.
- Wim Heijman will be the editor in chief of Apstract.

11. Date and venue of the annual meeting 2008

Because the AHEAD project of TEMPUS has its final meeting in Dubrovnik next year, it is decided to have the annual meeting on Wednesday, August 27 2008 in Dubrovnik. Also all members of the board are invited for the closing meeting of the AHEAD project.

10. Miscellaneous

Accreditation issues

Zagreb has to be accreditated for the first time, Kiev and Warsaw have to be reaccreditated.

A commission of the board is appointed to do this job:

- Wim Heijman
- David McKenzie
- Ivana Ticha

Board

- Wim Heijman will resign as chairman but will stay in the Executive Committee. He will be succeeded by Ivana Ticha (Prague).
- There is a need for more structure in the network. A mission statement should be made. Also there should be a discussion about the strategy to extend the network. A meeting to discuss the future of the network should be organized.

Studyweek

Prague will organize this week, probably at the end of May 2008.

Trends in wine production and trade

János Lazányi

University of Debrecen Faculty of Agricultural Economics and Rural Development

Summary: Historically, wine production and consumption have been at home in Europe. The most important countries mentionable are France, Italy, Germany, Spain, Greece, Portugal, Moldova, Romania, Bulgaria and Hungary. The European Union (EU 27) occupies a leading position on the world wine market. Globally, it accounts for 49.9% of growing areas and 39.1% of grape production, according to FAO data for the year 2006. The European Union (EU 27) produces 60.0% of wine and accounts for 55.4% of wine imports and 72.8% of exports. Wine production and consumption is increasing in Argentina, Australia, Chile, New Zealand, South Africa, Uruguay and in the United States, and decreasing in many traditionally wine growing countries. As a result of growing globalization, the EU wine market has to face changing circumstances and increasingly sharp competition. In the last 10 years, European imports from non-EU countries have doubled, and countries such as the United States, Chile, Argentina, South Africa and Australia have developed aggressive marketing policies, while promoting products at highly competitive prices.

Wine production in 2006 represented 5 percent of the value of EU agricultural output. EU wine consumption is falling steadily, although sales of quality wines are increasing. Over the last ten years, imports have grown by 10 percent per annum, while exports are increasing slowly. According to current trends, excess wine production will exceed 10-15% of annual production by 2010, although the EU spends around half a billion euros every year to solve the problem of its wine surplus. The European Union and the United States signed a bilateral accord in 2005, which helps EU winemakers to build on their current success. The annual EU wine exports to the USA are worth more than 2 billion US$, which is around 40% of EU wine exports in term of value. The new provisions on the common organisation of the wine market are also discussed in this paper. The intention is to develop leadership in this specific, lifestyle-associated market segment. The objectives of new reform are to maintain EU dominance over the world wine export markets, to simplify the legislation in this field and to assist rural development objectives within the Common Agricultural Policy. EU regulations favour the wine industry and European wine will meet the demand of consumers for individualised, customised products, which are natural, environmentally-friendly and healthy.

Keywords: Grapes growing, wine trade, regulation of wine market

Trends in wine production and trade

Quality wines are produced on six continents, and many countries are active in international wine trade. Worldwide vineyards accounted for a total area of 9,336,513 ha under plantation in 1961, and decreased to 7,399,546 ha by 2006. The highest amount of reduction was observed in Europe, where the harvested area for wine was reduced from 6,435,356 ha in 1961 to 4,081,412 ha by 2006 (Figure 1). Asia is ranked second in harvested wine area, producing wine on about 2 million hectares. America produces wine on about 1 million hectares, and shows a growing tendency. In Africa, wine production was 550,244 hectares in 1961, and this figure had reduced to 339,655 hectares by 2006. Oceania accounted for a total harvested area of 179,169 ha, an increase of about 360% compared to 1961. European vineyards and those of the European Union (27) respectively accounted for 68.9% and 65.9% of the total global harvested vineyard area, compared to 55.1% and 49.9% in 2006.

Yield of grapes was highest in Oceania, at 12.7 t/ha, with a very strong fluctuation *(Figure 2*). Yield of grapes was also high in America, with an increasing tendency. In the first period, average yield was close to 10 t/ha, and in the past 15 years, close to 14 t/ha. Yield increase was very strong in Africa and Asia, while mean yield in Europe was close to 6.4 t/ha for the period of 1961–2006.

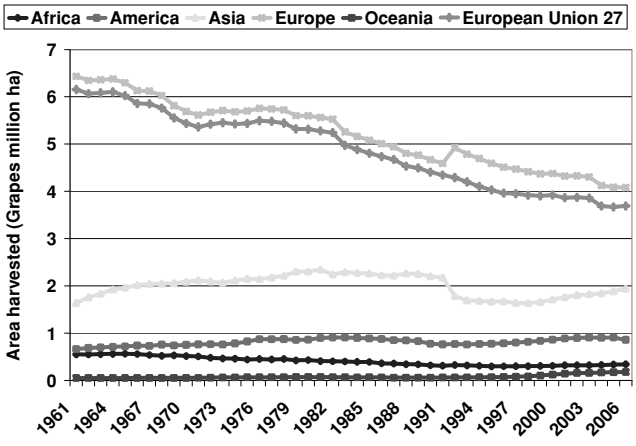

Figure 1: Grapes: harvested area in selected regions

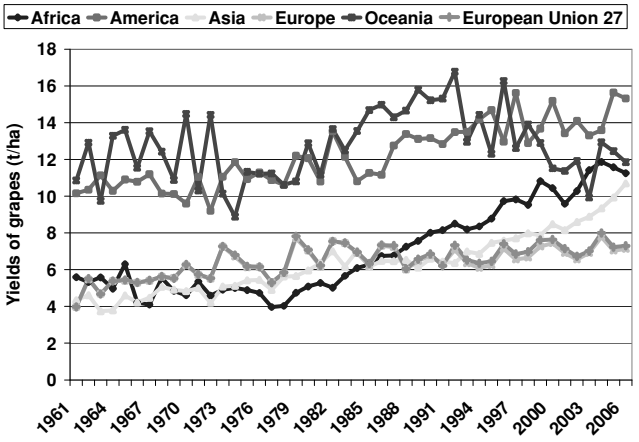

Figure 2: Grape yield in selected regions

Worldwide, grape production showed an increasing tendency between 1961 and 1982. This trend decreased until 1994 and started to increase after that (Figure 3). Grape production was relatively stable both in Europe and in the countries of EU. Grape production increased from 5 to 15 million tonnes in Asia, doubled in Oceania and America, and was relatively constant in Africa. In South America, grape production has increased by about 2 million tonnes, from 4 to 6 million tonnes. The proportion of European grape production decreased from 65% to 45% of total world production. This decrease can be characterised by a trend line $y = -0.4079x + 65.579$, where the correlation coefficient is $r^2 = 0.8359$. A similar tendency can be found when we study the proportion of EU-27 wine production: $y = -0.4497x + 63.49$, $r^2 = 0.8758$.

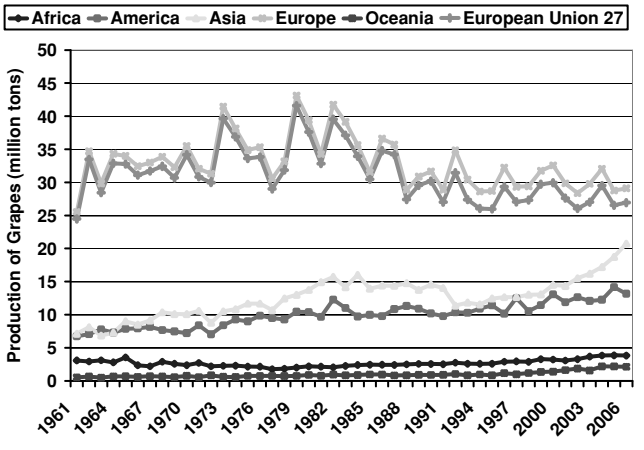

Figure 3: Grape production in selected regions

In Europe, wine production grew from 1981-1985, but started to decrease after that period. At the beginning of the examined period, wine production was also strongly reduced in Africa. The level of production in America and Oceania increased considerably, which can be explained by the increasing yields *(Figure 4)*. At the beginning of the examined period, Europe produced 2/3 of the total world production, but this ratio was reduced to 60% in 2000, and continues to decrease. The Australian wine industry has experienced strong growth in production over the past decade. Total wine production in the beginning of the examined period was less than 0,2 million tonnes and Oceania is now producing more than 1,5 million tonnes, as a result of the restructuring and reorganization of the Australian wine industry. At the end of the examined period, Asia also experienced a considerable growth in wine production.

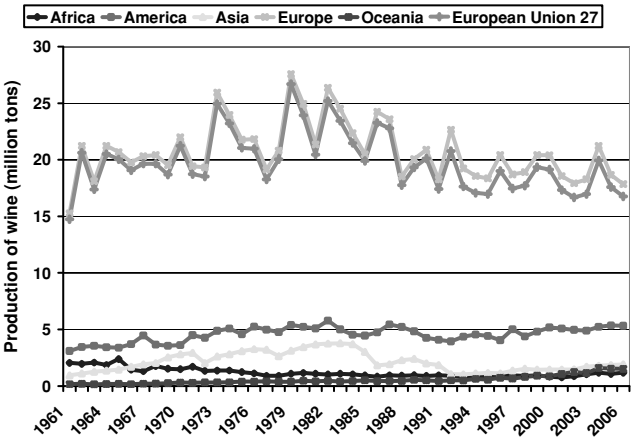

Figure 4: Wine production in selected regions

Export was seriously affected by the Chernobyl accident, which amplified food safety fears in 1986, and was just as damaging to sales of European wines as was methanol, which was used in Italian wines to raise alcohol levels. In 1985, the US also banned Austrian wine imports, as it was discovered that the county used diethylene-glycol as an artificial sweetener. The Australians were the first to recognize the tendency to produce average quality and fruity wines and capitalize on the new market. These actions caused New World producers to find new markets for their products. Growth in export demand exploded, when in many countries licensing changed, allowing wine to be sold in supermarkets. In the UK, for instance, by the mid-1980s, wine was increasingly sold in supermarkets, not from liquor stores or distributors.

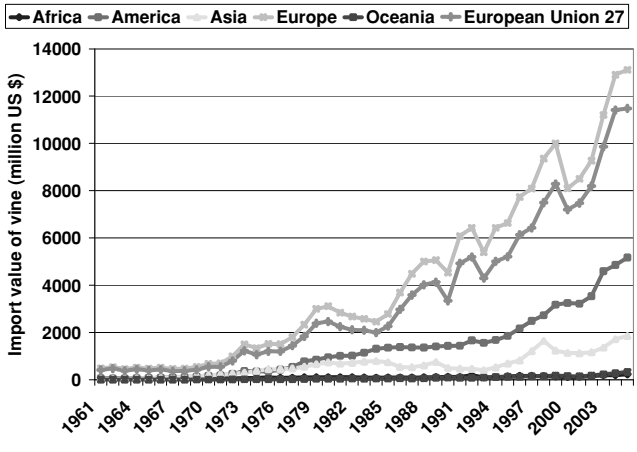

Figure 5: Wine imports in selected regions

The most important wine importing countries are in Europe. The total value of wine import in Europe is higher the 12 milliard US $ and increasing very rapidly in the period examined (Figure 5). Wine imports were about 2 billion US $ in Asia and more than 5 billion US $ in America in 2005.

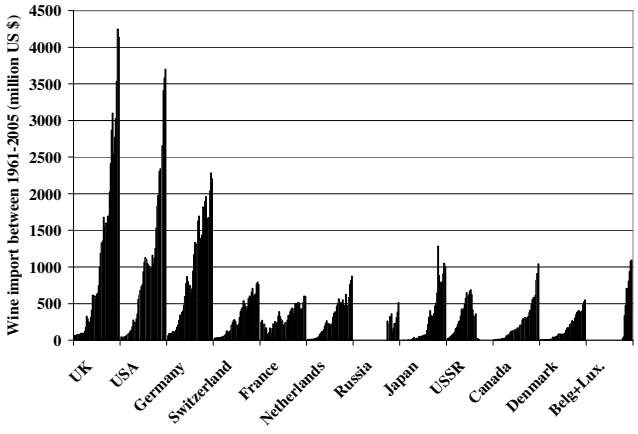

Figure 6: Wine imports in selected countries

At the expense of beer sales, import and consumption of wine is increasing in the UK, as the British become more influenced by the lifestyles of continental Europe. Wine consumption is also positively impacted by rising incomes. However, there are concerns by importers that the UK market may be reaching a saturation point. According to Euromonitor International, per capita grape wine consumption in the United Kingdom was 28.3 litres in 2005, growing from 20.2 litres in 1997 and the country is the largest importer of wine by value in the world and the top three suppliers are France, Australia, and Italy. Due to the climatic condition, wine production is minimal in the United Kingdom, but it is growing and becoming a profitable enterprise dominated by white wine, but sparkling, dessert, and red wines are starting to be produced in growing quantities.

The United States is the second largest market for wine, despite the growing quantity produced at home *(Figure 6)*. The United States imports more wine and wine products than it exports. In 2006, the total value of imported wines was $4.1 billion. The majority of imports came from France, Italy and Australia. Medium priced wine imports make up the majority of total imports of the sector. However, the import of distilled grape wine products has become important during the past decade.

Germany is the third largest importer of wine and, after the USA, France and Italy, it is fourth biggest consumer of wine by volume in the world, with almost 20 million hectolitres annually. The country has one of the highest per capita consumption rates, at 23.6 litres/year. Wine represents around 30% of total alcohol consumption and Germans are loyal to their own wines and those from EU partners. Less than 25% of imports come from outside the EU. Despite having a strong and respected domestic industry, German consumers actually prefer red wine and domestic winemakers are increasingly replanting vineyards with red varieties.

The Swiss market is among the most lucrative and discriminating market of the world. The country imports over $500 million worth of wines annually, and ranked sixth in world consumption. In recent years, red wine has come to be widely consumed in Switzerland, supported by claims that regular and moderate consumption of red wine is beneficial to human health. Around 30 million litres of white wine were imported, compared to 137 million litres of red wine. The majority of imports came from Italy, France, Spain, the USA, Australia and Chile.

French consumers are extremely patriotic, which makes it very difficult for imported wine to take any meaningful share of the market. At the same time, French per capita wine consumption has decreased from 103 litres in 1980 to 54 litres in 2004, which is only slightly higher than the per capita consumption of about 50 litres in 2005. The long-term trend toward declining wine consumption continued last year, but the market is still large and per capita consumption is one of the highest in the world.

Over the past decade, the Netherlands wine consumption has been increasing steadily to reach 20 litres per capita in 2005. The market is still dominated by European wines, led by France, but, in recent years, there has been strong growth in the sales of American and Australian wines. Due to historical ties between the two countries, imports from South Africa have proven very popular. The Dutch drink more red wine than white. Rosé has also grown significantly in the past few years to reach 11% of the market, and is becoming increasingly popular. The Netherlands is the number sixth export market for wine by value, but wine re-exports are also significant. Wine products shipped to the Netherlands are trans-shipped to other destinations, particularly other countries within the EU. For the Netherlands, there are five main export markets: Germany, Belgium, Japan, France and the United Kingdom.

Wines are becoming increasingly popular in Russia. Russians are switching from vodka to other alcoholic beverages; the possibilities of expanding into this market are real. In 2001, Russia imported 256 million litres of wine. More than half of wines sold in Russia are imported and wine imports are continue to grow as domestic production fell by 80% during an anti-alcohol campaign in the mid-1980s. Moldova and Georgia have defended the market of their wines in Russia, but there is a growing interest in importing wine from EU member states and New World countries.

The large part of Japanese wine consumption is connected to the business drink. Japan wine market is dominated by import as domestic grape production cannot be expected to increase**.** France and Italy continue to be the market leaders, but the US is the third largest supplier of wine to the Japanese market. Japan is also an important export market for US wine. However, popularity of New World wines is growing and Australian exports of mid-priced wines have increased considerably.

Despite the growing quantity of imported wine available on the Canadian market, the domestic wine sector continues to expand. According to Euromonitor International, wine in

Canada is mainly produced in British Columbia, in western Canada, and Ontario, in central Canada, but wine sectors are also developing in Nova Scotia and Quebec. Extreme cold in Ontario facilitated the production of ice wine, but lessened the production of other varieties. According to Euromonitor International, per capita consumption of wine in Canada was 14.7 litres in 2005, up from 11 litres in 1997. The Canadian wine industry is building a strong partnership with the tourism sector, which is facilitating the production and marketing of wine.

Denmark had the sixth highest GDP per capita in the world in 2005, which combined with the lowering of taxes, has increased wine consumption. Danes prefer red wine, which accounts for 75% of the overall table wine market.

Although patterns vary between regions, Belgians are traditionally beer drinkers, but wine consumption is increasing rapidly. Almost 40% of the population lives in the southern, French-speaking region Walloon, which, due to their historical ties, tends to favour wines from France. Walloon is considered a more mature wine market but, consumption is declining. The Flemish region of Flanders has reached a rapid growth in economy and people are willing to try wines from around the world. Wine is increasingly viewed as an everyday drink, where red wine accounts for 53% of sales, white wine 35% and rosé 12%.

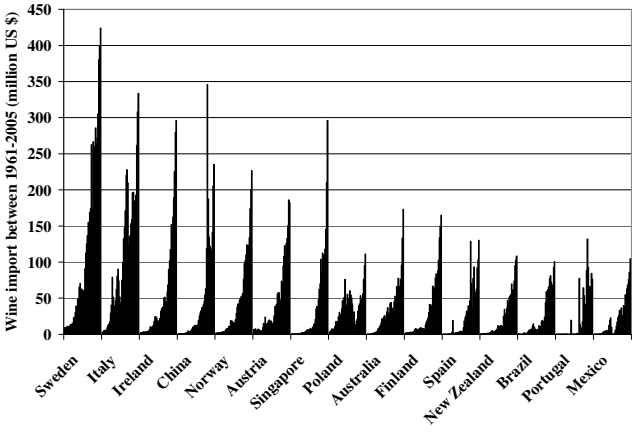

Figure 7: Wine imports in selected regions

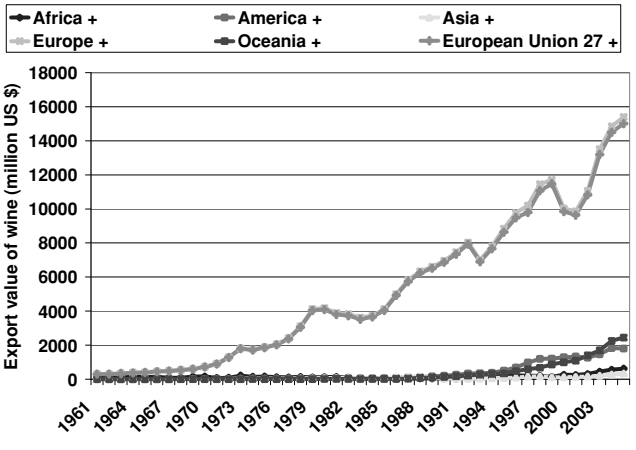

Figure 8: Wine exports in selected regions

Swedish consumers are moving towards more continental drinking patterns and drinking less of their traditional beverages, vodka and beer. Wine consumption has been increasing, and this growth is expected to continue. Swedish consumers appear to be more quality conscious. Red wine is preferred and sales of medium priced wines increasing rapidly. Wine imports also increased rapidly in many other countries *(Figure 8)*.

The total value of wine exports was higher, up to 14 billion US $ in 2005, and increasing very rapidly. The most important wine exporting countries are in Europe.

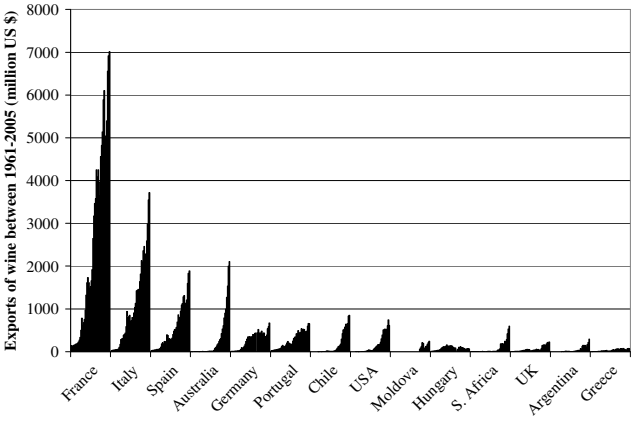

Figure 9: Wine exports in selected countries

Wine plays a substantial role in French agriculture, and throughout the world, it is associated with the French art of living. Thanks to its scale, variety and quality, French wine growers lead the world. France is the biggest exporter of wine and has the biggest domestic market, although domestic consumption has been falling for the last 20 years *(Figure 9)*. The development of vine production in countries such as Australia, South Africa or Chile, which is creating intense competition on export markets, EU wine export is also increasing according to FAO statistics. Major destinations for French wine continue to be the United Kingdom, Germany, Belgium, the Netherlands, and the United States.

Per capita wine consumption in Italy fell below 50 litres, although thirty years ago this figure was over 100 litres. Per capita consumption of beverage trends to favour low-alcohol or no alcohol drinks. The drop in wine consumption represents a switch to beer. Major destinations for Italian wine are Germany, the United Kingdom, the United States, France, and Switzerland. According to the U.S. Department of Commerce, the US imported wine from Italy in value to $1.07 billion during 2005, which represents 25 percent of Italy's export market in value. In terms of quantity, Italy has been the top wine supplier to the United States for many years.

Spain continues to have the most area under vines in the world. However, export of Spain ranks third following France and Italy. The downward trend in wine consumption continues, as Spaniards are switching to beer and soft drinks. According to Euromonitor International, per capita wine consumption in Spain declined to 38.5 litres in 2005. Major

destinations for Spanish wine are France, Germany, Portugal, Italy, and the United Kingdom.

Australian wine exports increased since Australians are devoted to a stable policy of R&D investments, not only on new products, but also on vineyard developments. There motivation of "being equal to the best in the world in terms of viticulture and winemaking and by staying on the cutting edge of technical developments" was very useful. Major destinations for Australian wine are the United Kingdom, the United States, Canada, Germany, and New Zealand. According to Global Trade Atlas, the United States represents 33% of Australian wine export market.

As a results of the well focused worldwide communication campaign on Riesling, German wine exports has exceeded the 600 million US $ mark, and the quantity of wine exported has exceeded 3 million hectolitres. More than 60% of the Riesling area planted is in Germany.

Portugal is considered a traditional wine grower, with 8% of its territory dedicated to vineyards. The country has more than 500 native varieties and produces a very wide variety of different wines with distinctive personalities. With the quality and uniqueness of its wines, the country is a sizable and growing player in wine production, being in the top 10, with 4% of the world market.

Total wine production in Chile is about 8 million hectolitres and the wine industry has expressed some concerns about the explosive increase in the planted area of grapes. Per capita consumption of wine in Chile was 16 litres in 2003 and has been more or less stagnant for the past several years, down from 52 litres the high point in 1982. The Chilean government provides no direct subsidies to support wine production or to subsidize exports. However, Chile does have a successful market promotion campaign that includes wine. Over 60 percent of total wine production is exported. Major destinations for Chilean wine are the United Kingdom, the United States, Germany, Denmark, and Canada.

U.S. wine export is close to 800 million $ and 95% of this sum originates from California. More than 60% of wine exports are to the EU. The top market for US wine is the United Kingdom, which experienced a strong increase in revenues. The other leading markets are Canada, Netherlands, Japan, Germany, Mexico, Switzerland, Denmark, Ireland and Belgium/Luxembourg. The weaker dollar has also allowed California wineries to better compete at key price points in the world export market.

Moldova has exported up to 80% of its wine production in the Russian Federation. The wine industry is one of the leading and most important sectors of the Moldovan economy accounting for 20 percent of GDP. Moldova is the only country in the world that exports as much as 95% of its wine production. In 2005, export values have reached $312.9 million US dollars. The major partners are Germany, Poland, the Czech Republic, the United Kingdom, the USA, Canada and Romania. New markets such as Turkey, Croatia, Denmark, Greece, Ireland, Japan, Slovenia, South Korea and China have been developed as well. The domestic market consumes only 5% of total output.

According to FAO statistics, South African wine exports have increased very rapidly. Total wine production in South Africa is 9.05 million hectolitres and total export is about 600 million US$. Major destinations for South African wine are the United Kingdom, the Netherlands, Germany, Sweden, and Canada. South Africa also benefits from a treatment for its duty-free wine exports to the EU and to the United States.

In Argentina, total wine production is about 15 million hectolitres and per capita consumption is 30–35 litres. In terms of value, Argentina's wine exports are increasing rapidly. Major destinations for Argentinean wine are the United States, Paraguay, United Kingdom, Russia, and Canada.

The Greek wine industry, like those of other European Union member countries, had to face EU-mandated eradication policies designed to improve wine quality by decreasing production. Greece has a mature domestic wine market, and it is the export market, which offers opportunities for growth. Germany is the most important market for Greek wine, with volumes of about 14 million litres. This represents 50% of total wine exports. The remainder is distributed primarily to other countries within the EU. The average Greek spent US$370 on wine purchases in 2002, which was very close to the figures for France and Switzerland, with US$404 and US$380 per capita sales.

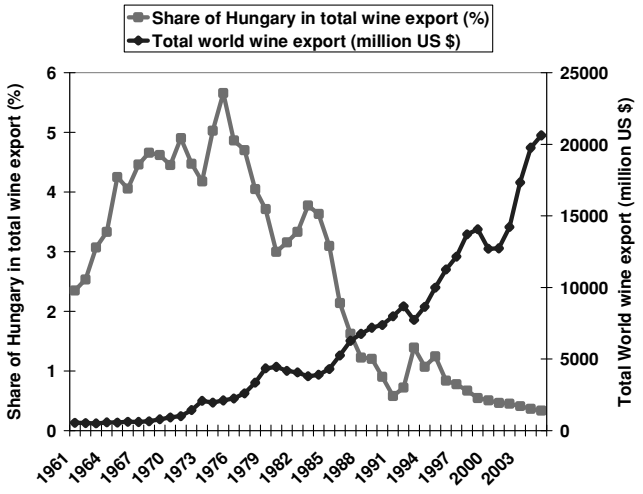

Figure 10: Total world wine exports and the share of Hungary of wine exports

In the 18th and 19th centuries, grape and wine production were present in nearly every corner of Hungary. The first large scale reconstruction of Hungarian wine growing areas took approximately 30 years at the end of the 19th century, when they had to struggle with phylloxera and peronospores. The second major reconstruction began in the 1960s. The Hungarian wine sector has always been export-oriented. Exports used to amount to 60%, while today this figure is around 25–35% of total production. A serious setback occurred around 1990, with the collapse of the COMECON market, as the state monopoly was also replaced by privatised wine trade. The main markets for Hungarian wines include

Germany, the United Kingdom, the Baltic countries, Canada, the United States and also the previous CEFTA countries (Poland, Czech Republic, and Slovakia). Per capita wine consumption has levelled out at about 30–32 litres. Statistical data indicate that beer and non-alcoholic beverages have become significant competition for wine in Hungary. The difficulties of the wine industry are demonstrated in Figure 10, which shows Hungarian participation in total global wine exports.

Regulation of the wine market

Wine production has a long history of regulatory measures, which includes disposal of production surpluses, planting regulations, trade restrictions and changes in consumption. Common Market Organisation of wine was first set up in 1962, and has been revised several times since then. It is the most complex and far-reaching under the Common Agricultural Policy (CAP). The organisation of the wine market in the EU has been gradually established under the CAP and based on controlling the market balance. Council Regulation (EC) No. 1493/1999 reformed the operation and it covers the issues of total market organisations, such as price, intervention and trade, and issues specific to the wine industry (provisions concerning the production, movement and processing for home use of wine products and oenological processes), as well as the interactions between the different issues.

In 1991, a report on the French paradox pointed out the apparent health benefits of red wine consumption, but the demand for Old World wines has been decreasing. New World suppliers were focused to produce market driven product that matches consumer demand using capital intensive production techniques. The EU, and especially French and Italian growers, was focused on the fine wine market. The EU system of labelling is based on geographic origin. The New World wine producers formed an organization called the World Wine Trade Group in 1998, and agreed on the Mutual Acceptance Agreement (MMA) on Oenological Practices to produce commodity wines. There is little doubt that New World producers have benefited from producing commodity wines at low prices. The MAA establishes oenological practices which state that the signers: 1) accept each other's laws, regulations and requirements relating to oenological practices and regulation thereof, 2) permit import of wine if the country of origin's standards are met, 3) permit exporters to export wines to importing countries that meet the importing country's standards, 4) prevent derogation for the sake of trade, and 5) are permitted to report to all signers if an importing country has reason to believe that the wine will compromise human health or safety. The treaty also proposes future negotiations on labelling. The labels on the bottles are succinct, listing name, grape, alcohol content by volume, and amount. The figures based on FAO statistics indicate a growth in demand for the commodity wines of the New World, even in Europe.

Regulation (EC) No 1493/1999 on the common organisation of the market in wine seeks to achieve a better balance between supply and demand within the EU, allowing producers to take advantage of expanding markets and make the EU wine industry more competitive in the long term. It also aims to eliminate the use of intervention as an artificial outlet for surplus production, maintaining all traditional outlets for potable alcohol and vine-based products, accommodating regional diversity and recognising the role of producer. The common organisation of the market in wine applies to fresh grapes other than table grapes, grape juice and musts, wine of fresh grapes, including sparkling wines, liqueur wines and semi-sparkling wines, wine vinegar, piquet, wine lees, grape marc. An aid scheme has been introduced to assist producers with the private storage of table wine, grape must, concentrated grape must and rectified concentrated grape must.

The limitation of grape-growing potential is achieved by prohibition on new plantations and by a premium system for the definitive abandonment of wine-growing areas. Prohibition on new plantations has been the subject of many criticisms. Some producers favour greater liberalisation of planting, as producers in third countries are not subject to such restrictions. Moreover, many irregularities have been observed and monitoring the application of the restrictions is fairly difficult. The premium system for the definitive abandonment of wine-growing areas has made it possible to grub up approximately 500 000 hectares of vineyards since the 1988. This measure has achieved a substantial reduction in the wine-growing potential of the EU. In recent years, about 2 000 hectares per year have been definitively grubbed up and under the 1999 reform 51 000 hectares of new planting rights were granted.

Within the common organisation of the wine market, distillation is the most preferred instrument of intervention to withdraw production surpluses from the market at a guaranteed minimum price. Since the 1999 reform, Community legislation has made provision for four different forms of distillation, of which two are obligatory for producers and two voluntary. The purchase price of wine for distillation varies from one type of distillation to the other.

Alcohol produced by distillation of the by-products of wine making, of wines with dual classification and of crisis-distillation enters Community public stocks and is disposed of for industrial use. For a long time it was exported for use as fuel. The system has proved effective in supporting market prices, but prevented production from adapting to the fall in the demand and thus contributed to the creation of surpluses. Other intervention makes provision for a private storage system for wine, aid for the use of concentrated musts and the production of grape juices.

Among oenological practices, enrichment intends to increase the natural rate of alcohol in wine. It is carried out using either sucrose or vine based must products. Enrichment using sucrose is a traditional technique in a large number of wine-growing regions of the north-central region of the Community. One degree of alcohol produced from sucrose

costs approximately one third of the cost of one degree of alcohol from the grape. To prevent southern producers from being penalised by this practice, in 1982, aid for the use of concentrated musts and rectified concentrated musts to increase the alcoholic strength of wine was introduced. The availability of one degree of alcohol at a lower cost than from the grape has resulted a wholly artificial expansion in the use of enrichment (including in regions where the practice had never been used), a reduction in the natural alcoholic strength necessary to obtain wine and consequently in an increase in yields and production throughout the Community. Budgetary expenditure for the common organisation of the wine market mainly concerns table wine and varies markedly from year to year due to changes in production conditions. It represents between 2.5% and 5.5% of the total expenditure of the EAGGF Guarantee Section.

Wine is a very good example of the European rural development programme, working under common agricultural policy for maintaining the local traditions and culture. In regions where wine-growing plays an essential role in socioeconomic development, abandonment of wine-growing could be problematic, even if it is difficult to prevent some relocation of production towards areas where wine-growing is more profitable. Although wine-growing can create harmful effects, where intensive use is made of plant health products and fertilizers are practiced, maintaining wine-growing in regions with a tradition in this sector is essential not only for the conservation of the landscape, and also to limit soil erosion. The CAP needs to integrate vine cultivation into both the eco-conditionality framework and the agri-environmental programmes. These measures encourage the introduction or the preservation of production methods compatible with environmental protection requirements and the preservation of the countryside.

The Uruguay Round agreement radically changed the wine trade with third countries. Before 1 July 1995, border protection was ensured by the obligation to respect a minimum price on imports („reference price“) and by the collection of a customs duty at the border. The reference price has been abolished and customs duties have been reduced by 20%. This means that the Community wine market has become highly permeable to imports from third countries. As a consequence of the agreement, it is more difficult to improve market conditions and support prices by withdrawing surplus quantities. In such circumstances, additional quantities are attracted from outside the Union, and prices cannot increase markedly above the price of the imported products.

Since the 1999 reform and the introduction of the restructuring programme, efforts have been made to improve the competitiveness of Community production on both the internal and international markets. The continuing difficulties balancing supply and demand and the ever fiercer competition from imported wines demonstrate the need for this effort on completeness to be maintained. Wide-ranging reform of the EU's Common Market Organisation for wine acxcepted in 2007 also aims to increase the competitiveness of EU producers, win back markets, balance supply and demand, simplify the rules, preserve the best traditions of EU wine production, reinforce the social fabric of rural areas and respect the environment. Under the proposals, all the inefficient market support measures – various aids for distillation, private storage aid, export refunds – would be abolished. Crisis distillation would be replaced by crisis management measures, paid for from national financial envelopes and more money would go into promoting EU wine, particularly on third country markets. For a five-year transitional period, planting restrictions would be kept in place and uncompetitive producers would have the possibility to leave the sector with attractive financial support. After 2013, restrictions on planting would be lifted to allow competitive producers to expand their production if they want. Labelling rules would be made simpler, certain wine making practices accepted by all producer countries in the International Organisation of Vine and Wine would be adopted by the EU and quality policy would be based on a geographical origin approach. EU Member States would receive a national financial envelope and a menu of actions to allow them to take measures best suited to the local situation.

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particular the Title relating to quality wine produced in specified regions

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Commission Regulation (EC) No 2022/2001 of 15 October 2001 amending Regulation (EC) No 1623/2000 laying down detailed rules for implementing Council Regulation (EC) No 1493/1999 on the common organisation of the market in wine with regard to market mechanisms

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