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PhD Thesis

AGRI-ENVIRONMENTAL MANAGEMENT AND RURAL DEVELOPMENT
AFTER THE EU ACCESSION IN HUNGARY

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1. RESEARCH OBJECTIVES

The structural, institutional, technical and technological regulation of Hungarian agriculture – as preparation for the new tasks – has not overtaken the participation in the competition of the single market. It is very important to become the organiser of the process. Regarding Hungary’s natural and social conditions it is of common interest to create a long term strategy for agriculture which has been missing for years. The main objective of this research is to examine rural development and agri-environmental elements inside the agricultural system. To confirm the hypothesis that the application of multifunctional agriculture determined by the Common Agricultural Policy (CAP) – with a supportive political background – could be a promotional factor for the Hungarian national economy.

The dissertation is looking for the answers to the following questions:

1. Why is it important to examine the economic, natural and social context of agriculture in Hungary?
2. What kind of role do indicators, information and information technology play in the promotion and monitoring of development?
3. How can the so called “present for nature” effect, due to general decline of national economy after the change in regime, be demonstrated in agriculture?
4. What kind of role does the second pillar of the CAP play in Hungary, with special regard to agri-environmental management?
5. Which are the minimum factors for rural-development?

The exact answers to the questions are given in the summary of the dissertation.
2. STRUCTURE AND APPLIED METHODS OF THE DISSERTATION

Regarding methodology an interdisciplinary approach is applied. As the area of the research is diverse, the documentation and systematization of the literature is not separated, it is inserted in the discussion of the chapters.

Firstly, the activity of the European Union (EU) and, secondly, the situation in Hungary is evaluated. Thirdly results obtained from the research in the first two chapters, with special regard to the Leader Programme, are examined in the Hortobágy region.

The chapter considering the EU consists of four subsections that investigate the activities and strategies of the Union related to the research area. These are the agricultural policy, the environmental policy, rural development and sustainable development (SD). The sequence of the subsections is determined by chronology, i.e. how these activities gathered round in the EU’s policy.

- Firstly the Common Agricultural Policy is reviewed. The outline of the literature related to agricultural policy is considered as a basic element. A concise summary of the important stages of the CAP from the beginning until the present is given. As a consequence of the review of the CAP literature, relationships of agriculture, in the form of a logical model, are demonstrated.

- The second subsection deals with the environmental policy. Along the development of this policy, the idea of managing the environment as an integrated part of sectoral policies was conceived. Regarding the research area this part of the study concentrates on agri-environmental issues.

- In third step rural development is discussed. From my point of view between 2000 and 2006 rural development policy can be considered as a joint set of structural and agricultural policy. For that reason structural policy is briefly introduced in this part too.

- In the fourth subsection activities of the Union toward sustainable development are studied. In the fourth year of my research I managed to adopt the principles related to SD and I always tried to find those answers which create harmony between those capitals into which the three pillars of SD are transformed. From these capitals the role of social and natural capital are discussed. The results of a current EU R+D project (EUROLAN), in which our department participated,
drew my attention to the function of social capital and this is emphasised in the dissertation. The importance of information and indicators is also presented in this section. The reason why this topic is examined in this subsection is that the role of indicators in the monitoring of environmental policy, sustainable development and the open method of coordination (OMC) – which is gaining ground in the EU-25 – is strengthening. At the end of this subsection from statistical-mathematical methods graphic figure is applied to illustrate how indicators carry information and how the general decline of the national economy after the changed regime affected agriculture from the environmental aspect. Among graphic figures polar coordinate (a geometric formation) is used. The reason for using this method is that graphic form is a proper tool for illustration of relationships, making transparency and evaluation of data easier.

The second main chapter deals with the situation in Hungary. The topics formerly discussed in the EU – agricultural and environmental policy, rural and sustainable development – are discussed in relation to the situation in Hungary.

- Firstly, the main characteristics of the national economy are reviewed with special regard to agriculture. In the review the role of foreign direct investment (FDI) and the differences between regions are emphasised.
- Secondly, the effects of accession to the EU are examined. In Hungary, as well as in other new member countries, the reallocation mechanism of the EU’s budget and the common regulation of agricultural and structural policies have brought significant changes. These changes are observable mainly in the support system. After a short description of the accession negotiations, conclusions are drawn taking regard the main methods of support for agricultural policy. From the three support methods – price support, direct payments and rural development schemes – rural development schemes are analysed. Firstly the National Development Plan for 2004-2006 is reviewed, because this Plan is the basis for rural development programmes. In this subsection the results of a questionnaire, concerning the emergence of the principles of the Structural Funds in Hungary are analysed. The four axes of the rural development regulation of the EU for 2007-2013 (1698/2005/EC) give a guideline for the further analysis of Hungarian rural development payments.
• The third subsection contains my own calculations, results and evaluations in connection with the National Agri-environmental Protection Programme (NAPP) between 2002 and 2003. The Ministry of Agriculture and Rural Development gave unrestricted access to the whole anonymous database, containing more than 5000 applications, for the two years Programme. This is an enclosed database as the NAPP was concluded and its measures are carried on in the National Rural Development Programme (NRDP). Comparative evaluation was used to examine the results of the NAPP at different NUTS (Nomenclature des Unités Territoriales Statistiques) levels. The available data were analysed from different aspects and on different territorial levels (NUTS I, NUTS II, NUTS III, NUTS IV) with the help of statistical and mathematical-statistical methods. For data processing Excel programme was used whilst the spatial statistical analysis was done using Arc View 3.2. Programme. The relationship between the NAPP’s processed data and the selected factors from the available dataset of the Hungarian Statistical Office at the NUTS IV level were examined by correlation evaluation. For the correlation evaluation Excel and SPSS Programme was used.

The last chapter covers the Hortobágy region. Several research studies have previously been conducted, examining the region from its historical, cultural, geological, natural, economical aspects. The novelty of my approach is that the problems of the region are discussed from the social capital side. I try to summarise those thoughts – having regard to the prospects in the EU and Hungary – which can shift the region, which is ranked as underdeveloped at the moment, in the direction of sustainable development. This chapter contains the Hungarian aspects of Leader Programme – which will be the fourth axis of EU rural development policy from 2007 to 2013 – because, in my opinion, the launch of the Leader Programme in the region could be a step for the solution of its problems. I tried to underline the theoretical inductions by empirical analysis, as I personally attempted to contribute to the introduction of the Leader Programme in the region.
3. MAIN OUTCOMES OF THE DISSERTATION

The presentation of the results and the main inferences follows the sequence of the chapters.

3.1. The role of agriculture according to the changes of the policies of the EU

The changes along the development of the CAP can be observed at a global level too. The role of agriculture has a broader base. Today, agricultural activity means not only the production of agricultural and industrial commodities, multifunctionality of agriculture includes also the production of non-commodities (positive externalities) (Fig. 1).

Agriculture plays an important role in preserving the landscape, nature, the environment and in preserving the material and cultural heritage of rural society. The more developed a country is, the less is the proportion of agricultural production inside agribusiness. On the other hand the importance of multifunctionality increases. In addition to products that are of high quality and safe consumers have a new demand, which is for sustainable rural development. In a consumer society the statement that the consumers determine the future of producers is true also for agriculture. So it is very important to inform the consumer – who is at the end of the food chain – in a proper way, how the products serve those new aims which he/she prefers in connection with

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Figure 1. Linkages of agriculture (own illustration)
multifunctional agriculture. The better the consumers are informed the better the influence they can have on supply.

3.2. Characteristics of agri-environmental measures

The environmental strategy of the EU in connection with agriculture means direct agri-environment measures, which – especially in rural areas – go beyond Good Farming Practice. These measures constitute integrated, and the only obligatory part of, rural development programmes. Agri-environmental measures can be considered as the common group of environmental, agricultural and rural policies (Fig. 2), so expenditures on agri-environment have a notable multiplicator effect.

![Figure 2. Interface between agri-environmental measures and EU policies (own illustration)](image)

The European Commission (EC) defines seven basic principles for agri-environmental measures as follows: 1. Optional, 2. Site-specificity, 3. Long lead-in time (monitoring, evaluation), 4. Payment levels have to be set sufficiently high (attract farmers but avoiding over compensation), 5. Good Farming Practice is compulsory, 6. Adequate institutional issues (scientific basis, professional advice etc.), 7. “Green Box” status by the Word Trade Organisation (WTO). I think the eighth principle could be that it does not require own financial contribution but co-finance is needed. Agri-environmental measures are diverse, but each measure has at least one of two broad objectives:
- reducing environmental risks associated with modern farming, and
- preserving nature and cultivated landscapes.

Selected measures depend on the site-specificity.

With agri-environment payments the EU encourages compensation for the positive externalities of agriculture. In the course of my research I have often found that farmers working on large farms interpret these measures as obstructive factors which guide in the direction of extensive farming. According to the statement of the EC agri-environmental measures are diverse and site-specific so they should be considered as opportunities not as difficulties.

3.3. Rural development policy 2007-2013

In June 2005 the European Council, having regard to the proposal of the EC in July 2004 with certain adjustments, adopted regulation 1698/2005/EC on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). The regulation forms a new basis for the EU’s rural-development policy. The main elements of changes are: the establishment of a single rural development fund, the EAFRD, which is accompanied by the unification of financing. In future, one rural development programme will be prepared instead of the present situation, where two different programmes exist with different financing systems. The amount of rural development payments will increase with a certain level within the budget of the CAP, but even in 2013 it will represent only one quarter of total CAP expenditures.

Table 1. Framework of the implementation of rural development financing for the period 2007-2013

<table>
<thead>
<tr>
<th>REFORM MECHANISM</th>
<th>ORIGINAL PROPOSAL</th>
<th>FINAL DEAL (JUNE 2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitiveness Axis 1</td>
<td>min. 15%</td>
<td>min. 10%</td>
</tr>
<tr>
<td>Land management Axis 2</td>
<td>min. 25%</td>
<td>min. 25%</td>
</tr>
<tr>
<td>Diversification Axis 3</td>
<td>min. 15%</td>
<td>min. 10%</td>
</tr>
<tr>
<td>Leader Axis 4</td>
<td>min. 7%</td>
<td>EU-15 min. 5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EU-10 min. 2,5%</td>
</tr>
<tr>
<td>Leader reserve Axis 4</td>
<td>3%</td>
<td>abolished</td>
</tr>
<tr>
<td>Latitude for states*</td>
<td>35%</td>
<td>EU-15 50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EU-10 52,5%</td>
</tr>
</tbody>
</table>

The new regulation builds rural development policy on four axes, as follows:

Axis 1: Improving the competitiveness of the agricultural and forestry sector
Axis 2: Improving the environment and the countryside
Axis 3: Quality of life in rural areas and diversification of the rural economy
Axis 4: Leader

Leader becomes a key element of rural development programming and implementation. The regulation determines what percentage of the EARDF should be reserved for different axes (Table 1). It can be observed that in the adopted regulation member states’ interests gained place over the common one, as they did in the 2003 CAP reform. In the final version the latitude of member states along different axes has grown. Another change – which is interesting with respect to this research – is that Leader axis has weakened compared to the original proposal of the EC.

3.4. Sustainability as a horizontal principle

Sustainability is a horizontal principle in the EU, which means that it must be considered in agriculture as well. Environmental, social and economic pillars have to be analysed jointly.

**Figure 3.** One possible illustration of sustainable development

Source: OLSSON et al. (2004:5): Indicators for Sustainable Development. European Regional Network on Sustainable Development. Paper for discussion

Own complementation on the figure is the addition of the five factors for the detailed investigation of the three pillars
Agriculture contains the elements of the three pillars, and a parallel between the axes in the new rural development regulation and the three pillars can be drawn too. In general the three pillars are transformed into five factors which are (Fig. 3): the natural, human, social, physical and financial ones. I think that in Hungary in addition to natural factors, the enhancement of human and social factors are particularly important. Although Hungary is a country with an open economy, to ensure sustainable development the adequate evaluation of natural, human and social capital, as part of national wealth, and their proper management, is crucial.

3.5. The monitoring of sustainability and the role of indicators
Indicators at the EU level can be classified into three groups: indicators related to environmental policy, sectoral policy and sustainable development. The role of different groups has changed in connection with the transformation of European policy. Indicators for environmental, sectoral and sustainable development policy have been developed after each other but in close relation. Indicators in the EU developed for agricultural sector primarily monitor the environmental pillar. Agri-environmental indicators are placed in the DPSIR (driving forces – pressure – state – impact – response) model. In my research I examined indicators which form part of the driving forces group inside the DPSIR model. In this way I could illustrate the pressure of agriculture on the environment in Hungary compared to the EU-15, considering a system which is accepted at the EU level. To illustrate the changes I used polar coordinates, which made the transparency between statistical data and the monitoring of the process between 1980 and 2000 easier. The data (Fig. 4) show that in recent decades the pressure of agriculture on the environment was lower in Hungary than in the EU-15 as a result of the decreasing intensity and reduction of input use harmful for the environment.
Figure 4. Agriculture pressure on the environment in Hungary related to the EU-15 average in (a) 1980, (b) 1990, and (c) 2000 (own illustration)
3.6. Hungarian agriculture inside the European Union

The price and payment systems are the strictest regulations of the CAP, hence this part of the dissertation fundamentally deals with EU’s agricultural payments system in Hungary. Agricultural payments have three main groups. As a result of the accession negotiations, distribution of payments among these groups alter between the EU-15 and the EU-10. While in the case of the EU-15 the ratio of market, direct and rural development payments, financed from the European Agricultural Guidance and Guarantee Fund, is approximately 2:7:1 respectively in the period 2000-2006, for Hungary in the year of 2005 it was 1.2:5.3:3.5. The reason for this is that the single market, one of the basic principles of the CAP, has been destroyed in the course of the negotiations and the new member states will reach the EU-15 direct payments level presumably only in 2013. In the study among agricultural payments the rural development one is analysed closely. The measures of Special Accession Programme for Agriculture and Rural Development (SAPARD), Agricultural and Rural Development Operative Programme (ARDOP) and Hungarian National Rural Development Plan (NRDP) are set along the axes of the new rural development regulation. I made the statement that in Hungary according to the present rural development payments measures related to the first axis play the leading role. In the future the enhancement of the third and fourth pillars is important.

3.7. Enforcement of the Principles of National Development Plan

As ARDOP is one of the programmes of the National Development Plan, I examined the emergence of the Structural Fund’s principles in Hungary. I made a survey between managers of small regions, who play an important role in the preparation of programmes and projects at the NUTS IV level. One of the questions of the survey was: “Categorise the principles of the Structural Funds on a scale between 1 and 5 along the tendering operations! (1: remarkable problems, 5: well operating)”

The results show (Table 2) that managers have evaluated the enforcement of these principles in Hungary as average, so much remains to be done in this field. Fulfilment of additionality turned to be the most difficult principle. Some results of the survey need further investigation. For example, how is it possible that additionality showed the best result in the North Great Plain which is one of the most backward regions of Hungary? One answer can be the high intensity level of tendering operation in the region. Although the averages of the answers show about the same value in all regions I draw
attention to the partnership in West Transdanubia (WT) and the results for Central Hungary (CH). The average mark for partnership in the WT is the highest between the regions. This better result can be observed in the case of another question related to Leader principles in connection with establishing Local Action Groups (LAGs). Looking for the causalities, for example participation of WT region in the pilot Leader Programme as one of the possible answers, also needs further examinations.

**Table 2.** Managers’ evaluation about the enforcement of Structural Fund’s principles at the NUTS II level in Hungary

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of replies</th>
<th>Number of NUTS IV region’s managers</th>
<th>Partnership</th>
<th>Concentration</th>
<th>Addiotionality</th>
<th>Programming</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Transdanubia</td>
<td>21</td>
<td>22</td>
<td>3.48</td>
<td>3.19</td>
<td>2.76</td>
<td>3.33</td>
<td>3.19</td>
</tr>
<tr>
<td>Central-Transdanubia *</td>
<td>2*</td>
<td>26</td>
<td>2.00*</td>
<td>2.50*</td>
<td>2.50*</td>
<td>3.50*</td>
<td>2.63*</td>
</tr>
<tr>
<td>South-Transdanubia</td>
<td>19</td>
<td>24</td>
<td>3.32</td>
<td>3.00</td>
<td>2.84</td>
<td>3.11</td>
<td>3.07</td>
</tr>
<tr>
<td>Central Hungary</td>
<td>8</td>
<td>16</td>
<td>3.13</td>
<td>2.75</td>
<td>2.63</td>
<td>2.63</td>
<td><strong>2.79</strong></td>
</tr>
<tr>
<td>North-Hungary</td>
<td>30</td>
<td>28</td>
<td>3.00</td>
<td>3.21</td>
<td>2.62</td>
<td>3.45</td>
<td>3.07</td>
</tr>
<tr>
<td>North Great Plain</td>
<td>20</td>
<td>27</td>
<td>3.05</td>
<td>3.14</td>
<td>3.14</td>
<td>3.48</td>
<td>3.20</td>
</tr>
<tr>
<td>South Great Plain</td>
<td>14</td>
<td>25</td>
<td>3.14</td>
<td>3.00</td>
<td>2.57</td>
<td>3.21</td>
<td>2.98</td>
</tr>
<tr>
<td>National average</td>
<td>114**</td>
<td>168**</td>
<td>3.16</td>
<td>3.09</td>
<td>2.77</td>
<td>3.29</td>
<td>3.08</td>
</tr>
</tbody>
</table>

Source: own calculation * cannot be evaluated ** national total

CH (the most developed region) had lower values as the national average for each principle. Between causalities the role of social capital arises. I think that in this region self-interest prevails over common interest. The outcomes of the survey can form the basis for further research and confirm the importance of examination of social capital in that.

**3.8. National Agri-environmental Protection Programme and agri-environment management as the most important elements of National Rural Development Plan**

The National Agri-environmental Protection Programme (NAPP) provided EUR 10 and 18 million in 2002 and 2003 respectively for farmers taking part in NAPP. In 2003 the Programme covered 4% of the total agricultural area of Hungary. I examined the
applications of the NAPP at the NUTS I, II, III and IV levels. I defined the data for NUTS IV level as the response indicator of agricultural DPSIR model (Fig. 5). Different analyses were carried out to examine the environmental and natural relations of the NAPP. Spatial statistical analysis was used to examine the NAPP’s territory ratio under different land-use zones. The digitalized version of Ángyán’s land use statistic map was overlapped with another database, which contained the location of all settlements that applied for the NAPP. The results of the spatial overlapping showed, that 49.1% of the NAPP’S area was covered by extensive, 42.1% by intensive and 8.8% by naturally protected area. 9% of the protection zone’s agricultural area, 5% of the extensive zone’s agricultural area and 3% of the intensive zone’s agricultural area took part in the NAPP. This means that agri-environmental measures in Hungary have grounds in all type of land-use systems but it is more important in protected and extensive areas. I tried to underline this statement by estimating the correlation between the ratios of counties areas involved in NAPP and ratios of counties areas under natural protection on NUTS III level. The value of the correlation coefficient was $r=0.55$, which shows a positive relation.

**Figure 5.** Percentage of utilised agricultural areas involved in NAPP at the NUTS IV level in 2003
(P. Takács, J. Kovács Katona own calculation)

These statements support the guideline of the EU that rural development measures should be built on different axes, as different measures strengthen certain pillars of
sustainable development. For example, agri-environmental measures play an important role in connection with the environmental pillar.

Relative to the National Rural Development Plan, areas under agri-environmental protection have increased to over one million hectares – which meant EUR 176 million in payments in 2005 – and in view of the experiences in connection with SAPARD and ARDOP it can be expected that for the period 2007-2013 the first and the second axis of the new rural development regulation will get those payments which are not fixed along the axes (52.5% of the total amount). The first version of the National Agriculture and Rural Development Strategy allocates 40 and 45% to the first two axes respectively.

3.9. Role of the Leader Programme in strengthening social capital

The outcomes of my dissertation have drawn my attention the fact that the social pillar of sustainable development is not taken into consideration in national rural developments plans. The reason why I think this is a great problem is that social capital – understanding as relation of trust, respect for norms and associatedness (willingness to cooperate) – has lost strength as a consequence of the social-economic progress after the change of regime in Hungary. Trust, which is the basis of social relations and social cohesion, has weakened. The findings of international studies suggest that actors in rural areas and their inside and outside networks are basically essential for sustainable rural development. That is why the expected 10% and 2.5% total payment (Table 1) allocation for axes 3 and 4 respectively must be increased in the period 2007-2013.

Following the principles of the Leader Programme – area-based approach, bottom-up approach, local partnership, innovation, multi-sectoral integration, inter-territorial co-operation and networking as well as decentralised management and financing – we can find more principles which are in connection with social capital. More publications highlight the role of this measure in strengthening social capital. The effect of Leader on social capital is demonstrated in an Austrian publication (Fig. 6), where the Leader Programme and classical rural development programmes are examined.
The outcomes of the ÖIR research demonstrate that at the beginning Leader-type programmes need higher expenditure and are cost-effective in the long run. From the social capital aspect they have a positive effect already at the beginning which gets stronger in the course of time.

3.10. Leader Programme in Hungary and its prospects in the Hortobágy region

Considering the above mentioned factors, in my opinion, the Leader Programme – which has started as Common Initiative in the EU – can be one answer for solving the problems related to social capital in Hungary. The EUR 8.8 million per year, which is available for the programme on a yearly basis during the period 2004-2006, has to be increased and Hungary should also consider the 5% of total payment allocation as it is for the EU-15 after 2006. This is important also for the reason that Hungarian LAGs will get their first payments only in 2006.

The Hortobágy National Park (HNP) has been included on the World Heritage List by UNESCO and is an invaluable, unique territory of Europe where farming serves nature protection. Regulations on nature protection have only partly achieved their function because until now farmers have encountered only the restrictions of regulations and have not been compensated for the extra costs arising from these rules. The measures of the NRDP and those along the second axis during the period 2007-2013 (e.g. agri-environment, protection, Natura 2000) give a possible answer to the problem.
Programmes prepared apropos of accession for this region on different levels (NUTS II, III and IV) and also the one by HNP harmonise with each other. The proper monitoring of these programmes with the use of those indicators which are accepted by the EU and which are suitable for this territory is very important. The knowledge I have gained has confirmed my hypothesis, that in addition to a strong natural pillar it is necessary to strengthen the social and economic pillars to achieve sustainable development in Hortobágy region.

I think enhancement of social capital is the most important. Without that, economic development cannot be achieved in this region. During the first phase of the LEADER measures, in July 2005, 186 Local Action Groups (LAGs) were established in Hungary, which includes 2332 settlements (75% of Hungary’s settlements) where 34% of the population lives. Two NUTS IV regions from the Hortobágy region applied for Leader payments under the name “Hortobágy és mellyéke” and were invited among 108 LAGs to the second phase. A process to select about 40 LAGs will start in early 2006. Following the process of Leader application, the outcomes show that Leader itself is only one step forward and it will not solve all the problems, as social capital is a complex feature. It would be important to inspire these 186 LAGs already established to go on with cooperation as there are other calls for regions and they could be more effective with collaboration.
4. NEW RESULTS OF THE DISSERTATION

1. In my dissertation I endeavoured to conduct an integrated examination of the research area and to take account the EU’s horizontal principle, sustainable development. In Hungary, as in other developed countries, the share of agriculture in GDP has declined. Even so preparation of the sector’s long term strategy is crucial as the role of agriculture exceeds the results represented in the GDP. I considered the logical model (Fig. 1), which demonstrate the linkages of agriculture as a novel result. I highlighted that environmental and social functions of agriculture are revaluated in developed countries, and consumers at the end of the food chain are the ones who govern the whole process. That is why information gains a very important role, and gives signals to the actors of the economy and the society.

2. The future and sustainable development of Hungary strongly depends on our ability to use our national resources. Agricultural areas give one of the determinative part of Hungarian natural capital. An other important fact is, having regard to the changes of the EU policies, that agricultural activity is as vital for a sustainable countryside as a living countryside for agriculture. Unfortunately Hungary has notable problems both in agriculture and rural economy. New approaches have to be followed in the preparation of the national agricultural strategy, considering the revaluation of agriculture’s environmental and social functions. Although agricultural policy in the EU is determined at a common level – actualities show in the direction that renationalisation is also predictable – without national conception we cannot be competitive in the agricultural world market and cannot strengthen our rural economy. The illustration of agri-environmental indicators for “driving forces” can serve a basis for the development of this strategy, which is not a new statement as there are more published documents dealing with the “present for nature” effect of economic decline in Hungary. However the approach of this topic can be considered as novel, as it places the changes inside the EU’s agri-environmental indicator database, and also the illustration (Fig. 4) which makes transparency inside the database and makes monitoring easier.
3. The analysis of National Agri-environmental Protection Programme is also a part of my work on agri-environmental indicators, as the ratio of areas under agri-environmental measures is one of the “response” indicators of IRENA system. A new result of my dissertation is the estimation of this indicator at the NUTS IV level. It is important to note that arising from the diverse nature and main aims of agri-environmental measures – lower the risk of intensive farming, preserve nature and landscape – it should be considered as opportunity and not limitation. A novel result of the dissertation is the spatial statistical analysis to examine NAPP’s territory ratio under different land-use zones. Results show that having regard to the main aim of the measures, subsidised territories cover a higher percentage in extensive and protected zones. Examination of the NAPP’s territory at the NUTS III level underlined this statement as there is a correlation between the percentages of areas involved in NAPP and counties areas under natural protection.

4. Agri-environmental measures can be considered as the common group of environmental, agricultural and rural policy, so the multiplicator effect of expenditures on agri-environment should be taken into account. With supports the environmental externalities will be internalised. Analysis of NAPP underlines the EU’s guideline that in the future supports for rural development have to be distributed along different axes. Agri-environmental measures alone cannot solve the problem of rural areas, why this measure primarily strengthens the environmental pillar, why social and economical pillars need other supports.

5. It is important to consider the guidelines of the EU for 2007-2013 in connection with the four axes for rural development payments. A novel result of my dissertation is the evaluation of present rural payments according to the four axes. Outcomes of my work can serve as a source of the National Agriculture and Rural Development Strategy for the period of 2007-2013. Experiences gained from SAPARD, ARDOP and NRDP, despite indications, show the dominance of axis for competitiveness – within the axis investments dominate – which is understandable as it is well known that Hungarian agriculture has been struggling from lack of capital for a long time. Experiences along my research demonstrated that if we do not follow the right balance between the four axes – of course taking the Hungarian conditions into consideration – we cannot achieve a proper functioning, sustainable
rural economy. It is very important how national latitudes – which is approximately 52.5% – along the four axes will be transferred.

6. Result of my survey in connection with the emergence of Structural Fund’s principles, information gained through an European R+D project (EUROLAN) and my work at international and national studies have called my attention to the importance of sustaining social capital. Available data and my own experience confirm that this factor, which came to the fore in the 1990’s and constitutes an important part of rural economy, shows a great deficit in Hungary. Timing of results is very difficult as the nature of social capital is that it can be destroyed quickly but its build-up takes a long time. Experiences with Leader show that this programme can be one of the instruments for solving this problem. The examination of Hortobágy region from this aspect is a novel element in my work. Following the first steps of the region in connection with Leader application, the outcomes show that Leader itself is only one step forward and it will not solve all the problems, as social capital is a complex feature, but every opportunity should be taken to achieve development. It is to be regretted that the rural development regulation for the period between 2007-2013 obligates only for a 2.5% Leader axis allocation of total payment for countries accessing to the Union in 2004. I think the National Agriculture and Rural Development Strategy should allocate a higher percentage for Leader.

Finishing my dissertation does not mean the end of my research work. The outcomes I gained through my work, new questions arising from the results and relationships in national and international networks offer a good basis for further examinations and projects.
5. PRACTICAL APPLICABILITY OF THE RESULTS

In my dissertation, having regard to Hungary’s conditions, I emphasised the importance of agriculture in relation to its environmental and social factors. The reason why I found this essential, and outcomes of my research underlined it, is that preparation of a long-term agricultural strategy — weighing agriculture from a new aspect which is multifunctional agriculture — could promote the development of the national economy. Results of the dissertation can be used for planning, education and research.

- The dissertation could serve as a source of the National Agriculture and Rural Development Strategy for the period 2007-2013. I have drawn attention to the fact that countries have big latitude in allocation of rural development payments between the four axes, and considering sustainable development it is not all the same how we take this opportunity. Outcomes in connection with indicators can be used here.

- After the experience I have gained, I think that the importance of ethics related to the environment and the economy is vital in the education system. The figures and tables of the dissertation can be used in the demonstration of the given topics.

- The outcomes I gained through my work, new questions arising from the results and new relationships at the national and international level form a good basis for the first steps in connection with EU projects both in the field of agri-environmental indicators and social capital related to the Leader Programme.
6. RELATED PUBLICATIONS


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